Climate Risk Consultation Package 3 - Proposed supporting material to reflect climate risk

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The materials include:

- Proposed changes to the 2021 application paper related to ICP 7 (Corporate Governance) and ICP 8 (Risk Management and Internal Controls); and
- New supporting material related to ICP 14 (Valuation), ICP 15 (Investments) and ICP 16 (Enterprise Risk Management for Solvency Purposes).

Proposed changes to the ICPs 7 and 8 related material in 2021 application paper

New material is shown in red font. Minor editorial changes compared to the 2021 version are not shown in red font.

3 Corporate Governance

23. ICP 7 (Corporate Governance) sets out requirements for the establishment and implementation of a corporate governance framework. This section looks at oversight and management responsibilities, business objectives and strategies, the role of the board, duties related to risk management and internal controls, as well as remuneration through a climate risk lens (ICP 7.1, 7.2, 7.5 and 7.6). ICP 7 also discusses issues around supervisory review and communications, covered in sections 2 and 6, respectively.

3.1 Appropriate allocation of oversight and management responsibilities

24. Given that climate risk is an evolving risk area, the relevant roles and responsibilities assigned to the board, senior management and control functions should continue to adapt. This includes the need to have greater clarity on information and reporting needs (quantitative and qualitative), resourcing, skill sets and budgets. By assigning responsibility, there is greater accountability for mapping, monitoring and controlling the risk. In this way, an insurer obtains a more accurate picture of how climate risks affect their business and how these might evolve. That might lead insurers to adapt their risk management (and potentially governance) in light of new information. The Application Paper on Proactive Supervision of Corporate Governance can help supervisors identify governance-related issues in terms of management of climate-related risks.[1]

25. One way some insurers address evolving risks, including climate risk, is to have an internal risk committee that has the objective of identifying the changing risk landscape as well as potential ways to address these risks. Supervisors may want to encourage insurers to establish such a committee or other suitable structure with appropriate expertise, if they do not have one already.

26. The evolution of climate risk governance is reflected in some jurisdictional examples. In Canada, one insurer recently created the chief climate risk officer role, responsible for assessing financial exposures related to climate risk in its insurance portfolio as well as systemic impacts. The United Kingdom Prudential Regulation Authority (UK PRA) requires insurers to identify a senior manager to hold this responsibility, which should be detailed in their Statement of Responsibilities and their performance should be reflected in the individual's variable remuneration, including via the application of risk adjustments.

[1] See https://www.iaisweb.org/page/supervisory-material/application-papers/file/80572/application-paper-on-proactive-supervision-of-corporate-governance

3.2 Business objectives and strategies of the insurer

27. Insurers should incorporate and assess climate-related risks as part of their annual financial planning as well as the long- and short-term strategic planning processes. Insurers should also ensure that impacts of climate change are well-represented in existing risk categories. It is important for insurers' strategic planning periods to build on the risks identified in their insurance portfolio.

3.3 The role of the board

28. The board has a role in maintaining effective oversight of climate-related risk management, including incorporating climate-related considerations into the insurer's risk appetite, strategies and business plans. In executing this responsibility, the board should consider the potential threat to the insurer's own business risks, the fair treatment of customers and the duty of the insurer to conduct its business in a socially responsible manner.

29. There should be appropriate understanding of, and opportunity to discuss, climate risk at the board and board committee levels, including within the audit committee and the risk committee. Appropriate understanding means that the competence of the board and its committees should remain adequate considering the specific nature of climate-related risks and their evolution over time. This may involve, for example, having a good understanding of the risks and business activities associated with physical and transition risks for the insurer.

30. In order to enhance the skillset amongst its board members, insurers should take actions to facilitate the understanding and discussion of climate risks at board and board committee levels and, where necessary, provide appropriate training for board members. Additionally, the board succession or board renewal plans could be used as a way to help add upskill and improve understanding of climate risk, if needed.

31. ICP 7.3 states: "The supervisor requires the insurer's board to have, on an ongoing basis, an appropriate number and mix of individuals to ensure that there is an overall adequate level of competence at the board level commensurate with the governance structure".

32. Accordingly, insurers should demonstrate that the board (or part of the board) has an adequate level of competence and experience to understand the challenges and business activities associated to climate-related risks, and that the board is able to act and express itself on these subjects. However, as indicated in ICP 7.3.12, if the board does not have internal climate-related expertise, it should obtain it externally and demonstrate the competence, experience and independence of the external experts. The board should demonstrate how those climate-related experts will provide information and guidance, all in an independent and impartial manner, and how it will assess that the information and guidance is appropriate.

33. In accordance with ICP 7.1.4, the board should ensure that senior management's knowledge and expertise regarding risks and business activities associated with climate change remain appropriate and up to date.

3.4 Duties of senior management

34. Senior management is responsible for implementing policies related to climate risk and/or incorporating climate risk-related elements into relevant operational and business policies. The board relies on senior management to provide advice on organisational objectives, plans, strategic options and policies as they relate to climate risk, including the establishment and

use of relevant tools, models and metrics to monitor exposures to climate-related risks. Senior management should set out information, options, potential trade-offs and recommendations to the board in a manner that enables the board to focus on key climate risk-related issues and make informed decisions in a timely manner.

3.5 Duties related to remuneration

35. The alignment of remuneration of senior management and the board with prudent risk-taking should take into consideration all risk types relevant to the insurer, including the sound management of climate-related risks~~, as appropriate, since risk adjustments should account for all risk types relevant to the insurer~~.

36. Guidance under ICP 7.6 describes how an insurer's remuneration policy may include variable remuneration components. An insurer may use variable remuneration to reflect progress made in managing and mitigating climate-related risks. Guidance under ICP 7.6.9 and 7.6.10 sets out recommendations for variable remuneration. Aligning variable remuneration with reaching climate-related (or broader sustainability) goals can be a helpful tool to support meaningful integration of good sustainability practices into management's decision-making, particularly those related to climate risk mitigation.

37. Such remuneration should not create incentives for inappropriate risk taking and should be proportionate, clearly linked to factors within the control of the individual, weighted appropriately against other factors, and with a clear focus on impact rather than process. There should be no reward for taking steps that are only superficial and have no measurable effect on the mitigation of climate-related risks.

38. Variable remuneration may be used as one of several incentives to integrate climate-related risks in the risk management system. As part of this, criteria used to calculate the amount of variable remuneration could include, amongst others, climate-related risk management within the insurer (eg through staff training or asset categorisation and performance). Also, the evolution of the non-financial criteria ~~performance~~ of investee companies could be a relevant indicator for variable remuneration. Such criteria should be predetermined, documented, and include achievable objectives and measures. These should be linked to the decisions made by the relevant staff member. When this individual does not meet these criteria, the consequence on the pay-out of variable remuneration should be described. Financial and non-financial criteria should be appropriately balanced, and non-financial criteria should not be negligible.

39. Moreover, if insurers include information about remuneration in public disclosures and supervisory reporting, then these should contain a clear description of how remuneration arrangements (including any variable components) take into account the risk management strategy for climate-related risks.

4 Risk management and internal controls

40. ICP 8 (Risk Management and Internal Controls) sets out requirements on systems of risk management and internal controls, including for the control functions. This section provides guidance on how supervisors could integrate climate-related risks into their supervisory expectations of the risk management system (ICP 8.1), and for each of the control functions

(ICP 8.3 - 8.6). Finally, it discusses the supervision of outsourced functions in relation to climate risks (ICP 8.8). Box 1 provides examples of supervisory practices relating to ICP 8.

41. When addressing climate-related risks, ~~it is expected that~~ insurers should integrate these risks into the overall corporate governance framework, which includes the systems of risk management and internal controls.~~it is recommended that those insurers~~ Insurers who still use ~~still using~~ an approach that mainly addresses climate change from a reputational risk perspective[2] ~~transition~~ should adopt ~~to~~ a more fully integrated approach that considers the risks more holistically (including not only the reputational aspect, but also the impact on assets, liabilities and the overall business model). When addressing climate-related risks, insurers should be aware of, and consider, how these risks have the potential to affect assets and liabilities through different channels (including physical, transition and reputational/liability risks). In turn, insurers should also be aware of, and consider, how their investment strategy and overall business model can impact climate change, as it could have impacts on insurers through the aforementioned channels.

4.1 Integrating climate-related risks into the scope of the risk management system

42. Climate risks relate to existing risk categories and affect the valuation of an insurer's assets and liabilities as well as its business plan and strategic objectives. Life insurers, in particular, may incur increased losses due to an increase in the mortality rate from climate events such as heat waves (eg impact on term life products) or, in some areas of the world, increased longevity due to more moderate temperatures (eg impact on annuity products). Non-life insurers may be affected by the increased frequency and severity of natural catastrophes on their products, such as property insurance, transport insurance or liability insurance. Transition risks manifest, for instance, through a decrease in the value of assets affected by ecological transition and may result in "stranded assets". Stranded assets relate to sectors that are likely to shrink due to measures taken to transition to a low-carbon economy (eg increase in carbon pricing) or to a shift in consumer or investor preferences (eg away from air transport). In addition, climate change may affect the correlation between different risk categories (eg insurance and investment risk), which can lead to gaps between the actual and expected risk exposure. It also may be important for insurers to consider whether pricing bubbles will appear as investors move into green assets.

43. Given the potential impact of climate-related risks on an insurer's solvency position, it would be expected that such an impact is considered within the existing categories of risks and leads to a review of the risk management system in case of material change in these risks. This means that the insurer should assess and document in its risk management policies how climate-related risks could materialise within each area of the risk management system, in particular in the investment and underwriting policies, taking into account potential risk mitigation measures and the speed at which risks may manifest over time.

44. In order to identify, monitor, assess and manage climate-related risks, as well as their interaction with other identified risks, insurers should develop tools to collect reliable quantitative and qualitative data. This also allows the insurer to perform aggregated analysis of various elements of climate-related risks. The measurement of climate-related risks is an evolving science with challenges in the quality and availability of data. In some cases, there may be challenges to translating climate change (scenarios) into financial risks (eg translating

[2] Often referred to as a "Corporate and Social Responsibility" approach.

a change in temperature into certain natural catastrophe risks). Nevertheless, there is an expectation that insurers' quantitative and qualitative analysis will continue to develop and evolve along with the science and improvements in data quality. Historical data and past trends are unlikely to fully capture the dynamic nature of climate-related risks. Historical time series data, notably, might not be able to reflect a potential materialisation of physical and transition risks. Therefore, insurers should consider adopting a more integrated approach and risk modelling, which better captures the complexity and uncertainty of climate-related risks. Insurers should develop forward-looking assessments under different time horizons in order to complement available historical data and readjust their risk assessment and management system. Where insurers leverage external sources to enhance the data, metrics and risk management tools to manage climate-related risks, insurers should ensure that there is adequate understanding of the procured external data, metrics and risk management tools. This includes a sound understanding of the capabilities of external providers, associated methodologies, validation process, limitations as well as relevance and appropriateness to the insurer's own portfolio characteristics.

4.2 Consideration of climate-related risks by the control functions

45. In performing its duties, control functions should properly consider the impact of climate change on the existing risk categories and should have the appropriate resources and expertise to support that analysis. As the measurement of climate-related risk is an emerging science, and risk modelling continues to develop and evolve, control functions will need to continue developing appropriate tools and approaches.

46. Control functions should identify, measure, and report on the insurer's risks, assess the effectiveness of the insurer's risk management and internal controls and determine whether the insurer's operations and results are consistent with its risk appetite as approved by the board.

4.2.1 Risk management function

47. The potential impact on business continuity due to climate change should be considered by the risk management ~~system~~ function.

48. More specifically, the risk management function should monitor and facilitate the proper identification, assessment and management of climate-related risks. This should be integrated into the existing risk management system and be in line with the board-approved risk appetite statement. The following risk management areas may be particularly affected by climate-related risks: asset-liability management (ALM), investment risk management, underwriting and reserving, reinsurance and other risk-mitigating techniques, operational risk and reputational risk management.

49. The risk management function should use a range of quantitative and qualitative methods and metrics to monitor progress against the insurer's overall business strategy and risk appetite, and promote consistency within the insurer. For instance, the underwriting and investment functions should consider where they could benefit from aligned criteria when identifying sectors that are more exposed to climate change. The methods and metrics should be updated regularly to support decision making by the insurer's board and/or relevant committees. It is important that such methods and metrics do not rely solely on historical data and trends, but also incorporate forward-looking assessments.

50. An example of a method for managing the risk associated with climate change is defining investment limits to specific companies, sectors, regions, jurisdictions, etc. This may be based on certain criteria, such as the percentage of income stemming from mining, processing or burning fossil fuels. Furthermore, insurers could incorporate environmental and climate change considerations when evaluating a proposed investment. On the liability side, risk limits could also be defined – for instance a maximum exposure for policyholders in coastal areas in order to limit the risk exposure to flood risk. The use of "heat maps" or environmental, social and governance (ESG) scoring that highlight climate-related risks may also be helpful to better understand, and monitor, the impact of these risks.

4.2.2 Compliance function

51. The compliance function should identify the compliance risks that the insurer faces and the steps taken to address them. In performing this task, the compliance function should take into account the liability and reputational risks (eg from a failure to appropriately disclose information on climate-related exposure) stemming from climate change. Accordingly, the compliance function should ensure that internal policies and control procedures are compliant with the relevant standards, directives, charters or codes of conduct related to climate change that the insurer is obliged or committed to respect.

4.2.3 Actuarial function

52. It is expected that the actuarial function takes into account climate-related risks because they can potentially have an impact on the valuation of assets, ALM, underwriting, risk mitigation and the calculation of insurance liabilities and capital requirements. To assess physical risks, the actuarial function could, for example, consider the impact of wind and storm pattern shifts, increased frequency of hot weather, hail, high winds, extreme precipitation, drought and flooding. To assess transition risks, the actuarial function could consider the insurer's exposure to companies that are likely to be affected by the transition to a carbon-neutral economy.

53. In performing its duties, the actuarial function should pay particular attention to the assessment of the quality and completeness of underlying data. Due to climate change, historical analysis may not be sufficient and may need to be supplemented to enable the appropriate calibration of premiums or reserves to reflect climate-related risks. Expert teams, such as catastrophe (CAT) modelling teams, can reinforce the actuarial function's role, as these teams are often already using analytical tools that go beyond pure historical analysis.

4.2.4 Internal audit function

54. The internal audit function should review the risk management process to ensure it is adequate and effective. As part of this review, it should assess whether all material risks, including climate risk, that may have an impact on insurer's resilience, are being considered and, where relevant, mitigated.

4.3 Fitness and propriety of control functions on climate-related issues

55. In order to ensure sufficient knowledge for the control functions while identifying, assessing, monitoring, managing and reporting climate-related risks, insurers should adapt their internal policies and implement training programmes on climate-related issues and their impact on the risk-profile of the entity. Insurers should ensure that persons who perform control functions have experience, as appropriate to their respective duties, in understanding the risks of climate change.

56. As an example, the European Insurance and Occupational Pensions Authority (EIOPA) deems that "depending on their (the insurer's) specific investment strategy, their risk profile and their size, the recruitment of dedicated experts may be needed for some undertakings. In any case, insurance and reinsurance undertakings should be requested to build in the necessary expertise with particular consideration of the proportionality principle".[3] Furthermore, in the Netherlands, De Nederlandsche Bank (DNB) issued guidance on including climate-related risks into the fit and proper assessments of management or supervisory board members and other policymakers (see Box 2).

57. Within the various control functions involved, a person with appropriate skills and knowledge in climate-related risks, or a dedicated unit, may be identified as primarily responsible for climate-related aspects in order to ensure that climate-related risks remain in scope and the necessary attention is allocated. However, this does not remove the need to integrate the risks from climate change into all relevant parts of the business.

4.4 Integrating climate-related risks in outsourcing decisions

58. Insurers that decide to outsource any material activity should preserve the ability to manage risks and ensure the continuity of their activities in case of a failure of the outsourcing provider. One example is physical damage that could disrupt the insurer's operations, should severe weather events affect the premises of their outsourced business functions. To manage such physical risks, business continuity plans should incorporate the risks from climate change, where material. It may also be useful for insurers to conduct scenario analyses, for instance considering a scenario in which several outsourced business functions are affected at once. In practice, some insurers with outsourced functions have used physical risk scenarios such as those published by the Intergovernmental Panel on Climate Change (IPCC). Insurers may increasingly include insured loss data as part of this analysis, as well as examining recent historical climate trends in key locations.

[3] See EIOPA (2019), EIOPA's Technical Advice on the integration of sustainability risks and factors in the delegated acts under Solvency II and IDD.

Proposed new climate risk-related supporting material related to ICP 14

1. ICP 14 provides standards and guidance for asset and liability valuation. ICP 14.3 requires that the valuation of assets and liabilities is undertaken in a reliable, decision useful and transparent manner.
2. Climate risk has the potential to impact valuations of both the assets and liabilities of most types of insurance business. Therefore, it is important that insurers consider this risk in both asset valuations and when estimating value of liabilities.
3. As the ICPs address risks more broadly, ICP 14 does not directly discuss how climate risk specifically could impact the drivers of valuation and how insurers should consider the impacts on those drivers in valuation. This application paper intends to assist with climate risk assessments.

Valuation of assets

4. On the asset side, climate risk has the potential to diminish the value of investments through both transition and physical risk.
5. The impact of climate risk could materialise through the expectation of diminished ongoing future cash flows and/or through decreases in the terminal or recovery value assumptions. It could also have implications if an investor is unable to sell an asset due to physical or reputational climate-related damage or a disruption in markets due to a disorderly transition. The ultimate potential loss for insurer investments is due to either the deterioration in credit quality for bonds, or the fall in prices and cash flows for equity and real estate.
6. For instance, some equity and bond prices could be impacted as a result of an issuer not transitioning their business model, which may no longer be viable as the global economy moves away from fossil fuels or adopts other climate-related initiatives.
7. For other assets, such as real estate and mortgages, the probability and severity of physical events can impact the asset value either directly or indirectly. When an event impacts a property, the cost to rebuild might be more than the insured value (if insured) due to building code changes to mitigate climate risk, which can result in an unaffordable increase in costs. This can have a negative impact on the asset value.
8. Climate risk can impact the prices of investments in equities, bonds, loans, real estate and mortgages.
9. There is also the potential for decreases in asset prices from climate risks due to a large loss event occurring in an area that negatively impacts business or government services, or the expectation of future events increasing significantly in an area. For investment valuations tied to real estate, these impacts could also include decreases in property insurance availability or significant increases in insurance costs, or transition measures to meet energy efficiency requirements for various type of properties, which could increase stranded assets risks.
10. As all of these risks can significantly decrease investment value, supervisors should evaluate whether insurers take these risks sufficiently into account.

Impacts on types of valuations

11. Valuation may be based on different levels of market information. Regardless of the method or level of market information, valuations should reflect known reliable information, including any impacts from climate change.
12. If assets are valued based on amortised cost, impairment evaluations should consider reliably estimable potential cash flows including any reduction in future cash flows due to transition and physical risk. As discussed above, these risks can manifest differently for different types of assets and it is important that insurers consider the reliably estimable impacts on asset value. The time horizon of the investment (holding period and/or asset duration) as well as the speed of transition are also relevant factors for valuation.
13. When insurers are valuing assets based on quoted market prices, the price reflects the market consensus. When the market is dysfunctional, generally due to the lack of sufficient trading volume or information flows, insurers should use a more reliable method based on more normal conditions. The valuation should still maximise market inputs to the extent possible with the objective of the valuation being an economic valuation. Likewise, insurers valuation models should consider relevant factors that reliably estimate the impact of the uncertainty of the amount and timing of the cash flows, which should include the uncertainty resulting from climate risk.
14. Supervisors should review insurers' valuation methodologies to determine whether known and reliable estimable information, including the impacts of climate risk on their investments, are being considered. The expectation is that while these impacts may not be significant and reliably estimable at this time, this will change in the future as more becomes known about the global transition to a low-carbon economy and the impacts from increasing frequency and/or severity of climate related events.

Time horizons of investments

15. The time horizon of an insurer's investments will be an important consideration for supervisors. The risk to insurers' investment portfolios is expected to increase over time, particularly for insurers with a longer duration portfolio (eg life insurers).
16. Supervisors should review the sources of information used by insurers in their valuations. The amount and quality of available information related to climate risk is expected to increase in the future, allowing for better consideration of these risks. Changes in policy, technology and physical risks could prompt a reassessment of the values of a large range of assets as costs and opportunities become apparent (transition risk). Supervisors should assess whether insurers are using the most current and reliable information available.

Valuation of liabilities

17. In valuing insurance liabilities, expected future development is generally taken into account in the assumptions underlying the valuation. Furthermore, the data and assumptions are reconsidered at each valuation period to ensure they are up to date and remain appropriate.

Insurers should change previous assumptions when they have sufficient reliable information to support a change. Insurers should ensure that the assumptions underlying the valuation of insurance liabilities are consistent with the assumptions underlying the valuation of assets, where applicable. Additionally, for discount rates that are impacted by future asset returns, insurers should consider potential impacts on the portfolio due to climate change when reliable and estimable.

18. In practice, it is not straightforward for insurers to account for climate change-related developments in the valuation of liabilities. There can be difficulties in valuation for life and health insurance as well as for certain types of non-life insurance.

19. Generally, the value of short duration liabilities is less impacted by climate risk than the value of long duration liabilities (claims' occurrence or settlement periods). Nevertheless, climate change is already impacting policies today, so there is an impact even on short duration liabilities. And even with annual repricing/recalibration, historic data may not accurately predict short-term trends in the context of climate change (unprecedented events get more likely over time) and there can be delays in changing rates. In addition, there can be latent risks in some types of contracts that cover prior years or would cover current litigation exposure (Director and Officer liability insurance).

20. Therefore, prudent consideration should be given on appropriate climate trend analysis for the short-term (eg catastrophe modelling in underwriting) and on implemented risk prevention measures (eg educating the public on how to react in case of heat waves or introduction of building materials that decrease this risk).

Life and health liabilities

21. Valuation of life insurance liabilities can cover long periods of time and can be subject to significant assumption changes over time. Climate change can impact the current estimate valuation through its effect on health and mortality assumptions. More extreme weather events, such as heatwaves and flooding, could lead to higher mortality rates.

22. For (longer-term) life business, the long horizon for cashflows also means that there may be room to consider the impact of climate change in the calculation of the current estimate, if the impacts are reliably estimable. Climate change-related risks may affect life insurance liabilities through increased expenses, changes in mortality and morbidity assumptions or changes in the value of contractual options. Regarding the latter, economic scenario generators should be calibrated to current market prices. Expense assumptions should reflect all reliably estimable known cash flows, including those due to climate change and related legislation. Mortality and morbidity assumptions should reflect the latest known trends.

Non-life insurance

Current estimate – liability for incurred claims

23. Generally, for most non-life insurance liabilities, the current estimate is based on incurred events. While increases in frequency and severity of events due to climate change can impact future profitability, they do not impact the current estimate as only expected cash flows from incurred events are taken into account. As a result, expected cash flow changes under non-life contracts due to climate-related events are not factored into the current estimate.

24. Where the current estimate includes both incurred and future events (eg IFRS 17 for some contracts), the current estimate would include both incurred losses and the amount expected to be incurred for policies still on risk. In this case, changes in expected future losses that can

be reliably estimated (such as changes in expected catastrophe losses and other weather-related losses due to climate change) should be included in the valuation. Due to the short duration of such policies, there may not be sufficient development to change the initial loss estimate.

Premium allocation approach (eg unearned revenue reserve)

25. Similar to the current estimate valuation that includes both incurred and future events, it is possible that under a premium allocation approach (eg IFRS 17), when expected losses might change after the issuance of the policy, this typically does not occur due to the short duration of the policy. If the expected cash flows, including from climate risk, have changed from the initial estimate and can be reliably estimated, a premium deficiency reserve may need to be established.

Other considerations for non-life reserves

26. Setting the initial reserve estimates for the current estimate or the premium allocation reserve is generally based on the pricing of non-life products. Therefore, it is important that insurers incorporate the most current information on expected losses, including those related to weather and catastrophe risk due to climate change, into rate setting and the initial reserve estimates. Supervisors should consider if data used in these processes reflect current climate risk exposure. Supervisors should also consider if insurers are supplementing historical loss experience with current trends or other information that would indicate that the future claims settlement could be different from past settlements.
27. Insurers exposed to climate risks should consider catastrophe/climate modelling, or stress-testing methods. Where relevant, insurers could develop forward-looking modelling approaches. One area of non-life insurance coverage that has the potential to be adversely impacted is where the insured is exposed to climate litigation and holds an occurrence policy that does not have exclusions. It is possible that these policies cover the insured in a climate liability lawsuit if it were deemed that the “loss” occurred from actions during the period of coverage. It is a possibility that insurers should consider when calculating current estimates.
28. Insurers should consider, where appropriate and in a proportionate manner, good practices for ensuring that historical loss data are up to date. Insurers should consider events potentially not captured by historical loss dataset, such as changes in claims cost or litigation and other factors that would impact liabilities, and also conduct forward-looking catastrophe modelling.

Proposed new climate risk-related supporting material related to ICP 15

Climate change factor for investment requirements (15.1)

1. A factor for the supervisor to consider when establishing regulatory investment requirements on the investment activities of the insurer may include the impact of climate change on the insurer's investments (ICP 15.1.3, "inward perspective").
2. Climate-related risks can have complex and non-linear impacts on insurers' investments. Climate-related risks can translate into physical and transition risk, both of which can have a material impact on the insurer. Furthermore, insurers should be aware that climate related risks have the potential to affect investments through traditional risk categories such as credit risk, market risk, reputational risk and strategic risk. For example, both transition and physical risk have the potential to affect investments via credit/counterparty default risk (eg an increase in the probability of default or loss given default), market risk (eg a change in the value, trend, or volatility of an asset or derivative, in particular equity, property or spread risk) as well as liquidity risk (eg as a result of a sudden cash outflows due to a natural disaster event). Transition risk and physical risk can also include second-order effects such as indirect losses in insurers' investments due to the devaluation of financial counterparties that have high exposures to climate-sensitive sectors, or the impact of changing investor sentiments on market values.
3. The quality and characteristics of an insurer's asset portfolio and the interdependence between the insurer's assets and liabilities are central to the assessment of an insurer's solvency position and, therefore, are an important aspect to be addressed by the supervisor and for an insurer to manage. In assessing the risks attached to the asset portfolio, and depending on the duration and quality of the portfolio and ALM, it may be relevant for supervisors to assess and take necessary action as to how the impact from climate change on the insurer's investment may affect the risk-return characteristics of a portfolio. The longer the duration of the asset portfolio, the more important it is for the insurer to understand the risk. At the same time, transition risk and physical risk can happen at any time and in a sudden manner, and thus require insurers to review their investment strategy regularly. Given the potential impact on the assets side of insurers' balance sheets, insurers are expected to monitor this risk on an ongoing basis, address this risk when it becomes, or is in the process of becoming, material and potentially mitigate climate-related risks. Developing an approach to monitoring and addressing the financial risks arising from climate change, and responding to the transition to a climate-resilient economy should be done regardless of whether the insurer invests directly or through a third-party asset manager or investment advisor and should form part of an insurer's strategy.

Investment of assets for the portfolio as a whole (15.2)

4. It is important that insurers invest in assets such a way that their portfolio as whole considers the impact of their investments on the climate ("outward perspective"). It is also important that insurers consider their policyholders' preferences in relation to climate change considerations, where relevant. The climate-related impact of investments may be taken into account by

insurers' stakeholders. Should insurers' stakeholders view investments negatively, due to their climate impact, this could lead to reduced investments or a change in policyholder support which, in turn, may lead to a reduced competitive position and financial strength of the insurer.

5. Consequently, insurers could decide to engage with investees, divest of certain assets or change their investment strategy. Such engagement can steer the activities of the issuers insurers are exposed to through the assets they hold in the investment portfolio. Such stewardship would influence the strategy and business of the firm in which insurers are investing to progress towards sustainable economic activities, and contribute to reducing climate-related risks. Divestment and other investment strategies (for example, exclusions (negative screening), norm-based screening, integration of ESG factors, best-in-class (positive screening), sustainability-themed investments or impact investment) could be relevant when considering this approach.
6. With regards to external credit ratings (15.2.3), insurers should have enough information to understand the rating methodology. Insurers should also consider the extent to which climate-related risks have been factored into the rating and over what time horizon. Furthermore, insurers should carry out diligent plausibility checks of the ratings they use.

Asset liability management (15.3)

7. Insurers should consider climate-related risks as part of their ALM, especially when the liabilities have a long duration. This may include, for example, the potential impact of climate-related risks on the insurer's reinvestment strategy. This is relevant for the impact of climate change on insurers' investment portfolios, which may fully materialise over an extended period of time and, therefore, impact either the value or expected cashflows from financial assets in the mid- or long-term.
8. Climate change can negatively affect the matching of assets and liabilities, primarily through transition risk, as insurers with long duration products use longer-term bonds to match the liability cash flows. Due to the long-term nature of these bonds, insurers should consider when constructing their investment portfolios that individual firms, or an entire sector, could potentially be significantly impaired over the matching period. Correlation between different asset classes would also be an important consideration as would the correlation between assets and liabilities when holding a bond of an entity and insuring that same entity for risks related to climate change.

Risk assessment and management of investments (15.4)

9. ICP 15.4 states "the supervisor requires the insurer to invest only in assets where it can properly assess and manage these risks". The insurer should understand the risks involved, and determine how material the risk from a proposed investment is, before undertaking any investments. Similarly, insurers should continuously monitor the risks linked to its investments (use of emission data, possible transition plans[4], ESG-ratings).

[4] IFRS S2: Climate-related disclosures defines climate related transition plan as "An aspect of an entity's overall strategy that lays out the entity's targets, actions or resources for its transition towards a lower-carbon economy, including actions such as reducing its greenhouse gas emissions.

10. In this regard, Supervisors should assess how insurers take into account climate-related risks when identifying, assessing, monitoring, managing, controlling and reporting risks arising from their investments. Supervisors should pay attention to the insurer's due diligence of investments with possible climate adaptation or mitigation objectives. Furthermore, insurers should consider the impact of climate-related risks on the security, quality, liquidity and profitability of the investment portfolio.

11. At the same time, insurers should have sufficient information about their investments to ensure that their asset risks can be properly managed. In the case of climate-related risks, this could mean facing the challenge of data limitations. Collecting a combination of qualitative and quantitative information could be useful in assessing climate-related risks. Also, insurers should start working with available data, and look at different scenarios based on available data, in order to ensure that their investments are able to withstand the effects of climate change. Where insurers use proxy data from ESG data or rating providers, they should evaluate, inter alia, the assessment criteria, the relative weighting of the criteria and the extent of qualitative judgement.

Proposed new climate risk-related supporting material related to ICP 16

1. Under ICP 16, the supervisor requires the insurer to establish within its risk management system an enterprise risk management (ERM) framework for solvency purposes to identify, measure, report and manage the insurer's risks in an ongoing and integrated manner.
2. Climate change poses wide-ranging and material risks to the financial system. This is especially true for the insurance industry, where the physical and transition risks resulting from climate change affect both sides of insurers' balance sheets – assets and liabilities – as well as their business models. This, in turn, can materially impact the ability of insurers to meet their policyholder obligations as well as their operations and investments.

Risk identification and measurement (16.1, 16.2)

3. Climate-related risks can be broadly categorised into two groups:
   - **Physical risk:** Risk arising from damage and losses from physical phenomena associated with both climate-related trends (eg changing weather patterns, sea level rise) and events (eg natural disasters, extreme weather). Physical risks are due to the increasing frequency, severity and volatility of acute weather events, such as hurricanes, floods and wildfires. They also stem from chronic shifts in weather patterns, such as rising sea levels, resulting in more flooding and coastal erosion, droughts that disrupt agriculture production, and intensifying heat waves that are responsible for more annual deaths than from any other weather-related hazard.
   - **Transition risk:** Risk arising from disruptions and shifts associated with the transition to a low-carbon economy, which may affect the value of assets or the costs of doing business. Transition can be driven by policy and regulations, low-carbon technology advancement or shifting sentiment and societal preferences. Transition risks can lead to corporate asset devaluation, lower corporate profitability, lower property values and lower household wealth. In turn, related financial and credit market losses will affect insurers' assets, while increased litigation will impact insurers' liabilities and the long-term viability of certain business lines.
4. Climate-related risks present unique challenges and require a strategic approach to financial risk management. Climate risks are:
   - **Far-reaching in breadth and magnitude**: Not only does climate change affect all aspects of our economy globally, but its impact may also be non-linear, correlated and irreversible.
   - **Uncertain but foreseeable**: Climate-driven change is inevitable, even though its exact manifestations and timing are uncertain. The concentration of greenhouse gases in the atmosphere will continue to increase in the short-term, leading to more extreme and chronic weather events. Over time, certain physical risks could become extreme if the low-carbon transition happens too slowly or too late. Governments and private corporations are responding by ramping up efforts to mitigate climate change. The low-carbon transition

could be orderly, with minimum negative impact on the economy, or disorderly, which would disrupt the economy and financial markets.

- **Dependent on short-term actions**: The ultimate impact of climate change depends in large part on the nature and extent of the actions taken in the near-term by governments, corporations, individuals and communities around the world to fight climate change.
- **Hard to predict based on past experience**: Certain physical and transition risks are unlikely to be adequately captured in historical data, or the pricing model is no longer fit for purpose due to the evolution of climate risks, given their unprecedented and long-term nature. Given the forward-looking nature of climate risks and the inherent uncertainty of both the physical impact of climate change and resulting societal responses, past experience may not be a good indicator of future conditions.

5. Climate-related risks are drivers of existing risk categories. Therefore, insurers should consider the potential impact of climate-related risks when assessing the existing risk categories, such as:

- **Credit risk:** Insurers should consider the effect of physical and transition risks on their counterparties' profitability and viability. For example, a reinsurer on which an insurer heavily relies for mitigating some of the underwritten risk could be adversely affected by physical risks from climate change and, as a result, could end up in a weaker financial position, posing a risk to the insurer.
- **Market risk:** Insurers should consider the effect of physical and transition risks on their current and future investments, including whether and how these risks could lead to potential shifts in supply and demand for financial instruments (eg securities and derivatives), products and services, with a consequent impact on their values, especially in those sectors and geographies that are most exposed to physical and transition risks.
- **Liquidity risk:** Insurers should consider the risk that a lack of reliable and comparable information on climate-sensitive exposures could create uncertainty and cause procyclical market dynamics, including fire sales of assets vulnerable to climate change, as well as reduced liquidity in these markets.
- **Pricing and underwriting risk:** Insurers should consider the impact of climate change on their underwriting activities and pricing models. The increased frequency and severity of high-impact natural catastrophes due to climate change will result in more weather-related insurance claims for non-life insurers. However, pricing models may not properly reflect climate-related physical risks, which are not fully captured by the historical data. Life insurers, in particular, may face an increase in the mortality rate from climate events like heat waves (eg impact on term life products) or, in some areas of the world, an increase of longevity due to more moderate temperatures (eg impact on annuity products).
- **Strategic risk:** Insurers should consider the challenges posed by physical or transition risks that could adversely affect insurers' competitive position and financial condition.
- **Operational risk:** Insurers should consider how climate-related events could have an adverse impact on their assets (including property, equipment, information technology systems and human resources) and business continuity (including outsourced activities), leading to increased operational costs, and may also impact other risks such as reputational or liability risks.

- **Litigation risk:** Insurers should consider risks resulting from potential changes in societal, litigation and judicial environments in response to climate change. Insurers offering claims-made policies should have an understanding of the potential impact on their liability risks as a result of increasing pressure on boards to manage their companies in a responsible manner, especially as it relates to the environment.

Risk concentrations (16.2)

6. Potential systemic risk concentrations should be assessed by supervisors to check whether, due to possible financial sector and market interlinkages, adverse movements in value of larger positions in certain assets or larger market shares in certain underwritten insurance liabilities could lead to spillover effects into the real economy, specific sectors and/or other assets.
7. While climate change is universal, risk factors can be jurisdiction specific. Physical impacts of climate change can be regional or local, but transition risks can be driven by a range of jurisdictional factors (eg ambition of governments for net zero transition and certain attributes of a jurisdiction's legal system). Insurers with significant investment exposures to assets that are vulnerable to climate-related risks are potentially more exposed to systemic risk. Supervisors will, therefore, need to understand these dynamics and ensure they are factored into risk assessments done by insurers.

Corporate strategy and time horizons (16.3)

8. Climate-related risks are expected to have a material impact on the business environment in which the insurers operate. Insurers should be aware of such potential changes to their business environment and its impact on their corporate strategy. Insurers should consider questions such as: which business areas are exposed to physical or transition risks; the materiality of the risks; whether affected areas should be continued, scaled back or adapted; and whether climate-related risks require consideration across all business areas and processes based on their materiality, or only those business areas and processes that are particularly exposed.
9. Supervisors should encourage insurers to consider climate-related risks based on a time horizon that is tailored to their business and activities. For example, a non-life insurer's consideration of climate-related risks in underwriting and pricing policies, or determining an appropriate risk transfer strategy, may be based on a relatively short time horizon (one to five years). By contrast, given the long-dated nature of life insurers' liabilities, the impact of climate change on their investment portfolios could materialise over a longer period and, therefore, could impact the value and expected cash flows from their financial assets only in the long-term.
10. In general, the time horizon for considering how climate-related risks affect business strategy should go beyond the standard (three to five years) to a medium-term (five to ten years) and ultimately long-term (thirty to fifty years) depending on the business line. Certain physical and transition risks are unlikely to be adequately captured in historical data given their unprecedented and long-term nature. Therefore, supervisors should be checking if insurers are considering forward-looking risks in developing their business strategy.

Risk appetite and limits (16.4)

11. Insurers should consider including in their risk policy a description of how they monitor and manage material climate-related risks, in line with its risk appetite statement. The policy should include the insurer's risk tolerance levels and limits for financial risks, and consider factors beyond market conditions, regulatory changes and technological advancements such as:

    - Long-term financial interests of the insurer and how decisions today affect future financial risks;
    - Results of scenario analysis and potentially stress testing for short-, medium- and long-term horizons;
    - Uncertainty around the timing and channels through which climate-related risks may materialise;

      Sensitivity of both sides of the balance sheet to changes in key climate-related risk drivers and external conditions; and
    - The impact of climate change on the insurer's risk tolerance levels and limits, which can be reflected through existing risk categories.

Asset liability management (16.5)

12. Under ICP 16.5 "the supervisor requires the ERM framework to include an explicit ALM policy which specifies the nature, role and extent of ALM activities and their relationship with product development, pricing functions and investment management". This can help insurers assess the ability to pay policyholders or creditors in a timely fashion. Climate change can negatively affect the matching of assets and liabilities, primarily through transition risk, as insurers with long duration products use longer-term bonds to match the liability cash flows. Due to the long-term nature of the bonds, when constructing their investment portfolios, insurers should consider the potential for individual firms, or an entire sector, to be significantly impaired over the matching period. Correlation between different asset classes would also be an important consideration. Additionally, correlation between assets and liabilities when holding both a bond of an entity and insuring that entity for risks related to climate change should be considered.
13. Both assets and liabilities on an insurer's balance sheet could also be impacted by the same risk categories. For example, the real estate portfolio of a non-life insurer could have exposure to the same natural catastrophe perils through underlying collateral as that of its underwritten insurance liabilities. A life and annuity insurer might be underwriting minimum guarantee riders for its variable annuity liabilities. The underlying funds for these liabilities could be exposed to climate vulnerable sectors. The insurer might also own assets from these sectors in its general account portfolio. In aggregate, this could lead to overweight transition risk exposure from similar climate vulnerable sectors on both sides of the balance sheet. The possibility of such correlated exposures can eventually be detrimental to the solvency of the insurer.

Investment policy (16.6)

14. Both physical and transition risks can have complex and non-linear impacts on insurers' investments. They both have the potential to affect investments via credit risk, market risk, reputational risk and strategic risk as well as liquidity risk. Both physical and transition risks can also lead to second-order effects such as indirect losses in insurers' investments due to

the devaluation of financial counterparties that have high exposures to climate vulnerable sectors, or the impact of changing investor sentiments on market values. Where material, these risks should be taken into account regardless of whether the insurer invests directly or through a third-party asset manager or an investment advisor.

15. Climate-related risks can manifest at any time but the likelihood that a physical or a transition event will occur increases significantly over longer time horizons. For this reason, longer maturity assets are more vulnerable to climate-related risks and insurers should pay special attention to these assets when conducting risk assessments.

16. Climate-related risks have the potential to materially impact an insurer's returns from its asset portfolio. Supervisors should pay close attention to the climate-related risk assessments done by insurers on their asset portfolio.

Own Risk and Solvency Assessments (16.12, 16.13)

17. The unique business strategy, investment portfolio and risk profile of each insurer will affect the degree of impact arising from climate-related risks. The nature and materiality of the relevant insurance, credit, market, concentration, operational and liquidity risks will vary depending on the exposure to climate-related risks of each insurer. Hence, the Own Risk and Solvency Assessment (ORSA) is a particularly useful tool for insurers to assess the adequacy of their ERM function and their solvency position. Supervisors should expect insurers to consider all material physical and transition risks arising from climate change in their ORSA process and adopt the appropriate risk management actions to mitigate the identified risks accordingly. Insurers may consider the risks on both a qualitative and quantitative basis, with the understanding that quantitative capabilities should improve over time as the ability to access the necessary data improves.

18. As part of the ORSA, the insurer assesses its risk management and financial resources over a longer time horizon than used to determine regulatory capital requirements. The time horizon should be consistent with the nature of the insurer's risks and business planning. Some climate-related risks may take longer to fully materialise and, therefore, it would be expected that the ORSA also include appropriate scenarios that use a more extended time horizon, where relevant. When assessing the appropriateness of time horizons used by insurers, supervisors should consider the nature and types of business written by the insurer.

19. ICP 16.14 requires insurers to perform a continuity analysis as part of the ORSA ("to analyse its ability to continue in business, and the risk management and financial resources required to do so over a longer time horizon than typically used to determine regulatory capital requirements") and, in doing so, an insurer is required to "address a combination of quantitative and qualitative elements in the medium and longer-term business strategy of the insurer and include projections of its future financial position and analysis of its ability to meet future regulatory capital requirements". In other words, an insurer is required to assess its ability to manage its risks and meet its capital requirements under a range of plausible adverse scenarios with a forward-looking perspective in mind. When material, this analysis should include the identification and assessment of the direct and indirect impact of climate-related risks. For instance, it could be included as part of the scenario analysis or a (reverse) stress testing process (see ICP 16.14.3 and 16.14.14). This would enable insurers to assess their resilience to financial losses with respect to climate change. This process should incorporate an assessment of physical, transition and liability risks, for example:

- Assessment of physical risks includes the use catastrophe modelling including a number of different scenarios (eg 1-100 to 1-500 or 1-1000 year events). This may also include the identification of a climate-related risk scenario that could potentially cause insolvency;
- Assessment of transition risks may cover how increases in carbon taxes, stricter environmental regulations and a low-carbon economy would impact both assets and technical provisions; and
- Insurers offering claims-made policies should have an understanding of the potential impact on their liability risks as a result of increasing pressure on boards to manage their companies in a responsible manner, especially as it relates to the environment, and should consider appropriate exclusions and/or limits.

20. Parameters and assumptions for climate-related stress testing scenarios may be adopted from modelling work performed by meteorological agencies, regulators or other external experts. For example, there are statistical models to determine the frequency of flooding events, and modified economic models to estimate the economic or financial impact of various climate shocks. Alternatively, insurers may have developed internal models for the impacts of climate risk. Supervisors should encourage insurers to use models that are pertinent to their geographical scope and nature of business. It is important for insurers to fully understand these models, the uncertainties of the results and their underlying assumptions and methodologies when deciding on their relevance.

21. Climate-related risks are material to the insurance industry and are expected to potentially have an impact on all insurers; therefore, these risks should be considered for inclusion in the ORSA. If climate-related risks are assessed to be immaterial by an insurer, the insurer should document the reason for the assessment. The rationale for immateriality could be included in the documentation that summarises the risks that the insurer considered for incorporation in the ORSA and may be concise.