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REGULATORY SCRUTINY BOARD OPINION

EU Climate target for 2040

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Brussels,
RSB

Opinion

Title: Impact assessment / EU Climate target for 2040

Overall 2nd opinion: POSITIVE WITH RESERVATIONS

(A) Policy context

The European Climate Law enshrines the EU's commitment to climate neutrality by 2050 and the EU's 2030 climate target to reduce net greenhouse gas (GHG) emissions by at least 55% in 2030 relative to 1990 levels. It also mandates the Commission to make a legislative proposal for an EU 2040 climate target.

This impact assessment assesses different levels of net GHG emissions in 2040 and the associated pathways between 2030 and climate neutrality by 2050. It does not present the post-2030 energy and climate policy framework – this is to be developed in detail at a later stage. It will feed into a Communication envisaged for the first quarter in 2024 to be followed by a legal proposal defining the EU 2040 climate target.

(B) Summary of findings

The Board notes the improvements to the report.

However, the report still contains significant shortcomings. The Board gives a positive opinion with reservations because it expects the lead DG to rectify the following aspects:

- (1) The report is not clear on how sustainable lifestyle changes are reflected in the dynamic baseline scenario. The policy choices regarding the inclusion of sustainable lifestyle changes (via the LIFE variant) are not brought out clearly and their interaction with the three scenarios is neither comprehensively assessed nor compared.**
- (2) The scoring of options is not convincingly demonstrated, the key trade-offs between options not clearly presented and the choice of the preferred option not sufficiently justified.**
- (3) The report is not sufficiently clear about the risks related to financial and technological feasibility.**

(C) What to improve

(1) The specific objective on climate neutrality (SO1) is not sufficiently clear as all retained 2040 target level options are expected to deliver on the 2050 climate law neutrality objective. The report should clarify what exactly should be achieved regarding this specific objective so that it is clear what success would look like and how effectiveness on this aspect is assessed. The inclusion or lack of certain measures, such as carbon storage and management or more ambition in certain sectors, should be reflected in the design of the options and associated policy trade-offs, and not in the specific objectives. Regarding the specific objective of minimising the EU's GHG budget (SO2), the report should explain how fairness of the contribution of the EU to the global agenda is defined for the purpose of this impact assessment.

(2) While the report identifies option 2 as the baseline scenario, it is not clear on the assumptions made regarding the expected evolution of more sustainable lifestyles. In case of uncertainty, the report should provide baseline variants describing alternative evolutions based on different take-up assumptions on more sustainable lifestyles (e.g. no change, more, less).

(3) The report should make clear that option 1 until 2040 is based on a rather theoretical scenario, as the reduction target (of 78.5% in 2040 compared to 1990) is significantly lower than what is expected to be achieved by the baseline scenario option 2 (with a reduction of 88% by 2040). It should clarify upfront that options 2 and 3 both frontload GHG emissions reduction and related financial and investment efforts in the 2030-2040 decade compared to the linear Climate Law trajectory under option 1.

(4) The report should better explain how societal trends related to more sustainable behavioral and lifestyles changes described under the "LIFE" variant interacts with the three policy options/scenarios. It should bring out more clearly that the inclusion of the LIFE variant can be of both complementary (e.g. adding additional ambition) as well as substitutional nature (e.g. reducing investment costs or re-distributing the effort required in certain sectors). On this basis, the report should assess the impacts of each of the three policy scenarios behind the three target options with and without the LIFE variant. Given that this could result in additional as well as substitutional effects, the report should present ranges of impacts for each combination of options with LIFE variants to better illustrate the complete set of available policy choices. The report should present the impact estimates in 2050 not only for scenario 3 but also scenarios 1 and 2.

(5) As regards impacts of the policy options, the report should provide further analysis of the financial and technological feasibility of the frontloading described for options 2 and 3. In particular, the report should clarify potential challenges in technological deployment/upscaling, and provide a more in-depth analysis of financial availability for industry and of affordability for households.

(6) The report should further improve the transparency of the cost benefit analysis. It should clearly present a summary table with all cost and benefit elements, as well as the total costs and benefits for each option both in relative and absolute terms (including for option 2). The estimates should be clearly presented both on an annualised basis and as totals for the whole period (2030-2050).

(7) The report should further develop the competitiveness assessment. In view of the impact of the additional costs due to the frontloading of investment, the competitiveness analysis and competitiveness check with regard to cost and price competitiveness, international competitiveness and SME competitiveness should be further developed for the most significantly affected sectors. As the report considers that more ambitious climate

action by our global partners will be the determining factor in fostering EU international competitiveness, the report should indicate how it considers that the preferred option will encourage the EU's trade partners to decarbonise faster.

(8) The comparison of options should inform how the adoption of more sustainable lifestyles variants would affect the comparative performance of the options as this important decision-making element is currently absent in the comparison section. In addition, the report should ensure that the scoring in the summary comparison table is fully in line with the proceeding analysis. In particular the report should:

- review the scoring for the specific objective on delivering climate neutrality (SO1) in the light of the comments made on this objective further above,
- adequately reflect the scoring of the competitiveness (SO4) of options, given the better performance of option 1 on all used comparison criteria,
- explain why the impact on critical raw material dependence is not reflected in the security of supply of energy and resources objective (SO6) but under the strategic autonomy coherence heading. Given that the raw material needs (and dependency) are significantly lower in option 1 compared to option 3, this should be reflected in the scoring in line with the methodology used,
- clarify the efficiency scoring of options, as scenario 1 is the best option in terms of total GHG mitigation cost and performs best in terms of net benefits under the “central” climate change variant. In any event the related uncertainties need to be presented more clearly in the comparison,
- adapt the scoring of proportionality in view of the above comments.

(8) As the applied scoring methodology tends to produce large scoring differences between the options while the analysis often points to closer quantitative results, the summary table should also include the absolute values of the key assessment criteria to ensure a balanced and fully informative overview comparison and a clear presentation of the key policy trade-offs. The comparison summary table should include the LIFE variants as indicated above.

(9) The choice of the preferred option should be further substantiated with the results of the additional analysis as explained above (e.g. consideration of all options/policy choices, benefit-cost ratio, competitiveness impact). The report should further elaborate on the technological feasibility and related business case of some measures (in particular those with relative low technical readiness levels), which mostly contribute to the improved net GHG emissions reduction for the the preferred option. It should also better assess the societal acceptance challenges as well as effective monitoring arrangements of the implementation of the preferred option including with respect to the envisaged technological changes. It should provide a more developed assessment of the risks related to financial feasibility of the frontloading of investment.

(10) The report should more clearly present stakeholders’ views, including diverging ones, in particular in the comparison of options and the preferred option sections. Annex 3 should be further developed, including regarding the practical implications of the initiative.

The Board notes the estimated costs and benefits of the preferred option in this initiative, as summarised in the attached quantification tables.

(D) Conclusion

The lead DG must revise the report in accordance with the Board’s findings before launching the interservice consultation.

If there are any changes in the choice or design of the preferred option in the final version of the report, the lead DG may need to further adjust the attached quantification tables to reflect this.

Full title	EU Climate target for 2040
Reference number	PLAN/2023/220
Submitted to RSB on	06 December 2023
Date of RSB meeting	Written procedure

ANNEX: Quantification tables extracted from the draft impact assessment report

The following tables contain information on the costs and benefits of the initiative on which the Board has given its opinion, as presented above.

If the draft report has been revised in line with the Board's recommendations, the content of these tables may be different from those in the final version of the impact assessment report, as published by the Commission.

I. Overview of Benefits (total for all provisions) – Preferred Option		
Description	Amount	Comments
Direct benefits		
Avoided costs of climate change (section 6.3.1).	In option 3, in comparison with option 2, the average annual benefit from climate change mitigation is between EUR 20 and 38 billion for the time period 2031-2040, by EUR 24 and 44 billion for 2041-2050 and by EUR 22 and 42 billion over the entire period 2031-2050.	Avoiding costs of climate change is a general benefit for the whole society, including population, businesses, the public budget, and for nature and ecosystems. Such costs are generally thought to be underestimated, given the difficulty in predicting the impacts of climate change.
Higher energy independence and reduction of the risks associated with fossil fuel price shocks (see section 6.4.3.1)	In comparison with option 2, option 3 implies average annual savings of €22 billion for 2031-2040 due to reduced fossil fuel import. In 2041-2050, the annual savings amount to EUR 9 billion.	This is a benefit for the whole economy, large companies as well as SMEs, and, in fine, for the public budget as well.
Indirect benefits		
Reduction of air pollution and reduction of the associated premature mortality and morbidity (see Section 6.3.2)	Annually, the average benefit from air pollution reduction is between EUR 1 to 2 billion in option 3 compared to option 2 (in 2031-2040, as well as in 2041-2050).	This is a benefit for the whole EU population and for the public budget as a consequence of reduced health expenses.

II. Overview of costs – Preferred option							
		Citizens/Consumers		Businesses		Administrations	
		One-off	Recurrent	One-off	Recurrent	One-off	Recurrent
Action (a)	Direct adjustment costs		<p>The figures for energy system costs provided below are annual averages. More details can be found in section 6.4.3. of this document and in Section 2.3 of Annex 8.</p> <p>For the residential sector, the total energy system costs in 2031-2040 are EUR 9 billion (1%) higher in option 3 than in option 2. For 2041-2050, they are EUR 2 billion (0.2%) higher in option 3 than in option 2. The capital costs¹ are EUR 8 billion (1.6%) more in option 3 than in option 2 for 2031-2040 and EUR 4 billion (0.7%) more for 2041-2050. Energy purchases are EUR 1 billion higher in option 3 than in option 2 for 2031-2040 but EUR 2 billion lower for 2041-2050.</p>		<p>The figures for energy system costs provided below are annual averages. More details can be found in section 6.4.3. of this document and in Section 2.3 of Annex 8.</p> <p>For industry the capital costs are EUR 2 billion (2%) higher in 2031-2040 in option 3 compared to option 2 and EUR 1 billion (less than 1%) higher in 2041-2050. Energy purchases are EUR 8 billion (2%) more in option 3 compared to option 2 for 2031-2040. They are EUR 2 billion (0.5%) more for 2041-2050.</p> <p>For the tertiary sector, capital costs are EUR 4 billion (3%) more in option 3 than in option 2 for the time period 2031-2040. They are EUR 2 billion (1%) higher for the time period 2041-2050. Energy purchases are EUR 1 billion (0.4%) smaller in option 3 than in option 2 for 2031-2040. They are EUR 1 billion (0.4%) smaller for 2041-2050.</p>	<i>Will depend on the future post-2030 policy framework</i>	
		<p>Energy systems costs for transport are borne partly by households, partly by businesses and public administrations. The corresponding capital costs are EUR 4 billion (1.6%) higher in 2031-2040 for option 3 compared to option 2, and EUR 6 billion (2%) higher in 2041-2050. Energy purchases for transport are EUR 12 billion (2%) higher in 2031-2040 but EUR 7 billion (1.4 %) lower in 2041-2050.</p>					
		Direct administrative costs	<i>Will depend on the future post-2030 policy framework</i>				

¹ Capital costs includes financing and opportunity cost for private actors through the application of a WACC at 10% in the annualization of overnight investment costs.

	Direct regulatory fees and charges	<i>Will depend on the future post-2030 policy framework</i>					
	Direct enforcement costs	<i>Will depend on the future post-2030 policy framework</i>					
	Indirect costs						
Costs related to the 'one in, one out' approach							
Total	Direct and indirect adjustment costs		<p>The figures for energy system costs provided below are annual averages. More details can be found in section 6.4.3. of this document and in Section 2.3 of Annex 8.</p> <p>For the residential sector, the total energy system costs in 2031-2040 are EUR 9 billion (1%) higher in option 3 than in option 2. For 2041-2050, they are EUR 2 billion (0.2%) higher in option 3 than in option 2. The capital costs² are EUR 8 billion (1.6%) more in option 3 than in option 2 for 2031-2040 and EUR 4 billion (0.7%) more for 2041-2050. Energy purchases are EUR 1 billion higher in option 3 than in option 2 for 2031-2040 but EUR 2 billion lower for 2041-2050.</p>		<p>The figures for energy system costs provided below are annual averages. More details can be found in section 6.4.3. of this document and in Section 2.3 of Annex 8.</p> <p>For industry the capital costs are EUR 2 billion (2%) higher in 2031-2040 in option 3 compared to option 2 and EUR 1 billion (less than 1%) higher in 2041-2050. Energy purchases are EUR 8 billion (2%) more in option 3 compared to option 2 for 2031-2040. They are EUR 2 billion (0.5%) more for 2041-2050.</p> <p>For the tertiary sector, capital costs are EUR 4 billion (3%) more in option 3 than in option 2 for the time period 2031-2040. They are EUR 2 billion (1%) higher for the time period 2041-2050. Energy purchases are EUR 1 billion (0.4%) smaller in option 3 than in option 2 for 2031-2040. They are EUR 1 billion (0.4%) smaller for 2041-2050.</p>		
			<p>Energy systems costs for transport are borne partly by households, partly by businesses and public administrations. The corresponding capital costs are EUR 4 billion (1.6%) higher in 2031-2040 for option 3 compared to option 2, and EUR 6 billion (2%) higher in 2041-2050. Energy purchases for transport are EUR 12 billion (2%) higher in 2031-2040 but EUR 7 billion (1.4 %) lower in 2041-2050.</p>				

² Capital costs includes financing and opportunity cost for private actors through the application of a WACC at 10% in the annualization of overnight investment costs.

	Administrative costs (for offsetting)	<i>Will depend on the future post-2030 policy framework</i>		
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Brussels,
RSB

Opinion

Title: Impact assessment / EU Climate target for 2040

Overall opinion: NEGATIVE

(A) Policy context

The European Climate Law enshrines the EU's commitment to climate neutrality by 2050 and the EU's 2030 climate target to reduce net greenhouse gas (GHG) emissions by at least 55% in 2030 relative to 1990 levels. It also mandates the Commission to make a legislative proposal for an EU 2040 climate target.

This impact assessment assesses different levels of net GHG emissions in 2040 and the associated pathways between 2030 and climate neutrality by 2050. It does not present the post-2030 energy and climate policy framework – this is to be developed in detail at a later stage. It will feed into a Communication envisaged for the first quarter in 2024 to be followed by a legal proposal defining the EU 2040 climate target.

(B) Summary of findings

The Board notes the additional information provided and commitments to make changes to the report.

However, the Board gives a negative opinion because the report contains the following significant shortcomings:

- (1) The problem, its drivers and its potential consequences are not clearly identified. The report does not adequately define the specific objectives and criteria based on which the performance of alternative 2040 target options would be assessed in line with the requirements of the EU Climate Law.**
- (2) The description of the dynamic baseline is underdeveloped and not sufficiently clear. The report fails to establish an appropriate benchmark for comparison. The rationale behind, the content of and the interaction between the options and the scenarios lack clarity. The report does not bring out clearly enough all available target and pathway choices and the trade-offs between them.**
- (3) The level of uncertainty of the modelling, including in terms of the remaining CO2 budget, and the robustness of the results is not clearly identified and analysed.**
- (4) The costs and benefits of each option are not clearly presented. The report is neither clear on the total costs and benefits due to frontloading investments in the 2031-2040 period nor on the related financial and technological feasibility.**
- (5) Options are not adequately compared as regards effectiveness, efficiency, coherence and proportionality. The choice of the preferred option is not sufficiently justified.**

(C) What to improve

(1) The report should clearly indicate from the outset which specific initiatives and decisions this impact assessment is intended to inform. It should briefly describe the progress made towards the 2030 target and indicate whether the EU policy framework is overall on track, including by making better use of recent progress reports. As the current problem definition is confusing, it should be simplified and aligned with the core objective of the initiative, i.e. the identification and assessment of pathways towards climate neutrality in 2050 and the related intermediate target for 2040.

(2) The report should recall the explicit set of requirements provided under Article 4(5) of the Climate Law and explain how those elements will feed into defining the objectives of the initiative. The specific objectives should build on the general objectives and should include a clear set of effectiveness, efficiency and coherence criteria based on which the performance of alternative options should be assessed and compared. The report should define what effectiveness in terms of target setting means, and how and based on which criteria it should be operationalised to allow measuring to what extent the specific objectives will be achieved. The criteria concerning aspects of specific objectives such as just transition should be assessed under effectiveness. Regarding policy coherence the report should differentiate between criteria covering the internal coherence of the target options and pathways as such and the external coherence with other EU policy priorities, such as competitiveness or strategic autonomy. The intervention logic should be revised to streamline the relationship between the general objectives, the specific objectives and the core problem.

(3) The report should define a clear dynamic baseline which serves as benchmark when comparing other available scenarios and options. It should clarify how the baseline scenario relates to the linear trajectory in accordance with Article 8 of the European Climate Law. The baseline should clearly explore if any of the relevant on-going initiatives are expected to over- or under- perform. The report should explain how updates of Member States' National Energy and Climate Plans are taken into consideration. It should also explain how the baseline considers the effects of policies beyond 2030 and how it reflects already adopted measures from the LIFE scenario (e.g., food waste, circular economy).

(4) The report should better explain the design of, rationale behind, trade-offs between and interaction of the options and scenarios. It should briefly explain the “filtering process” that led to the selection of the maintained options and scenarios, clarify whether these all will be technically capable to deliver on the 2050 target, and explain how the scenarios explored in the scientific advice of the European Scientific Advisory Board on Climate Change has informed the presentation of options.

(5) The report needs to be clearer on the content of policy options and scenarios in terms of broad policy mix and how these translate into different ambition levels, so that the differences and trade-offs between the options become clearer. It should be also clearer on the key assumptions and parameters behind the options / scenarios, as well as be more explicit on their common elements. The report should clarify how the LIFE scenario should be analytically interpreted in terms of interaction with the main options and scenarios. In this context, the report should clarify more generally what the scope for policy variants within the presented scenarios is and what this means in terms of differences in their respective synergy and trade-off profiles.

(6) The report should significantly improve the explanation of its methodological approach and more explicitly present the level of overall confidence in the modelling. In particular, the methodology underlying the projected indicative EU GHG budget should be explained. The main and most relevant assumptions underpinning the models should be transparently

presented. The report should more explicitly indicate how robust, credible and accurate the modelling results are. The level of uncertainty should be clearly identified and analysed. This should include being clear about the uncertainties related to the impacts of the LIFE scenario including the estimated savings in investment costs. The report should better describe the evidence base underpinning the expected additional voluntary changes in consumer behaviour and any uncertainties related to that. The report should also better explain a multi-model approach to cross-validate results for several critical parameters and present the results of the different sensitivity analyses. It should indicate how the modelling quality assurance was ensured, individually for each model and overall for the whole analysis.

(7) The report should be clear about the differences of the options/scenarios vis-à-vis the dynamic baseline/benchmark. It should clearly present the costs and benefits of each option/scenario and develop the feasibility analysis. It should be clear on the total costs and benefits due to frontloading the investments in the 2031-2040 period in some options. The estimates of the costs and benefits should be also presented in absolute terms to better illustrate the differences between options/scenarios. The assessment of the environmental and health benefits should be further developed, quantified and monetised to the extent possible. The report should make a clearer the assessment of financial and technological feasibility. The former should refer to both the private sector and Member States. In terms of technological feasibility, the report should assess how realistic the scenarios are.

(8) The report should further develop the distributional analysis. It should elaborate on the difference of impacts between different options/scenarios including on sectors and households. The impact on SMEs should be further assessed. The report should explain to what extent the impacts on SMEs already depend on the degree of frontloading in the options.. It should also indicate in which sectors SMEs will be mostly affected.

(9) The report should provide a more developed competitiveness assessment regarding the most affected sectors, including bioeconomy, agriculture, services, transport and energy. It should be more specific on the affected energy intensive industries facing significant higher energy costs. The annexed competitiveness check should be further developed. Regarding 'cost and price' and international competitiveness, the analysis should consider costs from frontloading the investments, such as financing costs, opportunity costs, availability of technologies. It should explain how the assessment reflects the views of affected stakeholders.

(10) The comparison section should be significantly developed. It should explain how the scenario impact analysis results have informed the assessment of the performance of the options, including by identifying, presenting, and comparing key quantitative performance estimates. It should assess how the options compare against the dynamic baseline/benchmark, against a clear set of criteria, against each other, and in terms of effectiveness, efficiency, and coherence. The report should clearly and transparently present the major trade-offs between the options and scenarios. In this context, the report should also explain how and to what extent the LIFE scenario is reflected in the comparison of scenarios / options and what synergies / trade-offs the inclusion (or not) of the LIFE analysis would have on the overall performance of the individual scenarios. The effectiveness assessment should be done in terms of delivery on all the specific objectives and the corresponding specific assessment criteria, avoiding focusing on a sub-section of criteria only. It should also explain how (financial) feasibility and availability of technologies are reflected in the effectiveness assessment. The efficiency analysis should provide estimates on the benefits and costs of options, as well as net benefit or benefit-cost ratio for each option. The coherence of the options regarding other EU long-term priorities, such as competitiveness, strategic autonomy

and lowering the EU third country dependence of critical raw materials, should be assessed more thoroughly and granular.

(11) The report should bring out more clearly the trade-offs between options. It should provide a thorough and substantiated assessment of their proportionality. The choice of the preferred option should follow from the comparative analysis and should be better justified, including in terms of practical feasibility and implementation challenges. It should be supported by financial feasibility analysis at the level of both Member States and affected stakeholders.

(12) In presentational terms the report should present comparison summary tables/graphs, including all key elements underpinning the effectiveness, efficiency, coherence, and proportionality assessment. The scoring methodology used should be transparently explained, sufficiently nuanced and fully in line with the preceding qualitative and quantitative analysis.

(13) The stakeholders' view, in particular diverging ones, should be presented in a more balanced and transparent manner systematically throughout the report. The report should clearly explain why certain groups agree or disagree with certain options, including the preferred one. The analysis should be more granular and different types of stakeholders should be clearly identified, without putting together disparate groups.

(14) Annex 3 should be further developed and revised. It should clearly identify which stakeholders will be affected and how. The costs and benefits reported in the tables should be presented vis-à-vis the baseline/benchmark scenario.

Some more technical comments have been sent directly to the author DG.

(D) Conclusion

The lead DGs must revise the report in accordance with the Board's findings and resubmit it for a final RSB opinion.

Full title	EU Climate target for 2040
Reference number	PLAN/2023/220
Submitted to RSB on	16 October 2023
Date of RSB meeting	15 November 2023