FitchRatings

Climate Vulnerability in Corporate Ratings – Discussion Paper

Proposed Additional Analysis and Disclosure in Most Vulnerable Sectors for Non-Financial Corporates

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Proposed Additional Analysis and Disclosure in Most Vulnerable Sectors for Non-Financial Corporates

Fitch Ratings invites feedback from market participants on this Discussion Paper. Comments should be sent by 31 March 2023. Please provide written feedback directly to **climate.vsfeedback@fitchratings.com** or to arrange a meeting to discuss the contents further please contact the authors.

Key topics on which we are requesting feedback are:

1. Do you believe climate-related risks are sufficiently important to warrant further focus?
2. Is a cut-off score of 45 for further investigation appropriate? Please provide supporting comments.
3. Is the use of the year 2035 as a point for evaluating cut-off appropriate? Please provide comments.
4. Any other comments on the approach.

This report is for discussion purposes only, and is not a change to criteria or a proposal to make changes to criteria. Fitch follows a formal process for making changes to criteria, which can include an Exposure Draft and formal feedback process. This Discussion Paper is not an Exposure Draft. If Fitch decides to proceed with the review elements set out in this Discussion Paper, it will publish an Exposure Draft for formal comment if needed.

Market Feedback Sought on Enhancements to Inclusion of Climate Risks in Fitch's Credit Rating Process

This report lays out a proposal to support consistency and transparency in the way Fitch Ratings identifies and addresses potentially credit-relevant climate risks in its credit rating process. If the proposal is taken forward, we will use our existing sector-level Climate Vulnerability Scores (Climate.VS) as the basis for a screening tool to identify entities potentially vulnerable to climate-related risks, and subject these entities to an additional analysis and consideration in our credit rating committees.

Scores, and the results of this additional analysis when performed, will be disclosed in our entity-specific Rating Reports. Where climate risks are key rating drivers of a credit rating these will continue to be disclosed in the applicable Rating Action Commentaries.

Fitch would not expect any issuers to experience rating changes resulting from the implementation of the new approach. It does not reflect a change in how we analyse climate risks in relation to our *Corporate Rating Criteria*. Rather, it is intended to ensure that relevant climate risks, which we expect to increase in prominence over coming years, are consistently captured and considered.

With this proposed approach, Fitch does not intend to artificially inflate the importance of climate-related risks above others.

To fully explore the implications of this enhancement and gather evidence to assist in our analysis of whether to go forward with this proposal, we plan to implement, on a trial basis, the entity-level Climate.VS screener in our credit ratings, and the proposed disclosures in our Rating Reports, along with a request for feedback, following the release of this report.

Climate Policy Risk Is Key

Climate.VS for non-financial corporates – at the sector level and at the individual entity level – capture Fitch's view of the exposure of their credit profile to a rapid low-carbon transition between 2025 and 2050. We draw on the UN Principles for Responsible Investment's Inevitable Policy Response (IPR) Forecast Policy Scenario (FPS), which reflects policy, market and technology trajectories to produce long-term forecasts across eight policy levers.

Market and regulatory developments have meant that long-term secular risks, including those related to climate transition, have recently taken on greater importance in fixed-income investment decisions. The main challenge for investors in assessing the

Related Research

Building Materials and Construction – Long-Term Climate Vulnerability Scores (February 2023)

Climate Vulnerability Scores Web Portal

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Climate.VS

	10	30	50	70	90
Definitions	**Climate-risk factors are neutral to positive to the credit profile.**	**Climate-risk factors are not expected to affect the credit profile materially, but some adaptation may be needed.**	**Climate-risk factors present challenges and may weaken the credit profile.**	**Climate-risk factors present significant challenges and likely to lead to deterioration of the credit profile.**	**Climate-risk factors pose existential or default-equivalent threat to the credit profile.**
Corporate sector characteristics	Climate-related factors neutral to positive for sector prospects.	Fundamental demand drivers neutral to positive, despite changes to existing business models or a need for material investment.	Solid demand drivers but a need for material changes to products or production methods, which may threaten profitability.	Major changes to markets, regulation and business model likely to disrupt profitability for an extended period.	One or more climate-related factors have the potential in a credible scenario to pose an existential threat to core business activities.

Note: Higher scores denote greater vulnerability. For a fuller list of illustrative characteristics associated with each sector category, see Appendix 1.
Source: Fitch Ratings

long-term impact of climate change on their portfolios is translating broad scenario assumptions to sector and entity-level impacts. Fitch uses its analysts' detailed sector knowledge to perform this task (using the IPR scenario). We believe that it is broader sector economics, and not just one measure, such as carbon output, that provides granularity to our views and differentiates our conclusions from less nuanced approaches.

Fitch has developed Climate.VS in response to a need by fixed-income investors for a long-term view of transition risks – recognising that similarly rated issuers may have different transition risks, the implications for instruments of differing maturities, and strategies open to investors to manage these risks.

Climate Vulnerability Scores

Climate.VS measure the relative vulnerability of sectors and entities' creditworthiness and financial performance to risks associated with climate change. For the non-financial corporate sectors we base this assessment on a scenario in which global warming is limited to 2°C above pre-industrial levels by 2050. Our analysis extends to 2050 and provides milestone assessments from 2025 at five-year intervals.

The entity scores measure "financial materiality", the potential effect of climate risks on an issuer's creditworthiness and financial performance, rather than "impact", i.e. the issuer's broader impact on the economy, environment, and people.

The higher the sector or entity score at a particular point in time, the greater the vulnerability under the scenario. A sector with a score of 90 in 2050, for example, is expected to face an existential threat from climate risks by 2050 under the scenario, whereas one with a score of 10 is expected to experience little or no disruption and may even see benefits.

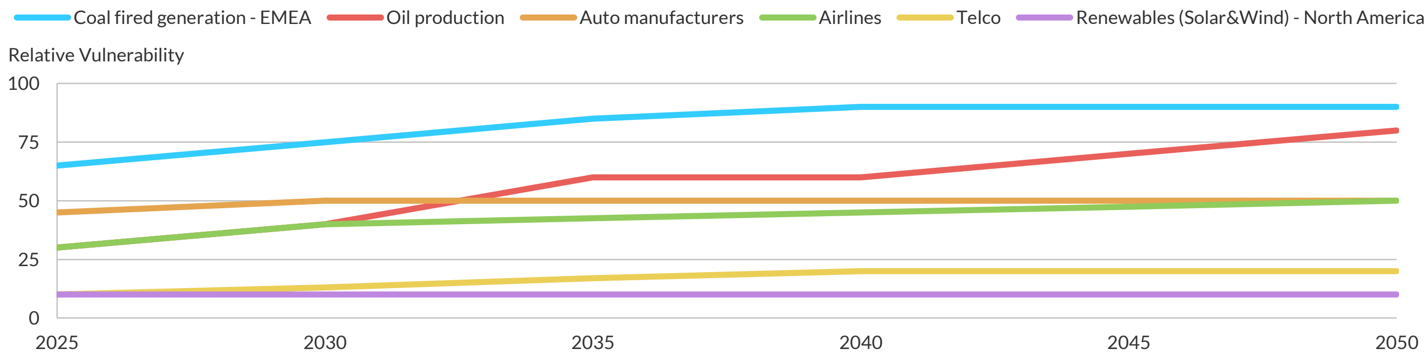
Corporate Climate.VS capture risks to sectors and companies from changes to market structure, demand for goods and services, capital and operational spending, and business models, due to the transition to a low-carbon economy that could disrupt profitability or require heavy investment to address. As discussed further below, the scores focus on transition risk because we consider these risks as the most material for evaluating corporate creditworthiness over the timescale chosen.

We produce scores in a time series to 2050 to compare the relative cumulative vulnerability of sectors and entities at different stages in the transition. Over the last three years we have published reports assigning scores to over 120 subsectors, covering the vast majority of rated corporates' operations. For a full list see below.

The Inevitable Policy Response

Our core regulatory and policy risk scenario is the IPR's FPS, released in October 2021. Commissioned by the UN Principles for Responsible Investment, the IPR is a consortium developing scenarios around the policy response to climate change.

Climate Vulnerabiity Scores
Selected Subsectors



Source: Fitch Ratings

We believe the IPR's focus on policy provides a realistic assessment of the core credit risk from climate-related changes affecting corporate issuers, while its comprehensive and integrated methodology makes it well suited to Fitch's multi-sector scoring framework.

The FPS includes macroeconomic and industry data modelling of outcomes against eight key policy drivers:

- Carbon pricing
- Coal phase-out policies
- Clean power sector policies
- Zero-emissions vehicle deployment
- Low-carbon buildings development and retrofit
- Clean industrial policies
- Low emissions agriculture
- Ending tropical deforestation

The scenario is informed by a review of climate policy, technological developments and other evidence, a survey of more than 200 national climate policy experts, and further analysis of the drivers of policy action.

Significantly, the IPR applies a "just transition" lens to the policy forecast to capture social and political feasibility concerns in different markets. Other important considerations that will inevitably weigh on policy include technology costs and development, industrial competitiveness concerns and trade exposure, and energy security.

We intend to periodically assess the reasonableness of the IPR, and any future iterations thereof, for this process, and to update sector and entity scores following each new iteration of the scenario.

Assignment of Sector Vulnerability Scores

The FPS is incorporated into Fitch's detailed sector-by-sector Climate.VS framework. The IPR has developed several quantitative forecasts, covering macroeconomic, energy, land use and technology deployment trends. Fitch uses these forecasts as a baseline view and then draws on the in-depth sector knowledge and judgment of its credit rating analysts to determine the relativities that sector VS reflect.

The 2021 version of the IPR includes key drivers relating to metals and mining, aviation, agriculture and other sectors rarely considered in any depth by other scenarios. This, and its regulatory focus, make it ideal as a basis to conduct an impact assessment across the corporate sectors.

Use of Climate.VS in the Ratings Process

Our proposal is that entity-level Climate.VS will be used in the credit rating process as a screener to ensure that, for entities with elevated VS in 2035, longer-term climate risks have been explicitly considered. We define "elevated" in this context as an entity-level score of 45 or more in 2035. We will disclose the results of this analysis in our entity-specific Rating Reports. If this analysis by the rating committee results in an impact on the rating, that rationale will continue to be disclosed in the relevant Rating Action Commentary.

The aim of this analysis is to ensure all relevant climate-related factors are considered in our analysis, rather than to give climate risks undue weight. In many cases the long-term timescale involved in the climate transition and the high level of uncertainty regarding how it will play out limits, or postpones, the impact of climate risks on credit ratings.

Our rating criteria already requires that we consider if the assessment of any rating driver should be influenced by risks arising from climate change, and therefore we do not expect any issuers to experience rating changes resulting from implementation of the new approach. We expect the new approach to become more important over time by ensuring such risks, which we expect to increase in prominence over coming years, are consistently captured and considered.

The illustrative rating impacts and definitions for entity Climate.VS (see tables above and below) give our view of the potential movement in the credit rating of an entity in the year to which the VS relates, if corrective action is not taken. So a company with a score of 70 in 2040 would face a high probability of a multi-notch downgrade by 2040 if the scenario plays out, unless that company finds ways to mitigate the risk, such as diversifying away from vulnerable business lines.

The illustrative notch impact is applicable to issuers with average exposure to climate-related risks for their sector. Within each sector, there could be significant differences in rating impact depending on the level of preparedness and specific exposure of each issuer. In addition, the illustrative rating impact at each score should be understood as point-in-time and does not factor in future developments, whereas credit ratings are forward looking. For example, the actual rating impact on an issuer with a VS of 50 in 2035 could be higher than one notch if the VS continues to deteriorate materially thereafter, whereas the one-notch estimate would be more likely to reflect rating actions by 2035 should the VS remain at 50 after 2035.

Some level of mitigating action is assumed in the sector scores, including the assumption that businesses will adapt business line operations to reflect the changing environment to the extent economically viable. For example, the cost of changing production technology to a lower-carbon process, and the risks associated with this, are contemplated within the sector scores. A wholesale change in business mix to less vulnerable sectors is not. The rationale behind each sector score, including assumed mitigation by the average sector constituent, is discussed further in our sector-level VS reports initially published in 2022.

Fitch's credit ratings do not incorporate a fixed rating horizon. Ratings assignments for corporate issuers tend to put more weight on near- to medium-term risks as these are typically more relevant to creditworthiness and the outcomes can be predicted with a relatively higher level of confidence. For each rated issuer we compile detailed financial forecasts, but these are limited to three to five years because the lack of certainty further in the future dramatically reduces their utility.

However, a risk factor does not need to be fully quantifiable or certain to be considered in the credit rating, nor does its exclusion

Entity Climate.VS – Illustrative Corporate Rating Implications[a]

	Vulnerability Score				
	10	30	50	70	90
Potential credit rating impact in year of score if risks not mitigated (illustrative).	No downward rating pressure.	Ratings unchanged in vast majority of cases.	Rating impact expected to be limited to one notch in most cases.	High probability of a multi-notch downgrade.	Potential multi-category rating impact and high default risk.

[a] Potential rating impact under scenario in year of score for a representative corporate with mid-investment grade credit profile, and a flat or slowly increasing VS in subsequent periods
Source: Fitch Ratings

from our forecasts mean it is not considered. For climate risk, for example, factors will be given more weight where we can assess: what will drive change (often policy); the level of certainty with which we can predict that these drivers will occur; what the impact on markets will be; how players in those markets will react; and ultimately that there will be a material impact on credit quality.

An example is oil. If, as in many models, we assume a peak in oil demand late in the 2020s, with a gradual reduction thereafter, there could be hugely varying outcomes for issuers depending on factors such as levels of supply, which if curtailed could keep prices high, cost position, local regulations and border tariffs, and companies' balance sheet and business strategies.

We therefore do not describe the IPR scenario as our base case. Rather, it is a plausible policy scenario of rapid low-carbon transition from the mid-2020s, and one that we consider a reasonable bar by which to assess relative vulnerability for corporates.

Revenue-Weighted Entity-Level Scores

As part of its screening process, Fitch will generate revenue-weighted Climate.VS for all rated issuers for 2025-2050. These will be disclosed in our entity-specific Rating Reports.

The scores will be based on an analysis of revenue sources in the last full fiscal year, mapped to sectors for which we have VS. This will allow us and users to screen their portfolios for entities that, based on current revenue mix, may be vulnerable under the scenario.

For the small minority of sectors where it is impossible to generate a meaningful revenue split for issuers, or one is unavailable, analysts will estimate a revenue split based on other factors, such as production volumes.

Companies' Climate Strategies Reflected in Further Analysis Where Scores Are Elevated

The generation of entity scores based on the last full year's revenues does not differentiate based on companies' strategies and degrees of preparedness for the energy transition, to the extent that these have yet to be reflected in revenue changes. We believe a company's current activities provide an appropriate level of detail with which to differentiate those that require further analysis.

Where we perform this further analysis, with the purpose of determining whether there should be an impact on the credit rating, it will include a more differentiated assessment of how the entity is placed to cope with climate risks. We will consider company strategy, along with other factors such as scale and diversification, and local regulation, which may make a company more or less vulnerable than the average company contemplated in sector Climate.VS. We will disclose these considerations, and our conclusions, in the narrative disclosures in our entity specific Rating Reports. Where climate related risks are a key rating driver this factor will continue to be disclosed in the applicable Rating Action Commentaries.

Cut-Off for In-Depth Ratings Analysis in 2035

The selection of 2035 balances a timeframe where there will be material impacts on many industries, but where policies and technology are still relatively foreseeable.

For example, under the scenario, in 2035 coal is phased out in most developed economies, new fossil fuel vehicles are being phased out and oil demand is in decline.

This timescale is also in line with the period over which companies are able to announce meaningfully detailed plans, including products and technology that is being developed now but is not economically feasible or able to be run at an industrial scale. It is a period over which we can take a meaningful view on cost. The time period stops before the range of possible changes become too large.

We foresee the 2035 cut-off being revised to a later date – typically moved to 10-15 years further in the future – as time passes, to balance the above considerations.

Proposed Entity VS Cut-Off Level For In-Depth Ratings Analysis: 45

We selected 45 as a cut-off because there is a material risk of a credit rating action in or before the year in which the score reaches this level.

We have also set the cut-off practically to include sectors where our analysts perceive, through their broader understanding of their sectors, that climate transition is likely to have a material impact.

Climate.VS Sectors with Scores >45 in 2035

Sector	Sub-Sector	2035 VS
Utilities	Coal-fired generation - EMEA	85
Utilities	Coal-fired generation - North America	90
Utilities	Coal-fired generation - APAC	65
Utilities	Coal-fired generation - Latam	90
Utilities	Gas-fired generation - EMEA	45
Utilities	Gas-fired generation - North America	50
Utilities	Gas transmission and distribution - EMEA	45
Utilities	Gas transmission and distribution - North America	45
Metals & Mining	Thermal coal	80
Metals & Mining	Steel BF-BOF	50
Metals & Mining	Met coal	50
Oil & Gas	Oil production	60
Oil & Gas	Liquids transportation	50
Oil & Gas	Oil refining	60
Oil & Gas	Oilfield services	70
Oil & Gas	Natural gas production	50
Building Materials	Cement production	48
Industrials	Auto manufacturers	50
Industrials	Truck manufacturers	45
Industrials	Aircraft manufacturers	45

Source: Fitch Ratings

Physical Risks Not Addressed

The Climate.VS for corporates currently only consider transition risks. This reflects our view that policy, market and regulatory risks are likely to have a more severe impact on corporates as a whole in the first half of this century than physical risks. The scientific consensus (e.g. findings published in the Intergovernmental Panel on Climate Change 6th Assessment report cycle) is that the severity of physical risks of climate change are higher in the mid to long term (2040 onwards), than in the near term, but that these outcomes are tied to the pace and force of early low-carbon transition.

How Do Physical and Transition Risks Differ?

- Physical climate risk refers to the impact of changes in the climate consisting of more frequent and extreme weather events and more gradual shifts in the environment and ecosystems, e.g. heatwaves and rising sea levels.
- Transition risks arise as a result of the shift to a lower-carbon economy, and can be driven by international, national and local policy changes, the emergence of "disruptive" green technologies and changes in consumer and investor sentiment, choices and behaviours.

Transition risks are systemic, but physical risks of climate change are generally more geographically localised, and mitigants, such as geographical diversification and insurance coverage, will play a big role in determining the level of vulnerability for most corporates, at least in the near term. Geographical diversification is therefore a key factor that can lessen the exposure of an entity's operations or assets to physical climate risks, whether acute (specific events, e.g. floods or wildfires) or chronic (e.g. sea level rise).

Sectors Covered by Climate.VS

In 2022, we released 13 sector-level Climate.VS reports covering all the major non-financial corporate sectors, and these have been re-released, with minor updates, as part of this exercise.

- Agribusiness, Packaged Food and Beverages – Long-Term Climate Vulnerability Scores
- Fertilisers – Long-Term Climate Vulnerability Scores
- Real Estate and Property – Long-Term Climate Vulnerability Scores
- Global Healthcare - Long-Term Climate Vulnerability Scores
- Lodging & Gaming – Long-Term Climate Vulnerability Scores
- Metals & Mining – Long-Term Climate Vulnerability Scores
- Oil & Gas and Chemicals – Long-Term Climate Vulnerability Scores
- Retail – Long-Term Climate Vulnerability Scores
- Technology, Media & Telecommunications (TMT) - Long-Term Climate Vulnerability Scores
- Transportation – Long-Term Climate Vulnerability Scores
- Utilities – Long-Term Climate Vulnerability Scores
- Building Materials and Construction – Long-Term Climate Vulnerability Scores
- Industrials – Long-Term Climate Vulnerability Scores

We have published an in-depth report for each of these sectors that contextualises the industry's exposure to climate transition risks, and identifies specific policy, technological or market factors – based on the IPR FPS assumptions and forecasts – that inform the scoring to 2050. Each report breaks down these sectors into sub-sectors, which are individually scored.

Geographical Coverage

Climate change is a global phenomenon and under the FPS, key policies – such as carbon prices – will be implemented in every region by 2050. For almost all our sector Climate.VS and associated sector reports, we therefore adopt a global view and provide sector and sub-sector scores at a global level. The notable exception is utilities, where the outlook varies more radically by region than for other sectors, e.g. with western Europe transitioning fairly rapidly to renewables, while Asia-Pacific will continue to deploy coal-fired power generation into the 2040s. Scores are therefore assigned by geographical region (EMEA, North America, APAC and Latin America).

Impact of Trade Sanctions and Inflationary Pressures On the Scenario Forecast

The IPR and Climate.VS are a long-term view (2025 to 2050) that takes plausible long-term inflation, market, commodity and technology price projections into account based on historical trends and expert forecasts. They do not take account of major geopolitical events and short-term economic cycles.

Broadly, trade and political constraints and focus on energy security concerns are already factored into the forecasts. While current trade tensions represent disruption to energy, commodity and technology value chains, we believe in the long term this should not be detrimental to low-carbon transition and long-run assumptions around deployment of low-carbon technologies on the basis of falling costs.

The FPS has not been updated to take account of Russia's invasion of Ukraine. The impact of this in anything but the near term is uncertain. At the time of writing, the reduction in Russian gas flows to Europe has extended the life of some coal assets, but also raised the price of oil, gas and electricity dramatically, making renewable energy more competitive.

Climate Vulnerability Sector Scores – Score Distribution Grid

		Illustrative Attributes for Non-Financial Corporate Sector								
	Definition	**Overall vulnerability level**	**Winners and losers**	**Business model disruption**	**Revenue**	**Costs**	**Other policy concerns**	**Risk of stranded assets**	**Mitigants**	**Finance**	**Illustrative Credit Rating Impact[a]**
90	**Climate-risk factors pose existential or default-equivalent threat to the credit profile.**	One or more climate-related factors have the potential in a credible scenario to pose an existential threat to core business activities.	Very high failure risk for majority of entities with no diversification.	Very high. Very little potential for reinvention beyond exiting business.	Potential for complete destruction of demand under credible downside scenarios.	Market or policy-driven costs could make the business model uneconomic.	Substantial likelihood of severe regulatory intervention which will eliminate profitability, with the potential for outright bans on core product.	High risk that assets will become uneconomic before the end of their intended service life.	Few or no cost-effective mitigants. Complete business transformation required. Potential for government mitigation due to market incentive or social concerns.	Climate-related pressures on providers of finance likely to make standard financing options unavailable.	Potential multi-category rating impact and high default risk
70	**Climate-risk factors present significant challenges and likely to lead to deterioration of the credit profile.**	Major changes to markets, regulation and business model likely to threaten profitability for an extended period.	Significant numbers of entities likely to fail/become uneconomic.	Very high, only limited number of entities likely to manage transition to a profitable model.	Potential for demand destruction, policy-induced changes to relative prices of substitutes, price pressure.	Significant rises in costs, potentially threatening profitability.	Real possibility of policies with meaningful negative effect, e.g. targeting demand reduction, raising costs, or boosting substitutes.	Risk that some assets will become uneconomic before the end of their intended service life.	Some mitigants available which if successful allow businesses to survive.	Climate-related pressures reduce access to finance, making many conventional sources inaccessible, but some higher cost sources remain.	High probability of a multi-notch downgrade.
50	**Climate-risk factors present challenges and may weaken the credit profile.**	Solid demand drivers but material changes to products or production methods needed that may disrupt profitability.	Minority of entities which manage the transition poorly will see significantly reduced profitability or in extreme cases fail.	Material risks for most entities due to technology or business model transition.	Any demand pressure due to changing habits, policy and substitutes likely to be moderate at a sector level.	Costs likely to rise during transition but businesses remain fundamentally profitable, albeit profitability is depressed during transition.	Policies targeted at shaping nature of product/industry.	Limited risk of stranded assets materialising if insufficient or poorly judged investment/ mitigation.	The technology for mitigation exists, but is dependent on investment/ further development.	Climate-related factors reduce availability of funding, but limited amounts remain available through mainstream sources.	Rating impact expected to be limited to one-notch in most cases.

Climate Vulnerability Sector Scores – Score Distribution Grid

		Illustrative Attributes for Non-Financial Corporate Sector									
	Definition	**Overall vulnerability level**	**Winners and losers**	**Business model disruption**	**Revenue**	**Costs**	**Other policy concerns**	**Risk of stranded assets**	**Mitigants**	**Finance**	**Illustrative Credit Rating Impact**[a]
30	**Climate-risk factors are not expected to affect the credit profile materially, but some adaptation may be needed.**	Fundamental demand drivers neutral to positive, despite major changes to existing business models or heavy investment being required.	Majority of entities will successfully transition with little impact on profitability.	Major investment needed to mitigate risks but low risk and predictable.	Fundamental demand drivers solid.	Potential for increased costs due to investment but likelihood these can be passed on.	Limited policy threat. Potentially a key sector likely to obtain policy support.	Minority of outdated assets only.	More likely to receive direct/indirect government support.	Climate-related factors unlikely to affect funding availability if companies manage their exposures.	Ratings unchanged in vast majority of cases.
10	**Climate-risk factors are neutral to positive to the credit profile.**	Climate trend neutral to positive for sector prospects.	Possibility of business failure due to climate-related trends very low.	Limited or zero business model change required.	Clearly neutral or potentially positive effect on demand.	No or negligible impact from climate related trends.	No foreseeable negative policy implications; potential upside from policies.	Negligible risk to asset base.	None needed.	Climate-related factors do not affect funding for sector; potential for sector to benefit from additional capital availability	No downward rating pressure.

[a] Potential rating impact under scenario in year of score for a representative corporate with mid-investment grade credit profile, and a flat or slowly increasing VS in subsequent periods
Source: Fitch Ratings