Towards the European Energy Union:

Decarbonisation in the Danube Region

Background paper

Contribution of the Danube Region to the debate on the Energy Union

- Final Draft -

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Introduction

This paper assesses the 2030 EU carbon policy target setting from the point of the Danube Region (DR) countries. As this process only applies to the EU members, the paper focuses on those DR countries that are Member States of the EU.[1]

The assessment is based on previous studies dealing with the EU 2020 and 2030 greenhouse gas targets and its distribution among the Member States.[2] The 2030 GHG target is agreed by the European Council, however the details of sectoral targets (ETS and non-ETS sectors (ESD)) and the effort sharing among the Member States in the ESD sector is still an ongoing discussion where the DR countries could potentially step up with their own vision.

This paper is divided to the followings sections:

- Long term reduction needs until 2050 under a 80% reduction scenario
- 2020 GHG target setting and DR performance
- The 2030 climate policy framework and the effort sharing options
- Policy conclusions

Long term reduction needs until 2050 under a 80% reduction scenario

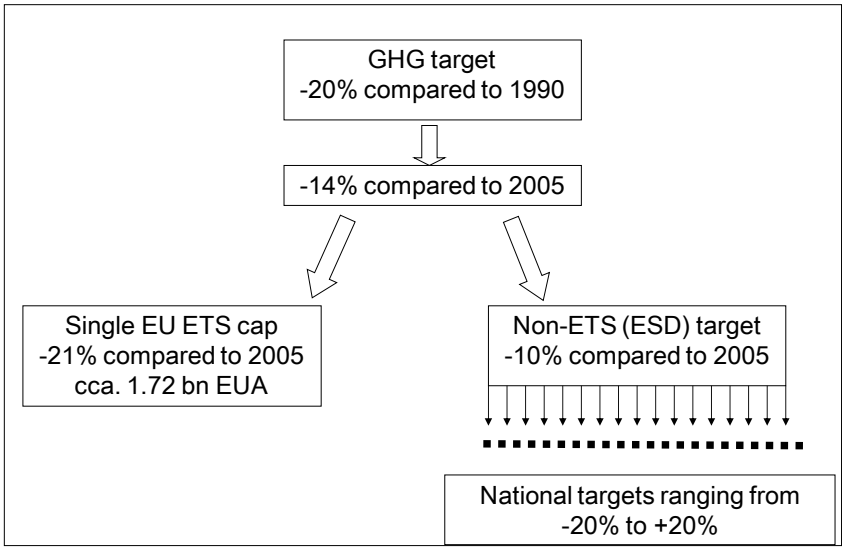
"20-20-20" Energy and climate package

The "20-20-20" Energy and Climate package defines a GHG reduction target is 20% compared to 1990 that translates into a 14% reduction compared to 2005. The target is split into two parts: in the ETS sector – which gives 40% of the total EU28 GHG emission – the community level reduction target is 21% (compared to 2005), while in the non-ETS (or ESD) sector it is 10%.

[1] These EU Member States are Austria, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Romania, Slovenia and Slovakia.

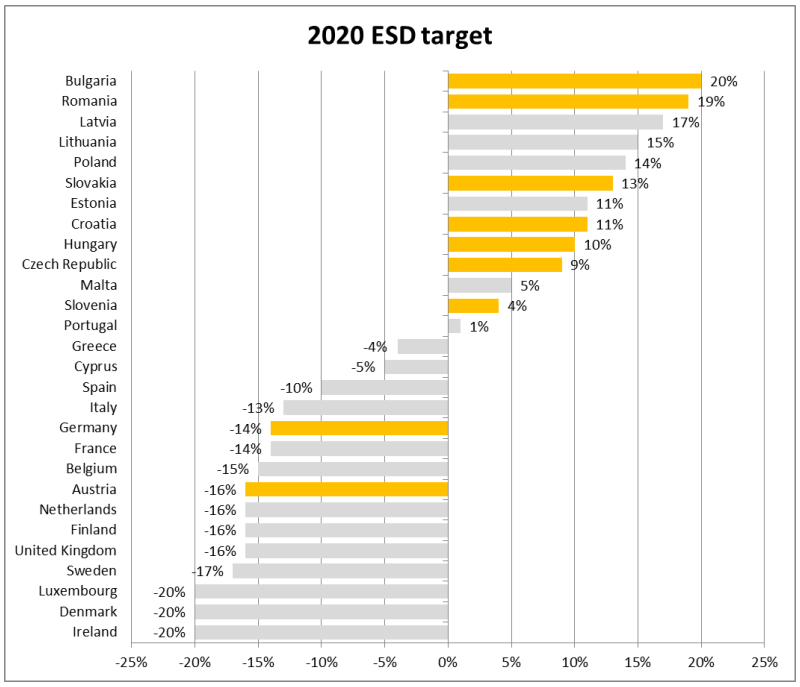
[2] The two most recent papers used in this assessments for the ESD sector: Öko-Institute (2014):Options for Non-ETS target setting in 2030. and Uk-Non paper (2014): EU 2030 climate and energy framework - costs and benefits for member states of scenarios for effort sharing in the non-traded sector

1. Figure: 2020 target setting



Whereas the ETS is a common market based scheme of GHG emitting installation of the EU, the ESD sector reduction target is allocated among the Member States based on „ability to pay" principle. While the poorer MSs are allocated positive target from +1% to +20% (they can increase their emissions), wealthier MSs are allocated negative target (reduction) from -4% to -20%. ESD quotas are tradable between Member States to support the efficiency of mitigation at EU level. DR countries are in two clusters as the following figure illustrates: DR countries with lower GDP can increase their emission in the ESD sector compared to base year (2005), while Austria and Germany have to reduce their GHG emission.

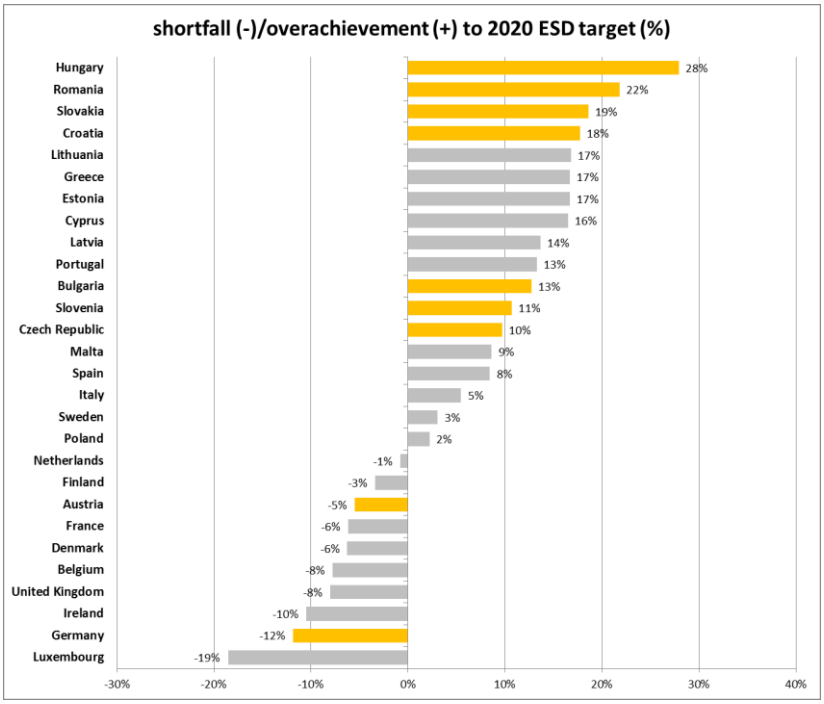
2. Figure: GHG reduction targets in the ESD sector compared to 2005



The comparison of the 2020 target with the GHG emissions in 2013 in the ESD sector reveals that the first four "best performing" countries belong to the DR region. Hungary and Slovakia achieved the highest GHG reduction between 2005 and 2013 due to the economic recession and the energy

efficiency investments the countries have undertaken. We can also see that Germany still has to make significant effort to meet its GHG reduction target: it has the second highest gap amongst the EU Member States.

3. Figure: The difference between the 2013 GHG emissions and the 2020 ESD target

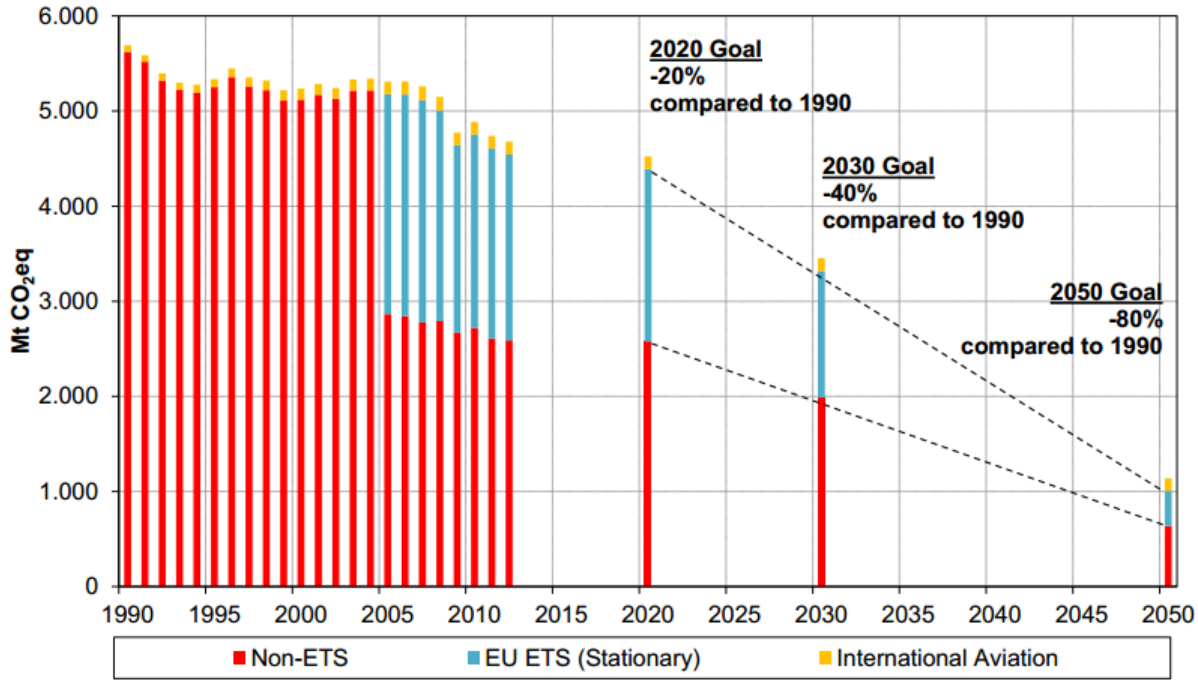


2030 target

In 2011 the European Commission published its long-term decarbonisation vision.[3] According to this vision the 2050 goal is to reduce the GHG emission in the EU by 80% compared to 1990 levels. In order to reach this target the European Commission defined a 40% GHG reduction target 2030 target in 2014 that has been agreed by the Member States. This pathway is illustrated in the following figure.

4. Figure: Medium and long-term GHG reduction targets in the EU

[3] **A Roadmap for moving to a competitive low carbon economy in 2050,** COM(2011) 112 final



Source: Oko-Institute, 2014

The 2030 climate policy framework

The 2030 policy framework for climate and energy sets a 40% GHG reduction target (on the 1990 emission basis) that is split – based on modelling - between the ETS and non-ETS sectors resulting in the following distribution between the ETS and Non-ETS sectors:

- ETS: 43%(2005 baseline)
- Non-ETS: 30% (2005 baseline)

The Commission in its Impact Assessment analyzed various scenarios regarding target level and sharing options, energy efficiency efforts and renewable energy deployment levels. The main scenarios are indicated in the following table.

Table 1. GHG reduction scenarios for 2030

	REF	35% GHG + EE	37% GHG	40% GHG REF	40% GHG REF+	40% GHG + EE	40% GHG + 30% RES + EE	45% GHG + 35% RES + EE
GHG emissions reduction compared to 1990	-32.4%	-35.4%	-0.37	-40.4%	-40.6%	-40.3%	-40.7%	-45.1%
RES share	24.4%	25.5%	24.7%	25.5%	26.5%	26.4%	30.3%	35.4%
Energy savings	-21.0%	-24.4%	-22.9%	-24.4%	-25.1%	-29.3%	-30.1%	-33.7%
GHG emissions reduction in the ETS sector compared to 2005	-36%	-37%	-38%	-42%	-43%	-38%	-41%	-49%
GHG emissions reductio in the non-ETS (ESD) sector compared to 2005	-20%	-26%	-28%	-31%	-30%	-35%	-33%	-34%
EUA price (€/t)	35	27	35	53	40	22	11	14

Source: EC Impact assessment, SWD 2014, p16

As the table indicates both the optimal share between the ETS and ESD sectors and the carbon value (EUA price) fluctuates significantly across the assessed options. Even in the four alternative 40% reduction scenarios the resulting EUA price ranges significantly, between 11-53 EUR/tCO_2. This also indicates the profound interaction between the renewable and GHG policies of the EU and also the energy efficiency measures the MSs undertake.

The table also illustrates, that the system design will have serious impact on the functioning of the ETS and the electricity sector as well as a 53 € EUA price fundamentally modify the operation of the sector. The central 40% reduction scenario (40% GHG REF+) implies a 40 Euro/tCO_2 EUA price which indicates a solidly increasing carbon value path for the ETS sectors.

The 2030 framework poses several questions to the Member States regarding their policy preferences:

- a climate policy primarily focusing on the ETS sectors resulting in a higher carbon price for the participating actors (electricity and energy intensive industrial installations)
- a mixed policy portfolio including more specific renewable and energy efficiency measures, leaving less level of playing field for MSs.

These questions need further assessment from the DR countries aiming to discover if common strategies could be built for united actions for the region.

The ESD sector

Concerning the ESD sector where MSs have higher policy leverage on future GHG emissions, the presently available assessments (UK Non-paper, 2014; Oko-Institute 2014) differentiate between three alternative target setting methods for national ESD targets:

- relative GDP per capita (similar to 2009 effort sharing decision)
- cost-efficient allocation of targets
- approach balancing both cost-effectiveness and relative GDP per capita.

The following figures illustrate the impacts of the various target setting methods on MSs concerning their GHG targets and the GDP costs to fulfill these targets. These figures are based

on the UK Non-paper (2014), where we have highlighted the DR countries in order to show if they face similar burden under the various target setting methods.

Figure 5. Results of the Cost efficient allocation method

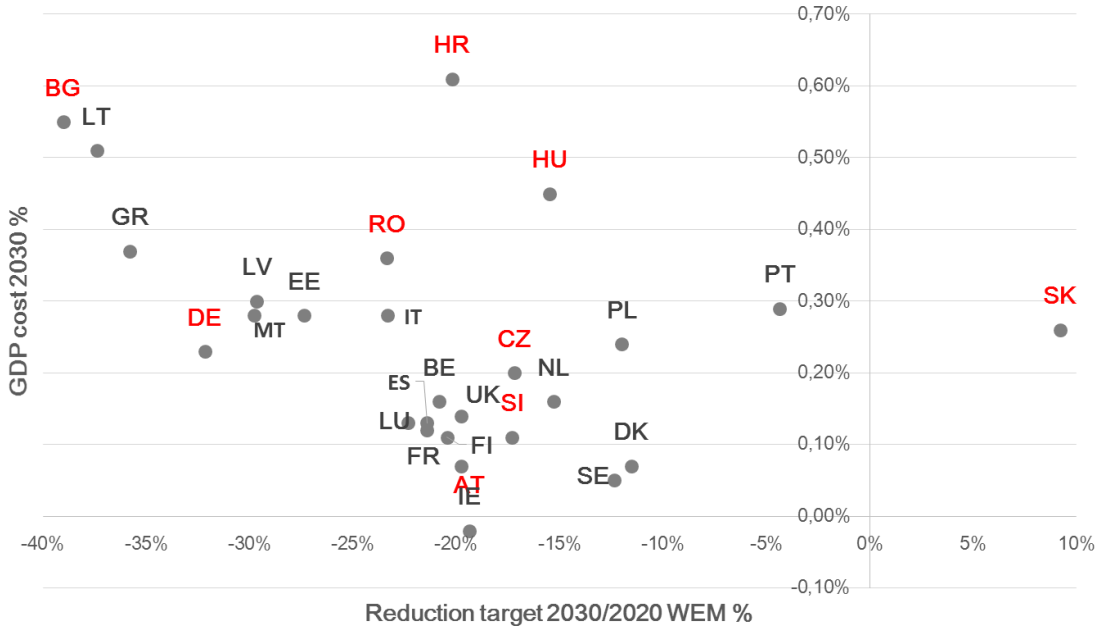


Figure 6. Results of the GDP/Capita allocation method

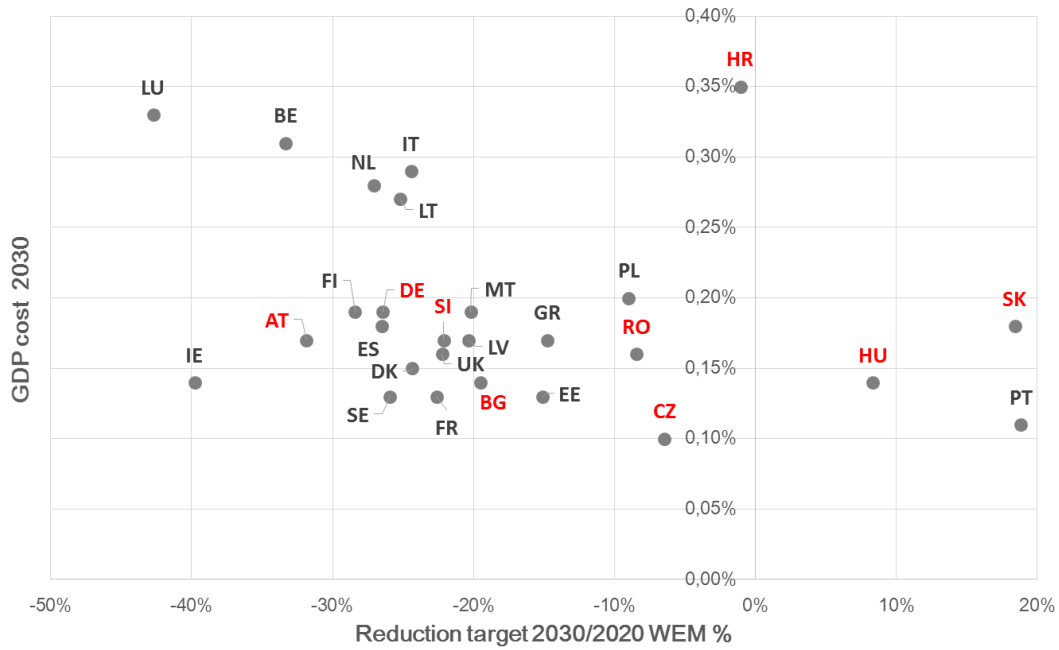
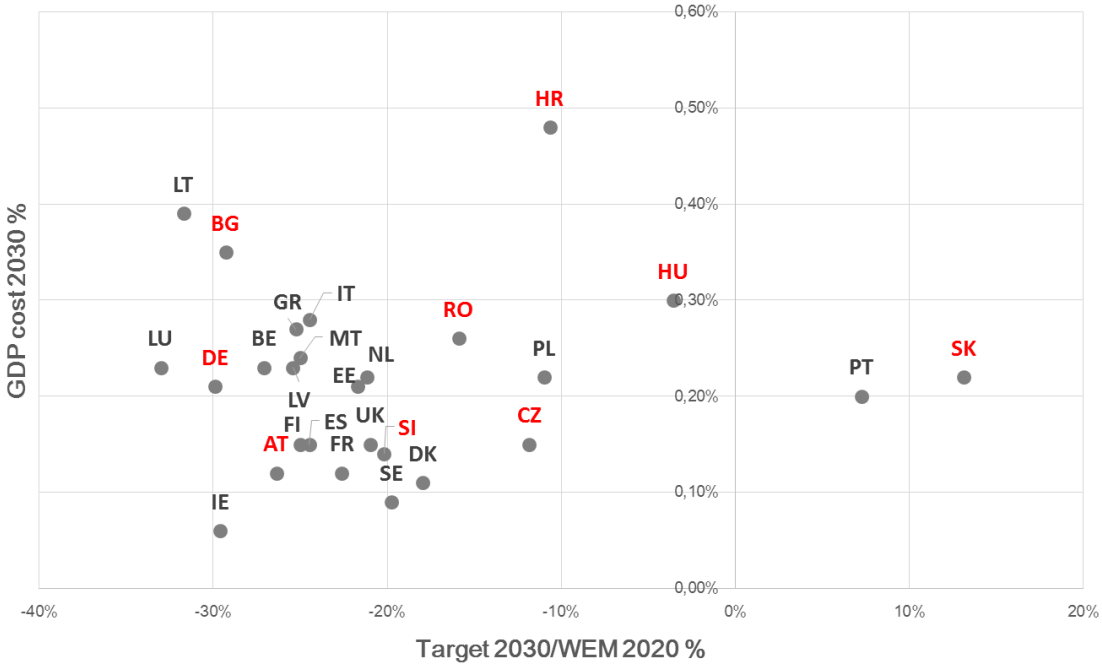


Figure 7. Results of the Balanced allocation method



As the three figures on the allocation methods illustrate, the cost impact is the lowest for the DR countries if the national targets are allocated according to the GDP/Capita allocation method. In addition, in the cost efficient and the balanced method many wealthier countries take lower burden (measured in GDP cost term in 2030) than the lower per capita DR countries. This is a clear indication that DR countries could develop a common strategy to support this allocation method for the target setting.

Policy conclusions

The conclusions of our preliminary assessment could be summarized as follows:

1. Acknowledgement of early action is a key issue for the Danube Region countries. This will help lower income DR countries to reduce the GDP cost impacts of their climate actions.
2. On the implication of the various alternative target setting methods on the DR countries the following statements could be made:
    a. For DR the GDP/Capita target setting method is the most advantageous, having the lowest GDP cost of compliance.
    b. The cost efficient target setting method results in the highest GDP impact for the DR countries. Many DR countries (with lower per capita GDP) face the highest GDP impact in this case.
3. A single community wide climate target supports flexibility for DR to meet climate objectives according to their policy preferences: e.g. nuclear, energy efficiency investments.
4. DR countries have to take into consideration the political importance of RES-heat versus RES electricity in their energy sector.

On this basis Danube Region countries should provide support for Actions 9 (2), 10 (2) and 13 listed in the Energy Union package:

- Importance of building energy efficiency,

- Investments in heating and cooling, and
- 27% RES target for 2030.