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Working Paper

Does the Effort Sharing Regulation require sufficient emission reductions to meet the EU 2030 target?

Oeko-Institut Working Paper 7/2017

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Zusammenfassung

Ziel der Studie ist es, den Vorschlag der Europäischen Kommission für eine Lastenteilungsverordnung (Effort Sharing Regulation, ESR) mit den Verhandlungspositionen des Europäischen Rats und des Europaparlaments zu vergleichen und zu bewerten. Die ESR legt die Rahmenbedingungen für die Begrenzung der Treibhausgasemissionen in den Jahren 2021-2030 der nicht vom EU Emissionshandel erfassten Sektoren fest. Die Regierungschefs der Mitgliedsländer der EU haben vorgegeben, dass die ESR im Jahr 2030 eine Reduktion der THG-Emissionen um 30 % gegenüber dem Jahr 2005 erreichen soll. Das ist gleichzeitig der Beitrag der betroffenen Sektoren zu dem Klimaschutzziel der EU unter der Klimarahmenkonvention, mit dem sich die EU zu einer Reduktion von mindestens 40 % unter den THG-Emissionen von 1990 verpflichtet hat.

Die Vorschläge des Rats und der Kommission könnten zu einer Verfehlung des 30 %-Ziels um 4,5 Prozentpunkte führen. Eine Reduktion der kumulierten Emissionen der betroffenen Sektoren zwischen 2021 und 2030 um nur 0,5 % gegenüber der von der Europäischen Kommission veröffentlichten Referenzentwicklung würde dafür reichen. Die Position des Parlaments würde die Lücke zwischen dem erwarteten Emissionsniveau in 2030 und dem ESR-Ziel auf 1,5 Prozentpunkte reduzieren. Um dies zu erreichen, müssten die Emissionen in der Periode 2021-2030 insgesamt um 2,5 % sinken.

Abstract

This paper analyses the legislative proposal of the European Commission and the negotiating positions of the Council and the Parliament related to the EU Effort Sharing Regulation (ESR). The ESR sets the framework for the reduction of EU-28 greenhouse gas emissions not covered by the EU Emissions Trading System (ETS) in the 2021–2030 period. The ambition of the ESR, as agreed by the EU head of states, is to ensure that the EU-28 emissions in the ESR sector in 2030 will be 30 % below 2005 levels; this is also the ESR sector's contribution to the overall EU-wide emission reduction target of at least 40 % below 1990 levels as pledged under the UNFCCC.

The proposals by the Council and the Commission would risk missing the 30 % reduction target by 4.5 percentage points. The ESR proposal by the European Parliament is found to close the gap between EU-28 ESR emissions expected in 2030 and the 2030 ESR target by over two thirds, compared to the Commission/Council proposals. This corresponds with raising additional EU-28 emission reduction efforts during the 2021-2030 period from 0.5 % (Commission/Council) to 2.5 % (European Parliament), compared to the Reference Scenario established by the European Commission.

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1. Introduction

The purpose of this working paper is to compare the proposals of the European Commission (July 2016), the European Council (Oct. 2017) and the European Parliament (June 2017) for the Effort Sharing Regulation (ESR). Indicators for assessing the stringency of the proposals are the expected emission levels in 2030 and the total additional reduction effort by the EU-28 during the 2021-2030 period. The proposals by the Commission and the Council (European Council 2017) do not differ for the two selected indicators and are therefore assessed together and compared to the position of the European Parliament.

The proposed Effort Sharing Regulation (EC 2016c) sets annual binding limits for each Member State for emissions not covered by the EU ETS. To meet their obligations under the ESR, Member States can use different flexibilities (Böttcher & Graichen 2015; Graichen et al. 2015), which

a) do not change the total ESR emission budget: borrowing, banking, AEA (annual emission allocation) trade, project-based mechanism; and which

b) increase the ESR emission budget: use of ETS units, accounting of LULUCF sinks and issuance of one-off AEAs for some Member States in 2021.

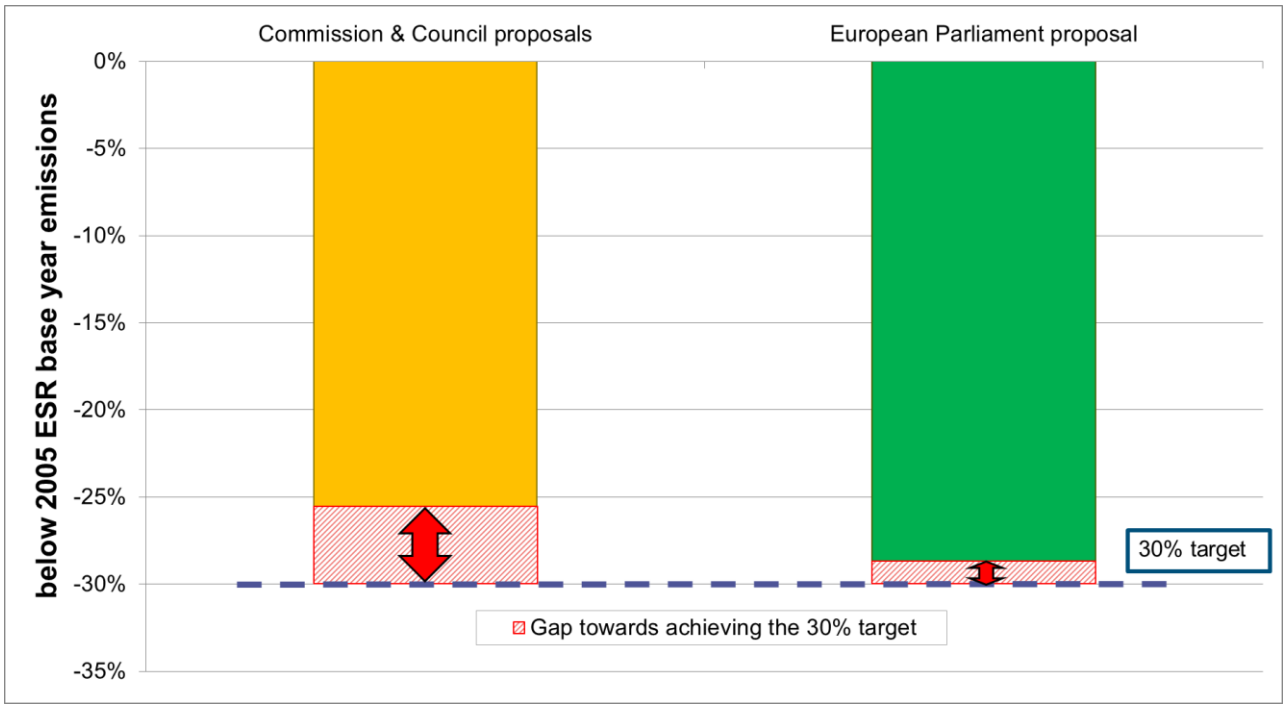
Both the Council and the Parliament propose an additional safety reserve which could increase the total ESR budget, but only if the 2030 target is overachieved.

The annual binding limits under the ESR for Member States and the flexibilities allowed shall path the way to a sound contribution of ESR sectors to the Nationally Determined Contribution (NDC) of the EU under the Paris Agreement. To achieve the overall GHG reduction target of at least 40 % compared to 1990, a 43 % reduction in the emissions of sectors covered under the EU ETS and a 30 % reduction in the sectors covered under the Effort Sharing legislation compared with 2005 are foreseen. The targets contained in the ESR are minimum targets. Experience gathered with the Effort Sharing Decision 2013-2020 shows that overachievement by some Member States is possible.

2. Key results

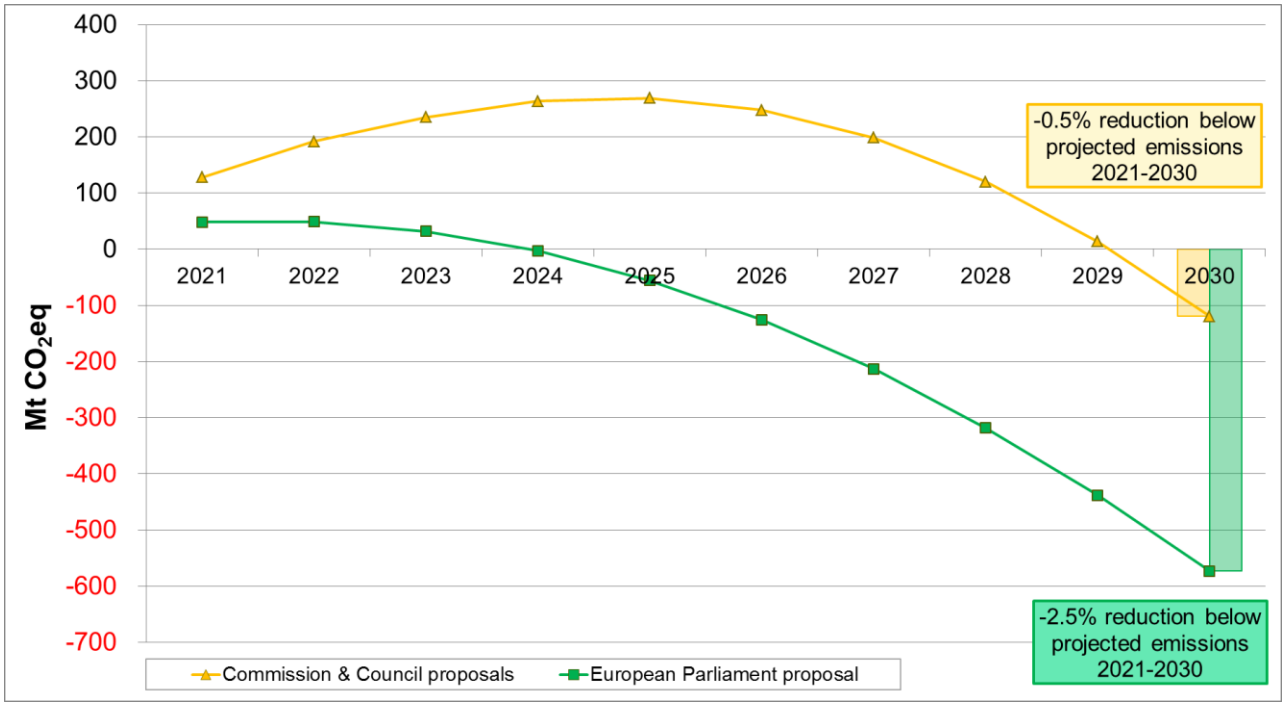
Our analysis of the legislative **proposal by the Commission and the position of the Council** shows that the EU would risk missing its 2030 non-ETS target by 4.5 percentage points. The **amendments tabled by the European Parliament** would close this expected gap by over two thirds. This corresponds with raising additional EU-28 emission reduction efforts required beyond the Commission's Reference Scenario during the 2021-2030 period from 0.5 % (Commission/Council) to 2.5 % (European Parliament). Figure 1 and Figure 2 show the results of the comparative analysis.

Figure 1: Expected 2030 emission reduction levels in the ESR sectors



Source: Öko-Institut based on EC (2016a), EC (2016c) and EP (2017)

Figure 2: Accumulated ESR surplus 2021-2030



Notes: Negative values of the surplus mean a reduction effort, i.e. the cumulated emission budget is lower than the projected emissions.

Source: Öko-Institut based on EC (2016a), EC (2016c) and EP (2017)

Under the **Commission/Council proposals** the EU could significantly miss its 2030 emission target even if all Member States were in compliance with the ESR requirements. Assuming Member States take continuous and gradual action to comply with the ESR in the 2021-2030 period, EU-28 ESR emissions would be approx. 25.5 % below 2005 levels in 2030. This falls short of the 30 % reduction which is necessary as the contribution of the ESR sector to the overall emission reduction of at least 40 % compared to 1990 levels in 2030. The reason for missing the 2030 target is a structural surplus of ESR emission allowances up to 2029. Compared to the Reference Scenario by the Commission (EC 2016a) which includes a projection of GHG emissions under the scope of the ESR, Member States would only need to reduce their total 2021-2030 ESR emissions by an additional 120 Mt CO_2eq or 0.5 %.

The **proposal by the European Parliament** would require the EU's emission level to be reduced to almost 29 % below 2005 levels. This is due to a lower starting point in 2021, which ensures that the surplus in the ESR is much lower to begin with and would be used up by 2024. The lower starting point reduces the overall 2021-2030 ESR budget by approx. 450 Mt CO_2eq compared to the Commission/Council proposals. Compared to the Reference Scenario, Member States would need to reduce their total 2021-2030 ESR emissions by 570 Mt CO_2eq or 2.5 %.

Based on the Commission/Council proposals and assuming that the ETS meets its target in 2030, the EU as a whole would only require a reduction of 37.1 % below 1990; the EP proposal would lead to a reduction of 38.7 %. Both would miss the 40 % target of the EU-28.

3. Methodology and assumptions

Two indicators were selected to assess the stringency of the proposals: the expected EU-28 emission level in 2030 and the total additional reduction effort during the 2021-2030 period. The expected 2030 emission level is used as an indicator because it was part of the mandate given by the EU heads of states to the Commission and forms a basis for the EU's Nationally Determined Contribution (EU 2015; European Council 2014); the total budget is the most relevant in terms of mitigating climate change (Meinshausen et al. 2009). The Reference Scenario was used as the basis for the quantifications instead of Member State projections to ensure consistency between Member States as well as with the analysis carried out by the Commission.

Annual ESR surplus

The estimates are based on the annual application of all rules for all Member States individually. The EU-28 quantities are given as the sum of all Member States and shown in Figure 3 and Figure 5. The following elements are included in the analysis:

- **Annual AEA surplus**
  The annual surplus is calculated as the difference between the annual target path (AEA) and the projected emissions in the Reference Scenario. A positive value signifies a surplus (i.e. that the AEA is higher than required for that year), a negative value a deficit (i.e. that emission projections are above the AEA).

- **Surplus from previous years**
  Member States may bank any unused AEA for use in future years. The Parliament proposes to cap the maximum quantity that can be banked. As long as Member States that have large quantities of surplus AEA sell these to Member States with deficits or with a surplus below the limit, this cap will not be applied in the EP proposal, because the EU as a whole does not exceed the proposed limit.

- **ETS flexibility (98 Mt CO_2eq)**
  It is assumed that all eligible Member States will use their flexibility to the maximum extent possible.

- **LULUCF use (up to 280 Mt CO_2eq)**
  Member States may use net removals from LULUCF up to a certain limit over the 10 year period. In any given year, Member States may only use these removals if they have an AEA deficit for that year, if they actually have a net removal and if they remain under the individual limit. The potential annual removals are estimated without considering forest management, as this cannot be quantified without knowing the actual reference levels for the 2021-2030 period and the eventual deviation of the real emissions/sink from this value. Depending on the reference level, forest management could create debits or credits. The maximum impact of a reference level that would lead to large removals is discussed for both proposals.
  The EP proposes that the AEA deficit needs to be a cumulated deficit from 2021 until the given year, i.e. AEA surpluses in earlier years would reduce the permitted use of removal quantities in later years.

- **One-off flexibility (approx. 40 Mt CO_2eq)**
  Some Member States receive an additional AEA in 2021. This quantity does not impact the linear reduction path in the subsequent years. The Council proposes a slightly increased level for this flexibility.

- **Safety reserve**
  Both the Council and the Parliament propose a safety reserve which would allow some Member States to use a share of their surplus from the Effort Sharing Decision for the years of 2013-2020. While some rules differ, both proposals require that the EU would overachieve the ESR target of 30 % below 2005. As our analysis does not include any measures to reduce emissions beyond required levels, the reserve is not triggered.

- **Accumulated net surplus**
  This is the accumulated sum of all the above elements for each year. The 2030 value is the additional reduction effort for the whole ten year period compared to the Reference Scenario.

ESR target pathway

The net surplus in 2030 is the overall reduction effort necessary to achieve the ESR requirements. In other words, this constitutes the quantity of GHG emissions that need to be reduced through additional policies and measures in addition to the reference scenario. There is not one single pathway to meet the ESR: ambitious early action would lead to a higher surplus in the beginning of the period which could then be used in the second half. Late action would require more ambitious short-term reductions in order to still achieve the 2021-2030 budget. We have assumed a gradual increase of the reduction efforts in the form of a triangular deviation from the reference scenario. There are two reasons for using this approach: Firstly, emission reductions in the ESR sectors (mainly housing, transport, agriculture) need a mid- to long-term time horizon; there is a lack of short-term high-impact options for these sectors. Secondly, the Commission also used this approach in its impact assessment which accompanied the draft ESR (EC 2016b).

The additional measures have been scaled so that they achieve the ESR budget over the 10 year period. The calculations assume full trade (i.e. any country with a surplus is willing to sell its AEA and the countries with a deficit will buy all available AEAs). Together with borrowing/carrying forward, each Member State will then be in compliance for all years of the ESR period. The resulting target path is compared to the 2005 base year under the Effort Sharing Decision, not with reported historical emissions, in line with the Commission proposal (EC 2017).

4. Detailed analysis of the proposals

4.1. Proposals by the European Commission and the European Council

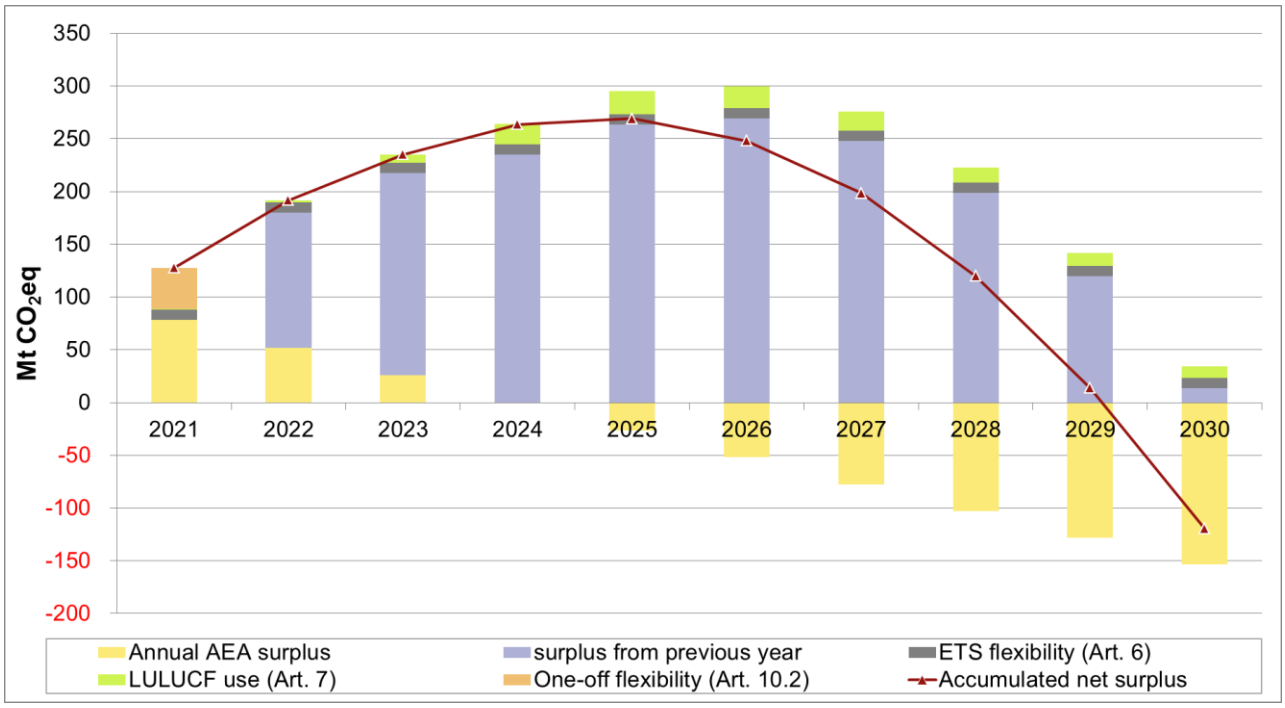
The annual accumulated ESR surplus shows clearly that the starting point proposed by the Commission is projected to lie above actual emissions between 2021 and 2023 (Figure 3).The AEA deficit between 2025 and 2027 compensates the initial surplus but it takes until 2030 for the net demand in the ESR to be below the supply. These extra years are due to the various flexibilities which introduce an estimated 265 million additional emission rights into the system overall.

The development of the use of LULUCF is in line with the rules: in the initial years only few countries have an AEA deficit and are therefore eligible. Towards the end of the period some countries have used their maximum quantity and cannot account further removals. Some Member States will not be able to use their (full) LULUCF budget at all.

Overall, there is only a deficit of 120 Mt CO_2eq over the ten years compared to a total budget of 22 590 Mt CO_2eq; compared to emissions of the Reference Scenario the additional reduction effort is only 0.5 %. In the worst case, if a reference level for forest management is chosen that led to large quantities of removals in all Member States, the total deficit would be as low as 40 Mt CO_2eq (0.2 % reduction of the 2021-2030 projected emissions).

Figure 4 shows a possible target path and the resulting reduction below 2005 levels. The difference between the green emission projection and the dashed green target scenario shows that there is little reduction effort required. Overall a reduction of 25.5 % below 2005 would be sufficient to achieve the ESR target; in comparison, under the Reference Scenario emissions are already projected to be 24.7 % below the ESR 2005 base year in 2030. Such a target path would not set the necessary incentives for a transitional change in the Effort Sharing sectors which is needed to achieve EU's long-term goal, an overall reduction of 80-95 % below 1990 by 2050.

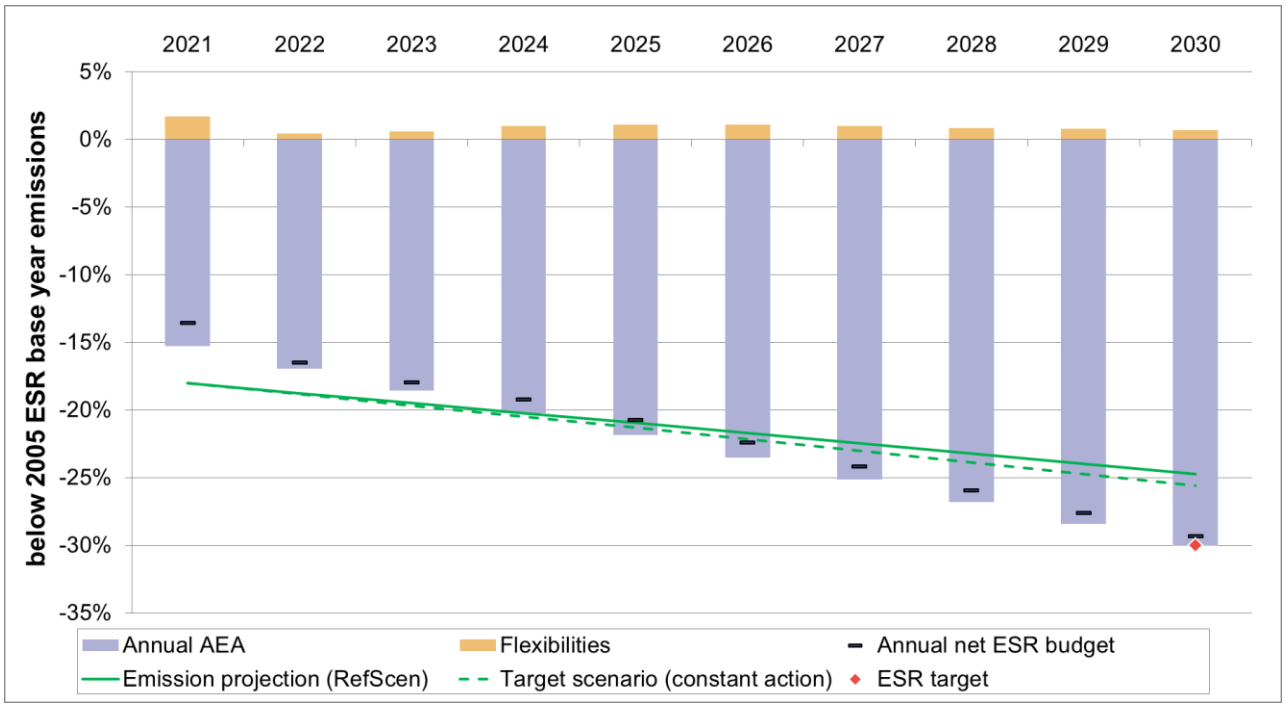
Figure 3: Annual accumulated ESR surplus in the Commission/Council proposals



Notes: Negative values of the surplus mean a reduction effort, i.e. the emission budget is lower than the projected emissions.

Source: Öko-Institut based on EC (2016a), EC (2016c) and Böttcher & Graichen (2015)

Figure 4: ESR target pathway in the Commission/Council proposals



Source: Öko-Institut based on EC (2016a), EC (2016c) and Böttcher & Graichen (2015)

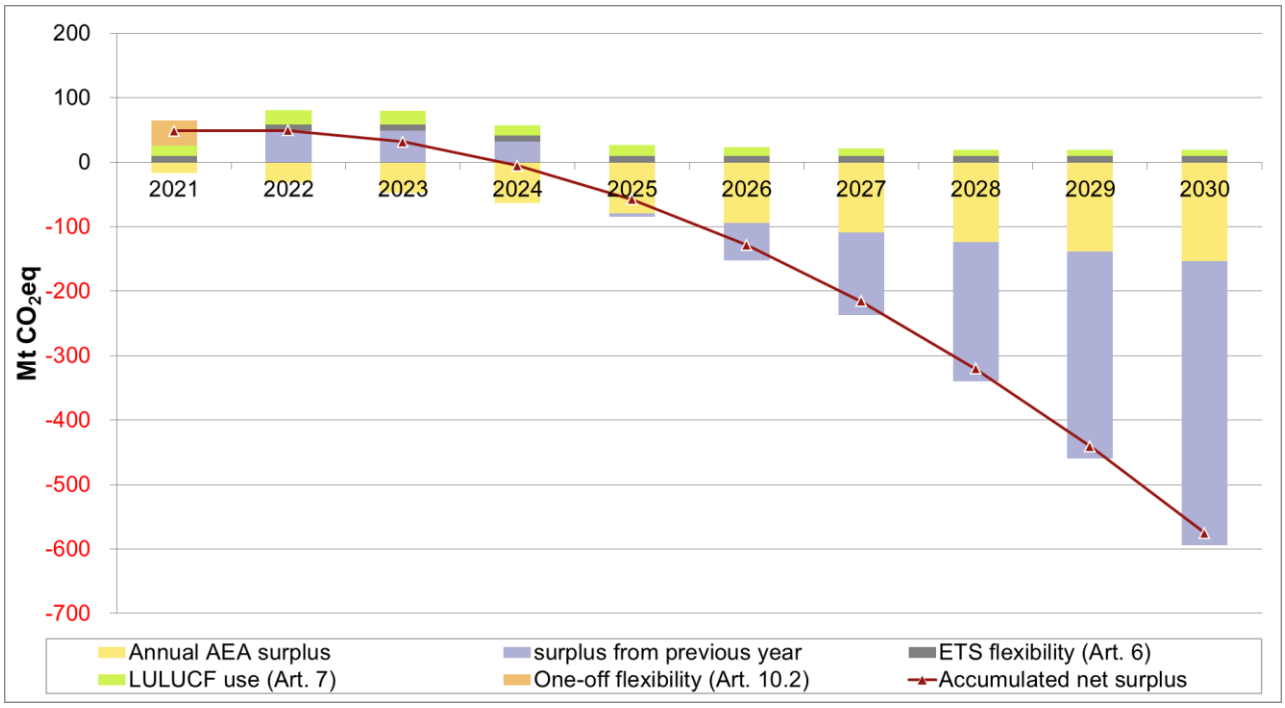
4.2. Proposals by the European Parliament

The European Parliament has tabled two amendments to the Commission proposal which could have a significant effect on the overall emission budget in the ESR. Firstly, the Parliament is in favour of a starting point that would be just below the Reference Scenario in 2021. Secondly, the Parliament wants to limit the use of LULUCF removals to cases in which there is a cumulated AEA deficit between 2021 and the current year; the Commission only requires a deficit in the current year. In addition, a banking limit of 10 % of the annual AEA for the years 2021-2025 and 5 % for the later years is proposed. This limit has no impact in conjunction with the other changes proposed by the Parliament because the EU-28 would not reach this banking limit overall; 14 out of the 28 Member States would have surpluses beyond the limit but would be able to sell these to the other 14 countries. If applied to the Commission proposal, it has the potential to reduce a share of the surplus.

Due to the much lower starting point, there is already a small AEA deficit in the first year. Despite this, there would be a small surplus during the first three years of the ESR period due to the various flexibilities (see Figure 5). This could help alleviate fears that there would not be sufficient liquidity in the market in the early years before Member States have taken action due to the ESR. Overall, the cumulated deficit up to 2030 would be 570 Mt CO_2eq. The extra restriction on LULUCF credits by the Parliament would not have much of an impact under the EP proposal, because more Member States have a cumulated deficit up to the end of the period. If this restriction were applied to the otherwise unchanged Commission/Council proposals, it would reduce the availability of offsets by approx. 20 Mt CO_2eq.

Figure 6 shows a possible target scenario using the same assumptions as above. Due to the much larger deficit, Member States and the EU as a whole would need to take more decisive action. The EU would be required to achieve a reduction of almost 29 % compared to 2005, which is much closer to the ESR target for 2030; in comparison, under the Reference Scenario emissions are already projected to be 24.7 % below the ESR 2005 base year in 2030.

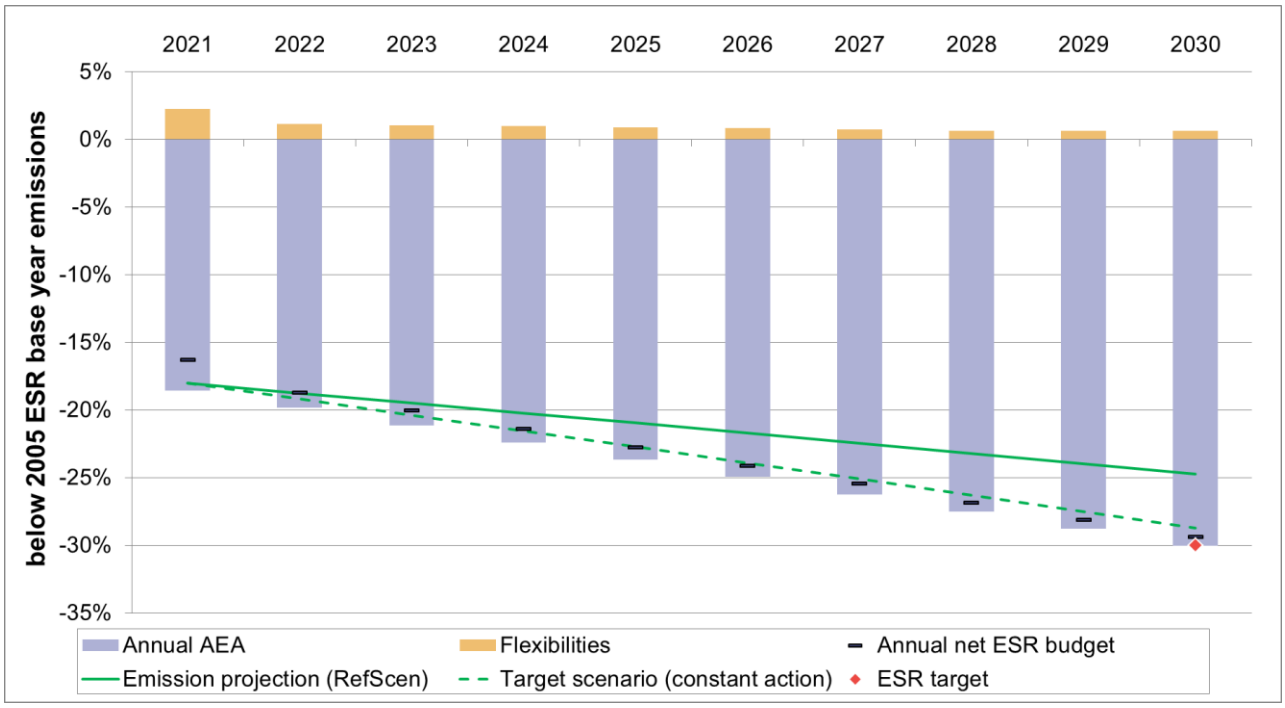
Figure 5: Annual accumulated ESR surplus in the Parliament proposal



Notes: Negative values of the surplus mean a reduction effort, i.e. the emission budget is lower than the projected emissions.

Source: Öko-Institut based on EC (2016a), EC (2016c) and Böttcher & Graichen (2015)

Figure 6: ESR target pathway in the Parliament proposal



Source: Öko-Institut based on EC (2016a), EC (2016c) and Böttcher & Graichen (2015)

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