EBA/GL/2025/04

5 November 2025

Final Report

Guidelines on environmental scenario analysis

Contents

1. Executive summary

On 9 January 2025, the EBA published Guidelines on the management of ESG risks. Those Guidelines address the mandate set out in Article 87a(5) of Directive 2013/36/EU relating to minimum standards and reference methodologies for the identification, measurement, management and monitoring of environmental, social and governance (ESG) risks by institutions. The present Guidelines complement those guidelines on the management of ESG risks by addressing scenario analysis.

For institutions using the Internal Ratings-Based (IRB) Approach for calculating the own funds requirements for credit risk, these Guidelines are also intended to specify the way in which ESG risks, and in particular physical and transition risks stemming from climate change, are taken into account in the scenarios used for credit risk internal stress testing. In this respect, these Guidelines fulfil the mandate of Article 177(2a) of Regulation (EU) No 575/2013.

Scenario analysis is a process for identifying and assessing how a range of plausible future states of the world could impact an institution's strategy and exposure to risks. It can range from simple qualitative 'what if' approaches to more sophisticated approaches that require in-house expertise and ongoing monitoring of available data and methodologies. In a volatile and increasingly challenging environment, scenario analysis is a highly valuable tool for anticipating risks, enhancing preparedness, as well as for seizing emerging opportunities.

In terms of scope, these Guidelines focus more specifically on the role of scenario analysis in fostering institutions' resilience against environmental risks, starting with climate-related factors. Social and governance factors have not been included in the scope of these Guidelines, as the approaches are not yet sufficiently mature. However, they may be considered in future updates of the Guidelines as frameworks for assessing social and governance risks become more advanced.

The Guidelines are built around the distinction between scenario analysis used i) to test the institution's financial resilience to severe shocks in the short-term and verify its capital and liquidity adequacy and ii) to challenge the business model resilience of the institution, including in the medium to long term, and help it navigate an uncertain future.

These Guidelines provide clarifications in the following main areas:

- Section 4 outlines the various applications of scenario analysis for institutions and introduce a progressive and proportionate approach to incorporating it into their management framework.
- Section 5 provides guidance on the prerequisites for conducting scenario analysis, with a particular focus on identifying the transmission channels that translate climate risks into financial impacts and on the criteria for setting appropriate scenarios. Furthermore, the possibility to use a simplified approach in the form of sensitivity analysis is clarified.

- Finally, Section 6 elaborates on the distinctive features to be taken into account when conducting an environmental stress test–complementing the existing guidelines on institutions' stress testing - and explores how scenario analysis can be used to shape and refine the institution's strategy while testing the resilience of its business model against a range of plausible futures.

Next steps

The Guidelines will be translated into the official EU languages and published on the EBA website. The deadline for competent authorities to report whether they comply with the Guidelines will be two months after the publication of the translations. The Guidelines will apply from 1 January 2027.

2. Background and rationale

2.1. Introduction

1. The environmental risks scenario analysis Guidelines fall under Article 16 of Regulation (EU) No 1093/2010 and are conceived to complement the EBA/GL/2025/01 (the EBA Guidelines on the management of ESG risks) published on 9 January 2025, in setting the scenarios to test the resilience of institutions to potential negative climate or other environmental impacts, which remained an outstanding topic to be developed under the mandate of Article 87a(5) of Directive 2013/36/EU[1] (Capital Requirements Directive – CRD) as most recently amended by Directive (EU) 2024/1619[2].

2. Climate and other environmental risks (hereinafter referred to simply as 'environmental risks') such as extreme weather events, ecosystem degradation and mounting pressures on land and water resources, are posing considerable challenges for the economy. The impact of acute and chronic physical risk events, the need to transition to a low-carbon, resource-efficient and sustainable economy as well as other environmental challenges are causing and will continue to cause profound economic transformations that impact the financial sector.

3. At the same time, institutions play an important role in the financing of the economy, and their resilience is closely tied to the resilience of the broader economic system. As such, understanding and proactively engaging with ongoing structural changes in the economy is central to an institution's strategy and the adaptation of its business model.

4. The Commission's Renewed Sustainable Finance Strategy adopted in July 2021 and Recital 37 of Directive (EU) 2024/1619 (amending the CRD) recognise that the financial sector has an important role to play both in terms of supporting the transition towards a climate-neutral and sustainable economy, as enshrined in the Paris Agreement, the United Nations 2030 Agenda for Sustainable Development and the European Green Deal, and for managing financial risks that this transition may entail and/or that are stemming from other environmental factors.

5. Environmental risks are expected to become even more prominent going forward through different possible combinations of transition and physical risks. These may affect all traditional categories of financial risks to which institutions are exposed.

[1] Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC (OJ L 176, 27.6.2013, p. 338, ELI: http://data.europa.eu/eli/dir/2013/36/oj).

[2] Directive (EU) 2024/1619 of the European Parliament and of the Council of 31 May 2024 amending Directive 2013/36/EU as regards supervisory powers, sanctions, third-country branches, and environmental, social and governance risks (OJ L, 2024/1619, 19.6.2024, ELI: http://data.europa.eu/eli/dir/2024/1619/oj).

6. Against this backdrop, to manage risks and seize opportunities, institutions must strengthen their ability to anticipate environment-related changes and to embed a forward-looking dimension into their strategic and risk management framework. Scenario analysis is one of the key tools to support this change.

2.2. Legal mandate and objectives of the Guidelines

7. A new Article 87a(3) has been included in the CRD[3], which specifies that *'competent authorities shall ensure that institutions test their resilience to long-term negative impacts of ESG factors, both under baseline and adverse scenarios within a given timeframe, starting with climate-related factors. For such resilience testing, competent authorities shall ensure that institutions include a number of ESG scenarios reflecting potential impacts of environmental and social changes and associated public policies on the long-term business environment. Competent authorities shall ensure that in the resilience testing process, institutions use credible scenarios, based on the scenarios elaborated by international organisations'.*

8. To foster robust risk management practices and ensure convergence across the Union, the EBA has been empowered in Article 87a(5), point (d) of the CRD to issue Guidelines to specify: criteria for setting the scenarios referred to in the above-mentioned paragraph 3, including the parameters and assumptions to be used in each of the scenarios, specific risks and time horizons.

9. On 9 January 2025, the EBA has published its Guidelines on the management of ESG risks[4] which cover the mandate referred to in Article 87a(5) points (a) to (c) of the CRD. These Guidelines complement the Guidelines on the management of ESG risks and aim to support institutions in developing their internal capabilities and skills necessary for setting and using scenarios, primarily to test the shock-absorbing capacity of their capital and liquidity reserves as well as the resilience of their business model over the medium to long-term.

10. Additionally, for institutions using the IRB Approach, these Guidelines also specify how environmental risk drivers, and in particular physical and transition risks stemming from climate change, should be taken into account in the scenarios used for credit risk internal stress testing[5]. In this respect, these Guidelines fulfil the mandate of Article 177(2a), second subparagraph of Regulation (EU) No 575/2013[6] (Capital Regulation Requirements, CRR).

[3] Directive (EU) 2024/1619 of the European Parliament and of the Council of 31 May 2024 amending Directive 2013/36/EU as regards supervisory powers, sanctions, third-country branches, and environmental, social and governance risks (OJ L, 2024/1619, 19.6.2024, ELI: http://data.europa.eu/eli/dir/2024/1619/oj).

[4] Final Guidelines on the management of ESG risks.

[5] As a reminder, institutions are required to use stress tests as part of their ICAAP/ILAAP framework (in accordance with Articles 73 and 86 of Directive 2013/36/EU) but also, as part of Pillar 1 internal model approaches, as 'challenger models' in the case of institutions using the IRB Approach).

[6] Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012, (OJ L 176, 27.6.2013, p. 1, ELI: Regulation (EU) No 575/2013).

11. These Guidelines on scenario analysis focus on environmental risks, in particular climate-related risks. Social and governance factors have not been included in the scope of these Guidelines since it is recognised that at this stage the availability of structured data on these factors is very limited, and that methodologies to identify and assess these risks are not yet sufficiently developed to serve as a basis for robust scenario analyses. This targeted scope is consistent with the mandate set out in Article 87a(3) of the CRD, which requires institutions to begin their resilience testing with climate-related factors.

12. Accordingly, institutions are expected to progressively develop the necessary tools, methodologies and practices to assess and manage the impact of a broad set of environmental risks, as defined in Article 4 (1) point (52e) of the CRR, extending beyond climate ones such as disease outbreaks, ecosystem collapse and species extinction, which are often interconnected with or exacerbated by climate risks.

13. The EBA also encourages institutions to continue their efforts and research to gradually extend the scope of ESG factors in their scenario analysis but in initial stages, they should concentrate their efforts to develop scenario analysis on environmental risks. Likewise, the EBA advises that competent authorities adopt a pragmatic approach in supervising the implementation of scenario analyses by institutions.

14. Environmental risks do not create a new category of financial risks for institutions but are potential drivers of all traditional categories of risks, including credit, market, operational, reputational, liquidity, business model and concentration risks. However, environmental risks have specific features that make it difficult, for the time being, to fully and appropriately include them into the institution's management framework in accordance with Article 74(1) of the CRD.

15. Three aspects specifically require further examination and development of practices: the extended time horizon, the new risk transmission channels not fed by existing data and, finally, the fundamental uncertainty surrounding the shifts in economies around the world.

    - While some environmental risks are already tangible and could intensify in the short term, scientists[7] expect a significant rise in these risks over the medium to long-term. Institutions therefore need to adapt their management framework to overcome the maturity mismatch between traditional risks and environmental risks.
    - While traditional risk modelling relies heavily on past data to predict future risks, the unprecedented, potentially non-linear and rapidly evolving nature of environmental risks,

[7] See the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), AR6 Synthesis Report: Climate Change 2023 (Summary for policymakers, page 12 and following) or the Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment Report on Biodiversity and Ecosystem Services.(Summary for policymakers, page 11 and following). See also the United Nations (UN) Guiding Principles on Business and Human Rights or the OECD Guidelines for Multinational Enterprises for the social and governance aspects.

including compound risks[8], feedback loops[9] and tipping points[10] requires a much more forward-looking approach. Institutions should therefore focus on identifying and effectively modelling the transmission channels through which environmental risk drivers may affect their financial exposures.

- The exact ways and timing of materialisation of environmental risks are highly uncertain, even though their occurrence seems inevitable. Scenario analysis is intended to help institutions navigate this deep uncertainty by exploring the future economic conditions in which they may operate.

2.3. Date of application

16. Consistent with the EBA Guidelines on the management of ESG risks, these Guidelines are addressed to institutions and competent authorities. The proper implementation of environmental scenario analyses requires cooperation and dialogue between institutions, competent authorities and, where relevant, third parties.

17. The date of application of the Guidelines is 1 January 2027. Given the many challenges involved in implementing scenario analysis, institutions are expected to take proactive measures in developing their capacities over time, with a view to building scenario analysis that will become an increasingly useful decision-making tool integrated within their risk and strategic management processes.

18. At the same time, the amended CRD, and the Guidelines on the management of ESG risks become applicable from 11 January 2026. Therefore, institutions, in particular the large ones and those that are already advanced in climate and environmental scenario analysis, should continue to pursue efforts towards the full implementation of these Guidelines, thereby contributing to the effective and harmonised implementation of environmental scenario analysis across the sector.

2.4. Uses of scenario analysis

19. The Task Force on Climate-related Financial Disclosures (TCFD)[11] defines scenario analysis as a process for identifying and assessing the potential implications of a range of plausible future

[8] Compound risks refer to the simultaneous occurrence of multiple risk factors – such as an economic recession coinciding with extreme weather events, or the concurrent materialisation of transition and physical climate risks – which interact in ways that amplify their overall impact on financial institutions. These interdependencies can result in more severe outcomes than if each risk were assessed in isolation.

[9] Feedback loops should be understood as the dynamic interactions through which the economy and the financial sector respond to shocks. These include, for example, changes in supply and demand, tightening of financing conditions by the financial sector, or policy responses by governments. Such feedback mechanisms can amplify initial shocks (positive feedback loops) or help mitigate them (negative feedback loops).

[10] Tipping points refer to a critical threshold at which a small change in external conditions or system parameters leads to a significant and often irreversible shift in the system's behaviour or outcome.

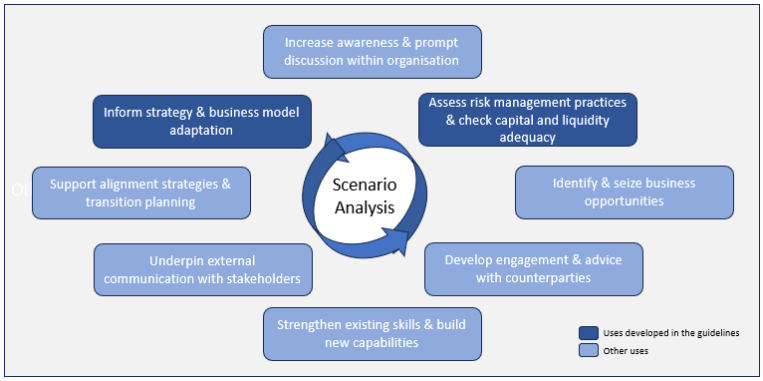
[11] See TCFD Report 2017, page 25 and following. TCFD is an international working group created in 2015 by the Financial Stability Board (FSB) to develop a framework for companies to disclose information about the financial risks associated

states of the world under conditions of uncertainty. Scenarios are hypothetical constructs and not designed to deliver precise outcomes or forecasts. Instead, scenarios provide a way for institutions to consider how the future might look like if certain trends continue or certain conditions are met and make decisions accordingly. As such, scenario analysis is prone to become a key analytical tool for institutions operating in a rapidly changing environment.

20. In particular, the TCFD recommends the use of climate scenario analysis to help firms explore the potential range of climate-related outcomes, analyse the business impacts of these alternative states of the world in a structured way, thereby enhancing their capacity to anticipate and manage climate risks.

21. Beyond being a risk assessment tool, scenario analysis is also designed to support a culture of constant change and adaptation. By building a shared, plausible and coherent narrative of the future, scenario analysis promotes alignment within the institution and the orderly and effective coordination of efforts. It is also a key foundational aspect of the institution's transition planning process as set out in the Guidelines on the management of ESG risks. Figure 1 below provides a synthetic view of the different uses of scenario analysis.

FIGURE 1: USES OF ENVIRONMENTAL SCENARIO ANALYSIS IN THE BANKING SECTOR



22. Against this backdrop, these Guidelines focus on scenario analysis that institutions should use to test their resilience.

2.5. Scenario analysis to test institutions' resilience

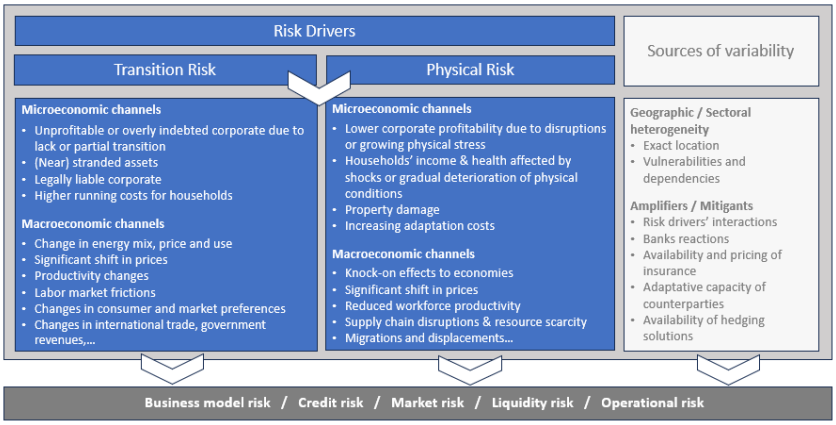
23. Conducting scenario analysis for resilience testing involves several preparatory steps:

- As a first step, institutions should undertake an in-depth analysis of the business environment in which they operate, focusing on environmental risks and considering different time horizons.

with climate change for their economic and financial activities. The TNFD Task Force on Nature-related Financial Disclosure, created in 2021, is the equivalent of the TCFD for issues relating to nature.

- Based on this analysis, institutions should then identify the transmission channels through which environmental events may affect the institutions' financial variables and metrics. These transmission channels should be incorporated into the institutions' models as a foundation for conducting scenario analysis. As this may take some time, institutions may need, at first, to rely heavily on qualitative approaches and expert judgement. Figure 2 below aims to guide institutions in identifying the various transmission channels of environmental risks, which should be considered, if material.

FIGURE 2: OVERVIEW OF ENVIRONMENTAL RISK TRANSMISSION CHANNELS



- Institutions should also define the narratives and associated scenarios they will use for their scenario analysis. To this end, institutions are invited to draw on the existing resources, as required by Article 87a(3) of the CRD, especially those made available by the Network for Greening the Financial System (NGFS[12]), the EU Joint Research Centre (JRC[13]) or national (government) bodies. The scenarios developed by the International Energy Agency (IEA)[14] are also a valuable resource, particularly as regards the assumptions relating to the deployment of renewable energies and the decline in fossil fuels, as well as the resulting sectoral trajectories. Institutions should choose scenarios that are fit for the purpose of the exercise and understand their limitations. For example, the IEA scenarios may have specific limitations for the long-term scenario analyses[15]. It is important that institutions ensure consistency between the narratives and scenarios used within the organisation. This may lead them to reconsider the scenarios previously used for accounting, budgeting or other purposes.

24. In the context of their preparation for the implementation of scenario analysis, institutions should also ensure that the data collection and processing systems are efficient, adaptable and fit for purpose. Institutions should address any skills and capabilities gap in environmental data and explore potential technological resources to enhance data collection.

25. Enhancing and extending database, while maintaining a clear focus on the purpose of the analyses, should be an ongoing process. To this end, institutions are strongly encouraged to foster cooperation, both internally and with each other, and leverage guidance and resources

[12] NGFS Scenarios Portal.
[13] Central scenario – European Commission.
[14] IEA Scenario Portal.
[15] The World Energy Outlook scenarios of 2024 do not take physical risks into account and are based on a standard assumption of world GDP growth of 2.7% per year.

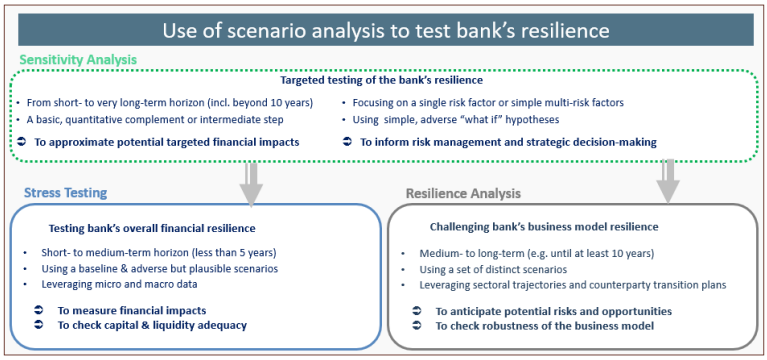
from (inter)governmental organisations, non-governmental organisations (NGOs), and academia.

26. Moreover, when integrating scenario analysis into their management framework, institutions may find it useful to leverage stress tests or other resilience assessment exercises, which include environmental factors and are conducted by the supervisors within the financial sector.

27. In the context of environmental risks, these Guidelines provide that scenario analysis is primarily used to test i) the financial resilience of the institution in the face of a short-term shock (e.g. less than five years) and ii) the adaptability and resilience of its business model in the face of an instable world that is likely to undergo significant changes over a longer-term horizon.

28. Where appropriate, institutions may also test their resilience in a simplified manner, by using sensitivity analysis. This is a practical tool, which can help institutions identify their main vulnerabilities to environmental risks by providing a basic quantification of the impact of a change in a given single risk factor or simple multi-risk factors on the institution's key indicators. Figure 3 provides a schematic illustration of the use of scenario analysis for institutions' resilience testing.

FIGURE 3: THE USE OF SCENARIO ANALYSIS TO TEST BANK RESILIENCE TO ENVIRONMENTAL RISKS



29. With regard to financial resilience of the institution in the face of a short-term shock:

- These Guidelines complement the EBA Guidelines on institution's stress testing[16] which do not address the specificities of environmental risks. In practical terms, institutions should integrate environmental risk factors, which have been identified following the EBA Guidelines on the management of ESG risks, within their stress testing models and consider the results of these stress tests when assessing capital and liquidity adequacy as part of their ICAAP and ILAAP processes.
- In order to integrate material environmental risk drivers, potentially starting with climate, into their stress testing approach, institutions need to define a baseline and plausible adverse scenarios that include environmental risks. They also need to identify and model the most relevant transmission channels through which these risk drivers could impact their current and future financial position.

30. With regard to the adaptability and resilience of the institution's business model in the face of a rapidly changing world:

- These Guidelines aim to enable institutions to test their resilience to the medium to long-term negative impacts of environmental factors in accordance with Article 87a(3) of the CRD. More generally, they seek to challenge institutions' ability to adapt their strategy and business model to mitigate environmental risks, while also seizing related opportunities. Institutions are invited to tailor this tool to their specific context and assess its effectiveness at an operational level.
- The resilience analysis is a forward-looking tool that helps institutions navigate and be agile in a highly uncertain future by scaffolding 'What if' hypotheses. It extends the sustainability assessment approach included in the Business Model Analysis developed under the Supervisory Review and Evaluation Process (SREP). It assesses the potential impacts of a set of distinct and plausible scenarios on the resilience of an institution's

[16] The EBA/GL/2018/04 – Guidelines on institutions' stress testing.

business model over a horizon that includes at least 10 years, encompassing both transition and physical risks.

- The general approach consists of projecting a selected set of key metrics in terms of profitability, risk and environment for each area of activity. An initial set of projections is made based on a reference scenario, defined as the most likely scenario according to the institution, and then the projections are repeated using alternative scenarios to test the variability of the metrics and the resilience of the institution's strategy.
- This analysis is interrelated, and should be consistent, with plans to address ESG risks in the short, medium and long term developed pursuant to Article 76(2) of the CRD and, where applicable, with the transition plan adopted in accordance with Directive (EU) 2024/1760[17] and disclosed in accordance with Article 19a paragraph 2(a)(iii) or Article 29a paragraph 2(a)(iii) of Directive 2013/34/EU[18], as both environmental resilience analysis and transition plan form an integral part of a cohesive institution's strategy to manage environmental risks across different time horizons including long-term ones.
- Among possible follow-up actions, institutions may consider a gradual increase in capital over time, in addition to the combination of measures provided for in paragraph 46 of the Guidelines on the management of ESG risks.

[17] Directive (EU) 2024/1760 of the European Parliament and of the Council of 13 June 2024 on corporate sustainability due diligence (CSDDD) and amending Directive (EU) 2019/1937 and Regulation (EU) 2023/2859 (OJ L, 2024/1760, 5.7.2024, ELI: http://data.europa.eu/eli/dir/2024/1760/oj).

[18] Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings: Directive 2013/34/EU (OJ L 182, 29.6.2013, p. 19, ELI: http://data.europa.eu/eli/dir/2013/34/oj).

FIGURE 4: ILLUSTRATIVE FRAMEWORK FOR A SCENARIO ANALYSIS

2.6. Limitations of scenario analysis

31. When using the results of the scenario analysis institutions should be well-aware of their limitations. Macroeconomic models (i.e. models that describe the relationships between the real economy and institutions' financial variables) were initially designed without any environmental issues in mind. When used as part of environmental risk scenario analysis, they come up against a number of challenges. While some of these challenges, such as the granularity of sectoral and geographical data or the harmonisation of methodological approaches tend to be resolved, or largely reduced, other limitations remain.

32. In particular, macroeconomic models tend to assess deviations from long-run equilibria rather than fundamental shifts in the economy. They usually have a limited representation of energy and agricultural systems. Incorporation of feedback loops and tipping points is also very complex. In addition, the time horizon of the modelling introduces major uncertainties and require making numerous assumptions.

33. Given these limitations, institutions should be cautious when translating the outcomes of environmental scenario analysis derived from traditional macroeconomic models into decisions, or when using them for internal and external communication. As a whole, the increasing degree of uncertainty as the time horizon lengthens, the multiplicity of assumptions used in the modelling or, conversely, the simplifications applied to avoid excessive complexity in the process, all reduce the relevance of the results of the scenario analysis and justify a cautious approach.

34. When conducting a scenario analysis, and in the light of current knowledge, institutions should keep in mind that scenario analyses are designed to inform, not dictate, decision-making. Much of the benefits of a scenario analysis lies in the process itself – fostering strategic reflection, identifying vulnerabilities, and promoting cross-functional collaboration – rather than quantitative outputs alone.

35. Institutions should therefore be careful not to overinterpret scenario results or to cherry-pick individual scenarios to draw general conclusions. Especially for resilience analysis, in view of the impossibility of assigning meaningful probabilities to each scenario, institutions should consider the findings from the full range of the scenario set and not only focus on low-impact scenarios. When the institution uses the scenarios of an external party, it should ensure, by reviewing the scenarios of other scenario providers, that its approach seems appropriate in terms of covering plausible futures.

36. Both in the context of a stress test exercise and a business model resilience analysis, it is critical that institutions understand the assumptions behind the scenarios and the modelling applied. Models are only as good as the assumptions that go into them.

2.7. Proportionality

37. The Guidelines have been drafted taking into account the proportionality principle set out in Article 87a(2) of the CRD. This means that proportionality should firstly be understood as driven by the materiality of environmental risks associated with the institution's activities and business model[19]. As such, institutions should rely on the results of their materiality assessment of environmental risks as set out in Section 4.1 of the Guidelines on the management of ESG risks when designing and implementing proportionate scenario analyses.

38. Another driver of proportionality applicable to all institutions is the degree of maturity of the approaches, including availability of data, understanding of transmission channels and existing climate and other environmental risk modelling capabilities. Institutions are expected to gradually and continuously enhance their approaches. They are also expected to closely monitor the activity of various stakeholders (such as (inter)governmental organisations, NGOs, peers, academia, consultants) and keep abreast of the latest scientific and operational knowledge.

39. At the outset, given the potential complexity of scenario analysis, a significant increase in granularity will not necessarily lead to better analysis. Likewise, excessive focus on quantification can impair strategic thinking. Nevertheless, some quantification should be a goal once relevant data is available, and with increasing experience in the development and implementation of scenario analysis.

40. At all times, institutions will have to seek balance between developing credible and all-encompassing scenarios as part of increasingly sophisticated models, while ensuring that the tool is well understood and leaves sufficient room for common sense and expert judgement.

41. Conducting a scenario analysis requires the mobilisation of a wide range of expertise and a broad approach integrating many of the institution's business lines and functions. Institutions are encouraged to adopt a pragmatic and proportionate approach to data quality and model validation approaches. Scenario analysis should be designed with adaptability and modularity in mind to allow for ongoing refinements as the environment and knowledge evolve.

42. Smaller institutions are not immune to environmental risks, for example in case of concentrations of exposures in environmentally sensitive economic sectors or in geographical areas prone to physical risks. At the same time, the size and complexity of institutions do play a role in the level of available resources and capacities to manage environmental risks. As already provided for in the Guidelines on institutions' stress testing and in the Guidelines on ESG risks management, the use of tools to test an institution's resilience may be carried out at a level of sophistication, frequency and scope commensurate

[19] The materiality assessment should drive the decision about the coverage of the exercise and /or it can lead to simplified approaches where risks are considered less material.

with the institution's size, nature and complexity of activities. However, the depth of the analysis should in all cases be commensurate with the materiality of the risks: where exposures to environmental risks are material, institutions are expected to perform an appropriately thorough analysis, including, where relevant, quantitative assessments.

43. Finally, in order to best support institutions in implementing scenario analysis, competent authorities should also demonstrate pragmatism and allow institutions to gradually increase the robustness and comprehensiveness of their approaches.

2.8. Outlook for next steps

44. The use of scenario analysis within institutions is still at a nascent stage. The intent of these Guidelines is to set the first milestones for incorporating scenario analysis in institutions' risk management framework. However, given the complexity and the rapidly evolving nature of environmental scenario analysis, they will be reviewed in the future as specified in Article 87a(5) last subparagraph of the CRD.

45. Accordingly, any further work carried out by the Basel Committee on Banking Supervision (BCBS) on climate scenario analysis[20] and/or by the NGFS on short-term scenarios, on physical risk scenarios and on nature-related risks, will be closely monitored. On market risk, the work done by regulatory bodies[21] but also by the financial industry associations on scenario analysis for the trading book would also merit close consideration.

46. Future revision of these Guidelines may also consider incorporating social and governance factors provided that methodologies in these areas become more advanced.

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See discussion paper in April 2024 BCBS DP on Climate Scenario Analysis

Consider:
See BCBS discussion paper on Climate Scenario Analysis on April 16, 2024.

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[20] See BCBS discussion paper on Climate Scenario Analysis on April 16, 2024

[21] See for instance the market risk methodology applied for the Fit-for-55 climate scenario analysis.

3. Guidelines

EBA/GL/2025/04

5 November 2025

Guidelines on environmental scenario analysis

To test the resilience of institutions to negative impacts of environmental risk factors

1. Compliance and reporting obligations

1.1. Status of these Guidelines

47. This document contains Guidelines issued pursuant to Article 16 of Regulation (EU) No 1093/2010[22]. In accordance with Article 16(3) of Regulation (EU) No 1093/2010, competent authorities and financial institutions must make every effort to comply with the Guidelines.

48. Guidelines set the EBA view of appropriate supervisory practices within the European System of Financial Supervision or of how Union law should be applied in a particular area. Competent authorities as defined in Article 4(2) of Regulation (EU) No 1093/2010 to whom Guidelines apply should comply by incorporating them into their practices as appropriate (e.g. by amending their legal framework or their supervisory processes), including where Guidelines are directed primarily at institutions.

1.2. Reporting requirements

49. According to Article 16(3) of Regulation (EU) No 1093/2010, competent authorities must notify the EBA as to whether they comply or intend to comply with these Guidelines, or otherwise with reasons for non-compliance, by [dd.mm.yyyy]. In the absence of any notification by this deadline, competent authorities will be considered by the EBA to be non-compliant. Notifications should be sent by submitting the form available on the EBA website with the reference 'the EBA/GL/2025/xx'. Notifications should be submitted by persons with appropriate authority to report compliance on behalf of their competent authorities. Any change in the status of compliance must also be reported to the EBA.

50. Notifications will be published on the EBA website, in line with Article 16(3).

[22] Regulation (EU) No 1093/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Banking Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/78/EC, (OJ L 331, 15.12.2010, p.12, ELI: http://data.europa.eu/eli/reg/2010/1093/oj).

2. Subject matter, scope and definitions

2.1. Subject matter and scope of application

51. These Guidelines specify the criteria for setting the scenarios that institutions should use to test their resilience to long-term negative impacts of environmental factors, in particular, climate-related factors, in accordance with Article 87a(3) and 87a(5), point (d) of Directive 2013/36/EU[23].

52. These Guidelines also specify how climate-related risk factors should be integrated into a stress test exercise and set out criteria for scenario analysis that can be used to test the institution's resilience to short-term negative impacts of environmental factors.

53. These Guidelines complement the EBA Guidelines on the management of ESG risks (the EBA/GL/2025/01)[24] with regard to scenario analysis. These Guidelines also complement the EBA Guidelines on institutions' stress testing (the EBA/GL/2018/4)[25].

54. In addition, these Guidelines further specify how institutions, which have received the permission of their competent authority to use the Internal Ratings Based Approach (IRB Approach) to calculate own funds requirements for a part or all of their credit risk exposures, should define and use stress test scenarios that include environmental risk drivers, in particular physical risk and transition risk drivers arising from climate change, as part of their stress testing programmes on credit risk in order to fulfil the requirements set out in Article 177(2a) of Regulation (EU) No 575/2013[26].

55. The scope of the Guidelines is focused on environmental risks with priority given to climate as specified in the mandate. Future revision of these Guidelines may incorporate social and governance factors provided that methodologies in these areas allow for this.

[23] Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC (OJ L 176, 27.6.2013, p. 338, ELI: http://data.europa.eu/eli/dir/2013/36/oj).

[24] The EBA Guidelines on the management of ESG risks specify the minimum standards and reference methodologies for the identification, measurement, management and monitoring of ESG risks. In particular, they specify the content of plans to be prepared in accordance with Article 76(2) of the CRD. the EBA Guidelines on the management of environmental, social and governance (ESG) risks (the EBA/GL/2025/01).

[25] The the EBA Guidelines on institutions' stress testing (the EBA/GL/2018/04) provide common organisational expectations, methodologies and processes for the performance of stress testing by institutions, specifying how they should be taken into account for capital adequacy and risk management purposes.

[26] Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012, (OJ L 176, 27.6.2013, p. 1, ELI: http://data.europa.eu/eli/reg/2013/575/oj).

56. Institutions and competent authorities should apply these Guidelines in accordance with the level of application set out in Article 109 of Directive 2013/36/EU.

2.2. Addressees

57. These Guidelines are addressed to competent authorities as defined in Article 4(2), point (i) of Regulation (EU) No 1093/2010 and to financial institutions as defined in Article 4(1) of Regulation No 1093/2010 which are also institutions in accordance with Article 4(1), point 3 of Regulation (EU) No 575/2013.

2.3. Definitions

58. Unless otherwise specified, terms used and defined in Directive 2013/36/EU, Regulation (EU) No 575/2013, the EBA Guidelines on institutions' stress testing (the EBA/GL/2018/04) and the EBA Guidelines on the management of ESG risks (the EBA/GL/2025/01) have the same meaning in these Guidelines.

3. Implementation

3.1. Date of application

59. These Guidelines apply from 1 January 2027.

4. Purpose, governance and proportionality in environmental scenario analysis

4.1. Purpose

60. Institutions should develop forward-looking approaches and perform scenario analyses to manage environmental risks and inform strategic decisions. More specifically:

    a. Institutions should use scenario analysis for the purposes of identifying business risks and opportunities, assessing the vulnerabilities of their portfolios to physical and transition risks, and testing their resilience to potential negative impacts of environmental factors, starting with climate change.

    b. Institutions should use scenario analysis to support the development of their strategy and transition planning process as set out in the EBA Guidelines on the management of ESG risks and challenge their business model in terms of resilience to environmental factors, including in the long-term horizon.

    c. Institutions may also use scenario analysis to raise awareness and support embedding environmental risks in their corporate culture.

61. When performing scenario analysis, institutions should ensure clarity in the purpose, expectations and limitations of the analysis.

62. From the outset, institutions should define a credible and coherent narrative that describes their vision of the most likely evolution of the business environment in which they operate. This narrative should serve as a foundation of the institution's reference scenario as referred to in section 4.2. It should be endorsed by senior management and used consistently (i.e. considering the same narrative) across the entire organisation.

63. Institutions should develop and implement scenario analysis gradually, with the aim of embedding it in their entire management framework (i.e. strategy, governance, risk management and operations). When using scenario analysis to test the resilience to potential negative impacts of environmental factors, institutions should consider the following two complementary tools in accordance with Section 5:

    a. The stress test which can help institutions assess their financial (both capital and liquidity) resilience to environmental shocks in the short-term.

    b. The resilience analysis which should help institutions assess and, where necessary, adapt their business model to ensure its resilience in the face of medium- to long-term environmental shifts.

4.2. Governance

64. When developing and implementing environmental scenario analysis, institutions should apply governance arrangements in accordance with the EBA Guidelines on Internal Governance[27] and the EBA Guidelines on the management of ESG risks. Institutions should set up a process to ensure the robustness of the common narrative and scenarios used across their business lines and ensure that these narratives and scenarios are regularly reviewed, especially in the case of significant changes in the business environment.

65. To enhance the consistency of the assumptions and estimates made across business functions as well as to ensure that the outcomes of scenario analyses are relevant and exploitable by existing processes, institutions should develop a cross-functional approach. Such collaboration among multiple departments should ensure that expertise and insights from various functions contribute to a comprehensive and robust scenario analysis framework. Institutions should substantiate and document their scenario analyses, including scenario and modelling choices, assumptions made, proxies used to cope with data gaps, factors included or excluded, as well as the main results and conclusions reached.

4.3. Proportionality

66. Institutions should focus their scenario analyses on material environmental risks. To carry out their materiality assessment, institutions should refer to the Guidelines on the management of ESG risks.

67. The degree of sophistication, scope and frequency of the scenario analysis should be commensurate with the materiality of environmental risks, the current state of development and maturity of available methodologies and practices, the institution's internal capabilities (taking into account its size, business model and the complexity of its activities), as well as the expected benefits of the exercise. Where detailed quantitative approach would be disproportionate to the institution's capabilities or expected benefits, institutions could consider a simplified approach. In this respect, and where justified in relation to the materiality of the risks:

    d. SNCIs may rely on a predominantly qualitative approach for both short and longer-term scenario analysis.

    e. Institutions other than large ones and other than SNCIs may use sensitivity analysis to test their short-term financial resilience to adverse environmental factors. For the long-term resilience analysis, they may rely on a predominantly qualitative approach.

    f. For large institutions, a simplified approach may be envisaged in the context of medium to long-term resilience analysis and of non-climate environmental risks, where sensitivity analysis could serve as an initial step. As their understanding and capabilities in managing

[27] The EBA Guidelines on internal governance under Directive 2013/36/EU (the EBA/GL/2021/05).

environmental risks advance, they are expected to progressively integrate more sophisticated quantitative approaches.

5. Development of environmental scenario analysis

5.1. Transmission channels

68. Institutions should identify, through observation and judgement, the most relevant transmission channels through which environmental risks may affect their exposures. To do so, they should adopt a structured, well-documented and regularly reviewed process.

69. Institutions should identify reliable data sources, apply transparent methodologies, and clearly articulated assumptions. In accordance with Section 4.2 of the Guidelines on the management of ESG risks, institutions should gather the necessary data based on their materiality assessment.

70. To identify environmental transmission channels, institutions should identify relevant risk drivers by considering both transition and physical risks. A non-exhaustive list of potential transmission channels, both micro and macro, is presented in the Annex.

71. Institutions should assess the extent to which their counterparties may be indirectly exposed to environmental risks through their value chain or through potential spillover effects on the local economy, starting with their largest or most concentrated counterparties. Where such indirect impacts are assessed to be material, institutions should consider reflecting them in the relevant transmission channels.

72. According to the time horizon of the analysis, institutions should consider potential risk mitigation or amplification factors. These may include:

    a. private and public insurance coverage - while considering the existing and potential future insurance protection gaps;

    b. counterparties' ongoing efforts and forward-looking strategies related to climate change mitigation and/or adaptation (e.g. transition plans where available), including the risks stemming from a potential failure or delay in effectively undertaking such a transition/adaptation; and

    c. relevant local or governmental adaptation measures, while being cautious not to rely on overly optimistic government actions or State-led financial support schemes.

73. Institutions should assess how transition and physical environmental risks propagate through relevant transmission channels, and materialise in established risk categories, including:

    a. business model and strategic risk (e.g. higher cost of risk and lower profitability);

b. credit risk (e.g. counterparties default or increased probability of default, impact on collateral values);

c. market risk (e.g. loss of value of financial assets, increased volatility, widening of credit spreads on certain assets);

d. liquidity risk (e.g. difficulties in accessing financing or liquidating assets, increased liquidity needs of customers); and

e. operational risk (e.g. sudden or gradual disruptions to processes, including absence of staff and IT outages).

5.2. Scenarios

74. When setting scenarios involving environmental risks, institutions should consider, consistently with the identification of the transmission channels, a number of intertwined factors to ensure that the scenarios are as relevant as possible. Namely, institutions should consider the following:

    a. socioeconomic context, i.e. assumptions about global or regional socio-economic conditions, including population growth, economic development and social inequalities; and other macroeconomic factors, including inflation and monetary policies, increased protectionism;

    b. technological evolution, i.e. the level and pace of innovation, technological adoption, and the availability of infrastructure to support new technologies;

    c. consumer preferences, i.e. potential shifts in consumers' appetite for goods and services considered as sustainable, locally produced, healthy.

75. For climate risks, the additional following factors should be considered:

    a. climate policies, i.e. the level of policy intervention aimed at mitigating climate change or managing its impacts through adaptation policies; this can range from highly ambitious to minimal actions;

    b. energy systems, i.e. the structure of energy production, consumption, and infrastructure, including reliance on fossil fuels vs. renewable energy sources;

    c. sectoral pathways to net-zero emissions, i.e. how the different sectors transition and adapt to a sustainable economy, including, where relevant, the international outlook, such as the International Energy Agency (IEA), the Science Based Target initiative (SBTi)[28] or the Net Zero Banking Association (NZBA)[29] sectoral decarbonisation pathways, the

[28] The SBTi is a global partnership (between CDP, the UN Global Compact, WRI, and WWF) that helps companies and financial institutions set greenhouse gas emission reduction targets that are aligned with the Paris Agreement **goals** (limiting warming to well below 2°C, and pursuing 1.5°C).

[29] The NZBA is a UN-convened, industry-led initiative launched in 2021 under the *Glasgow Financial Alliance for Net Zero (GFANZ)* that provides a common framework for banks to align their portfolios with net-zero emissions by 2050 through the adoption of sectoral targets.

regional context, foremost among which the European Green Deal strategy, the Fit-for-55 package, and the 2050 climate-neutrality target, and the national policies and climate strategy;

d. emissions level and ensuing climate impact, i.e. concentration of greenhouse gases emissions and how temperature and other biophysical processes are expected to develop in the future.

76. For other environmental risks (beyond climate), the additional following factors should be considered:

a. environmental policy and regulation, i.e. the level of ambition and enforcement of environmental protection policies, such as biodiversity conservation, water and air quality regulation, circular economy mandates, restrictions on harmful chemicals, and deforestation bans. This includes regional frameworks like the EU Nature Restoration Law or the Biodiversity Strategy for 2030;

b. ecosystem condition, i.e. the status and trends in biodiversity, ecosystem degradation, soil fertility, freshwater availability, and pollution levels. These factors define the baseline environmental stress and influence the materialisation of risks such as resource scarcity, species collapse, or water crisis;

c. land and resource use patterns, i.e. the extent and intensity of land use (urban expansion, agriculture, mining), and patterns of raw material extraction or water usage. Unsustainable use can amplify environmental degradation and trigger social or economic tipping points;

d. supply chain dependencies on ecosystems, i.e. the degree to which sectors or regions rely on ecosystem services such as pollination, water filtration, or raw material availability. Disruption of these services can lead to sectoral losses, for instance in agriculture, forestry, fishing, food, or textiles.

77. Institutions should use credible scenarios, based on the most recent scientific knowledge, and on scenarios and resources provided by widely recognised international or regional organisations, such as:

a. for climate risks: the Intergovernmental Panel on Climate Change (IPCC), the Network for Greening the Financial System (NGFS), the International Energy Agency (IEA), the United Nations Environment Programme (UNEP), the Joint Research Centre of the EU Commission (EU JRC) or national government or non-government bodies;

b. for other environmental risks beyond climate: the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), the United Nations specialised agencies[30], the European Environment Agency (EEA)[31], the World Resources Institute

[30] The UN specialised agencies include UNEP, FAO (Food and Agriculture Organisation), GBO (Global Biodiversity Outlook) which is the Convention on Biological Diversity – CBD's flagship framework for tracking global biodiversity progress, and others relevant to environmental monitoring and policy.

[31] The EEA is an EU body offering a framework for environmental data and policy support.

(WRI)[32], as well as regionally or nationally developed science-based assessments (e.g. national biodiversity strategies, soil and water management plans, or pollution monitoring frameworks).

78. Institutions should refine and customise the chosen scenarios based on the objective, scope and granularity of the analysis being conducted. For example, when conducting stress tests, institutions could consider relatively short-term scenarios, focusing more on acute physical risks (i.e. sudden materialisation of extreme climate events) than on chronic physical risks (i.e. gradual shift in climate conditions) and with greater emphasis than in longer-term scenarios on the potential negative impacts of a strong disconnect between the environmental regulation agenda, the business cycle and the consumer and market sentiment.

79. Institutions should ensure that the scenarios are well aligned with the unique risk characteristics of their portfolios and business model by adjusting the scenarios to the extent necessary and possible.

80. Where a scenario does not include some of the elements listed in paragraphs 75 and 76, institutions should assess the potential materiality of these factors and consider the extent to which the results of the analysis should be adjusted based on expert judgment.

81. When setting scenarios, institutions should consider both physical risk and transition risk. Even if modelling can lead to setting separate scenarios for each of these risks, institutions should ensure sufficient consistency between the scenarios given that the risks are strictly correlated over the long-term.

82. Institutions should select the specific aspects of transition risk and physical risk hazards to be covered by the scenario based on their materiality assessment, which may differ according to the time horizon concerned.

83. Institutions should ensure that scenarios are internally consistent. In particular, the trajectory of each key factor should not be considered in isolation but in relation to the trajectory of the other key factors. For example, assumptions about economic growth should be consistent with assumptions about energy demand and technology adoption.

84. In application of the proportionality principle, institutions may initially, or depending on the size, nature, complexity of their activities, or on their environmental risk materiality assessment, focus on a narrower scope, use fewer input factors, set simpler scenarios and/or use simplified approaches.

[32] The WRI is a research institute developing frameworks for sustainable resource management and climate action.

5.3. Sensitivity analysis

85. In developing scenario analysis, institutions may consider using sensitivity analysis as a simpler, practical tool. While less complex than a full scenario analysis, this approach can provide institutions with an estimate of the most material impacts associated with environmental risks.

86. Additionally, institutions may use sensitivity analysis to explore emerging risks (e.g. nature, resource scarcity), or very long-term risks (e.g. impacts of the increase in frequency and severity of physical risks in 2050 and beyond).

6. Types of environmental scenario analysis

6.1. Stress tests

87. Institutions should incorporate environmental factors into their stress testing framework, elaborated in accordance with the EBA Guidelines on institution's stress testing.

88. In accordance with Article 177(2) and (2a) of Regulation (EU) No 575/2013, institutions using the IRB Approach are required to regularly perform credit risk stress tests which shall consider the effects of severe, but plausible, recession scenarios' and which shall include *'ESG risk drivers, in particular physical risk and transition risk drivers stemming from climate change'*. The methodology for performing stress tests in accordance with this Article should be consistent, to the extent appropriate, with the methods set out in Section 4.7.1 of the EBA Guidelines on institutions' stress testing, and in this section.

89. For the purposes of their stress testing exercise, institutions should use a baseline scenario, as well as a set of adverse scenarios which are defined as severe (i.e. tail risk) but plausible (i.e. reasonably probable) scenarios.

90. When defining their baseline scenario, institutions should assume a continuation of current conditions and trends, including expected trends in environmental risks, without assuming extreme shocks or policy shifts. The baseline scenario should take into account, where likely to have material impacts, the policies adopted or about to be adopted over the period under consideration.

91. For the set of adverse scenarios, institutions should consider environmental shocks as shocks among others. When shocks of different origins combine, institutions should examine in greater depth the consequences of these compound risks that could amplify the impacts beyond a simple aggregation of the impacts of the climate, environmental and macroeconomic scenarios analysed separately.

92. When incorporating environmental variables into their existing stress testing framework, institutions should conduct a thorough gap analysis of their stress testing models to identify areas where current modelling capabilities need to be improved to adequately account for environmental risks. Given that environmental risks are not primarily captured by economic variables, institutions should consider an in-depth overhaul of their approaches, rather than multiple ad-hoc adjustments.

93. To facilitate a smooth integration of the environmental variables, institutions may need to test the new approaches or environmental risk modules separately before their full integration. In the testing phase, institutions should apply caution when using the results of stress tests for decision making.

94. Institutions should ensure that industry sector and country or geographical location dimensions are properly taken into account in their stress test models. While developing new models or extending the granularity of existing models, institutions should introduce variables sensitive to environmental risks in connection with the identification of transmission channels provided for in Section 5.1.

95. Where possible and taking into account their materiality assessment, institutions should apply environmental shocks related to adverse scenarios directly at the exposure level. For risks whose materiality is primarily the result of a concentration effect, institutions should apply the shocks to groups of counterparties with a similar profile of exposure to environmental risks.

96. Institutions may use a constant balance sheet assumption, but are encouraged to incorporate, as far as possible, significant changes in the composition of their portfolios resulting from the institution's approved strategy, where these are due to occur during the stress test period. As a complement, institutions may use a full dynamic balance sheet approach according to their practices and needs.

97. Institutions should progressively incorporate environmental factors into their stress testing models, starting with credit risk models, and aiming at capturing gradually the impacts of environmental changes on other traditional risk categories, including market, operational, and liquidity risk across all relevant portfolios, sectors, and geographies.

98. By way of derogation from paragraph 15 of the EBA Guidelines on institutions' stress testing, institutions are not required to incorporate environmental risks into their reverse stress testing. They may do so on a voluntary basis if they deem it useful.

6.2. Resilience analysis

99. Institutions should build their resilience analysis with a view to assessing their capacity to sustain their strategic direction and profitability under adverse conditions.

100. As a starting point for resilience analysis, institutions should carry out a thorough analysis of the environment in which they operate, and its expected evolution over a foreseeable future.

101. On this basis, institutions should set their own scenario of reference, i.e. the scenario which reflects the most likely environmental path that future developments could take according to the institution. This internal reference scenario builds on the baseline scenario used for stress tests but extends over a long-term horizon and may, as a result, deviate to varying degrees from the continuation of observable trends.

102. In addition to the reference scenario, institutions should also select a set of distinct alternative scenarios designed to cover a wide range of plausible futures.

103. When performing resilience analysis, institutions should consider the feedback loops stemming from the adaptation of the financial sector to rising risks (e.g., reduced insurance coverage in climate-vulnerable regions lowering asset values and creditworthiness, which in turn amplifies financial losses and limits future investment) and its contribution to the financing needs of the economy. To this end, institutions should monitor capital reallocation movements and possible crowding-out effects in sectors or subsectors most affected by transition efforts (e.g., a shift away from carbon-intensive sectors due to increased risk perception, or excessive investor focus on green assets leading to mispricing and reduced financing availability for transitional sectors or vulnerable SMEs).

104. In parallel to this thorough analysis of their environment, institutions should identify key features of their current business model, including underlying profitability, assets and liabilities mix, market share, funding structure, key success drivers and key dependencies.

105. Combining this analysis of the sources of profitability of their business model and their reference scenario, institutions should make projections of their risk-adjusted profitability and some other meaningful metrics (including environmental metrics) for their various activities over a horizon of at least 10 years. To challenge the resilience of their strategy, institutions should reproduce the projections made on the basis of their reference scenario with the set of alternative scenarios.

106. Institutions should break down the analysis into several time horizons, while ensuring consistency between the different horizons. When doing so, they should be able to perform relatively more precise projections over a short-term horizon (e.g. below five years). As the time horizon lengthens, institutions may use ranges on the expected performance of their strategy and on the other key metrics.

107. For resilience analysis, institutions should use a constrained dynamic portfolio assumption limiting the changes within their main portfolios to those provided for in their existing strategy. In particular, institutions should ensure that their projections are aligned with the targets set in their plan in accordance with Article 76(2) of Directive 2013/36/EU. As a complement, institutions may use a full dynamic portfolio assumption that incorporates both the anticipated evolutions of environmental factors and their expected response to those evolutions.

108. Resilience analysis should provide institutions with an assessment of the viability of their business model and the sustainability of their strategy under each of the scenarios tested. Institutions should consider the findings from the full range of scenarios and not only focus on those of middle range scenarios (i.e. scenarios that deviate only moderately from their reference scenario). As a result, the implementation of a resilience analysis should support the institution in assessing and, where necessary, adjusting its strategy (including its transition plan) to ensure its resilience to alternative adverse scenarios.

6.3. Ongoing monitoring and expert judgment

109. To enhance the robustness of their models, institutions should consider challenging their calibration approach by:

    a. comparing their results and assumptions with external, including supervisory, observations from credible sources to assess the consistency of their own assumptions and results;

    b. using sensitivity analyses to test the degree of stability and consistency of their models' outputs or to identify the effect of potential non-linearities not included in the scenarios;

    c. where a third-party model is used, verifying that the validation framework of the external suppliers complies with the EBA Guidelines on outsourcing arrangements.

110. To address the residual shortcomings of their stress test models, institutions should consider accounting for the impacts of the factors that could not, at this stage, be otherwise integrated (e.g. risks stemming from counterparties' value chain, tipping points, contagion effects, etc.), by adjusting conservatively the results of their models on the basis of expert judgement.

111. More generally, institutions should use expert judgement when carrying out quantitative analyses to compensate for incomplete or approximate environmental data, the absence of observed historical correlations and other model limitations.

112. Institutions should ensure regular monitoring of significant developments in their environment (including counterparties' strategy to cope with environmental risks) so that the scenarios and modelling approaches used remain relevant. The frequency with which scenario analyses are carried out should be adapted to the needs and practices of the institutions.

113. Scenario analysis should be designed with adaptability and modularity in mind to allow for ongoing refinements as the environment and knowledge evolve. Institutions should keep abreast of the latest scientific knowledge.

Annex: list of potential transmission channels that institutions may consider

For transition risks:

Institutions should consider transition risks arising from the shift towards a more sustainable and low-carbon economy. These may include policy and legal risks (such as new carbon pricing mechanisms or stricter environmental regulations), technological risks (such as the obsolescence of high-emission assets), and market risks (such as shifts in consumer preferences or demand patterns).

Microeconomic channels:

- Corporates are no longer profitable or overly indebted, or at risk of becoming so, due to increasing environmental costs (e.g. costs for transitioning to greener technologies, supply chains and production processes, increasing energy costs, increasing taxation on emissions, commodity price volatility, resource scarcity premiums) and/or changes in consumers' preferences and competitive dynamics.
- Assets are stranded or significantly impaired, or at risk of becoming so, as they are no longer adapted to current standards or consumer preferences.
- Corporates are legally liable, given a partial failure to align with the transition.
- Households bear transition costs (e.g. costs of bringing properties up to standard or capital loss on sale, increased taxation, higher energy prices, increased cost of basic goods and services) that significantly affect their financial condition and loan demand.

Macroeconomic channels:

- Fundamental change to energy mix, energy price levels and patterns of energy use – driven by climate mitigation efforts, pollution control, resource scarcity, etc. - that affects the whole economy;
- Significant shifts in prices, especially for energy-intensive or environmentally harmful products;
- Productivity changes;
- Labour market frictions resulting in unemployment and sectors under pressure due to the lack of skilled workers;
- Changes in consumer and market preferences;
- Other impacts on international trade, government revenues, fiscal space, interest rates and exchange rates.

For physical risks:

Institutions should consider acute risks resulting from the increasing frequency and severity of extreme climate or weather events (such as heat waves, floods or water sources contamination) and chronic risks arising from long-term shifts in climate and weather patterns (such as rising average temperatures, sea level rise or decline in pollination).

Microeconomic channels:

- Corporate profitability is impacted by severe disruptions to business or the value chain due to highly adverse environmental conditions, by gradual deterioration due to working conditions, or by rising costs (e.g. adaptation costs, price of key inputs);
- Household income is affected by environmental disruptions, by gradual deterioration of economic activities, or by impact on health;
- Corporate assets or household properties are damaged by severely adverse weather conditions or gradually deteriorated (e.g. shrink-swell of clays);
- Companies and households bear higher maintenance and adaptation costs, or even reconstruction costs.

Macroeconomic channels:

- Knock-on effects of severely adverse weather, pollution incidents, water scarcity and other global warming and ecosystem degradation effects to the entire economy of a certain geographical area;
- Significant shifts in prices from supply shocks resulting in inflationary pressure;
- Reduced workforce productivity and health impacts;
- Supply chain disruptions and resource scarcity;
- Migrations and displacements.

4. Accompanying documents

4.1. Impact assessment

On June 2024, the Official Journal published the directive 2024/1619 amending the Capital requirements directive (from now on CRD VI). Article 87a(5) of the CRD VI mandates the EBA to issue Guidelines to specify minimum standards and reference methodologies for ESG risks management practices. On 9 January 2025, the EBA published Guidelines on the management of ESG risks in response to this mandate, with the exception of the section on scenario analysis. These Guidelines complement the aforementioned Guidelines on this aspect.

As per Article 16(2) of the ESAs regulation (Regulation (EU) No 1093/2010, (EU) No 1094/2010 and (EU) No 1095/2010 of the European Parliament and of the Council), any Guidelines developed by the ESAs shall be accompanied by an Impact Assessment (IA) annex which analyses *'the potential related costs and benefits'* of the Guidelines. Such annex shall provide the reader with an overview of the findings as regards the problem identification, the options identified to remove the problem and their potential impacts.

The EBA prepared the IA included in this consultation paper analysing the policy options considered when developing the Guidelines. Given the nature of the study, the IA is qualitative in nature.

4.1.1. Problem identification

Environmental, social and governance (ESG) factors are causing and are expected to increasingly lead to significant changes in the real economy that will in turn impact the financial sector through new risks and opportunities.

Following the adoption of the Paris Agreement on climate change and the UN 2030 agenda for Sustainable Development in 2015, governments around the world are taking action to encourage the transition to low-carbon and more sustainable economies. In Europe in particular, the European Green Deal targets the ambitious objective of making Europe the first climate-neutral continent by 2050 and it is expected that the financial sector will play a key role in this process.

In this regard, the European Commission has launched a set of initiatives to enhance the resilience and contribution of the financial sector. As a result, several efforts have been initiated to incorporate ESG risks into prudential supervision. These Guidelines target the inclusion of scenario analysis in the internal management system of institutions as an essential tool in a changing economic environment.

4.1.2. Policy objectives

The main objective of these Guidelines is to respond to the mandate set up in Article 87a(5) of the Directive 2013/36/EU in conjunction with the Guidelines on the management of ESG risks and to fulfil the mandate of Article 177(2a) of Regulation (EU) No 575/2013.

4.1.3. Baseline scenario

The current framework does not specify any Guidelines about how institutions should perform internal ESG scenario analysis to test their financial and business model resilience. As a result, institutions may follow different approaches when performing their internal ESG scenario analysis which would create divergencies in the way institutions define their scenarios and incorporate them into their stress testing and other scenario analysis processes. Such situation pose difficulty for the work of supervisors who have to monitor and control that institutions are prepared to face the potential materialisation of ESG risks.

4.1.4. Options considered

When drafting the present Guidelines, the EBA considered several policy options under four main areas:

i. Scope of the Guidelines on scenario analysis

Defining the expectations to perform scenario analysis to test institutions' resilience to the negative impacts of climate but also of other ESG risks is a very ambitious target, considering the near absence of stress test / scenario analysis work beyond environmental risks. In particular, among all environmental risks, the work on climate risk is substantially more developed. Therefore, while developing these Guidelines, the EBA has analysed three possible options:

- Option 1: To focus equally on the three aspects;
- Option 2: To focus on environmental aspects only, with a particular emphasis on climate risk;
- Option 3: To mainly focus on environmental aspects but give some guidance on social and government aspects.

ii. Time horizon for Climate Scenario Analysis

The decision on the time horizon significantly drives the outcome of scenario analysis. Any decision on the time horizon should therefore depend on the final purpose of the exercise. Therefore, while developing these Guidelines, the EBA has analysed three possible options:

- Option 1: To use a relatively short time horizon (up to five years);
- Option 2: To use longer time horizon (beyond five years);
- Option 3: To define two different types of scenario analysis, with a short time horizon (up to five years) and with a longer time horizon (beyond five years).

iii. Use of scenarios from widely recognised organisations

Several organisations have developed climate stress test scenarios based on the most recent scientific knowledge. However, such scenarios may not completely adapt to institutions' risk characteristics or purposes of their exercises. Therefore, while developing the current Guidelines, the EBA has analysed three possible options:

- Option 1: To fully rely on credible scenarios elaborated by widely recognised international or regional organisations;
- Option 2: To rely on institutions' self-developed scenarios;
- Option 3: To use scenarios elaborated by widely recognised international or regional organisations as a guide but adapt them to institutions' own characteristics.

iv. Proportionality

ESG factors are causing and will continue to cause profound economic transformations that will impact the financial sector. Although it is an important aspect that institutions need to introduce in their risk management practices including stress test and scenario analysis, there is a significant cost associated with this process. Therefore, while developing these Guidelines, the EBA has analysed several possibilities to introduce certain degree of proportionality.

In relation to the materiality of risk, although institutions may be subject to a large number of environmental factors, some of those factors will be more material than others. Therefore, while developing these Guidelines, the EBA has analysed two possible options:

- Option 1: To cover all risks associated with environmental factors;
- Option 2: To focus on the most material environmental risks.

In addition, the implementation of quantitative tools for stress testing and resilience analysis involves a high degree of complexity and will require significant effort from institutions. A gradual implementation of these processes would allow institutions to phase their efforts and progressively absorb the associated burden. At the same time, it is important to avoid significant delays, in order to ensure that the objectives of the Guidelines are achieved in a timely manner. This is particularly relevant for smaller institutions, which may face greater challenges in implementing such processes. Nevertheless, the impact of climate risk will ultimately pose challenges for the entire financial system so it is also important that smaller institutions develop the adequate tools. Therefore, while developing these Guidelines, the EBA has analysed the possible options:

a) For Stress testing:

- Option 1: To completely exempt non-large institutions from completing quantitative scenario analysis and allow for a qualitative assessment;
- Option 2: To request non-large institutions to perform quantitative scenario analysis but allowing for a lower degree of sophistication such as sensitivity analyses. Such permission to use sensitivity analysis as a quantitative tool for stress testing would have a limited duration and institutions should gradually move towards more sophisticated quantitative methods;
- Option 3: To request non-large institutions (including SNCIs) to perform a scenario analysis with lower degree of sophistication.

a) For Resilience analysis:

- Option 1: To completely exempt all institutions from completing quantitative resilience analysis and allow for a qualitative assessment;
- Option 2: To temporarily exempt all institutions from completing quantitative resilience analysis and allow for a qualitative assessment. Such permission for a qualitative assessment would have a limited duration and all institutions should gradually move towards full sophisticated quantitative methods;
- Option 3: To temporarily exempt all institutions from completing quantitative resilience analysis and allow for a qualitative assessment. Such permission for a qualitative assessment would have a limited duration and all institutions should gradually move towards quantitative methods. However, given the complexity of the exercise, such quantitative methods could be limited to sensitivity analysis;
- Option 4: To exempt institutions from completing quantitative resilience analysis and allow for a qualitative assessment. However, large institutions could temporarily use simplified quantitative methods such as the sensitivity analysis while being requested to gradually move to a full quantitative resilience analysis.

v. Date of application

These Guidelines complement the EBA published Guidelines on the management of ESG risks, on the topic of scenario analysis. In accordance with Article 87a(5) of the CRD VI, the implementation date set in the EBA Guidelines on the management of ESG risks is 11 January 2026. The application of these Guidelines from that same date would enhance consistency in the management of ESG risks by institutions, also covering scenario analysis. However, such approach will not allow for an extra time for institutions to adapt. Therefore, while developing these Guidelines, the EBA has analysed the two possible options:

- Option 1: align the date of application of these Guidelines with the date of application of the EBA Guidelines on the management of ESG risks, namely 11 January 2026 (and 11 January 2027 for SNCI);
- Option 2: set the date of application of these Guidelines at 1 January 2027 to give institutions more time to prepare.

4.1.5. Assessment of the options and preferred options

In respect to the different options considered, the EBA has assessed their potential costs and benefits, and has selected a preferred option in the five main areas considered:

i. Scope of the Guidelines on scenario analysis

ESG risks include environmental, social and governance factors. Article 87a of Directive 2013/36/EU mandates the EBA to issue Guidelines on scenario analysis for the full scope of these risks. However, the developments of regulations and practices are much more advanced for environmental aspects and for climate in particular, than for the other factors. Although it is important to continue the development of management practices and scenario analysis for all ESG factors, it is also important

to allow sufficient time for institutions to introduce the necessary changes. Therefore, in order to reduce the burden for institutions and the time pressure to adapt to the new regulatory developments, it is considered that the Guidelines should focus primarily on environmental aspects, giving particular attention to climate risk. Therefore, the preferred option is Option 2: to focus on environmental aspects only, with a particular emphasis on climate risk.

ii. Time horizon for Climate Scenario Analysis

Climate risks have different impacts over different time horizons, although the most significant impact is likely to occur in the long term. In this sense, the decision on the time horizon will significantly influence the outcome of the scenario analysis. However, it should be borne in mind that setting too long a time horizon may reduce the ability of institutions to accurately assess the impact of climate risks. This is why the EBA considered that ESG stress tests should keep a short time horizon (up to five years) in order to allow a relatively accurate measurement of impacts. At the same time, it is important that scenario analyses are carried out over a longer time horizon, which will better reflect the forward-looking nature of climate risks, even if the analysis is more qualitative in nature. Therefore, the preferred option is Option 3: to carry out two different types of scenario analysis, the first with a rather short time horizon (up to five years) and the second with a longer time horizon. The two types of scenario analysis will meet different objectives while complementing each other.

iii. Use of scenarios from widely recognised organisations

Paragraph 3 of Article 87a(5) of Directive 2013/36/EU directs the choice towards the use of scenarios developed by widely recognised organisations. The organisations that develop such type of scenarios have significant expertise, which makes them a reliable and robust source. At the same time, the usage of scenarios developed by recognised organisations would allow for a better degree of comparability across different institutions. However, such scenarios may not fully adapt to institutions' own characteristics and risks. Therefore, the EBA considers that it would be adequate to introduce a degree of flexibility and encourage institutions to make changes to these scenarios. In addition, the EBA considers that scenarios developed by regional and national organisations could also be considered. Therefore, the preferred option is Option 3: to use scenarios elaborated by widely recognised international, regional or national organisations as a starting point but adapt them to institutions' own characteristics.

iv. Proportionality

The reflection of environmental factors in scenario analysis is not an easy task. Although such factors will continue to cause profound economic transformations that will impact the financial sector. A good materiality analysis is also essential to enable banks to optimise the cost/benefit balance while covering the most important environmental risks. Therefore, with regards to the materiality of risks, the preferred option is Option 2: to focus on the most material ESG risks.

Additionally, performing such assessment requires an intensive use of resources creating a burden for institutions. It is important to give time for institutions to adequately incorporate such factors in their management framework. At the same time, it seems disproportionate to request all types of

institutions to perform such assessment, as non-large institutions may have limited resources available and such request could be very burdensome for them. An adequate balanced approach would allow non-large institutions to perform simplified scenario analysis and to provide large institutions with enough time to do the necessary investments. In this regard, it seems adequate to differentiate between stress testing and resilience analysis.

- Regarding the integration of environmental risks into institutions' stress testing framework, it seems proportionate to allow non-large institutions to use simplified quantitative methods such as sensitivity analysis. Therefore, the preferred option is Option 3: to request large institutions to perform a full quantitative stress testing and to allow non large institutions to use a simplified approach.
- Resilience analysis is broader, more strategic, and longer-term than stress testing. It is also a relatively new tool, for which methodologies remain less developed and less standardised. Institutions therefore need time to adapt and to progressively build adequate processes. Proportionality is key in this context. In practice, large institutions could start their resilience analysis with simplified quantitative approaches such as sensitivity analysis and, over time, move towards fully quantitative methods. Other institutions, given their more limited resources, could rely predominantly on qualitative approaches, including in the longer term. This distinction reflects both the maturity of current methodologies and the need to avoid creating excessive burdens. Against this background, the preferred option is Option 4, which allows all institutions to begin with qualitative assessments, while requiring large institutions to gradually develop full quantitative resilience analysis and permitting smaller institutions to continue using simplified methods.

v. Date of application

The simultaneous application of these Guidelines and the EBA Guidelines on the management of ESG risks would facilitate a holistic approach by institution, as they would focus on the management of ESG risk, while considering the use of scenario analysis from the outset. However, such an approach would not give institutions the time they need to adapt their processes and methodologies. Therefore, the preferred option is Option 2: set the date of application of these Guidelines at 1 January 2027.

Postponing the application date of the GLs on environmental scenario analysis would allow institutions to adequately prepare and align internal methodologies, data, and governance processes with the new requirements. It would also promote consistency, ensure higher-quality and more comparable outcomes, and support proportional implementation across institutions of different sizes and levels of sophistication.

4.2. Feedback on the public consultation

The EBA publicly consulted on the draft proposal contained in the consultation paper on the Guidelines on ESG scenario analysis. The consultation period lasted for three months and ended on

16 April 2025. Twenty-two responses were received, of which 21 were published on the EBA website.

This section includes a summary of the key points and other comments arising from the consultation, the analysis and discussion triggered by these comments and the actions taken to address them if deemed necessary. In many cases several industry bodies made similar comments or the same body repeated its comments in the response to different questions. In such cases, the comments, and the EBA analysis are included in the section of this paper where the EBA considers them most appropriate.

Changes to the draft Guidelines have been incorporated as a result of the responses received during the public consultation.

Summary of key issues and the EBA's response

Key issues

Respondents broadly welcomed the ambition of the draft Guidelines but emphasised that expectations should reflect the current limitations in data, tools, and methodologies for ESG risk analysis. In particular, they noted that the immaturity of climate resilience tools and the high degree of uncertainty – particularly over the long term – make it premature to use results as the basis for decision-making at this stage.

On timelines, respondents expressed concern that the proposed implementation date is too tight. They also called for alignment with the expected simplifications under the Omnibus Directive.

With respect to scope, many suggested narrowing the focus by removing social ('S') and governance ('G') factors. Regarding non-climate environmental ('E') risks, the views were more divided.

On the technical design, respondents raised several points:

- For scenarios, they asked for clearer distinctions between Climate Stress Testing (CST) and Climate Risk Assessment (CRA), better articulation between short- and long-term scenarios, clarity on scenario plausibility and narratives.
- On transmission channels, they cautioned against overly prescriptive requirements and requested clarity on insurance coverage, treatment of physical risks (macro vs. micro), value chain impacts, and alignment of channels with scenarios.
- For CST, respondents sought clarity on whether models could remain separate from regular stress tests, how to articulate climate and macroeconomic risks if integrated, and a reasonable timeframe before CST results are required in ICAAP/ILAAP. They also highlighted the need for forward-looking models less reliant on historical data, guidance on reverse stress tests and expert judgement, and clearer expectations on the level of stress to be applied.
- Regarding CRA, feedback focused on clarifying its relationship with transition planning, ensuring alignment with the 1.5°C trajectory and consistency with CSRD/ISSB standards, and specifying

how CRA results should be used in ICAAP. Respondents also suggested simplifying the approach (e.g. through static balance sheets) and providing clearer guidance on management actions under divergent pathways.

The EBA's response

Following the consultation, the EBA has amended the draft Guidelines on scenario analysis with a focus on enhancing clarity, simplifying expectations in line with operational realities.

The scope of the Guidelines has been streamlined to focus on environmental risks, with climate as the priority. Scenario analysis on social and governance (S&G) factors will not be required at this stage. Environmental risks are retained in scope consistently with existing practices by some, in particular larger banks. However, the possibility of progressive implementation starting with climate factors is also recognised.

The date of application has been postponed to 1 January 2027 for all institutions. A postponement would give institutions the necessary time to integrate the new requirements without compromising quality.

On proportionality and simplification, institutions are allowed to use simplified or qualitative approaches where quantitative modelling would be disproportionate. The use of sensitivity analysis has also been emphasised as a complementary tool, serving as a bridge towards more comprehensive methodologies.

Regarding the use of scenario analysis in decision-making, the Guidelines have been streamlined and now mainly reference existing frameworks. The request to exclude scenario analysis from ICAAP was not taken forward, as this requirement stems directly from CRD and is addressed in the Guidelines on the management of ESG risks.

For transmission channels, the section has been streamlined, and the proposed list of micro- and macro-economic transmission channels has been moved to an Annex to be used as an optional reference.

Overall, the EBA has responded to consultation feedback by narrowing the scope, strengthening proportionality, and clarifying expectations to ensure practical applicability.

Summary of responses to the consultation and the EBA's analysis

Comments	Summary of responses received	the EBA analysis	Amendments to the draft GLs?
General comments			
Implementation timeline	Some stakeholders suggest postponing the application date of these GLs until the Omnibus review is to ensure alignment with the new data requirements included in the revised versions of the CSRD/ESRS and CSDDD and to allow sufficient time for institutions to prepare for its implementation.	The EBA does not consider the Omnibus proposals to be directly relevant for these GLs, as they address distinct regulatory areas. That said, the EBA acknowledges the importance of allowing institutions sufficient time to prepare for the implementation of the Guidelines, including the development of internal methodologies and data processes frameworks.	The date of application has been postponed to 1 January 2027.
Scope and terminology – ESG factors	Some industry respondents noted the interchangeable use of 'climate' and 'ESG' in the Guidelines on scenario analysis and called for clearer guidance, especially on the integration of social and governance factors, which are deemed too cumbersome at this stage.	The EBA acknowledges that scenario analysis on the social and governances are presently insufficiently mature.	The social and environmental factors have been excluded from the scope of the final Guidelines.
Data limitations	Insufficient ESG data, especially for SMEs and non-EU entities, is viewed as a strong barrier for the well implementation of these Guidelines. The GLs should provide further	Data gaps challenges in ESG risk analysis are already acknowledged in the Guidelines, especially in Section 2.6 of the background. Nevertheless, as specified in the Guidelines on ESG risks management, EU institutions are expected to	No change.

	guidance on how institutions are expected to bridge the data gap.	make every reasonable effort to identify all relevant and material ESG risks. This includes engaging with their counterparties in an appropriate and proportionate manner to obtain the necessary information and ensure a robust risk assessment.	
Illustrative examples of good practices	To support consistent implementation, some stakeholders suggest that the GLs could provide further illustrations of good practices to help stakeholders understand what should be achieved.	The GLs already include illustrative charts to demonstrate how the various building blocks of scenario analysis function. However, it is not feasible to provide exhaustive guidance. Moreover, the Guidelines are intentionally designed to set high-level expectations, and adding further granularity would not align with this intended approach.	No change.
Question 1: Do you have any comments on the interplay between these Guidelines and the Guidelines on the management of ESG risks?			
Data availability and methodology	It was suggested that: ▪ the Energy Supply Banking Ratio (ESBR) identified in the EBA's Guidelines for the management of ESG risks is also referenced in these Guidelines; ▪ the linkage between qualitative risk identification and quantitative scenario outputs should be strengthened; ▪ the guidelines include a visual or tabular framework to guide institutions on how risk materiality translates into the type, scope, and frequency of scenario exercises.	The identification and modelling of the transmission channels should be carried out by institutions on the basis of the specific characteristics of their portfolios. The EBA prefers not to provide a visual or tabular framework so as not to limit possible approaches to boxes and to allow more flexibility for implementing the Guidelines in a way that is tailored to each situation.	No change.

Question 2: Do you have comments on the proposed definition of scenario analysis and various uses as presented in Figure 1?			
Scenario analysis – definition	While respondents generally support the proposed definition of scenario analysis based on the TCFD, some recommend aligning it with the definition in the Guidelines on Institutions' Stress Testing for consistency.	The EBA agrees on the necessity to avoid any risk of inconsistency between the definitions provided in the Guidelines on institutions' stress testing and those in these Guidelines. In practice, the two definitions of scenario analysis are consistent in their core purpose and methodology, despite differences in emphasis and wording. Both definitions describe scenario analysis as a forward-looking process used to assess how institutions or portfolios might respond to hypothetical but plausible future developments. The TCFD complements the definitions from the Guidelines on stress testing by presenting scenario analysis as a tool for navigating uncertainty and emphasising its role in strategic planning.	No change.
Uses of scenario analysis	Several suggestions were made to adjust Figure 1, including i) adding feedback loops among the uses, ii) softening terminology (e.g. replacing 'adapt' with 'inform' or 'assess' risk management practices) and iii) clarifying the applicability of engagement with counterparties, and iv) expanding references to make references other key stakeholders such as customers, investors, and regulators.	The wording can be adjusted as suggested, provided it does not introduce excessive complexity.	The last version of Figure 1 has been amended.

Inform strategy & business model adaptation	Respondents caution against framing climate scenario analysis (CSA) in a way that could constrain institutions' strategic flexibility, emphasising that CSA should serve as a forward-looking tool to inform – rather than dictate – strategic planning.	This concern is already acknowledged and addressed in the Guidelines. The climate resilience analysis is indeed to inform the strategic thinking not to dictate strategy.	No change.
Incorporation into ICAAP and ILAAP	Respondents highlight that climate Scenario Analysis (CSA) are not enough mature to be integrated into capital adequacy frameworks like ICAAP and ILAAP.	The purpose of these Guidelines is to set expectations on how ESG scenario analysis should be executed but not to specify whether and how these scenarios should be incorporated in ICAAP and ILAAP as these requirements are already covered in other regulatory products such as the EBA GLs on ESG risks management. The results of short-term resilience analysis should be considered for decision-making, including as part of the ICAAP/ILAAP as specified in section 5.5 of the Guidelines of ESG risks management. If approaches are not sufficiently mature, their results should be adjusted or even temporarily ignored, on the basis of expert judgment.	No change.

Clarification on the use of scenario analysis for prudential transition planning and transition plan	Some respondents suggest the EBA clarifies how scenario analysis (CST and CRA) should be used in prudential transition planning under Article 76(2) of the CRD and in climate transition plan as per CSRD ESRS E1-1, which addresses physical and transition risks across time horizons. They also seek guidance on scenario analysis requirements within prudential transition planning, especially considering the Omnibus simplification package.	The transition plan, as a key component of an institution's overall strategy, should be considered as an input when developing the climate resilience analysis. Likewise, the results of the resilience analysis should be taken into account to potentially adjust or even rethink the institution's transition plan in the light of plausible adverse scenarios.	The articulation between scenario analysis and transition plan has been further clarified in paragraph 30 of the background section.
Limitations of methodologies for assessing ESG risks	Respondents emphasise that supervisory expectations should account for the evolving nature of ESG risk methodologies, as institutions are still developing best-effort approaches. They also highlight the limited guidance and challenges in quantitatively assessing non-climate ESG risks	The evolving nature of the topic is already embedded in the Guidelines in paragraph 112. Regarding the scope as mentioned above, the EBA acknowledges that scenario analysis on the social and governance factors is presently insufficiently mature.	The social and environmental factors have been excluded from the scope of the Guidelines.

Question 3: Do you have comments on the proposed distinction made between short-term scenario analysis (CST) and longer-term scenario analysis (CRA) as illustrated in Figure 3?

CST and CRA	It has been suggested to better clarify the connection between the CRA and the CST. Clear examples would be welcome on especially regarding how CST results should inform CRA (and vice versa). It is also suggested that CST and CRA could be complementary (e.g. scenario narratives used in CRA as 'an extension' of/consistent with those used in CST).	The two types of scenario analysis (stress test and resilience analysis) envisaged in the Guidelines are expected to be complementary.	The last section of the final Guidelines has been restructured so as to clarify the expectations for CST and CRA. Furthermore, paragraph 101 of the final Guidelines specifies that the internal reference scenario used in resilience analysis should be built on the baseline scenario used for stress tests.
CSRD and the EBA GLs on CSA	CSRD already includes a resilience analysis, whereas the EBA proposes the CRA as a new tool. How the two analyses of the resilience of the business model should be articulated?	In practical terms, the accounting and prudential expectations are very much aligned. Therefore, the EBA expect institutions to develop resilience analysis that complies with both the ESRS and the EBA Guidelines.	No change.
Scenario horizon issues	Respondents raise concerns about scenario horizons, noting that a fixed 10-year horizon for CRA may not suit short-term portfolios, and that inconsistent references to CST timeframes (e.g., 'short-term' vs. 'short to medium term') create confusion. They call for clear, harmonised definitions of short-, medium-, and long-term horizons,	The EBA acknowledges the importance of aligning the timeframes set out in these Guidelines with those specified in CRD6 and the EBA Guidelines on ESG risk management. For long-term analysis, a time horizon of at least 10 years is considered appropriate. For short- and medium-term horizons, no specific timeframe is prescribed, allowing institutions the flexibility to adopt the timeframes that are most appropriate for their individual circumstances.	The final draft has been revised to clarify that specific time horizons mentioned in the Guidelines, such as those above or below five years or 10 years, are provided solely as illustrative examples and are not intended to be prescriptive.

	and suggest aligning CRA horizons with institutional transition plans and EU climate targets through 2050.		
Scenario determination	Respondents note a lack of clarity on whether the 'baseline scenario for CST' and the 'central scenario for CRA' refer to the same or different assumptions, leading to uncertainty in scenario selection. It is also unclear whether the central scenario should reflect a Net Zero pathway. Additionally, Figure 3 appears to imply new modelling requirements – particularly for CRA – yet institutions currently rely on backward-looking models and request guidance on how to develop and implement forward-looking approaches given existing data limitations.	As mentioned above, the two types of scenario analysis (stress test and resilience analysis) envisaged in the GLs are expected to be complementary. The reference scenario (ex 'central scenario') should be the most likely scenario according to the institution, so not necessarily a Net Zero pathway The Guidelines emphasise the importance of developing a forward-looking approach to ESG risk analysis. However, they also acknowledge the challenges of incorporating forward-looking perspectives due to current model limitations. To address this, the Guidelines introduce mitigating measures, including the possibility of using simplified sensitivity analyses and expert judgment in cases where forward-looking models are not yet sufficiently mature or credible.	As mentioned above the final Guidelines specifies that the reference scenario (previously 'central scenario') is expected to be a continuation of the baseline scenario on a much longer period (see paragraph 101).
Dynamic vs. static balance sheets	Some respondents recommend further clarifying the appropriateness of static *versus* dynamic balance sheet approaches in CST and CRA. They note that static models may overstate risk, while dynamic models can underestimate it by minimising, through	The EBA agrees with the point raised.	The final GLs specifies i) in paragraph 96 for stress test that institutions should use a 'constant balance sheet' assumption and only as a complement a 'full dynamic balance sheet' approach and ii) in paragraph 107 for the resilience

	balance sheet adjustments the economic impacts.		analysis that institutions should use a 'constrained dynamic portfolio assumption' and only as complement 'a full dynamic portfolio assumption'.
Scenario design and regulatory alignment	Respondents point out that CRD6 requires institutions to assess risks from ESG factors over various time horizons, but not explicitly to assess compatibility with a 1.5°C global warming pathway. They suggest that Figure 3 should be using the term 'gap with regulatory climate goals' instead of 'compatibility with 1.5°C' to more accurately reflect the regulatory mandate.	The EBA agrees with the point raised.	Figure 3 has been amended. The reference to 'comparability with the 1.5°C' has been replaced by 'anticipate potential risks and opportunities'.
Question 4: Do you have any comments on the interplay between these Guidelines and the Guidelines on institution's stress testing?			
Reverse ESG stress test	One industry respondent recommends clearly stating that reverse ESG stress testing is not a requirement.	The EBA also considers that requesting reverse stress testing or reverse resilience analysis would be premature. Since there was an implicit expectation to perform reverse stress tests stemming from the reference to the Guidelines on institutions' stress testing, these GLs have been amended to explicitly remove this expectation.	A new paragraph 98 has been added in the GLs to specify that institutions are not expected to perform reverse stress test.

Sensitivity analysis	One industry respondent requests additional guidance on how to conduct and interpret sensitivity analyses effectively.	The EBA agrees with the point raised.	Section 5.3 has been added to clarify the use of sensitivity analysis.
Integration into stress test models	Respondents seek clarification on whether ESG scenarios must be fully embedded in institution-wide stress tests or can be run in parallel, and whether covering multiple risk types is sufficient.	The GLs already specify that under EU banking regulation, ESG scenario analysis is expected to be incorporated into institutions' broader stress testing frameworks, in line with the EBA Guidelines on ESG risk management. While not all ESG scenario analyses must take the form of full-fledged stress tests, institutions are expected to assess how ESG factors—particularly those with material financial impacts—could affect their risk profile under different forward-looking scenarios.	Further clarifications have been provided under the subsection 6.1 on stress tests.
Consistency between climate scenario analysis and stress testing guidelines	Some respondents call for greater consistency between these GLs and existing stress testing guidance. One notes a disconnect, as stress testing Guidelines treat scenario analysis as a subset of stress testing with an assumed severity, while the CSA Guidelines view stress testing as a subtype of scenario analysis.	While scenario analysis is generally considered a core component of stress testing frameworks, in the context of climate and environmental risks, it becomes the broader concept, encompassing a wide range of plausible futures (including long-term); stress tests being then one specific application of scenario analysis, namely, to test short-term financial resilience under severe but plausible shocks.	No change.

Question 5: Do you have comments on the Climate Scenario Analysis framework as illustrated in Figure 4?

Management action	Caution is advised when considering adjustments to financial terms based on climate risk, due to the uncertainty inherent in stress testing results. Moreover, since ESG risks are already integrated within underwriting and risk assessment processes, treating them separately may be impractical and redundant.	The EBA agrees with the point raised. The actions to be taken following a scenario analysis (stress test or resilience analysis) are not automatic and must be considered within the broader context of risk management and strategy development. Nevertheless, the lessons learned from scenario analyses may lead to certain business sectors, geographical areas or counterparty profiles being considered riskier in light of expected developments in the environment and to a decision to impose more stringent/restrictive financial conditions for loan renewals or new loans.	No change.
Transmission channels	There is a suggestion to define transmission channels before setting scenarios for a more robust assessment.	The EBA agrees with the point raised.	Section 5 of the final Guidelines has been restructured accordingly.
Central and alternative scenarios for the resilience analysis	Clarification is sought on what constitutes the 'central scenario' for the Climate Resilience Analysis (CRA) and how to set alternative scenarios effectively. Additional examples of such alternative scenarios would be appreciated.	The Guidelines specify that the reference scenario—formerly referred to as the 'central scenario'—should be defined by each institution as the scenario they consider most likely to occur. Based on most recent knowledge (intergovernmental organisations, academia, NGOs...), institutions are expected to identify a limited number of distinct scenarios that constitute credible alternatives to the institution's reference scenario.	No change.

Feedback loops	There is a recommendation to incorporate iterative feedback loops to refine scenarios, assumptions and methodologies.	The EBA agrees with the point raised.	Paragraph 103 of the final Guidelines highlights the importance of considering feedback loops in the modelling process.
Granularity of data and long-term climate resilience	More clarity is requested on the level of data granularity required for both short-term and long-term scenario analysis. It is also suggested to have clearer and standardised criteria for incorporating external sources of data into the scenarios.	The level of granularity depends on several factors (purpose of the analysis, scope, data availability, etc.). It remains at the discretion of institutions. ESG data limitation issues, usage including engagement with third parties and counterparties are covered in the EBA GLs on ESG risks management. These requirements are applicable in the context of the ESG scenario analysis.	No change.
Question 6: While respecting the definitions provided in other parts of the regulation, is there any concept/s used in these Guidelines that it would be useful to include in an annexed glossary?			
Scenarios / Types	*Definition of scenarios.* The various types of scenarios mentioned in the draft Guidelines (central scenario, baseline scenario, adverse scenario, alternative scenario, benchmark scenario, climate scenario) should be included and defined in the annexed glossary, specifying whether the definitions provided are applicable to other supervisory texts.	As stated in section on Definition of the Guidelines, unless otherwise specified the terms used in these GLs have the same meaning that those defined in other regulations including the EBA GLs on ESG risk management and the EBA GLs on institutions' stress testing.	No change.

Definition of climate-related risks	Definitions of 'climate risk', 'physical risks' and 'transition risk' should be included in the annexed glossary.	These are broader concepts that are widely used in practice and incorporating them as regulatory definitions specifically for these Guidelines is deemed out of scope.	No change.
Definition of CST	A detailed definition of 'climate stress test' should be included in the annexed glossary, specifying that it is a short/medium-term analysis (time horizon within 5 years) aimed at assessing institutions' financial resilience to climate risks. In order to emphasise the differences between CST and CRA, the definition should delineate temporal focus, quantitative vs. qualitative emphasis, supervisory vs. strategic utility, Integration pathways into ICAAP, risk appetite, and strategy.	These are substantial elements which goes beyond a glossary, and which should be fully part of the legal text and its background section.	Further clarification has been provided in the section on Stress tests.
Definition of CRA	A detailed definition of 'climate resilience analysis' should be included in the annexed glossary, specifying that it is a long-term analysis (time horizon exceeding 10 years) aimed at assessing institutions' business model resilience to climate risks. In order to emphasise the differences between CRA and CST, the definition should delineate temporal focus, quantitative vs. qualitative emphasis, supervisory vs. strategic utility,	These are substantial elements which goes beyond a glossary, and which should be fully part of the legal text and its background section.	Further clarification has been provided in the section on Resilience analysis

	Integration pathways into ICAAP, risk appetite, and strategy.		
Definition of feedback loops and escalation triggers	Definitions of 'feedback loops' and 'escalation trigger' should be included in the annexed glossary. The concept of feedback loops between scenario outcomes and internal governance, strategy, or capital planning is used implicitly but should be made explicit and defined.	The EBA agrees with the relevant of specifying the definition of feedback loop. The term escalation ladder is not used in the GLs.	A definition of feedback loop has been added as a footnote in the background section.
Definition of materiality	A definition of 'materiality' should be included in the annexed glossary, explaining the difference between 'single' and 'double materiality' and their relevance to different use cases. One respondent suggested defining materiality in relation to the following aspects: Potential financial impacts on the institution, Potential impacts on stakeholders and the broader economy and Horizon over which materiality may manifest (short-, medium-, and long-term).	The double materiality is already defined in the CSRD / ESRS. The concept of materiality used in these Guidelines relates to the common notion of materiality and could be replaced by the concept of significance (e.g. a material risk is a significant risk).	No change.
Definition of proportionality	A definition of 'proportionality' should be included in the annexed glossary, where the concept should not only be defined generically, but in terms of how it applies to	These are substantial elements which goes beyond a glossary, and which are already fully part of the legal text and its background section.	No change.

	scenario design, frequency, governance, data expectations, and disclosure obligations.		
Definition of transmission channels.	Include a definition of 'transmission channels' in the annexed glossary, explaining how climate risks (both physical and transition risks) are expected to translate into traditional risk categories (e.g. credit, operational, market, reputational risks). Definitions should draw from NGFS, ECB, and BCBS sources for consistency.	These are broader concepts that are widely used in practice and incorporating them as regulatory definitions specifically for these Guidelines is deemed out of scope. Transmission channels refer to the pathways through which ESG risk drivers – such as physical climate events or transition policies—affect the financial system and individual institutions. These channels describe how ESG risks translate into traditional financial risk categories, such as credit, market, operational, or liquidity risk.	No change.
Other concepts proposed	It is also proposed that the GLs provide in a Glossary a definition of compound risk, dynamic/static balance sheet, SNCI.	There is no need to define 'static balance sheet approach' or 'Small and Non-Complex Institutions (SNCIs)' in the glossary, as these are already covered in existing EU regulations and the EBA Guidelines. The EBA agrees with the relevant of specifying the definition of compound risks.	A definition of compound risk has been added as a footnote in the background section.
Question 7: Do you have comments on Section 4.1 – Purpose and governance?			

Commented [CS3]: Please confirm the correct spelling of the adjective for consistency in rows 1 and 2:

statistic
static

Clarification of gradual implementation	The use of 'gradual implementation' in paragraph 16 should be further clarified from the EBA on what it entails in terms of a timeline.	Gradual implementation is related to the maturity of the approaches. It is left to the appreciation of the institutions and the supervisors.	No change.
Bridging the gap between analysis and action	The GLs should further specify how scenario analysis outcomes should influence risk appetite statements and strategic decisions to bridge the gap between analysis and action.	These notions are already defined in the EBA GLs on institutions' stress testing.	No change.
Guidance on organisational arrangement	The section could benefit from more detailed guidance on the organisational level at which scenarios should be developed or defined and where the corresponding validation process should be placed.	The governance aspects are developed in the EBA GLs on the management of ESG risks which are also applicable when setting ESG scenarios analysis. A reference to these GLs is included on the GLs.	No change.
Explicitly state CSA should be considered in isolation	The Guidelines should include an explicitly clear framing in the GL stating CSA should be considered a separate exercise from traditional stress-testing especially when it comes to the inclusion within ICAAP.	Climate and other environmental risks are not new risks. They should not be considered in isolation when performing stress testing. As these risks have a long-term dimension, it is proposed to supplement the traditional stress test analysis with a longer-term analysis that focuses not on immediate capital or liquidity reserve requirements but on the soundness / resilience of the strategy and business model.	No change.

Specify 'forward-looking approaches' and models using historical data	The Guidelines should include a clearer specification on the interplay between forward-looking approaches and the use of existing models drawing on historical data.	The work on the interplay between forward-looking approaches and the use of existing models based on historical data is still ongoing. In practice, institutions are expected to identify transmission channels through initial observations of the impacts of environmental risks (incl. field reports) and use of expert judgment. A strong cooperation between the institutions and other stakeholders could help for this purpose.	No change.
Expand the list of scenario providers	The list of scenario providers should include a reference to the IEA Net Zero Emissions by 2050 Scenario (NZE/NEO) or other third-party scenarios or alternatively state the list of climate scenarios is not exhaustive and promote the use of other scenarios.	The GLs provide such list for examples only. This list is not meant to be exhaustive.	The list has been extended to additional scenario providers for both climate scenarios and other environmental scenarios.
Provide common trajectories	The EBA should proposes several common trajectories [of emissions] which can drive the institutions' work on scenarios. This would allow institutions to identify more suitable scenarios to capture their idiosyncratic risks.	The provision of a shortlist of widely recognised sources with an emphasis on the NGFS aims to offer a degree of flexibility while promoting convergence.	The list of sources has been revised to be more comprehensive while remaining sufficiently concise, see paragraph 77.

Question 8: Do you agree that the proposed proportionality approach is commensurate with both the maturity of the topic and the size, nature and complexity of the institution' s activities?			
Adopt a three-tiered proportionality between SNCI, LSI and SI	The Guidelines should adopt a tiered proportionality with an explicit reference to SNCI, LSI and SI to consider the available resources at the institution, the ESG-reporting requirements of their counterparties. Furthermore, the Guidelines should be transparent on when a qualitative analysis is sufficient. The Guidelines should include an explicit acknowledgement of proportionality not precluding quantitative analysis, since even SNCI could have material sensitivity to climate-related ESG-factors.	The EBA agrees with the need to further clarify and distinguish the applicable requirements between large institutions and other institutions, including non-significant credit institutions (NSCIs). Clear differentiation will help ensure proportionality and effective implementation across the varying sizes and complexities of institutions.	Section 4.3 of the Guidelines has been revised accordingly.
Extend proportionality to cover more areas	Proportionality should be extended the inclusion and processing of data and the degree of scientific understanding of the link between ESG-factors and their impacts.	The GLs already specify that in paragraph 40 of the background section that 'at all times, institutions will have to question the balance between developing credible and all-encompassing scenarios as part of increasingly sophisticated models, while ensuring that the tool is well understood and leaves sufficient room for common sense and expert judgement'.	No change.

Ensure coherence with the GL on ESG risk management	The Guidelines should be coherent with the Guidelines on the management of ESG risks, especially with regards to proportionality and the materiality assessment.	These two GLs are already coherent on these aspects. Proportionality ensures that institutions apply ESG scenario analysis in a manner that is commensurate with their size, complexity, business model, and risk profile. This aligns with the proportionality principle already embedded in the ESG risk management Guidelines. Materiality assessment is a foundational step in both ESG risk management and scenario analysis. Institutions are expected to identify and assess ESG risks that are material to their activities. The outcomes of this assessment should inform the design and application of ESG scenarios.	No change.
Granularity of transmissions channels	The high granularity of transmission channels being mapped to individual sectoral exposures makes the assessments complex with limited added value.	The EBA agrees with the point raised.	The final shift from a 'tick-the-box' approach toward an outcomes-based expectation: institutions should establish robust due diligence processes and governance. The existing list of transmission channels has nonetheless been retained in the Annex to the Guidelines as reference to guide institutions.
Clarify how a common scientific	The Guidelines should include further guidance in how to adopt a common	The GLs provide a list of widely recognised sources based on the latest scientific consensus.	The list of widely recognised sources has been completed.

understanding should be adopted	scientific understanding, including an explicit acknowledgement of the existing limitations of scientific knowledge and data.	The GLs already mentions these limitations both in the background section and on the core GLs.	
Explicit explanation of the update frequency required for adverse climate scenarios	The Guidelines should include an explicit explanation of the update frequency required for updating climate adverse scenarios, as some climate related variables are updated annually rather than quarterly.	The GLs intentionally do not set explicit expectations on the frequency of ESG scenario analysis. This is to provide institutions with the necessary flexibility to determine the most appropriate frequency based on their risk profile, business model, and internal governance processes. By allowing this leeway, the Guidelines support a proportionate and risk-based approach that accommodates the diversity of institutions across the financial sector.	No change.
Question 9: Do you agree with the proposed references to organisations in paragraph 28? Would you suggest alternative or complementary references?			
List of suggested scenarios	Many respondents share the view that the list of suggested scenarios should be non-exhaustive and should include at a minimum the following providers: IEA, IPCC, TCFD, IPBES, NEO, EFRAG, ISSB/IFRS, BCBS, FRC (UK), ECB, BoE (CBES), STBi, Net-Zero Banking Alliance (NZBA), the EU Green Finance System (EU GFS), Scenarios of US Federal Reserve, CRREM, Intergovernmental Science Policy on Biodiversity and Ecosystem, International bodies (e.g. United Nations, World Bank),	The Guidelines are meant to remain sufficiently high-level, with an open list of key reference sources included to support convergence while allowing flexibility in implementation.	The list has been slightly extended.

	European Union agencies (e.g. European Environment Agency), universities and colleges, and Swiss Re Foundation and WWF.		
Question 10: Do you have additional comments on section 5.1 Setting climate scenarios?			
Approach to scenario selection	Given the high uncertainty of environmental risk projections, some respondents request more specific expectations on defining plausible scenarios, including the number to be used, and clarification on whether short- and medium-term CST scenarios should primarily address acute physical risks.	Similarly to the Guidelines on institutions' stress testing, these Guidelines intentionally refrain from prescribing specific expectations regarding the number or exact design of plausible scenarios, including whether short- and medium-term scenarios should primarily focus on acute physical risks. This is because the definition of credible and relevant scenarios should be driven by each institution's own materiality assessment and risk profile.	No change.
Addressing complexity	Industry respondents note the challenges of designing scenarios that integrate transition and physical risks, value chain dependencies, and ESG materiality, particularly when relying on standardised scenarios. NGOs, however, emphasise the need to consider compound risks, citing scientific consensus on climate change's links to broader disruptions. Some also suggest removing the phrase 'or about to be adopted over the period' to avoid	Scenario analysis remains an evolving field, with significant work still needed to address areas such as value chain dependencies, compound risks, and the inherent high levels of uncertainty. These challenges are acknowledged in the background section and referenced throughout various parts of the GLs.	No change.

	speculative assumptions about future legislation.		
Transition risk	The EBA should consider the complexity of combining physical and transition risks and provide more detailed guidance in paragraph 35, particularly on technical aspects such as carbon pricing and energy or commodity prices. .	The Guidelines have been intentionally kept at a high level. The integration of both physical and transition risks within a single scenario is acknowledged in the Guidelines as a particularly complex task. The background section and proportionality measures already emphasise the importance of allowing institutions sufficient time to implement the Guidelines.	No change.
	Clarification is also needed on the relevance of these elements for CST and CRA, as well as on the number of scenarios to be assessed.	The number of scenarios is left to the discretion of institutions, consistent with the approach taken in the EBA Guidelines on stress testing.	No change.
Value chain	Respondents view the expectation in paragraph 36 — that institutions assess significant customer dependencies across value chains, especially for large or interconnected exposures and global vulnerabilities to acute physical risks — as overly burdensome and misaligned with recent political developments.	If material, these customer dependencies is a key element of risks for institutions. It should be kept and institutions should do their best to collect adequate information.	No change.

Socioeconomic context	The inclusion of 'socioeconomic context' specifically contradicts the EBA's proposals that its initial focus will be on climate scenario analysis and significantly extends the scope in the analysis.	The socioeconomic context is the basis for IPCC narratives. It includes population growth, GDP per capita, urbanisation rates and education levels. It is key to define climate scenarios.	No change.
Question 11: Do you have comments on the description of the climate transmission channels?			
Missing transmission channels	It has been suggested to add in the Guidelines transmission channels related to nature related risks, reputational damage and just transition transmission channels.	Consistently with the new revised scope of the GLs which focus on environmental risks but leave aside social and governance factors, the EBA deems it relevant that the final GLs include further specification on other environmental risks. Reputational risk is difficult to model directly and could be better integrated into scenario analysis through second-round effects, expert judgment, or qualitative overlays, especially in narratives exploring misalignments.	Additional transmission channels have been added in Section 5.1 and in the Annex.
Transmission channels requirements: CST vs. CRA	Some respondents seek clarification on whether TC integration applies equally to CST and CRA scenarios. Given CRA's longer time horizon, they suggest that transmission channels requirements be less stringent for CRA — for example, that microeconomic transmission channels may not apply'.	Transmission channels are as important for stress test as they are for resilience analysis, though their materiality may vary depending on the time horizon. It is important to consider both micro and macro- transmission channels, even if simplified approaches are used initially.	No change.

Transmission channels requirements: proportionality	One respondent considers that micro economic transmission channels-related requirements should not apply to SNCI and other non-large significant institutions due to the lack of available data on their counterparties that are mainly non-reporting ones.	In line with the EBA GLs on ESG risks management, all institutions are expected to collect all relevant information to address properly ESG risks that are deemed material.	No change.
Transmission channels requirements: flexibility	Some respondents consider that transmission channels are too granular, and that those to be considered by institutions should be subject materiality analysis.	See response above.	See response above.
Continuous transmission channels identification process	Some respondents suggest that the concept of *continuous identification* of transmission channels be clarified. One respondent suggests that it should be replaced by an identification on a yearly basis at least.	The EBA agrees with the point raised.	The Guidelines do not prescribe a specific frequency for updates but instead require institutions to update transmission channels regularly, allowing them the flexibility to determine an appropriate review cycle based on their specific risk profile and operational context.

Transmission channels implementation: clarification	Some respondents require that more guidance is provided on how to prioritise and implement transmission channels in portfolio-specific analyses by providing examples. Paragraph 52 should also be complemented with examples on how transmission channels climate-related impacts affects financial risks	For this initial version, the Guidelines have been intentionally kept at a high level to provide broad direction across diverse institutions and portfolios. Transmission channels should be considered both at micro and macro level. At micro-level: Whenever possible, the risk should be factored in at the level of the counterparties (e.g. large corporations) or of the portfolios (e.g. mortgage) with the possibility to stress the PD according to the scenario. At macro-level: use of damage function according based on initial observations and progressively refined.	No change.
Proxies	One respondent requires that expectations with respect to the use of proxies and estimates (when data is difficult to obtain e.g. due to conflicting privacy considerations) are provided (targeting in particular private/public insurance coverage data considered difficult to obtain).	ESG data limitation issues, usage including use of proxies are covered in the EBA GLs on ESG risks management. These requirements are applicable in the context of the ESG scenario analysis.	No change.
International organisations	One respondent suggests that for consistency with Section 5.1, examples of International Organisations are provided in paragraph 54.	The EBA does not see the need for such a repetition.	No change.

Reference scenarios	Some respondents consider that reference scenarios should embed more sectoral and geographic granularity so that transmission channels listed in the GLs can be used.	Currently the scenarios developed by widely recognised institutions such as the NGFS are progressively refined. The EBA has not direct role in the development of such scenarios.	No change.
Question 12: Do you have comments on climate stress test (CST) tool and its use to test an institution's financial resilience?			
IT system	Some respondents consider that paragraph 58 should be deleted as the related provision on separate IT environment should not be in scope of the Guidelines.	The EBA agrees with the point raised.	The reference to IT environment has been deleted.
Expert judgment	Some respondents consider that expert judgment is central for the success of CST. Yet GL should specify the extent to which expert judgment may be used to ensure a minimum level of quantification within CST.	The EBA recognises the central role of expert judgment in climate stress testing, especially given data gaps and uncertainty. The GLs aim to balance flexibility with rigor by permitting expert input while encouraging quantification where possible. Further prescriptive detail is not provided, as the Guidelines remain intentionally high-level to accommodate institutional differences. Institutions are expected to determine how best to incorporate expert views – such as through confidence levels or combined model- and expert-based scenarios – supported by strong governance and clear documentation to ensure transparency and credibility.	No change.

Transparency	Some respondents support CST-related transparency/disclosure requirements to ensure comparability across institutions' CST approaches.	Disclosures are not within the mandate of these Guidelines.	No change.
Additional stress factors	Some respondents require more specifications on the additional stress factors of paragraph 64.	The EBA agrees with the point raised.	The final Guidelines have been clarified to put the emphasis on the use of expert judgment in Section 6.3.
Better specification of CST	One respondent suggests complementing on several aspects to ensure harmonisation among institutions : i) the types of scenarios to be used (both micro and macro, covering physical and transition risks); ii) the specific risk parameters to be impacted; iii) the types of models recommended (e.g. national damage functions combined with theoretical or statistical financial models) to assess the transmission of scenarios to each risk parameter; iv) the approach to capital calculation (e.g. use of the Pillar 1 formula or alternative methods for calculating internal capital).	While standardisation of approaches is essential to enable comparability, the Guidelines have been intentionally kept high-level. This reflects both the current state of maturity in the field – which does not yet allow for broad agreement on specific methodologies – and the need to preserve flexibility for institutions to adapt their approaches to their specific circumstances.	No change.

Model validation methodology	One respondent requests that paragraph 65 should be complemented with alternative model validation methodologies such as peer benchmarks.	The Guidelines remain high-level to allow institutions the flexibility to adopt validation techniques that are most appropriate to their models and data availability, including the use of peer comparisons where relevant and feasible.	No change.
CST frequency	One respondent requests that the frequency for conducting CST is clarified (annually, quarterly etc.) as paragraph 55 and paragraph 56 may raise ambiguity.	The GLs intentionally do not set explicit expectations on the frequency of environmental scenario analysis. This is to provide institutions with the necessary flexibility to determine the most appropriate frequency based on their risk profile, business model, and internal governance processes.	No change.
CST development	Some respondents have requested greater clarity on the expected timeline for the progressive development of CST, as referenced in paragraph 66.	Such a timeline cannot be defined in advance. This is due to the evolving nature of climate-related methodologies, varying levels of data availability, and the differing starting points and capacities of institutions. As such, the Guidelines have been intentionally designed to remain high-level and flexible. It will be the responsibility of supervisors to assess the extent to which the expectations are being met over time, taking into account proportionality and an appropriate cost–benefit balance.	No change.
Concentration	One respondent asks for more guidance on how to apply climate shocks in case of concentration.	The EBA acknowledge the complexity of applying climate shocks in cases of portfolio concentration. Institutions are encouraged to use expert judgment and tailor their methodology to adequately capture the impact of climate	No change.

		shocks on concentrated exposures, ensuring robust risk identification and management.	
Question 13: Do you have comments on the Climate Resilience Analysis (CRA) tool and its use to challenge an institution's business model resilience?			
CRA relevance	One respondent considers that, given the current level of methodological maturity, i) only Climate Stress Testing (CST) is relevant for the risk and resilience management of institution and that ii) Climate Risk Assessment (CRA) should not be included in the ICAAP, as the differing time horizons and objectives make it unsuitable. Additionally, some respondents argue that the requirements for CRA exceed those of scenario analyses mandated under other regulations.	The purpose of these GLs is to set expectations on how ESG scenario analysis should be executed but not to specify whether and how these scenarios should be incorporated in ICAAP and ILAAP as these requirements are already covered in other regulatory products such as the EBA GLs on ESG risks management, which already specify in Section 5.5 how ESG risks should be incorporated into ICAAP. European regulations are among the most advanced globally in integrating ESG considerations. However, scenario analysis remains an evolving topic under active discussion across international bodies and national jurisdictions.	No change.
CRA implementation	Some respondents consider that CRA requirements should be aligned with those of CSRD for consistency and efficiency purposes. One respondent requires more guidance on how to articulate qualitative analysis with quantitative projections within CRA.	The accounting expectations on resilience analysis are high level and fundamentally aligned with the new prudential expectations. Therefore, the EBA expect institutions to develop resilience analysis that complies with both the CSRD and the EBA Guidelines. Overall, the Guidelines are meant to be high-level to allow flexibility in their implementation. With regard to resilience analysis, the expectations of the Guidelines are intended to be	The section on resilience analysis has been revised for greater clarity.

	One respondent requires more guidance on the key variables and analysis dimensions to consider when conducting a CRA. One respondent requires to further specify what disaggregation type is referred to in paragraph 77 (sectoral or portfolio).	flexible enough to allow institutions to adopt the tool and adapt it to their needs. As institutions gain a better understanding of environmental issues, the EBA expects practices to converge. Resilience analysis is a forward-looking tool that, by design, focuses less on the accuracy of the analysis results than on a general understanding of the mechanisms at work. As such, an analysis conducted at the sectoral and geographical level appears to be the most appropriate.	
CRA frequency	One respondent considers that CRA frequency should align with institutions' strategy cycle, which is around 3-5 years. Another respondent considers that CRA scenarios should be reviewed on an annual basis.	The Guidelines intentionally do not set explicit expectations on the frequency of ESG scenario analysis. This is to provide institutions with the necessary flexibility to determine the most appropriate frequency based on their risk profile, business model, and internal governance processes.	No change.
Balance sheet projection	One respondent requires that more guidance on how to project a balance sheet over a 10-year horizon is provided.	the dynamics of balance sheet projections are by nature specific to each bank, given their unique business models, portfolios, and strategies. To ensure both simplicity and comparability across institutions, the EBA considers it more adequate to require institutions, at a minimum, to implement a constrained dynamic portfolio approach.	In the final Guidelines, the dynamic balance sheet approach has been replaced by a constrained dynamic portfolio approach, thereby limiting the changes to those defined in the institution's strategic plan.

CRA horizon	One respondent suggests aligning CRA horizon with that of transition planning, i.e. 2050.	While the EBA recognises the relevance of long-term horizons such as 2050 in the context of transition planning, aligning the Climate Risk Assessment (CRA) horizon strictly with that timeline is not considered appropriate at this stage. CRA is intended to support risk management by identifying material climate-related risks over a plausible and decision-relevant time horizon. In contrast, transition planning typically reflects strategic commitments and policy goals that extend to 2050 or beyond. The uncertainty and limited reliability of data and modelling over such long timeframes make it challenging to require all CRA to align with that horizon.	No change.
Targets and projections	One respondent considers that projections should be consistent with targets, on sectoral emissions, physical intensity and fossil fuel sector exposures (in addition to financed emissions) as these indicators are better linked to real economy emissions (Cf. paragraph 75).	The suggestion to align projections with sectoral emissions targets, physical intensity, and fossil fuel sector exposures appears to relate more closely to the institution's transition planning than to resilience analysis per se. These indicators are indeed important for assessing alignment with real economy decarbonisation pathways. However, the purpose of resilience analysis is to test the robustness of the institution's strategy under different climate scenarios, rather than to assess progress against specific targets. Expectations around such indicators are more directly addressed in the Guidelines on the management of ESG risks, particularly in the context of transition plan development and monitoring. As such, while consistency between transition-	No change.

		related indicators and scenario-based projections is encouraged, it is not the primary focus of resilience analysis under these Guidelines.	
CRA development	One respondent requests that a specific timeline on implementation expectations for E risk factors beyond climate be provided.	Scenario analysis of environmental risk factors beyond climate, such as biodiversity loss, pollution, and resource depletion, are already within the scope of these Guidelines.	See answer above.
Better specification of CRA	One respondent suggests reinforcing the distinction between CRA and CST by clarifying CRA's output and objectives; mapping narrative assumptions to strategic planning variables; assessing reputation risk trends and regulatory adaptation capacity; involving board oversight and challenge.	These distinctions are already reflected in the Guidelines, notably in illustrative Figures 3 and 4, which outline the respective purposes, outputs, and key elements of CRA and CST.	No change.
Question 14: Do you have any additional comments on the draft Guidelines on ESG Scenario Analysis?			
CSA review framework	The EBA should establish a review framework to monitor and validate CSA exercises – covering models, scenarios, assumptions, data quality, and adjustment factors – e.g. similar to the TRIM approach. Supervisory validation is therefore essential to ensure institutions can rely on the	Given the evolving nature of climate risk methodologies and data availability, it may be premature at this stage to formalise such a comprehensive supervisory validation framework. That said, supervisory authorities are expected to closely monitor industry practices and enhance their oversight capabilities as the field matures, ensuring that institutions can	No change.

	outcomes and identify areas for improving climate risk assessment.	rely on CSA outcomes and continuously improve their climate risk assessments over time.	
Roadmap for ESG risks beyond climate risk	Some respondents call for a clearer roadmap in the Guidelines for analysing social and governance (S and G) risks, with one requesting an explicit statement that no in-depth analysis is currently required.	At this stage, no specific timeline can be set for a more in-depth treatment of S and G risks, as their integration into risk management frameworks will depend on future methodological developments, data availability, and supervisory expectations. Institutions are encouraged to progressively enhance their understanding and treatment of material S and G risks in line with their risk profile and internal priorities.	No change.