Understanding Policy Contexts and Stakeholder Behaviour for Consistent and Coherent Environmental Policies

A synthesis of results from the APRAISE project

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(order according to grant agreement)

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Key findings of the APRAISE project

1. Improved understanding of policy system context improves environmental policymaking

In reality, the actual implementation effect (effectiveness and efficiency) of an environmental policy may differ from its theoretical potential or anticipated effects (efficacy). The APRAISE project aims to explain these differences by acknowledging that policies and policy instruments are not implemented in a vacuum, but in an existing system. The effectiveness and efficiency of environmental policy instruments therefore depend on the socioeconomic and governance systems within which they are implemented. A better understanding of these systems enables policymakers to design more robust policy instruments, which are adaptive to (foreseen) changes in their circumstances (contexts). The APRAISE 3E Method (see below) offers a tool to help policymakers better understand and more systematically analyse the context of individual policy instruments, with the ultimate goal of bringing effectiveness closer to efficacy.

2. Understanding policy instrument interactions can support coherent environmental policy mixes

The APRAISE case study analysis has shown examples of environmental policy instruments that negatively influence each other: the effectiveness of one policy instrument is reduced through interactions with other instruments. Coherence of policy instruments across different environmental policy areas can be enhanced by:

- aligning environmental policies so that policy targets and objectives form a consistent package,
- understanding the policy circumstances (context), including policy instrument implementation processes and stakeholder behavioural effects, and
- making implementation and operation of policy instruments adaptable to (foreseen) changes in the circumstances (context).

3. Increased focus on target-setting improves understanding of unanticipated policy effects

The APRAISE case studies offer examples of environmental policy areas, where policy targets sometimes seemed too easy to reach, while at other times the problem definition was inadequate, leading to effects contrary to intended policy objectives. These observations relate to the stage of target-setting and policy formulation, including identification and analysis of neglected or underrated policy goals. The APRAISE case studies show that a more systematic analysis of such 'upstream' issues would improve the understanding of the unanticipated effects of the policies under analysis. They also highlight the importance of analysing the policy process, not only as a determinant of the effectiveness and efficiency of the policy in question, but also as sources of the impact of a policy.

4. APRAISE 3E Method could support environmental policy impact assessments

As the APRAISE 3E Method is specifically designed to explain why observed policy effects differ from policymakers' anticipations and targets, the method could be an added valued to policy impact assessments. First, the APRAISE 3E Method could be part of regulatory impact assessments, with respect to both (horizontal) consistency of a policy with other policy areas and (vertical) consistency between EU-level objectives and member-state-level policies and goals. Second, a value added of the APRAISE 3E Method to most policy impact assessments could be its analysis of the policy context and the impacts of policy interactions at stakeholder level.

Introduction - the APRAISE project

Research objectives and scope

APRAISE is an EU-funded project that stands for "Assessment of Policy Interrelationships and Impact on Sustainability in Europe". The overall motivation of the project is to improve environmental policymaking in support of the transition towards a sustainable European society. APRAISE evaluates EU environmental policies and their implementation at member state level and compares intended policy results with actual policy achievements. Most importantly, APRAISE explains why a policy may perform differently from expected and draws the relevant conclusions to improve future policy initiatives in similar areas.

For this analysis, APRAISE focuses on environmental policy areas that are of key importance for a resource-efficient and environment-friendly Europe: energy, climate, agriculture, water, waste, air and biodiversity. For these areas, APRAISE explains how, based on the respective EU directives, different member states have formulated targets, policies to achieve these targets, and policy instruments for the implementation of these policies. APRAISE evaluates policy results by asking three questions, henceforth referred to as the APRAISE 3E Method:

1. **Efficacy:** What environmental policy effects were *expected/anticipated* in the member state in question, taking into account the best knowledge available (e.g. available theory and experiences, possibly supported by models) at the time of policy design (including how policy instruments were expected to achieve these effects)?
2. **Effectiveness:** What have been the actual effects of the policy instruments?
3. **Efficiency:** Could the realised effect/impacts have been achieved with fewer resources or could a better effect/impact be achieved with the same resources?

This approach acknowledges that policies and policy instruments are not implemented in a vacuum or under laboratory conditions, but in real 'policy systems', e.g. a market-based society. This also implies that the effects of an environmental policy instrument (such as regulatory, economic and information-based instruments) depend on the socioeconomic and governance system within which it is implemented. The APRAISE 3E Method thus allows for an improved understanding of how stakeholders respond to policy instruments and how this influences the implementation of policy instruments and their outcomes.

Achievements

A key achievement of APRAISE is the development of the APRAISE 3E Method for a better understanding of how contextual factors and implementation barriers shape policy outcomes. The method has been tested within the context of six case studies carried out in a total of seven EU member states. Subsequently, the method has been improved to help EU and member state policymakers allow for conclusions regarding future environmental policies. For a subset of case studies, model scenarios have been developed to anticipate policy effects assuming different economic and political futures.

To complement the conventional approach that focuses on policy *targets*, APRAISE emphasises the importance of *processes* in policy design and evaluation. For instance, some of the APRAISE case studies showed that while targets may have been achieved, there could still be inefficiencies in the policy system context or during implementation, which could compromise the achievement of future environmental policy objectives and efforts to achieve a resource-efficient economy. APRAISE therefore recommends that environmental policies should not only focus on targets but also on underlying mechanisms and processes supporting medium- to longer-term environmental objectives.

Brief overview of APRAISE

Duration: October 2011 – September 2014

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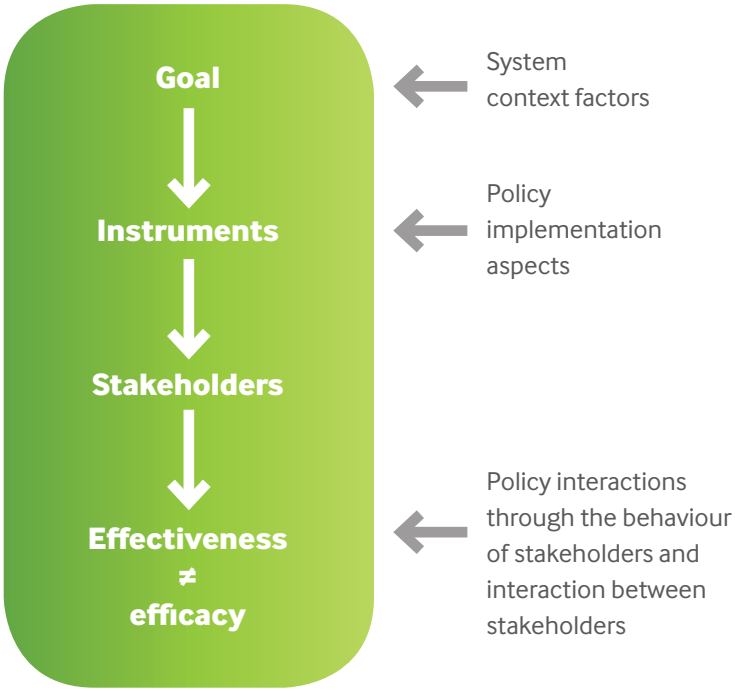
1 The APRAISE 3E Method

1.1. The APRAISE 3E Method and policymaking

Policymaking is complex and can be an ad hoc process. The political, economic and social policy context is difficult to control and changes in these contextual factors may influence the effectiveness and efficiency of a policy instrument (see Figure 1). Policy design and implementation (such as assumed governance procedures) may therefore deviate from what was expected. Moreover, stakeholders targeted by the policy instruments are often targeted simultaneously by several other environmental or other policies and policy instruments, which make their behaviours difficult to predict.



This diagram illustrates how the system context for policy instruments, policy implementation aspects and policy interaction through stakeholder behaviour can influence the effect or impact of policy instruments. This could lead to an outcome whereby the actual impact or effect (effectiveness) of policy instruments differs from anticipated, theory-based impacts/effects (efficacy). Clearly, policymaking in reality is usually not as linear as shown in the diagram.

Figure 1: Policymaking in reality: policy impact/effect influenced by contextual, implementation and policy interaction factors

In virtually all policy instrument design processes, various assumptions are made about the system context factors (context factors in the nation state, sector or policy area) that could negatively or positively affect the operation of policy instruments during the implementation stage. In a few cases, such assumptions are sufficiently understood and made explicit (e.g. expected economic growth or anticipated collaboration between stakeholders) during the design of a policy instrument. But these assumptions often remain implicit or are unknown and are therefore not properly accounted for in the policy instrument design stage. The detailed and specific design of an individual policy instrument thus partially reflects how well the context of an individual policy instrument has been taken into account before the implementation stage.

Deviations between *efficacy* and *effectiveness* can also influence the *efficiency* of policies. In an optimal situation, the intended policy effect is achieved with the lowest costs possible. In reality, however, efficiency may be lower because the goal has been achieved at higher than anticipated costs, or it has not been achieved but costs have been incurred as expected. Opposite conclusions of efficiency can be drawn if the outcomes are better than anticipated. In line with the discussion on efficacy and effectiveness, the extent to which policymakers are able to design an efficient policy partly depends on their ability to correctly anticipate the impact of the context, policy implementation aspects, and stakeholder responses.

One of the key lessons from APRAISE is that a better understanding of contextual, implementation and policy interaction aspects enables policymakers to design more robust policy instruments, and to adapt implementation and operation to (foreseen) changes in circumstances. The APRAISE 3E Method, in combination with the case studies in which it has been applied, offers a key tool that helps to inform policymakers about these aspects and to enhance environmental policymaking. Figure 2 illustrates this learning process.

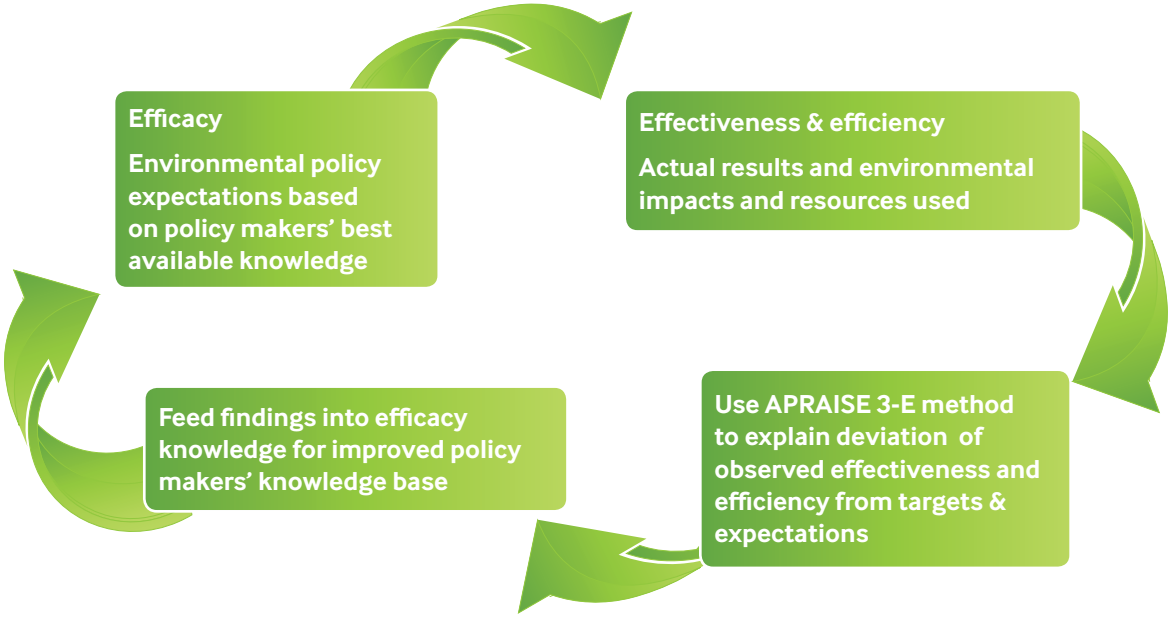


Figure 2. Illustration of how the APRAISE 3E Method helps policymakers make better informed assumptions about the efficacy of policy instruments

1.2. How does the APRAISE 3E Method work?

The APRAISE 3E Method assesses the following groups of factors:

System context factors, such as:

- Environmental factors: The original perception of the extent of an environmental stress/pressure that motivated the design of a policy and the choice of policy instruments may change over time, thereby possibly shaping the ability of the policy or instruments to achieve their targets.
- Economic factors: An environmental policy may change the structure of an economy, supporting some sectors and penalising others. At the same time, economic developments (e.g. GDP growth, energy prices, trade conflicts, and climate policies) and institutions involved in policy implementation can influence the effect of an environmental policy.
- Social factors: Social factors include habits, customs and social attitudes. They can either oppose the implementation of a policy and related instrument (e.g. where a target is not fully accepted by society) or support its implementation (e.g. where a policy increases environmental awareness and thereby supports the policy).
- Technological factors: When designing a policy, a certain technological capacity may be assumed as a precondition for achieving the policy target(s). During policy implementation, additional technological inventions and innovations may take place (either autonomously or as an unintended impact of the policy) and help achieve the policy target(s).

Policy implementation factors, such as:

- Political & social acceptance: This refers to the political and social response during policy formulation, implementation and evaluation. Key design elements of a policy instrument can generate or ease resistance of target groups in accepting a policy.
- Policy consistency with wider environmental and sustainability goals: This reflects the extent to which an environmental policy objective and a policy instrument are compatible with other policy priorities, including other sustainable development goals.
- Policy coherence: Policy coherence within APRAISE is associated with the public process, i.e. harmonisation, coordination and cooperation procedures across government departments and agencies. Coherence denotes the degree of alignment of incentives to promote sustainability, both vertically across levels of government and horizontally across different actors and issues within a given level of governance. Closely linked to policy coherence is the practical feasibility of implementation (or enforcement) of a policy. This feasibility relates to the applicability of the policy instrument, considering the national institutions (including infrastructure and human resources) and legislative framework.

Policy and stakeholder interactions are assessed in APRAISE at two levels:

1. Interactions at the **policy level** occur when policy targets or policy instrument design features may influence the operation or outcome of another policy or policy instrument. In the design phase, negative interactions should be avoided or at least kept within acceptable margins. Interactions are examined by assessing design features of a policy instrument such as type, activity scope, timing, etc.
2. Interactions at the **stakeholder level** relate to the direct and indirect impacts of policy instruments on the behaviour of stakeholders. The APRAISE 3E method uses a 'system mapping' tool to analyse how stakeholders compete or collaborate with each other and how this may influence their response to policy instruments. The tool also explores enabling aspects to help stakeholders modify their behaviour in response to a policy instrument.

An overview of the eight steps to be completed under the APRAISE 3E Method is shown in Figure 3. After identifying (task 1) and characterising (task 2) policy instruments, the effectiveness and efficiency of these instruments are analysed and compared with the anticipated effects based on efficacy knowledge (task 3). Insights from analysis of the policy system context, policy transposition and implementation process and possible policy interactions (tasks 4-7) can then be used to improve policymakers' knowledge of the efficacy of policy instruments (task 8).

Figure 3. Overview of steps in APRAISE 3E Method

1.3. APRAISE 3E Method supporting policy consistency and coherence

The APRAISE 3E Method supports policymakers in making better-informed decisions about the best ways of achieving environmental objectives, in particular about the choice and implementation of relevant policy instruments. An important contribution of the APRAISE 3E Method is that it encourages policymakers to focus not only on their own 'policy silos' (e.g. climate policy or waste, see Figure 4 for examples), but also to consider other relevant policy sectors and subsectors. For instance, a policy to support recycling of waste for production of secondary materials could exist alongside a policy to stimulate the utilisation of waste as an energy source. The latter policy could be inconsistent with the first one, because while recycling aims to use waste for production of secondary materials (e.g. new plastics), the energy recovery policy diverts waste away from recycling, using it, instead, as a low-emission energy source.

Aligning policies so that policy targets and objectives form a consistent package is not the only requirement for the achievement of the intended targets and goals, however. The APRAISE 3E Method shows that for a policy mix to be coherent, the policy context, policy design and implementation, and the behaviour of targeted stakeholders also need to be considered (see Figure 4). As will be shown in the case studies below, insufficient consideration of these aspects may negatively affect the results of policies and policy instruments.

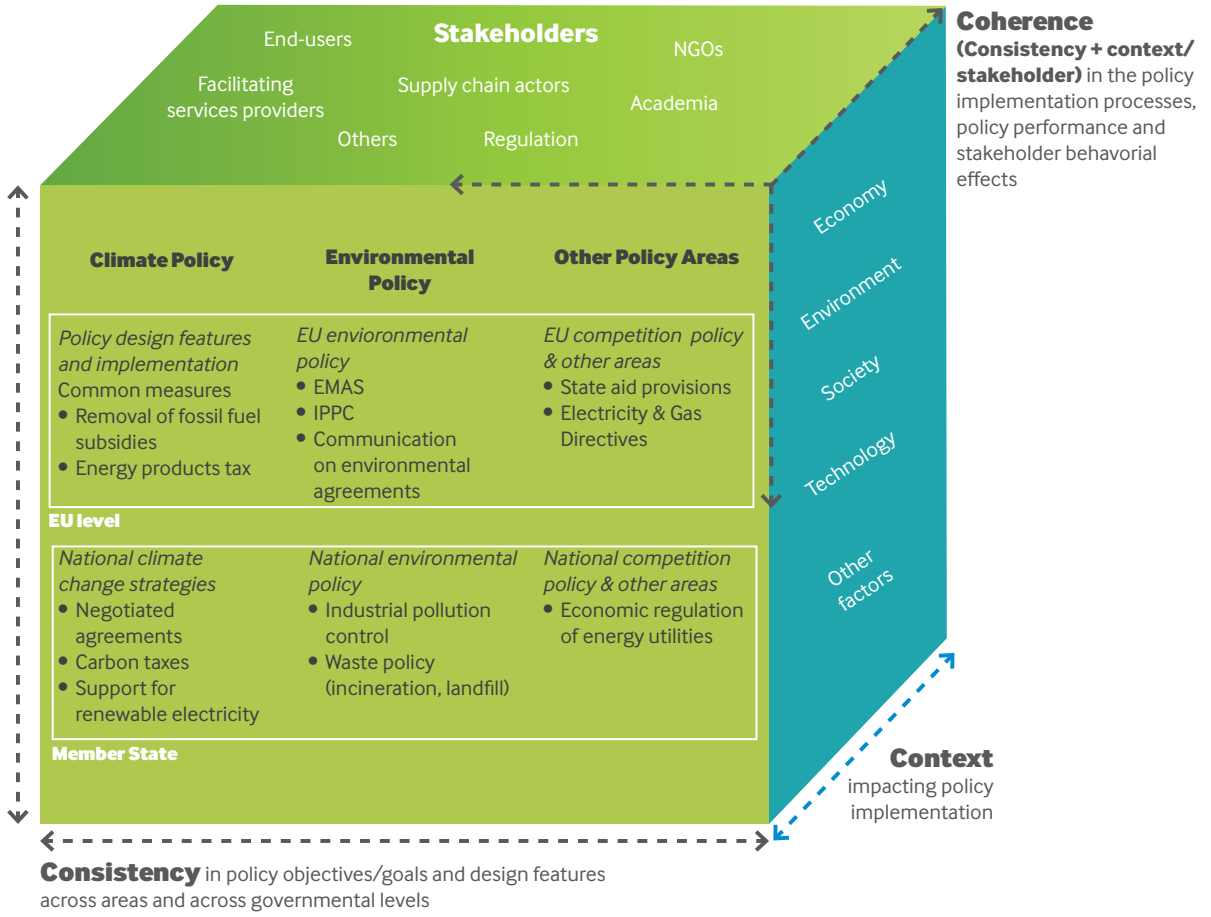


Figure 4. How coherent policy mixes depend on consistent policies and understanding of policy context

1.4. Applying the APRAISE 3E Method: Case study analysis

The APRAISE 3E Method has been applied to six environmental policy case studies, each for two EU member states:

- Offshore wind power and the protection of marine environment in Estonia and Germany
- Supporting biofuels for transport and interactions with other environmental objectives in Austria and the UK
- Recycling of plastic packaging waste in Germany and the Netherlands
- Sustainable energy buildings in Greece and the Netherlands
- The impact of hydropower generation on river basins in Austria and Slovenia
- Synergies and trade-offs between renewable electricity production and energy efficiency promotion in the built environment in Greece and Slovenia

This section illustrates the application of the APRAISE 3E Method with the help of short descriptions of the case studies.[1] They will be presented in the order of the eight steps of the APRAISE 3E Method, as shown in Figure 3, above.

Case study 1: Offshore wind power and protection of marine environment in Estonia and Germany

Step 1 - Identification of the environmental policy area or sector and relevant EU directives

In this case study the impact of the policy mix relevant for offshore wind expansion and its interaction with the marine environment is assessed in Germany (DE) and Estonia (EE). The focus of the case study is on the effectiveness of renewable energy policy instruments in both countries, and on the interactions with other policy instruments, in particular those targeting the protection of nature.

Table 1. Most relevant EU directives for offshore wind expansion

	RES expansion	Nature protection	
Directives	**Renewable Energy (2009/28/EC) (RED)**	**Habitats (92/43/EEC) and Birds (2009/147/EC)**	**Strategic Environmental Assessment (2001/42/EC); Environmental Impact Assessment (2011/92/EU); Water Framework (2000/60/EC)**
Target	Individual RES target achievement obligations for different member states	Halt the loss of biodiversity ('Natura 2000' areas); definition and implementation of habitats serving the protection of biodiversity	Definition of procedures for including environmental (and other) concerns into major planning and construction projects (e.g. offshore wind farms) and their authorisation
Relevance for offshore wind expansion	Construction of new offshore wind farms/ improvement of already existing offshore wind farms may help member states in achieving their RES target	Offshore wind farms need to ensure coherence with objectives given by the Habitats and Birds Directives	

[1] Detailed reports of all case studies can be downloaded from: http://apraise.org/content/apraise-case-studies

Step 2 - Description of member state policy package to implement EU directive(s)

Both countries use a very similar set of policy instruments to support offshore wind power. Germany has implemented the Renewable Energy Act, along with feed-in tariffs, and Estonia has implemented the Electricity Market Act, with a feed-in premium. In the field of environmental protection, both countries have also selected similar key policy instruments: the Environmental Impact Assessment Act and the Federal Nature Conservation Act (DE) and the Environmental Impact Assessment, Environmental Management Systems Act and the Nature Conservation Act (EE).

Step 3 - Expected (efficacy) and achieved (effectiveness) policy effects of policy instruments

Both countries are at quite different stages of offshore wind power development. Although offshore wind development in Germany has been slower than planned, it appears to be quite successful. In Estonia, however, the plan to connect the first offshore plants to the grid in 2016 appears to be unattainable. Environmental protection measures regarding offshore wind farms, on the other hand, have been well implemented in both countries.

Steps 4, 5, 6, 7 - Impact of economic, environmental, social and political developments; policy instruments design and implementation cycle; policy instrument interactions

In both countries, the performance of selected key policy instruments has been significantly impacted by different factors. In Estonia, the motivation to push offshore wind energy and support potential investors and operators decreased, when it turned out that offshore wind power is significantly more expensive than onshore wind and the country was able to achieve its renewable energy target (25%) without offshore wind. Three obstacles to moving ahead with offshore wind investments in Estonia could be highlighted:

1. hesitation about the considerable rise of energy prices for consumers once offshore wind parks would become operational (context factor);
2. lack of an investment plan for power transmission from offshore installations (implementation factor); and
3. lack of a marine spatial plan, which was a precondition for the development of marine offshore wind parks (policy interaction factor).

The lower effectiveness of the policy mix for offshore wind in Germany to reach its ambitious offshore wind targets has been mainly due to the following context and implementation factors: grid access delays due to financial, political and technological bottlenecks and capital access restrictions (caused by the financial and economic crisis), and the recently diminishing political will to expand offshore wind.

Step 8 - Conclusions for policymakers

As the current renewable energy system is not very motivating for offshore wind energy in Estonia, new renewable energy targets and ceilings are necessary. This is also true for transmission networks, which are currently insufficient to support the introduction of offshore wind energy production in Estonia. Beside these difficulties, however, the assumed negative interaction between offshore wind expansion and biodiversity policy has been identified as rather minor. A similar conclusion about interactions between offshore wind expansion and biodiversity concerns can be drawn for Germany.

Case study 2: Supporting biofuels for transport and interactions with other environmental objectives in Austria and the UK

Step 1 - Identification of the environmental policy area or sector and relevant EU directives

Biofuels are intended to reduce GHG emissions in the transport sector. Against this background, the EU has agreed a target of 10% renewable energy share in the transport sector by 2020. EU member states use different policy instruments to achieve this target, taking into consideration country-specific characteristics and conditions. However, the promotion of biofuels potentially leads to interrelations with aspects related to biodiversity, water body protection and waste reduction. This case study focuses on these interactions in Austria (AT) and in the United Kingdom (UK).

Table 2. Most relevant EU directives regarding biofuels for transport

Increasing the share of biofuels for transport			
Directive	**Renewable Energy (RED) (2009/28/EC)**	**Fuel Quality (FQD) (2009/30/EC)**	**Energy Taxation (2003/96/EC)**
Target	10% RES target for the transport sector by 2020, which can be achieved by biofuels and other options (e.g. e-mobility).	FQD requires 10% greenhouse gas emission reduction from production, transport and usage of transport fuels by 2020.	Imposes minimum taxation on energy and electricity products; allows for an energy tax exemption of up to 100% biofuels for transport can fall under the 100% exemption option. Each MS can use taxation to an extent depending on national circumstances and objectives
Relevance for biofuels in transport	The Directive also determines sustainability criteria for biofuels.	Fuel suppliers must reduce emissions by 6% by 2020 either by mixing conventional fuels with biofuels or by flaring residual gases from oil production/processing. It also includes sustainability criteria for biofuels.	

Step 2 - Description of member state policy package to implement EU directives

With respect to Renewable Energy Directive (EU RED), both countries implemented policy instruments for biofuels (8.45% biofuel target in Austria and 4.7% in the UK): Austria preferred a command & control measure (*Fuel Decree and Decree Regarding Agricultural Outputs for Biofuels*) and the UK a market-based system supported by a quota for key biofuels (*Renewable Transport Fuel Obligation (RTFO) and Motor Fuel and Merchant Shipping Regulations (MFMS)*). Additionally, the EU RED requires that biofuels also guarantee a certain amount of greenhouse gas (GHG) emissions savings and meet various sustainability criteria. Similarly, the Fuel Quality Directive (EU FQD) indicates that biofuels must meet specified environmental standards. Under the Energy Taxation Directive, both countries introduced different tax rates (or reliefs from taxes) for biofuels and fossil fuels at certain points in time. Additionally, in Austria the *Decree for Bioethanol Mix* defines a partial tax refund for certain ethanol blends. In the UK, a separate policy instrument for specific types of biofuels has also been set at the national level: biodiesel from waste products falls under a broader *Environmental Permitting Regulation* and requires biofuel producers to obtain the necessary permits for biofuel production.

Step 3 - Expected (efficacy) and achieved (effectiveness) policy effects of policy instruments

In neither country are the fixed biofuel targets for biofuel supply (see step 1) likely to be met, because in recent years the growth of biofuel shares has slowed down considerably.

Steps 4, 5, 6, 7 - Impact of economic, environmental, social and political developments; policy instruments design and implementation cycle; policy instrument interactions

Regarding policy context factors, the discussion about indirect land use changes (ILUC), connected with availability of land for cultivating biofuel feedstocks, and subsequent limitations to first-generation biofuels (e.g. assumed lower GHG reduction potential) has had a negative impact on the effectiveness and efficiency of the chosen policy instruments in both countries. Other aspects (the perceived technical limitations concerning ethanol or biodiesel fuel mixtures, taxes on biofuels and imported biofuels feedstock) are country specific. Uncertainties surrounding ILUC have also temporarily placed a cap on biofuels in the UK and targets are unlikely to change until major sustainability issues have been addressed. Similarly, fluctuating conditions (e.g. prices for renewable energy certificates, tax incentives) have had negative impacts on the success of biofuels. Concern about energy security is a positive driving force for the UK biofuel sector, which promotes domestic fuel production. Regarding implementation factors, in Austria the failure to introduce E10 (10% ethanol content) has had negative impacts, whereas the national administrative framework and coordination among institutions have been beneficial.

Step 8 - Conclusions for policymakers

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 sizeable contribution to meeting 2020 targets, although in the UK there is growing investment and R&D on this. The fixed biofuel targets in both countries are thus not likely to be met. The command and control approach connected with tax reliefs in Austria appears to be more effective in meeting national biofuel targets compared to the market-based instruments used in the UK.

Case study 3: Recycling of plastic packaging waste in Germany and the Netherlands

Step 1 - Identification of the environmental policy area or sector and relevant EU directives

Around half of EU household plastic waste is still landfilled. This causes both environmental and health problems, as well as non-recovery of the material and energy contained in plastic waste. This case study focuses on the management of household plastic packaging waste in Germany (DE) and the Netherlands (NL).

Table 3. Most relevant EU directives with regard to management of household plastic packaging

Waste management		
Directive	**Waste Framework (2008/98/EC)**	**EU Packaging and Packaging Waste (2004/12/EC)**
Target	Streamlines waste legislation, including management of all kinds of waste (incl. plastic)	Recycling and recovery targets for packaging waste; extended producer responsibility
Relevance for managing household plastics	Follows 5-step waste management hierarchy: prevention, reuse, recycling, useful use for other purposes, disposal at landfills, giving clear preference to reuse and recycling over energy recovery and disposal of waste in landfills	Based on this directive, organisations that supply packaging material in the market for the first time (producers and distributors) are held responsible for reuse and recycling of the material

Step 2 - Description of member state policy package to implement EU directives

Based on relevant EU directives (Table 3), the Netherlands introduced a Packaging Decision in 2006. It contained a 42% recycling target (by 2012) for plastic packaging material for products supplied on the Dutch market. In Germany, since 1999 at least 60% of plastic packaging materials have to be recovered, of which 60% have to be recycled (i.e. 36% recycling of total plastic packaging materials). In both countries suppliers/producers are released from their take-back and recovery obligation. While in the Dutch case municipalities play a key role in this release, in Germany the *Duales System Deutschland* (DSD) was established by the industry, which operates parallel to the public waste management services. To discourage the use of plastics for packaging, the Netherlands applied a *packaging tax*.

Step 3 - Expected (efficacy) and achieved (effectiveness) policy effects of policy instruments

Recycling reports in both countries turned out to be better than expected: 48% in the Netherlands (2012; target 42%) and 49% in Germany (2010; target 36%). However, German stakeholders indicated that the minimum recycling quota of 36% is probably under ambitious. Regarding the Netherlands, it remains unclear whether the 48% reported recycling has actually been achieved. Stakeholder consultation indicated that this percentage only reports "collection and preparation of plastic waste for recycling". After collection, recycling companies (mainly German) can still decide to choose another option for recovery (e. g. thermal recovery or incineration), e.g. for cost reasons.

Steps 4, 5, 6, 7 - Impact of economic, environmental, social and political developments; policy instruments design and implementation cycle; policy instrument interactions

In both countries, achieving plastic recycling targets has been supported by technological progress and the availability of appropriate technologies. Moreover, in Germany high oil prices (before 2008) gave an incentive to producers to switch to recycled plastics, whereas in the Netherlands increasing environmental awareness supported separating plastics from household waste for recycling. Negative impacts were caused by unfavourable economic development (especially in NL as the Packaging Decision was implemented during the economic crisis after 2008) and the increasing use of composite materials (plastics, glue, colours, etc.).

In Germany, negative interactions occurred between recycling policies and policies supporting waste incineration and supporting the use of plastic waste as an energy source. This reduces incentives for recycling. For Dutch plastic waste, it is likely that a similar negative interaction has occurred as most of the collected plastics in the Netherlands are transported for recycling to Germany. In the Netherlands, plastic waste collection has also been supported by local tax differentiation, which creates an incentive to increase the separation of plastics from household waste.

Step 8 - Conclusions for policymakers

Due to the different sets of policy instruments used in both countries to transpose the Waste Directive, the impact of contextual factors on achieving recycling goals has been quite different. Both countries have probably had relatively attainable recycling targets, which provided few incentives to accelerate recycling. Moreover, in both countries monitoring is insufficient to make clear which part of the plastic waste collected is recycled or otherwise used.

Case Study 4:
Sustainable energy buildings in Greece and the Netherlands

Step 1 - Identification of the environmental policy area or sector and relevant EU directives

Buildings account for 42% of final EU energy demand and for 35% of total EU GHG emissions. Existing policy initiatives geared towards the sustainability of the building sector have largely targeted energy efficiency. The focus of this case study is on whether policies promoting energy efficiency interventions in the building sector (insulation, air conditioners, heat pumps etc.) could have a negative impact on the environment due to the higher generation of particular waste streams.

Table 4. Most relevant EU directives for supporting renewable energy and promoting energy efficiency

	Energy use in environment			Waste management
Directive	**Energy Performance of Buildings (2002/91/EC) (EPBD)**	**Energy Efficiency (2006/32/EC)**	**Energy Labelling (92/75/EC)**	**Waste of Electrical and Electronic Equipment (WEEE) (2002/96/EC)**
Target	Sets minimum requirements on the energy performance of new and existing buildings undergoing major renovation	Provides indicative energy saving targets and obligations regarding energy savings and energy efficient procurement	Establishes an energy consumption labelling scheme for most white goods, lights and cars	Provides for the creation of collection schemes where consumers return their WEEE free of charge
Relevance for buildings	Covers all buildings irrespective of size in both residential and the tertiary sector	Energy-saving measures are expected to improve the energy performance of buildings	Appliances and their energy use influence energy performance of buildings	Environmentally friendly collection and reuse of equipment waste promotes use of more efficient equipment in buildings

Step 2 - Description of member state policy package to implement EU directives

In Greece, two key market-based policy instruments were implemented to promote energy savings in the built environment ('Energy Savings in Households (ESH)' and 'Energy Efficiency Programme' for Municipalities). Furthermore, three regulatory instruments were implemented to establish minimum requirements for energy efficiency in buildings and to promote the use of energy-efficient electrical equipment. In the Netherlands, numerous policy instruments have been introduced in the form of mandatory regulations, subsidies and programmes to improve the energy efficiency of the built environment. For example, a value-added tax (VAT) reduction was offered for investments in building insulation, while a regulatory instrument was introduced in the form of Energy Performance Certificates (EPC) for buildings. Producer responsibility was extended for both countries to recycling and recovery of electrical and electronic equipment.

Step 3 - Expected (efficacy) and achieved (effectiveness) policy effects of policy instruments

With respect to energy savings enhancement, in Greece the effectiveness of the analysed policy instruments appears to be quite low. Nevertheless, the interim targets set for 2010 (5,1 TWh) have been met, which has largely been due to the impact of the economic recession on final energy consumption. The ambitious 'Energy Efficiency' Programme (with 30-40% energy saving targets) did not match expectations in terms of participation levels or progress in the implementation of energy efficiency projects.

In the Netherlands, despite the fact that policy instruments have been in place for a longer period, the market uptake of energy efficiency measures in the built environment shows mixed results. For instance, the absence of sanctions under the Energy Performance of Buildings Directive (EPBD) has resulted in less than 20% of homes sold with an energy label. The reduced VAT rate for home insulation work programme has led to improvements in the existing buildings although there is no concrete study on the effects of this policy instrument, as it runs parallel with several other policy instruments and regulations.

Producer responsibility for waste of electrical and electronic equipment has been implemented in both countries with quite diverse effects. In Greece, the policy instrument is estimated to be effective in terms of waste collection targets achieved. In the Netherlands, electrical and electronic equipment collection target of the Waste of Electrical and Electronic Equipment Directive (WEEE) (4 kg/capita/year) was already reached in 2006.

Steps 4, 5, 6, 7 - Impact of economic, environmental, social and political developments; policy instruments design and implementation cycle; policy instrument interactions

The economic recession decreased energy efficiency investments in both Greece and the Netherlands. This was mainly due to the high equity capital required for such interventions and the long payback periods. In addition, investments were adversely affected by negative coverage in the public media and frequent changes and revisions of EPCs in the Netherlands and insufficient information and limited consumer awareness in Greece. In both countries, technology for energy efficiency in buildings is available, as are skilled professionals and consultants. Nevertheless, in the Netherlands a major bottleneck in the issuing of EPCs was the lack of standard training for assessors, which has also delayed the implementation of the EPBD. In Greece, a lack of clarity around building ownership in urban environments often adversely affected the performance of policy instruments.

Regarding policy implementation, in Greece, municipalities could often not generate the required 30% of co-funding to receive 70% funding support from the Energy Efficiency Programme. In addition, poor technical capability of municipality staff and strict evaluation criteria from the banks during the loan approval process delayed project uptake and implementation. In the Netherlands, lack of transparency, reliability, accuracy of the prescribed methodology and frequent changes in the policy framework all contributed to the delayed implementation of the EPBD.

In Greece, recent national policy instruments providing financial incentives to end-users for energy efficiency investments in the building sector have interacted with each other, even though they target different sectors in the built environment. There are overlaps and inconsistencies between instruments within the policy mix. A possible positive interaction could take place between policy instruments providing financial incentives and those with mandatory requirements (i.e. the EPBD). Such an integrated scheme guarantees that a target is met, while allowing some degree of flexibility over its voluntary element. However, inconsistencies in the policy framework, as observed in the Netherlands, can create serious barriers to meeting targets, even if the related financial incentives and mandatory requirements have similar objectives and target similar stakeholder groups.

Step 8 - Conclusions for policymakers

In Greece, and to a lesser extent in the Netherlands, the broader unfavourable investment environment post-crisis has negatively affected the performance of policies. At the same time, fuel poverty and escalating energy costs, along with the constrained construction activity supported energy efficiency upgrade efforts in buildings. The Greek experience has shown that delays in processing energy efficiency proposals can strongly impede policy success, while the Dutch example of mandatory (but not enforced) EPCs in buildings has not created a large-scale adoption by house owners of these labels. In both countries, there have been inconsistencies and overlaps between policy instruments targeting similar energy efficiency goals. In some cases, voluntary and mandatory measures can coexist well, whereby stakeholders have the freedom to adopt energy-efficiency options provided that they comply with the energy-efficiency requirements.

Case Study 5: The impact of hydropower generation on river basins in Austria and Slovenia

Step 1 - Identification of the environmental policy area or sector and relevant EU directives

This case study examines the performance of the national environmental policy mix regarding hydropower decision making in Austria (AT) and Slovenia (SI). It focuses on possible interactions between nature/water protection and renewable energy expansion targets. The case study considers small- and mid-sized hydropower in Austria (capacity ≤20MW) and small hydropower in Slovenia (capacity ≤ 10MW), with specific examples in each country.

Table 5. Most relevant EU directives for hydropower decision-making

	RES expansion	Nature (water) protection	
Directives	**Renewable Energy (2009/28/EC) (RED)**	**Water Framework (WFD) (200/60/EC)**	**Habitats (92/43/EEC) and Birds (2009/147/EC); Environmental Impact Assessment (2011/92/EU)**
Target	Individual RES target achievement obligations for different MS	Prohibition of further deterioration in future/ achievement of a good status of all water bodies until 2015 (2027) at the latest	Halt the loss of biodiversity ('Natura 2000' areas); assess possible environmental impacts of planned projects
Relevance for hydropower	Construction of new HPPs/ improvement of already existing plants may help MS in achieving their RES target	Ensure coherence with objectives given by the WFD – newly planned projects as well as reconstruction of old plants	Relevance depending on specific criteria such as size and location of a HPP

Step 2 - Description of member state policy package to implement EU directive(s)

The key policy instruments for hydropower permission are the National Water Act (AT) and the Act on Waters (SI), both of which implement the EU WFD and pursue the water protection target. EU RED is implemented in both countries with the Green Electricity Act (AT) and the Energy Act (SI). These instruments pursue the expansion of renewables via subsidy support. Additionally, both countries have policy instruments for achieving nature protection.

Step 3 - Expected (efficacy) and achieved (effectiveness) policy effects of policy instruments

In neither country is the achievement of EU WFD hydropower generation targets on track. Exemptions are frequently allowed and only a minority of water bodies have demonstrated improved performance. With their current expansion track, both Austria and Slovenia are facing problems in meeting interim or 2020 hydropower expansion targets. In Slovenia, despite recent hydropower investment, current expansion level towards targeted projections is generally too low.

Steps 4, 5, 6, 7 - Impact of economic, environmental, social and political developments; policy instruments design and implementation cycle; policy instrument interactions

In both countries, there have been interactions between the policy instruments, this 'hydropower conflict' is reinforced by a range of contextual factors. In Austria, there has been both a strong political focus on hydropower expansion (especially in Styria) and an increased public awareness of biodiversity. This has complicated coordination across institutions when implementing EU WFD and EU RED, resulting in misinterpretations and EU infringement procedures regarding the permission of a specific hydropower example in Austria.

In Slovenia, a 'hydropower conflict' was avoided due to long and onerous administrative approval procedures regarding hydropower permissions. Implementation of EU WFD and nature conservation legislation is supported by increasing public awareness of biodiversity and diminishing motivation to invest in hydropower. Moreover, due to the financial crisis since 2008, less funding has been available for hydropower investments. In Austria, existing national property rights have also been a problem for the implementation of the EU WFD due to long duration of permits. Finally, low electricity prices currently slow down the development of hydropower expansion in both countries.

Step 8 - Conclusions for policymakers

The 'hydropower conflict' (i.e. exemptions from the EU WFD to enable hydropower permissions) is more significant in Austria than in Slovenia. In Slovenia, nature (water) protection is on a better track, although the overall desired outcome is not being achieved. More EU level guidance on how to handle possible (negative) policy interactions at the national level could avoid possible ('hydro') conflicts. This would also create more certainty for investors who, in both countries, could currently become the subject of ex post prosecution of offences against EU legislation.

Case study 6:
Synergies and trade-offs between renewable electricity production and energy efficiency promotion in the built environment in Greece and Slovenia

Step 1 - Identification of the environmental policy area or sector and relevant EU directives

The focus of this case study is on the interaction between policy instruments aimed at promoting electricity produced from renewables (RES-E) with policy instruments aimed at increasing energy efficiency in the buildings sector. For Slovenia, the main focus is on Solar Photovoltaic plants (solar PV) in the built environment and for Greece the focus is on promoting RES both in the electricity production (i.e. RES-E) and end-use in built environment (i.e. RES-E and RES-heating and cooling applications).

Table 6. Most relevant EU directives for supporting RES and promoting EE

	RES expansion	Improving energy efficiency	
Directives	**Renewable Energy (RED) (2009/28/EC)**	**Energy Efficiency (2006/32/EC)**	**Energy Performance of Buildings (2002/91/EC)**
Target	Individual RES target achievement obligations for different member states until 2020	Indicative energy saving target of 9% until 2016 for all member states	Establishing minimum requirements for energy efficiency in buildings
Relevance for supporting RES and promoting EE in the built environment	Setting incentives for investments in ground mounted RES electricity production/ solar power production	Promoting the uptake of energy savings in end-use buildings sector	

Step 2 - Description of member state policy package to implement EU directive(s)

Both countries implemented Feed-In Tariffs (FiT) as their support scheme for RES-E promotion, but use different policy instruments for the promotion of energy savings. In Greece, energy efficiency policy instruments are grants and subsidies, supporting the uptake of efficient end-use interventions in municipalities and households respectively. In Slovenia, the policy mix for promoting energy end-use savings is largely based on regulations rather than market-based schemes.

Step 3 - Expected (efficacy) and achieved (effectiveness) policy effects of policy instruments

Both countries are on track to meet their RES targets in 2020. In Greece, installed RES capacity nearly doubled between 2011 and 2013, which is mainly due to the exponential solar PV growth (growth of other RES technologies has been negligible). Also in Slovenia, the new FiTs of 2009 especially stimulated solar PV. As a result, RES support costs increased in both countries. At the same time, the energy efficiency market in both countries is still relatively new and underdeveloped. Among other factors, this is due to the attractiveness of FiT for solar PV systems in buildings, which has overshadowed investments in energy end-use reductions in buildings.

Steps 4, 5, 6, 7 - Impact of economic, environmental, social and political developments; policy instruments design and implementation cycle; policy instrument interactions

In both countries, RES and energy saving promotion have been affected by different factors. One reason is that the phase-out of FiTs for solar PVs, due to sharply declining equipment costs, has been slower in Greece and Slovenia than in other member states. Also, the phase-out was much slower than the steep drop in PV module costs. This seriously reduced the efficiency of FiT schemes and raised concerns about their long-term financial feasibility. Interestingly, observed efficiency of FiT schemes in Greece and Slovenia has been similar.

Secondly, it was concluded that the energy and climate policy instrument mix in Greece and Slovenia is largely consistent, both at the policy and stakeholder level. In Greece, policy coherence issues mainly relate to the large number of government institutes with a role in the evaluation and authorisation of RES projects, which negatively affects the uniformity of policy implementation. In Slovenia, lack of coordination and standardisation of procedures is identified across the five different grid operators that are responsible for connecting PV plants to the grid.

Step 8 - Conclusions for policymakers

For enhanced effectiveness and efficiency of the Greek and the Slovenian RES support Fit schemes, the case study analysis has made clear that there is a need for a long-term, more visionary and adaptive policy design with reformulated targets and a more coherent policy strategy.

1.5. Complementarity of quantitative tools and APRAISE 3E Method

As demonstrated by the case studies, the APRAISE 3E Method helps to understand past and current system contexts for policy instruments. This helps to explain why an observed policy effect (effectiveness) deviates from the anticipated effect (efficacy). However, the APRAISE 3E Method is less suitable for making predictions about the future and for formulating scenarios for policy context factors under different assumptions. Therefore, APRAISE has analysed how quantitative modelling tools can translate the lessons from the APRAISE 3E Method into recommendations for future policymaking with the help of consistent scenarios (see Figure 5).

Ideally, a set of appropriate quantitative tools is selected and scenarios developed after the problem and context are defined. This allows the application of methods on a case-by-case basis, fitting the nature and scope of the policy instruments and their system context. In order to test this, two models have been applied in the APRAISE case studies:

- the **Global Trade Analysis Project – GTAP**, which is a global general equilibrium model contributing mostly to understanding influences from outside the system (e.g. policies in other countries and other sectors), and
- the **Business Strategy Assessment Model – BSAM**, which focuses specifically on national-level power sectors, such as the Greek electricity market covered by the APRAISE case study analysis, and which supports microeconomic modelling of economic actors' interests and decision-making processes.

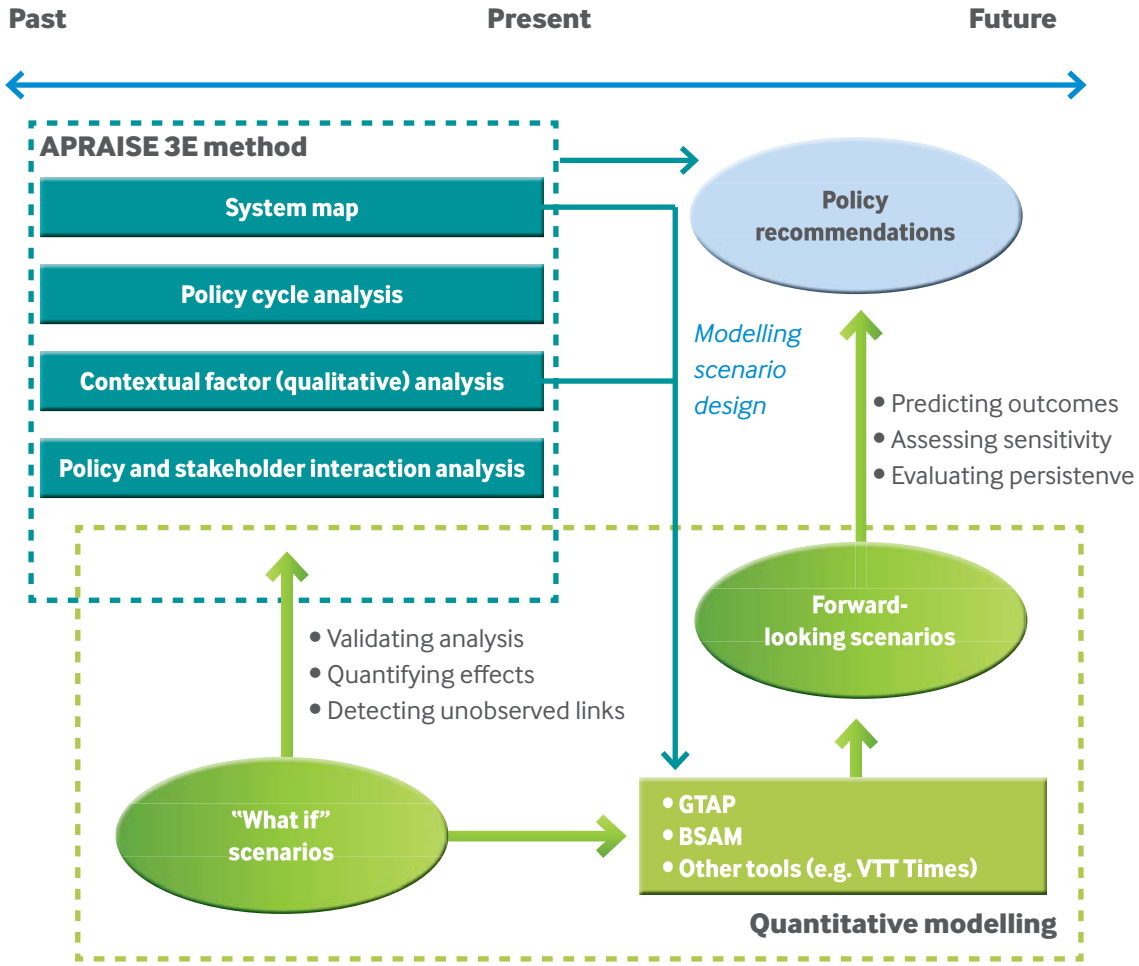


Figure 5. Complementarity of APRAISE 3E Method and quantitative tools

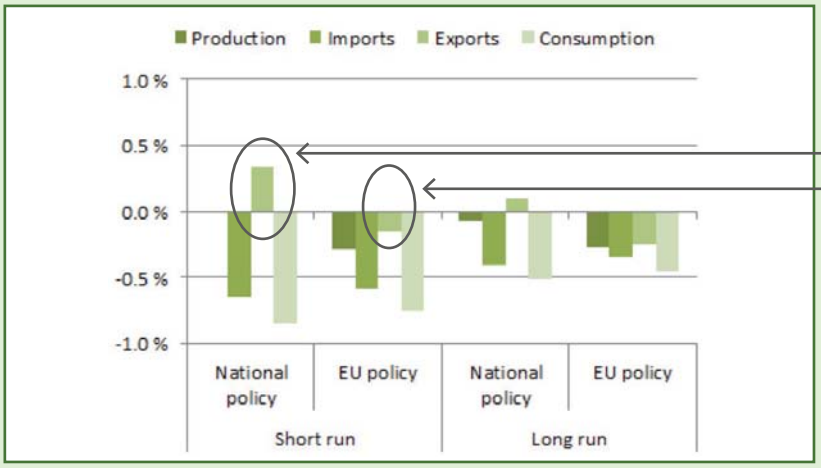
The models have been used to formulate scenarios for policy context factors under different assumptions, both with respect to the future (e.g. 'what will happen if?') and the past (e.g. 'what if there had not been an economic recession?'). With these scenarios, quantitative estimates can be made of the influence of system-context factors (e.g. GDP development, technological progress) on the effect of policy instruments. Such estimates can be made with respect to both immediate and long-term effects (persistence) of policy instruments on the targets and other sectors (including unintended effects). For example, a change in the external conditions may render an initially successful policy measure non-influential or even detrimental.

Box 1 illustrates the application of GTAP to the German-Dutch case study on plastics recycling with a particular focus on the effect of a packaging tax. Box 2 shows how, with the help of BSAM, an ex post analysis was conducted of the effectiveness and efficiency of the financial and regulatory framework for the support of renewable energy-based electricity production in Greece.

Box 1. Model-based scenario on impacts of packaging tax in the Netherlands and Germany

With the help of the model GTAP, the impact of a packaging tax on the production and supply of food products has been analysed for the Netherlands and Germany. In both countries, this sector is the largest user of plastic packaging material. For this analysis, GTAP has prepared two scenarios for each country: in one scenario, it is assumed that the packaging tax is implemented only at the national level, while the second scenario assumes that all EU member states use a packaging tax in their packaging prevention and recycling policies.

From these scenarios it is concluded that, in the Netherlands, a national packaging tax has little impact on domestic food production, as more food products are exported (especially in the short run). This shows that a packaging tax in the Netherlands favours exports of domestic products, as in other countries in this scenario these products are not subject to such a tax. At the same time, domestic consumption of food products decreases as these become more expensive due to the tax. This reduction in consumption is mainly reflected by reduced imports of food products, due to the limited response by foreign suppliers to a Dutch packaging tax. For instance, a multinational supplier is unlikely to change its packaging strategy on the basis of a tax introduced in one country (especially when that country has a relatively small market, such as the Netherlands). The reduced consumption and imports also seem to confirm that the packaging tax is almost entirely passed on to consumers. Finally, the comparison between a national Dutch packaging tax and EU-wide packaging taxation shows that a 'plastic leakage' through increased exports as in the case of a national tax only (see encircled bars in Figure 6) would have been considerably reduced with a coordinated EU policy.



A national packaging tax in the Netherlands is largely 'exported' to other countries, while an EU-wide packaging tax would reduce use of plastics as packaging material in food industry. This difference can be found for both short-run and long-run simulation, although long-run responses are somewhat 'softer'

Figure 6. Impact of packaging tax on food industry in the Netherlands

The GTAP model simulation shows that a German packaging tax would have a strongly negative impact on food industry production figures (especially in the short run). This observation can be explained by the greater food product demand in the German domestic market than in the Netherlands, where a relatively large share of food is exported. As a result, a German packaging tax is less easily 'leaked' through exports, so that the impact on domestic consumption is relatively strong and production figures respond to that.

Box 2. BSAM approach for the Greek wholesale electricity market

To complement the findings of the case study on renewable energy in Greece (see section 2.3.6) with the help of BSAM, economic benefits have been calculated of reduced natural gas imports due to the support of wind power generation (wind power replacing gas-based power production). These benefits are shown in Figure 7. BSAM has also been used to calculate corresponding CO_2 emission reductions from avoided fossil-fuel combustion (Figure 8 shows CO_2 emission reductions from avoiding lignite combustion, which is a domestically mined fuel in Greece and the backbone of the Greek electricity system).

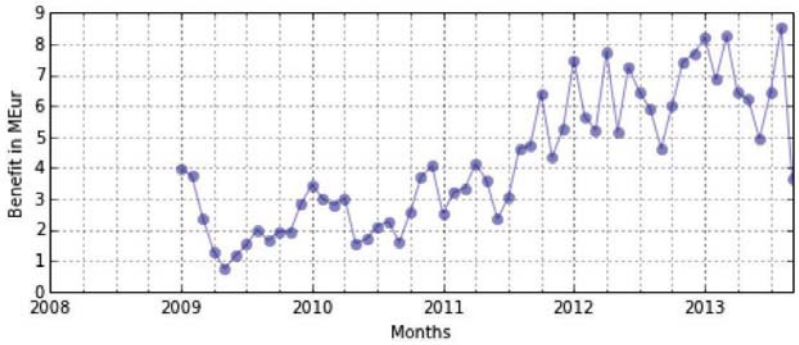


Figure 7. Economic benefit in million Euros from natural gas imports avoided by wind RES-E

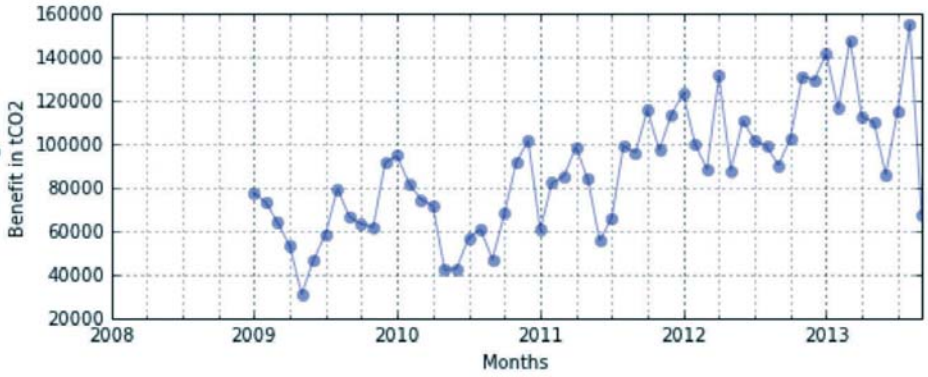


Figure 8. CO_2 emissions avoided due to lignite-fuelled generation offset by wind RES-E

Another functionality of BSAM is to calculate the expected profitability of renewables-based electricity (RES-E) investments and relate it to the demand for these investments. This helps to reveal influences on the effectiveness of a policy instrument that are otherwise difficult to observe. For example, an unobservable influence could be how people perceive policy-induced uncertainty and delays caused by permitting and grid-connection procedures. These perceptions are difficult to measure but they can have a direct influence on the effectiveness of a policy instrument (such as a financial incentive to support RES-E).

As an example of this, with BSAM it has been observed that although the expected profitability of rooftop PV installations remained constant in Greece during 2012-2013, significantly fewer installations were installed. This discontinuity may be explained by the fact that in 2013 a discussion began about the need to tax the revenues from rooftop PV installations (with retroactive levying). It is likely that these events increased people's perceived risk of investing in rooftop PV and reduced their willingness to invest (Figure 9).

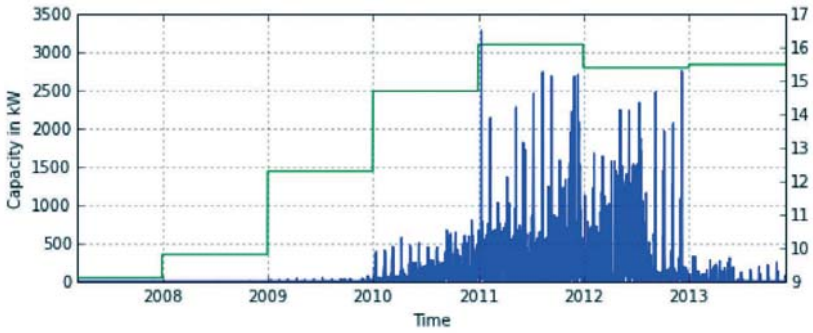


Figure 9. Evolution of demand and profitability index for rooftop PV investments from 2007 to 2013

2 Applicability of APRAISE 3E to environmental policy evaluation

2.1. Examining unanticipated effects of policy instruments

The APRAISE 3E Method focuses on the degree to which a policy has reached its intended or anticipated effects, and seeks to explain the success/failure of the policy, notably by examining the interactions of the policy with selected key policies on the one hand and the general policy context on the other. In addition, in the case studies unintended or unanticipated effects were also identified, to the extent that they were seen to influence the degree of effectiveness.

Examples of unintended effects included those that increased transparency, such as through sustainability certification and new, more transparent electricity billing. This greater transparency does not necessarily operate in favour of the intended policy objectives. For instance, resistance against wind power projects was seen to increase as the subsidies were made visible in consumer bills in Estonia. There were also examples of deleterious effects from the lack of transparency, i.e. the channelling of packaging waste to incineration went undetected because of the absence of appropriate monitoring systems.

In some of the APRAISE case studies it became clear that unanticipated effects of the analysed policies were related to the stages that precede target-setting. Sometimes policy targets appeared to be excessively easy to reach (e.g. Estonian wind power policy), while at other times the problem definition was inadequate, leading to effects contrary to intended policy objectives. The global modelling exercises (section 2.4) suggested that policy targets were sometimes established without due regard to international trade, such as in the area of biofuels and packaging waste policies. These unanticipated effects following from processes in the upstream of the policy cycle can be caused by or relate to:

1. the extent to which the policy in question adequately addresses a fundamental societal problem;
2. the processes of target-setting and policy formulation (e.g. stakeholder participation, policy controversies, negotiations, and power relations), which could result in relevant policy goals being neglected or underrated (e.g. exclusion of important policy actors and/or asymmetries of power between the actors involved); or
3. the impacts of a policy on problem-solving in other areas (e.g. through learning, networking, and enhanced reflexivity in policymaking).

The examples from the APRAISE case studies show that a more systematic analysis of such 'upstream' target-setting issues would improve the understanding of the unanticipated effects of the policies under analysis. They also highlight the importance of analysing the policy process, not only as a determinant of the effectiveness and efficiency of the policy in question, but also as a source of policy impact.

The APRAISE 3E Method also allows the identification of unanticipated changes in stakeholder behaviour in some case studies. Examples included resistance against wind power projects as a result of changes in knowledge, and the development of new waste management technologies in reaction to packaging waste regulations. In the case studies, a number of issues relating to the equity of policy outcomes were identified, assessed primarily in terms of burden-sharing and distribution of benefits from the analysed policies, e.g. from renewable energy support measures.

A strength of the APRAISE 3E Method lies in its ability to address the unanticipated effects stemming from the interaction between the policies that the analyst has identified – on the basis of past theoretical and empirical evidence – as crucial for the achievement of the intended policy objectives. Possible steps for enhancing the APRAISE 3E Method by systematising the analysis of unanticipated effects, and extending it beyond the interaction between pre-selected policies, include the following:

1. Identify and distinguish between the anticipated and unanticipated effects of the policy. This implies a distinction between effects anticipated by the policymakers (expressed e.g. in documents justifying the adopted policy) and those stemming from the evaluator's knowledge (e.g. from literature, interviews and modelling exercises).
2. Explore the implicit assumptions that underlie policymakers' expectations concerning both anticipated and unanticipated effects (identification of the intervention theories). Focus the empirical analysis of policy implementation on the assumptions that are crucial for the realisation of expectations.
3. Examine the actual impacts of a policy, with an attempt to identify unanticipated effects, also beyond those that the policy interaction analysis would reveal (i.e. involving policies and policy areas other than those included in the policy interaction model – which usually only covers two policies).
4. Evaluate, in close collaboration with the involved stakeholders, the acceptability and desirability of the various unanticipated effects.
5. Include the analysis of unanticipated effects in the formal processes of policy/regulatory impact assessments at the EU and member state levels.

2.2. APRAISE 3E Method as a tool for policy impact assessments

Policy evaluation is an important stage of a policy cycle as it helps to analyse the implementation and outcomes of a policy. At the EU level, guidelines have been established for assessments of economic, social and environmental impacts of legislative proposals formulated by the European Commission.[2] These assessments are referred to as policy impact assessment or regulatory impact assessment.

At the level of member states, policy impact assessments are usually combined with strategic environmental assessments (SEAs), which assess environmental impacts of sectoral plans and programmes. SEAs are required for plans and programmes in the areas of agriculture, forestry, fisheries, energy, industry, transport, waste/water management, telecommunications, tourism, spatial planning and land use, which set the framework for future development consent of projects listed in the Environmental Impact Assessment Directive (EU EIA, 2014) or which have been determined to require an assessment under the Habitats Directive (1992). The EU SEA Directive regulates the process, content and quality criteria of these environmental assessments.[3]

[2] European Commission, 2009, Impact Assessment Guidelines: http://ec.europa.eu/smart-regulation/impact/commission_guidelines/commission_guidelines_en.htm; EC, 2014, Impact Assessment Board Report 2013. European Commission, http://ec.europa.eu/smart-regulation/impact/key_docs/docs/iab_report_2013_en.pdf

[3] SEA Directive, 2001, Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment, http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32001L0042

The EU guidelines[4] suggest that a policy impact assessment should analyse, among others:

- the effectiveness of a policy in relation to its objectives, and whether policy implementation has been efficient (in terms of financial and other resources used for the achieved result),
- whether the policy and its results and impacts are consistent with overarching EU objectives, strategies and priorities, and
- whether and how the policy interacts with other policies.

Policy impact assessments can be both qualitative and quantitative, depending on the nature and significance of the impacts. In practice, qualitative assessments, which are conducted by or on behalf of policymakers, are often supported by quantitative model-based analyses. The EU guidelines for policy impact assessments do not explicitly recommend the engagement of stakeholders in impact assessments.
As the APRAISE 3E Method is specifically designed to explain why observed policy effects differ from policymakers' anticipation and targets and may have been achieved more or less efficiently, the method could be an added valued to policy impact assessments, as follows:

1. The APRAISE 3E Method could form part of regulatory impact assessments, with respect to both (horizontal) consistency of a policy with other policy areas and (vertical) *consistency* between EU-level objectives and member state-level policies and goals.
2. A value added of the APRAISE 3E Method to most policy impact assessments could be its analysis of the *policy context* and the impacts of *policy interactions* at the stakeholder level.

As an illustration, Figure 10 shows all the steps of the EU Impact Assessment Guidelines and checks how the APRAISE 3E Method could contribute to each step.

[4] Impact Assessment Guidelines, European Commission, 2009.

EC Impact Assesment Guidelines 2009		Application of 3E-Method		
Impact Assessment steps	**Guiding principles and questions**	**Effectiveness**	**Efficiency**	**Efficacity**
What is the problem?	Defining the problem	✔✔	✔✔	✔✔
	Verifying the EU's right to act and justification for EU action	✗	✗	✗
	Developing a baseline scenario	✔✔	✔✔	✔✔
	Sensivity analysis	✔✔	✔✔	✔✔
	Risk assessment	✔✔	✔✔	✔✔
What are the policy objectives?	The role of onjectives in an Impact Assessment	-	-	-
	Setting general, specific and operational objectives	✔✔	✔✔	✔✔
	When should you set objectives?	✔	✔	✔
	Making your objectives SMART	✔✔	✔✔	✔✔
	Linking objectives with other parts of the analysis	✔✔	✔✔	✔✔
What are the policy options?	Why consider alternative policy option?	✔✔	✔✔	✔✔
	Respecting proportionality when defining options	✔	✔	✔
	How to identify and screen policy options?	✔✔	✔✔	✔✔
What are the likely economic, social and environmental impacts?	How to approach the analysis of impacts?	✔✔	✔✔	✔✔
	Three steps of impact analysis	-	-	-
	Assessing specific aspects of economic, social and environmental impacts	✔✔	✔✔	✔✔
	Assessing administrative burden	✔	✔	✔
	Assessment simplification potential	✔	✔	✔
	Assessment of transposition and compliance aspects	✔	✔	✔
How do the options compare?	How to present the comparison of impacts of the options?	✔	✔	✔
	The evaluation criteria	✔✔	✔✔	✔✔
	Ranking the options	✔✔	✔✔	✔✔
Arrangements for future monitoring and evaluation		✔	✔	✔

* ✔✔ – substantial contribution; ✔ – some contribution; ✗ – no contribution, - not relevant for 3E-Method

Figure 10. Contribution of the APRAISE 3E Method to EU policy/regulatory impact assessment

3 The way forward – issues for further consideration

While the APRAISE 3E Method starts from the conventional goal-achievement model of evaluation, using as the main performance criterion the degree to which the intended policy objectives have been achieved, it avoids two major weaknesses of such an evaluation approach: it integrates an analysis of costs (through the efficiency analysis) and considers various unanticipated impacts that a pure goal-achievement evaluation would exclude. Aspects for consideration when further developing the APRAISE 3E Method are:

1. The APRAISE 3E Method could integrate a more systematic analysis of the policy ***phases that precede target-setting***, exploring the relevance of the policy objectives, the policy formulation processes (such as stakeholder participation, policy controversies, negotiations, and power relations) and constitutive effectiveness. The latter refers to the impacts of a policy on problem-solving in other areas, e.g. through learning, networking, and enhanced reflexivity in policymaking. This would also allow the exploration of ***problem-solving effectiveness***: i.e. the relation between the ultimate policy outcomes and the societal problem to be solved.

2. Participation of relevant actors in the policy implementation could be examined systematically as a key element of ***process effectiveness***. On the one hand, participation may, depending on the specific circumstances and the way in which participation is organised, improve policy effectiveness and efficiency, while on the other hand it constitutes a policy performance criterion on its own. Such criteria can be described as 'democracy-related criteria', which also include equity, transparency, and legitimacy of the policy processes.

3. As for the ***policy outcomes***, the APRAISE 3E Method adequately covers the intended outcomes in terms of changes in actor behaviour, including the unanticipated changes. It also covers certain dimensions of equity relating to policy outcomes (especially burden-sharing and the distribution of policy benefits). To integrate the whole spectrum of equity-related criteria, the APRAISE 3E Method could be further extended to the analysis of equity in policy design and implementation processes.

4. Experience from policy evaluation has highlighted the importance of the ***policy evaluation process*** itself as a source of influence. The APRAISE case study analysis shows that including the relevant policy actors in the implementation of the APRAISE 3E Method is crucial for its success, but it also constitutes a significant challenge. This is important because policies can have multiple, sometimes mutually contradictory and poorly defined objectives. The prioritisation and weighting between such competing objectives as evaluation criteria is a fundamentally political process, and therefore requires the inclusion of the relevant stakeholders. Such inclusiveness would also help to ensure that a maximum of relevant perspectives are considered in the evaluation.

Overview of APRAISE products

D2.1 Report on new qualitative ex post and ex ante evaluation methods

D2.2 The APRAISE 3E Method – methodology document

D2.3 Report on new quantitative modelling approaches for environmental policymaking

D3.1 Report on interactions of environmental policy instruments – case study analysis

D3.2 Report on sustainable technology development as a result of EU environmental policies

D4.1 Report on reference scenarios for environmental policy case studies with baselines and alternative futures

D4.2 Proceedings of the Stakeholder Consultation Workshop on modelling results

D4.3 Report on modelling outcomes of policy scenarios

D5.1 Report on integration of empirical and model-based results based on case study analysis

D5.2 Proceedings of Stakeholder Consultation Workshop on evaluating environmental policies

D5.3 A synthesis of results from the APRAISE project

D6.1 Dissemination and Communication Plan (Version 1, 2, 3 & 4) for APRAISE project

D6.2 APRAISE project website

Assessment of Policy Interrelationships and Impact on Sustainability in Europe

The APRAISE 3E Method helps policymakers to assess the anticipated effect(s) of a policy (instrument) during its design stage, by making better-informed assumptions about their contextual, implementation and stakeholder behaviour aspects, including possible interactions with other policy instruments. The method thus helps to close the gap between expected/intended and achieved policy effects and impacts. At the same time, the method is applicable in any member state and lessons from these applications can be relevant for multiple policymaking levels.

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