

The [climate policy mix](#) in the European Union (EU) contains instruments of two different types: non-market based and market-based instruments. While the articles "[Non-market-based climate policy instruments in the EU](#)" and "[Market-based climate policy instruments in the EU](#)" gave an introduction into this categorisation and the policy instruments contained in each category, the purpose of this article is to introduce criteria to evaluate the various instruments and to discuss the pros and cons of both instrument types.

## **1. Differentiating non-market-based and market-based instruments**

Climate policy instruments can be classified into non-market-based and market-based instruments. Non-market based instruments work through the imposition of certain obligations or by installing non-monetary incentives to change behaviour. Market-based instruments are indirect regulatory instruments, which influence actors' behaviour by changing their economic incentive structure<sup>1</sup>. Costs resulting from environmental pollution, such as [GHG](#) emissions, are added to the price of the original emitting process to signal and incentivise the polluter to reduce this impact. Nevertheless, this binary distinction by definition simplifies the complexity of policy instruments. Often one kind of instrument will, to a certain degree, also reflect elements of the other kind.

## **2. Simultaneous application of various policy instruments can have synergetic and opposing effects**

There is no agreed set of criteria to evaluate climate policy instruments that is universally accepted. Often policies are evaluated with a bias towards the concept of present cost minimisation (static efficiency). However, it can be argued that a broader evaluation framework is necessary, including three main criteria, which influence practical feasibility; these criteria are environmental effectiveness, cost effectiveness and additional impacts on society, e.g. income distribution or employment<sup>1</sup>. All climate policy instruments differ in their score on these criteria and their introduction is highly embedded into societal processes. In addition, the simultaneous application of various instrument types can have synergetic but also [contradictory effects](#), considering that the exploitation of the theoretical potential of policy instruments depends on the final details in policy design and its implementation.

## **3. Non-market-based instruments alone may fall short in cost-effectiveness**

The different types of climate policy instruments all entail advantages and disadvantages regarding environmental effectiveness, cost effectiveness and additional impacts on society e.g. income distribution or employment, which stem from their own characteristics. Command-and control regulation (a non-market-based instrument) is a direct means of addressing [GHG](#) emissions and can therefore perform well in terms of environmental effectiveness. However, considering the varying costs of possible [GHG](#) abatement measures, a direct intervention might not result in the most cost-effective measures being introduced. Moreover, if applied alone a purely regulatory approach might have to become increasingly intrusive to address possibly occurring rebound effects<sup>2</sup>. Nevertheless, command-and-control measures can play an important role in innovation and technology development. By supporting and developing currently not profitable technologies, the range of available abatement options can be increased by bringing these technologies to market maturity. Together with price mechanisms, command-and-control can create a market for new technologies<sup>2</sup>.

## **4. Market-based instruments alone may face problems of**

## **acceptance and environmental effectiveness**

Pricing instruments ideally perform well in terms of (static) cost-effectiveness. Their revenue (where such is generated) can also help fund other policy programmes. However, applied alone they would likely require very high price levels to trigger desired changes, which could have a negative effect on low-income households and vulnerable industry sectors<sup>2</sup>. Market-based instruments have a high distributional impact. Furthermore, humans do not always respond to price signals in the desired way; reaction can also lag behind for a certain time span. Given incumbent interests and technology lock-in effects, market-based instruments alone are likely to not provide sufficient incentives for innovation and innovation diffusion. A combination with command-and-control tools and dedicated technology support might therefore be necessary.

### **5. Hybrid instruments can reduce shortcomings of both instrument types**

Due to their complementary characteristics, diversity within the policy instruments can effectively combine environmental and economic motivations. Smart policy design should take the respective characteristics of the different policy types into account and choose the most suitable policy based on the function it is meant to fulfil - in the respective context.

A hybrid policy approach can thereby reduce short-comings of each single instrument and lead to an improved outcome in comparison to the introduction of a single policy type.

#### Sources

- [1. a. b.](#) Görlach, Benjamin, "What constitutes an optimal climate policy mix? Defining the concept of optimality, including political and legal framework conditions", CECILIA2050 Deliverable 1.1, (Berlin: Ecologic Institute, February 2013), online available at:[http://cecilia2050.eu/system/files/G%C3%B6rlach%20%282013%29\\_What%20cons...](http://cecilia2050.eu/system/files/G%C3%B6rlach%20%282013%29_What%20cons...)
- [2. a. b. c.](#) Grubb, Michael, Jean-Charles Hourcade, Karsten Neuhoff, Planetary Economics - Energy climate change and the three domains of sustainable development, (Abingdon: Routledge, 2014).