



Strengthening synergies between climate effort sharing & energy savings obligations

An input to the “Fit for 55” package

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Authors:

Jakob GRAICHEN, Senior Researcher, Öko-Institut

Stefan SCHEUER, Director, Stefan Scheuer Consulting

Samuel THOMAS, Senior Advisor, The Regulatory Assistance Project

Editor responsible: Stefan SCHEUER

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1. Context: National efforts in a changing climate and energy savings policy landscape

The European Commission is preparing a “Fit for 55” package¹ to align climate and energy legislation with a higher 2030 climate target².

The “Fit for 55” package is set to contain twelve initiatives. The main ones to implement the new 2030 climate target are:

- a revision of the EU Emission Trading System (ETS) in order to lower the cap on greenhouse gas (GHG) emissions of the sectors covered, while considering extending the scope - by including maritime emissions, and potentially emissions from buildings and road transport or all fossil fuels combustion and waste incineration³; and
- a revision of the Effort Sharing Regulation (ESR) to incentivise the necessary additional action in the effort-sharing sectors. These sectors (currently mainly transport, buildings and agriculture) would need to deliver additional 10% GHG emissions reduction⁴.

The package also includes the revision of the Energy Efficiency Directive (EED) to contribute to the increased climate target, which requires around 36% final and 40% primary energy efficiency by 2030⁵.

The extension of the EU ETS, which the Commission President has considered in her political guidelines in 2019 already, could have significant impacts on the policy landscape, in particular for the ESR. The Commission is looking at the following options:

- phase out the ESR as a consequence of extending emissions trading;
- keep the current ESR sectoral scope in parallel to extending emissions trading; and
- maintain the ESR only in the sectors not covered by emissions trading.

The ESR and EED are closely interlinked. Annual and additional 0.8% energy savings, as required by the EED’s Article 7, have the potential to achieve and even over-achieve the ESR 2030 climate targets, thus helping the EU to get onto a path compatible with the Paris climate objective⁶.

But in practice, the Article 7 energy savings obligation delivers fewer savings than hoped. Several Member States are likely to fail their 2020 obligations or present programmes insufficient to achieve the 2030 obligations⁷, and often Member States count savings which are unlikely to be additional to EU law or not attributable to the reported energy efficiency measures⁸.

Therefore, it is unlikely that the current ESR targets will be overachieved, although this would be necessary to achieve the enhanced climate target⁹.

The national GHG emissions reduction targets set by the ESR are an important driver for action¹⁰. As such, it could help to drive the uptake of energy efficiency policies and

¹ *Fit for 55 package* as presented in the European Commission Work Programme 2021, to achieve a 55% net reduction of greenhouse gas emissions

² Council agreed to a 55% GHG emission reduction by 2030 (17/12/2020); European Parliament called for 60%.

³ EC 2020 Inception Impact Assessment EU-ETS revision

⁴ EC 2020 Inception Impact Assessment ESR revision

⁵ EC 2020 Inception Impact Assessment EED revision

⁶ Rosenow, Graichen and Scheuer 2018, *Destination Paris: Why the EU’s climate policy will derail without energy efficiency*

⁷ The Coalition for Energy Savings 2020, *EED Article 7, National progress and outlook on the energy savings obligation*

⁸ Rosenow and Scheuer, 2019, *Closing the loopholes – Assessment of the potential impact of tax measures on energy savings claimed under Article 7 of the EED*

⁹ Based on Member States’ projections including additional measures the current ESR target will just be achieved (<https://www.eea.europa.eu/publications/trends-and-projections-in-europe-2020>)

¹⁰ The ESR 2018 sets legally binding targets for Member States and requires national corrective actions if the Commission identifies lack of progress.

measures. However, up until now, this was only the case for a few countries. This is explained by the low overall ESR ambition level and the effort sharing approach, which left some countries with targets less demanding than their baseline emissions. In addition, GHG emissions decreased in 2020 due to the impacts of the Coronavirus pandemic and the measures to contain it, further weakening the necessity of delivering longer-lived energy savings.

Increasing the ESR target could change the picture and drive national policies and measures to deliver more energy savings.

On the other hand, reducing the ESR scope or phasing it out due to an extension of the EU ETS would weaken or cancel these positive interactions.

Our study takes a closer look at these interactions:

- How would an increased energy savings obligation contribute to the achievement of a higher ESR target?
- What impact would a higher ESR target have on Member States' compliance with an increase energy savings obligation?
- How do the EU ETS, ESR and the energy savings obligations interact?

2. The EED, ESR and EU ETS in a nutshell

EED: the EU's energy efficiency framework legislation is in place since 2012. It sets the overall EU wide energy target, for final and primary energy consumption in 2020¹¹ (1086 and 1483 Mtoe, or 20% below 2007 reference scenario) and 2030 (846 and 1128 Mtoe, or 32.5% below 2007 reference scenario). Member States have to set national indicative targets / contributions to meet the EU target. Further to that, Member States have to comply with several specific requirements covering different sectors and addressing the whole energy value chain. They also have the obligation to deliver a minimum amount of annual energy savings, for the periods 2014-2020 and 2021-2030 (for the latter period, the savings must be equivalent to 0.8%).

ESR: the Effort Sharing Regulation is the EU's main climate legislation from 2009, covering around 60% of GHG emissions from sectors not covered by the EU ETS - including buildings, transport and agriculture. The ESR establishes binding annual GHG emissions targets for Member States. The timeframe covered is 2013-2020 and 2021-2030. National efforts are based on per capita income and are also the result of political negotiations. Consequently, there is a wide spread of targets between Member States. The national targets will collectively deliver a 10% reduction in total EU emissions by 2020 and of 30% by 2030, both compared to 2005 levels. Member States can buy emission allocations from other countries in case they cannot meet their targets.

EU ETS: the EU Emission Trading System is the EU's first climate instrument put in place in 2005, covering around 40% of GHG emissions from large industrial operations, power and heat. The EU ETS establishes a cap on emissions which is declining over time. It secures at least a 21% cut in GHG emissions by 2020 and 43% by 2030. Within the cap, companies receive or buy emission allowances with the aim to achieve emissions reductions at lowest economic costs.

¹¹ The 2020 target applies for EU-28 (including UK). All other figures and the 2030 target are applicable to EU-27.

3. A scenario-based analysis

We analyse three scenarios in order to assess how an increased 2030 climate ambition could change the interaction between the ESR and EED.

EED-ESR scenarios

	Description	Assumptions / remarks
1 Baseline, ESR 33%	Corresponds to the Commission's modelling of meeting the current EED (32.5%) and RED (32%) targets (EUCO32325). ¹² It results in 33% GHG emissions reduction in ESR sectors, overachieving the 30% target at EU level, but with large differences across Member States.	Achieving the 32.5% energy efficiency target is not yet secured according to the Commission's assessment ¹³ . This requires compliance with the EED annual energy savings obligation of 0.8% (Article 7) and that energy savings claimed on paper are matched with real world savings.
2a ESR 39% (current spread)	Increasing the current ESR target from 30% to 39%. Sharing the effort based on per capita GDP and maintaining current spread of 40 percentage points (Bulgaria -10% and Luxembourg -50%).	39% ESR emissions reduction is the outcome for the three main scenarios (Reg, Mix55 and Cprice) in the Commission's 2030 target plan impact assessment ¹⁴ , if the ESR scope is unchanged.
2b ESR 39% (narrow spread)	Increasing the current ESR target to 39%. Sharing the effort based on per capita GDP and reducing spread to 30 percentage points (Bulgaria -20% and Luxembourg -50%) ¹⁵ .	
3a ESR 39 (current spread) + EED 1.6% (Article 7)	Additional 0.8% annual energy savings obligation starting in 2025, bringing it to 1.6%. This delivers 46 Mtoe energy savings in 2030, which is half of the additional effort needed to tap the full cost-effective energy efficiency potential if market barriers are removed ¹⁶	The European Commission estimates that the energy savings obligation delivers half of the EU's overall energy efficiency target ¹⁷ . The remaining savings would be delivered by further EU measures on buildings, products, vehicles and energy / carbon pricing. Zero tolerance to non-compliance with the energy savings obligation (EED Article 7), in particular the additionality and materiality requirement, as well as robust measurement and verification.
3b ESR 39 (narrow spread) + EED 1.6% (Article 7)		

¹² https://ec.europa.eu/energy/data-analysis/energy-modelling/euco-scenarios_en

¹³ European Commission, Assessment of the final NECPS, COM(2020) 564 final)

¹⁴ EC 2020, 2030 Climate Target Plan Impact assessment

¹⁵ As proposed in: Agora Energiewende, 2020, How to Raise Europe's Climate Ambitions for 2030

¹⁶ The cost-effective energy efficiency potential stands at 40% FEC compared to 2007 references scenario according to Fraunhofer Institute for Systems and Innovation Research ISI 2019, Study on Energy Savings Scenarios 2050, commissioned by the Coalition for Energy Savings

¹⁷ EC 2016, EED IA, SWD(2016) 405 final

In order to assess the impacts of the EED's energy savings obligation and non-ETS GHG emissions covered by the ESR of these three scenarios, we use the approach developed in 2018¹⁸.

It assumes that energy savings delivered by Member States are evenly distributed amongst all energy end-use sectors and energy carriers, and that the share of energy related GHG emissions stays stable over the period (68% in average, ranging between 46% in Romania and 89% in Luxembourg). Non-energy related emissions covered by the ESR are mainly non-CO₂ GHG emissions from agriculture.

In reality, the share of energy related GHG emissions in the ESR sectors is set to decline with progress in decarbonising energy carriers for heating, transport and industrial production. This means the model is overestimating the EED's Article 7 impact on achieving the ESR targets.

On the other hand, energy savings under the EED's Article 7 are dominated by reductions in heating oil and gas demand and end-use switching from fossil-fuel based heating systems to electricity-driven systems (e.g., heat pumps). This means the model is underestimating the EED's Article 7 impact on achieving the ESR targets.

On balance, we therefore conclude that it is acceptable not to address these aspects in our modelling.

¹⁸ Rosenow, Graichen and Scheuer 2018, Destination Paris: Why the EU's climate policy will derail without energy efficiency

4. Findings: Strong interdependence between EED and ESR

Doubling the national energy savings obligation to 1.6% from 2025 onward could deliver half of the GHG emissions reduction needed to achieve a higher EU ESR target of 39%. This would bring the current gap of 136.9 MtCO₂ to 67.2 MtCO₂. For this impact to materialise it requires zero tolerance to non-compliance, in particular concerning the additionality and materiality of national measures under the EED Article 7 and robust measurement and verification of energy savings.

For eight countries¹⁹, the current ESR targets (30% GHG emissions reduction at EU level) could drive compliance with the current EED energy savings obligation of 0.8%, which increases to 1.6% from 2025 onward.

For 18 to 21 countries, higher ESR targets (39% GHG emissions reduction at EU level) could drive compliance with the EED energy savings obligation of 0.8% which increases to 1.6% from 2025 onward. It depends on whether the current 40 percentage point spread between the targets for the lowest and highest income countries is maintained or reduced to 30 percentage points. Reducing the spread means that national efforts in reducing GHG emissions are converging; full convergence of all Member States' efforts is needed to achieve climate neutrality by 2050²⁰. The energy savings obligation is set equal for all countries, with the exception of Malta and Cyprus which have a lower obligation due to their extreme geographical position and limited impact of heating on the EU energy balance.

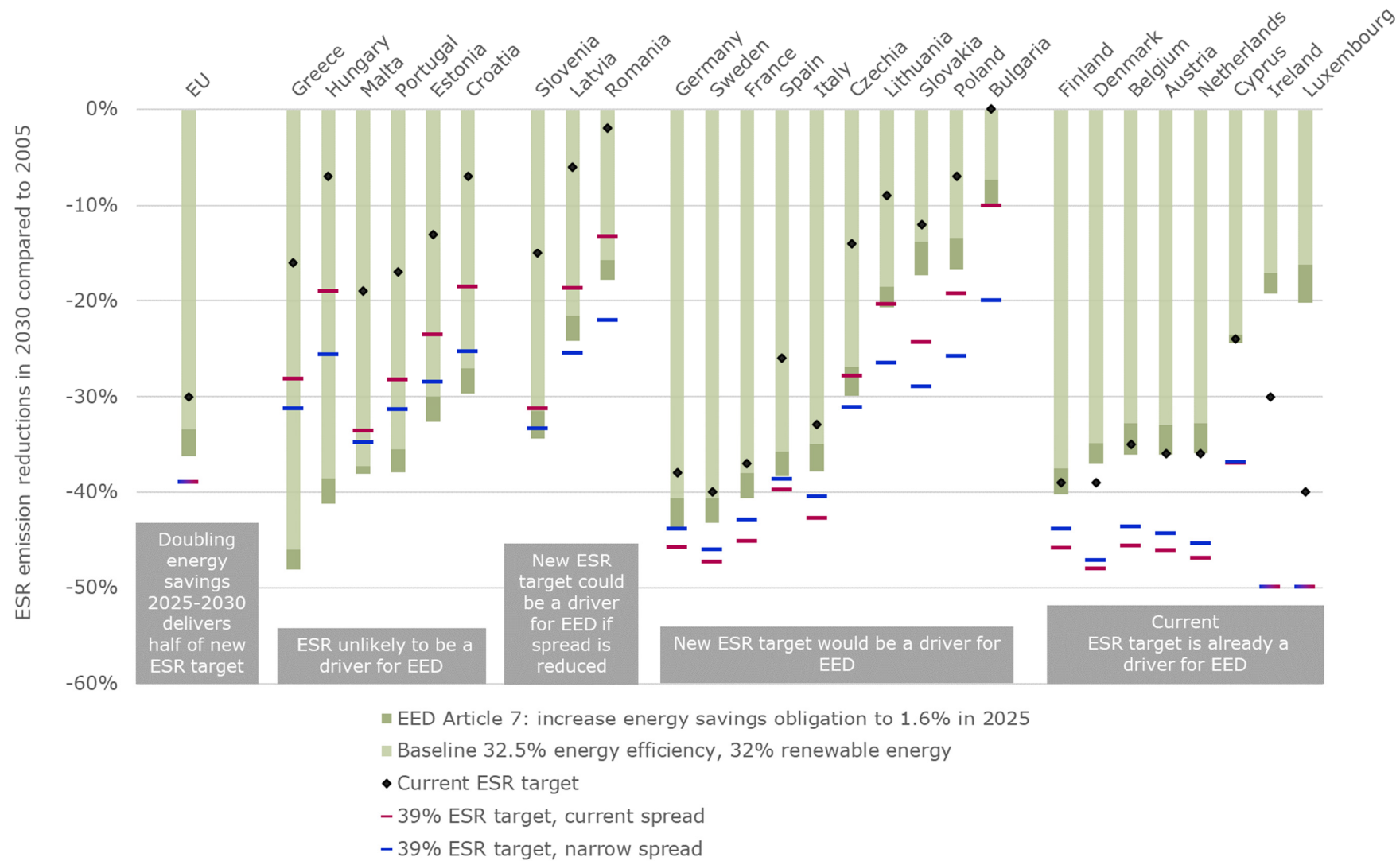
For six countries²¹, higher ESR targets would unlikely become a driver for increasing energy savings.

¹⁹ AT, BE, CY, DK, FI, IE, LU and NL

²⁰ Agora Energiewende, 2020, How to Raise Europe's Climate Ambitions for 2030

²¹ ET, GR, HR, HU, MT and PT

A New Effort Sharing Regulation becoming a driver for the Energy Efficiency Directive



Note: Current ESR targets include special provisions for individual countries, 39% ESR targets scenarios are based on GDP/cap only

	ESR emissions reductions scenarios				Excess / deficit with and without additional energy efficiency effort through EED Article 7 policy measures							
					39% ESR, current spread				39% ESR, narrow spread			
	Current ESR target	Baseline (EU CO2 2021-2030)	39% ESR target, current spread	39% ESR target, narrow spread	Current Article 7: 0.8%		Article 7: 1.6%		Current Article 7: 0.8%		Article 7: 1.6%	
					percentage point gap	cum Mt CO2 2021-2030	percentage point gap	cum Mt CO2 2021-2030	percentage point gap	cum Mt CO2 2021-2030	percentage point gap	cum Mt CO2 2021-2030
EU 27	-30%	-33%	-39%	-39%	-6%	-136,9	-3%	-67,2	-6%	-136,9	-3%	-67,2
Austria	-36%	-33%	-46%	-44%	-13%	-7,4	-10%	-5,6	-11%	-6,4	-8%	-4,6
Belgium	-35%	-33%	-46%	-44%	-13%	-10,2	-10%	-7,6	-11%	-8,6	-7%	-6,0
Bulgaria	0%	-7%	-10%	-20%	-3%	-0,6	0%	0,0	-13%	-2,8	-10%	-2,2
Croatia	-7%	-27%	-19%	-25%	8%	1,5	11%	1,9	2%	0,3	4%	0,8
Cyprus	-24%	-24%	-37%	-37%	-13%	-0,6	-13%	-0,5	-13%	-0,6	-13%	-0,5
Czechia	-14%	-27%	-28%	-31%	-1%	-0,6	2%	1,2	-4%	-2,7	-1%	-0,8
Denmark	-39%	-35%	-48%	-47%	-13%	-5,3	-11%	-4,4	-12%	-4,9	-10%	-4,0
Estonia	-13%	-30%	-24%	-28%	6%	0,3	9%	0,5	1%	0,1	4%	0,2
Finland	-39%	-38%	-46%	-44%	-8%	-2,8	-6%	-1,9	-6%	-2,1	-4%	-1,2
France	-37%	-38%	-45%	-43%	-7%	-28,3	-4%	-17,9	-5%	-19,4	-2%	-9,0
Germany	-38%	-41%	-46%	-44%	-5%	-24,3	-2%	-9,4	-3%	-15,0	0%	-0,1
Greece	-16%	-46%	-28%	-31%	18%	11,1	20%	12,5	15%	9,1	17%	10,5
Hungary	-7%	-39%	-19%	-26%	20%	9,4	22%	10,6	13%	6,2	16%	7,5
Ireland	-30%	-17%	-50%	-50%	-33%	-15,5	-31%	-14,5	-33%	-15,5	-31%	-14,5
Italy	-33%	-35%	-43%	-40%	-8%	-25,8	-5%	-16,2	-5%	-18,2	-3%	-8,7
Latvia	-6%	-22%	-19%	-25%	3%	0,2	6%	0,5	-4%	-0,3	-1%	-0,1
Lithuania	-9%	-19%	-20%	-26%	-2%	-0,2	0%	0,0	-8%	-1,1	-6%	-0,8
Luxembourg	-40%	-16%	-50%	-50%	-34%	-3,4	-30%	-3,0	-34%	-3,4	-30%	-3,0
Malta	-19%	-37%	-34%	-35%	4%	0,0	4%	0,0	2%	0,0	3%	0,0
Netherlands	-36%	-33%	-47%	-45%	-14%	-17,8	-11%	-13,9	-12%	-15,9	-9%	-12,0
Poland	-7%	-13%	-19%	-26%	-6%	-10,5	-2%	-4,5	-12%	-22,3	-9%	-16,3
Portugal	-17%	-36%	-28%	-31%	7%	3,6	10%	4,7	4%	2,0	6%	3,2
Romania	-2%	-16%	-13%	-22%	2%	1,9	5%	3,4	-6%	-4,8	-4%	-3,2
Slovakia	-12%	-14%	-24%	-29%	-11%	-2,4	-7%	-1,6	-15%	-3,5	-12%	-2,7
Slovenia	-15%	-32%	-31%	-33%	0%	0,0	3%	0,4	-2%	-0,2	1%	0,1
Spain	-26%	-36%	-40%	-39%	-4%	-9,4	-1%	-3,4	-3%	-6,7	0%	-0,7
Sweden	-40%	-41%	-47%	-46%	-7%	-2,9	-4%	-1,8	-5%	-2,3	-3%	-1,2

5. EU ETS and energy savings obligation - friends or foes?

Extending the EU ETS to cover heating and transport sectors is one of the climate policy options strongly promoted²². At first sight, it looks like an easy solution to a complex policy problem: one EU-wide and pricing-based instrument would secure target achievement, while appearing to give actors maximum freedom. But this is deceptive. In any case, a wide range of national supporting policies are required to manage higher carbon prices and distributional impacts, while ensuring at the same time that long-term investments are made.

The 2030 Target Plan gives the following picture:

- a) the CPRICE²³ scenario indicates that without supplementary policy action, energy savings delivery would shift from households to businesses, leading to lower renovation rates and higher energy costs for households;
- b) national measures to support low-income parts of society would be required;
- c) stronger measures to achieve energy renovations and growth in clean transport would be required; and
- d) the ESR could be phased out assuming that all necessary GHG emission reductions are already secured via an extended EU-ETS (option 1 presented in the ESR Inception Impact Assessment published by the Commission 29/10/20).

What does this mean for the EED and in particular its Article 7 energy savings obligation?

On the positive side: increasing carbon prices would make EU and energy efficiency investments more attractive, creating space to strengthen energy efficiency targets and obligations.

But a higher carbon price will not help to overcome the non-economic barriers to energy efficiency investments, like split incentives, the weak demand for and lack of high-quality energy services.

Efficiency policies and regulations would need to be stepped up, for example by strengthening and adding new requirements to the EED Article 7 energy savings obligation:

- to keep down the costs of emissions reductions; and
- to direct energy savings measures targeted at the energy poor.

Redistributing carbon revenues, which is one of the options considered by the Commission's inception impact assessment for the EU ETS revision, would not be able to deliver the structural changes needed to permanently alleviate energy poverty and lower the costs of emissions reduction for the economy.

On the negative side: if the ESR would be phased out, as a consequence of the EU ETS extension, the EU loses one of its main instruments to secure national GHG emissions reduction in sectors of the economy which are less responsive to price signals. In the absence of binding energy efficiency targets or a workable enforcement mechanism in the EED, energy efficiency measures would likely play a smaller role in decarbonisation efforts. This leads in the end to higher overall costs of meeting the climate targets.

Increasing the ESR target and maintaining its scope is therefore vital for an effective and coherent policy system.

²² See von der Leyen political guidelines, COM 2030 target plan and Germany's EU presidency programme 2020.

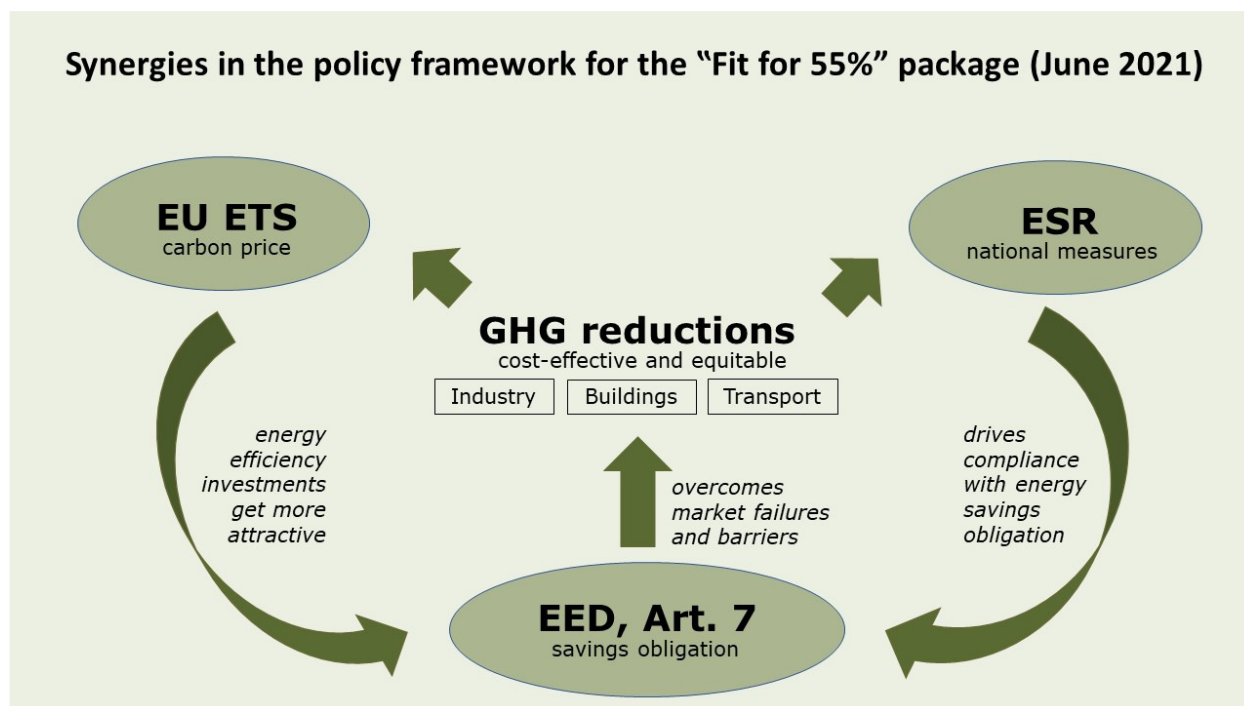
²³ See the CPRICE scenario: a carbon-pricing based scenario that achieves around 55% GHG reductions. It assumes strengthening and further expanding of carbon pricing, be it via EU ETS or other carbon pricing instruments, to the transport and buildings sectors, combined with low intensification of transport policies while not intensifying energy efficiency, renewables policies

6. Conclusions

The “Fit for 55” package is a unique opportunity to improve the coherence of the EU’s climate and energy efficiency policies. Maximising the synergies between the different legislative instruments will ensure that decarbonisation is done in a cost-effective and social equitable manner.

The following three instruments play a central role in this with strong synergy potentials:

- strengthened energy savings obligations under the EED’s Article 7;
- increased ESR GHG emissions reduction target; and
- extended EU carbon pricing.



Extended EU carbon pricing: when revising the EU ETS, carbon pricing could be extended to the big sectors not yet covered but responsible for more than half of GHG emissions - heating and transport fuels. This would reduce the payback time for energy efficiency investments. But carbon pricing is not effective for overcoming market failures and barriers (e.g., split incentives between tenants and landlords, energy users lack of access to financing and information, the weak demand for and lack of high-quality energy services). Dedicated energy efficiency policies and measures can deal with those failures and barriers to ensure energy efficiency investments are happening. The resulting energy savings will keep down the costs of reducing emissions in the long-term. Measures targeted at vulnerable households can in addition permanently alleviate energy poverty. On the contrary, redistributing carbon revenues to compensate rising energy costs need to continue year-on-year.

Increased ESR target to 39%: the ESR is the EU’s main climate instrument to ensure national policies and measures are implemented to cut emissions in buildings, transport and agriculture. Increasing the target to 39% will not only boost the delivery of energy saving. It will become an important driver for compliance with the EED’s Article 7 energy savings obligation. This study shows that in order to meet a higher national ESR target, 18 out of 27 Member States will have to deliver at least 0.8% new energy savings per year starting in 2021 and 1.6% starting in 2025. If the effort sharing was aligned with the 2050 climate neutrality objective, which requires full convergence of all Member States’ efforts, more countries would have to strictly comply with a higher energy savings obligation.

The energy savings obligation under the EED's Article 7 will at least need to be doubled: from current 0.8% to 1.6% starting in 2025. The Article 7 measures can ensure a meaningful national contribution in achieving the cost-effective energy efficiency potential. These need to be energy savings on the ground, measured and verified, and fully additional to EU measures. Complementary to a strengthening of the energy savings obligations, measures at EU level need to be ramped up, including standards for buildings, vehicle and products. This will allow to deliver the cost-effective energy savings potential and to ensure the climate targets are achieved in an equitable way.

Phasing out the ESR would present a major disruption. It would reduce national efforts that address market failures and barriers to energy efficiency investments. As a consequence, it would jeopardise the delivery of energy savings. Repealing the ESR would also compromise policy coherence. It would represent a missed opportunity to strengthen synergies between the trio of instruments EED, ESR and carbon pricing.