Climate Risk and Credit Risk: The Path from Climate Scenarios to Financial Stress Testing

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S&P Global
Market Intelligence

Presenters

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Climate-Related Credit Risk Scenario Framework

REGION	REGULATOR	CLIMATE RISK ASSESSMENT MEASURES
United States	Federal Reserve Board	• The US Federal Reserve has provided more details on its first climate scenario analysis- how it will be conducted the and information to be collected on the risk management process of the six largest banks. Banks are expected to submit results by July 31 and the Fed will publish the aggregated data by end of year.
Canada	Bank of Canada/Office of the Superintendent of Financial Institutions (OSFI)	• OFSI published a climate guideline for banks and insurers, B-15: Climate Risk Management, with OFSI's expectations on risk management and climate-related risks. This includes the requirement to report internal climate scenario analysis periodically. Mandatory exercises for major institutions begin in 2024, followed by smaller entities the next year.
Europe	European Central Bank/European Banking Authority	• Climate-related stress tests conducted in 2021 and 2022 • European Banking Authority's released 2023 work programme discusses their intent to build ESG risk assessment tools "to enable efficient monitoring of ESG risks in the banking sector and development of the green financial market."
United Kingdom	Bank of England/Prudential Regulation Authority	• Biennial Exploratory Scenario on climate change – (CBES)
France	Autorité de contrôle prudentiel et de résolution	• Conducted bottom-up climate-related stress test exercise in 2020 – 2021 based on a risk assessment directly conducted by the financial institutions under its responsibility on the basis of common assumptions

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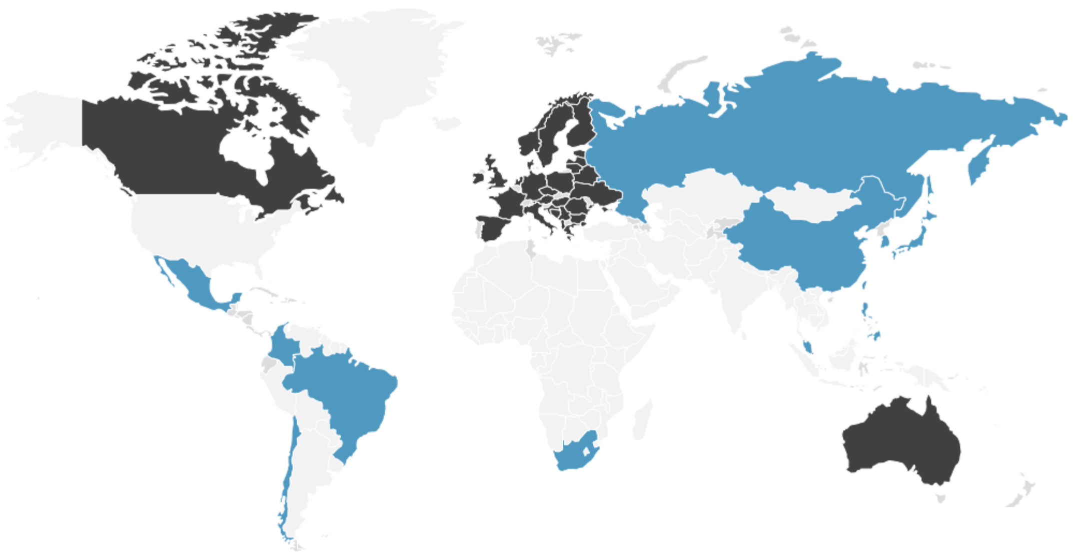
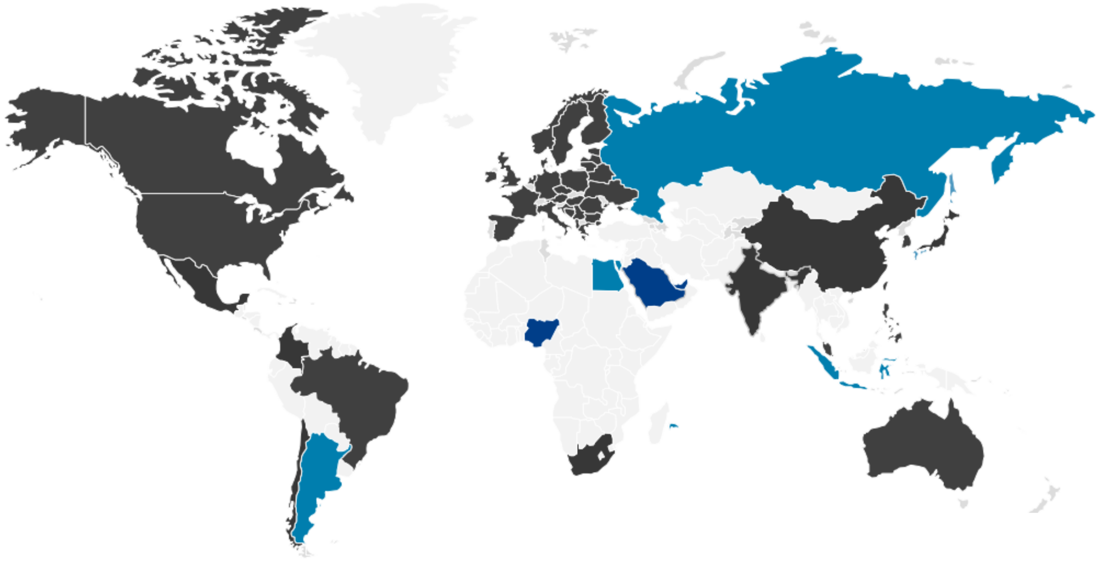
Source: Regulatory websites; S&P Global Market Intelligence, As of May 2023

A Consensus Towards more Regulation

A year ago



Today



Regulatory stress testing + Climate related financial disclosures (announced or underway)

Regulatory stress testing (announced or underway)

Climate related financial disclosures (announced or underway)

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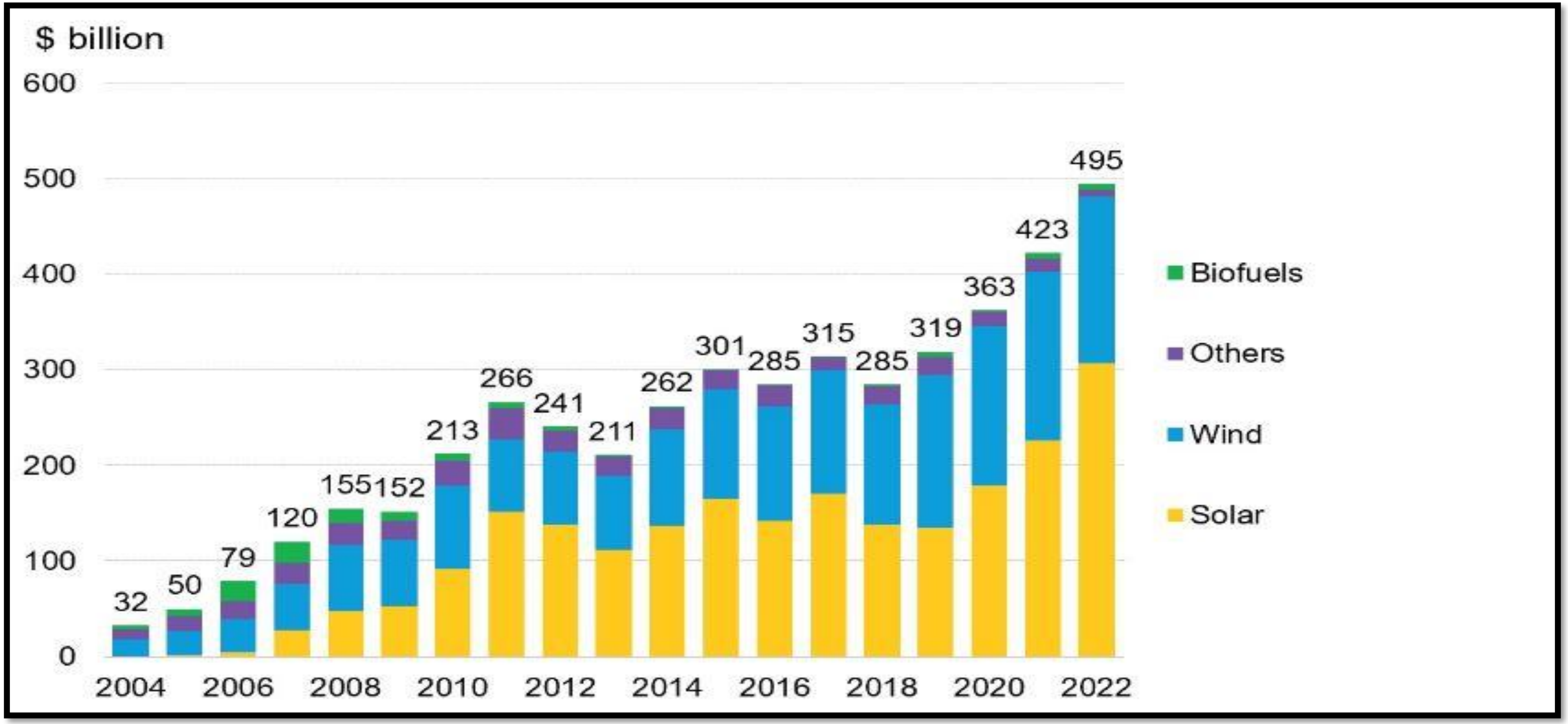
Sign-ups to climate-linked alliances increasing

Organisation	Scale
UN environment programme finance initiative – Principles for Responsible Banking	From less than 40 members at launch, it has 450+ members today representing $100T+ across 85+ Countries ~45% of global banking assets
PRI	UNEP FI and PRI now draw on PRI's over 4,900+ signatories, > $120T AUM. Additional 1,000 signatories in the last 2 years
PSI Principles for Sustainable Insurance	138 signatories, 99 Supporting Institutions, 33% of global premiums, $15T of total assets
GFANZ Glasgow Financial Alliance for Net Zero	550+ members across 50+ countries vs its launch in April 2021 with 160 members. COP 26 was a major milestone with 450 members added during the event
TCFD	3,690 supporters today from 2018- 571 | 2019- 1,003 2020- 1,744 | 2021- 3,004 *47% from Asia Pacific
Climate Action 100+	700 global investors $68T AUM across 33 markets engaging with 166 companies in the high carbon emitting industries representing 80%+ of emissions

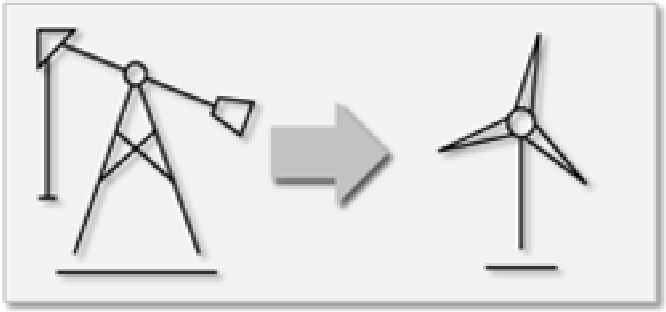
A Record $495 Billion Invested in Renewable Energy in 2022



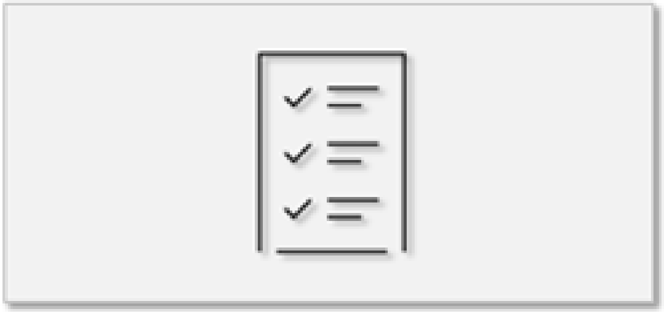
Source: Bloomberg NEF

Sustainability Framework for Credit Departments

Get transparency into ESG factors impacting credit risk



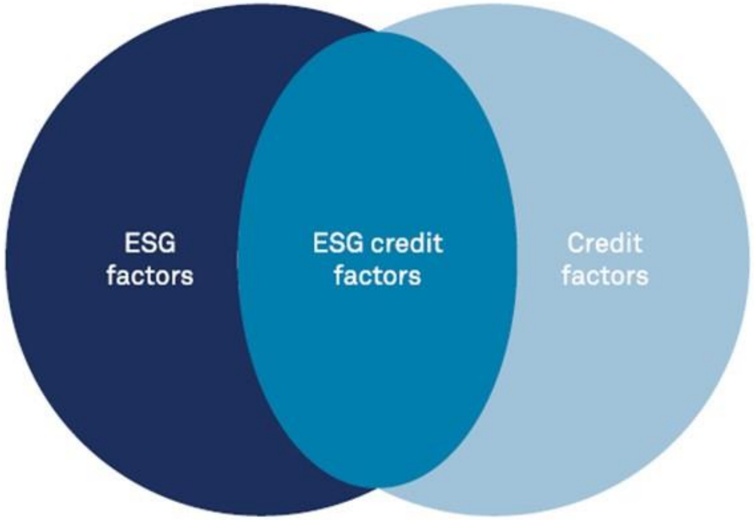
Stress test credit quality against the medium-long term impact of transition and physical risk



Implement and drive corporate sustainability agenda and journey to net zero

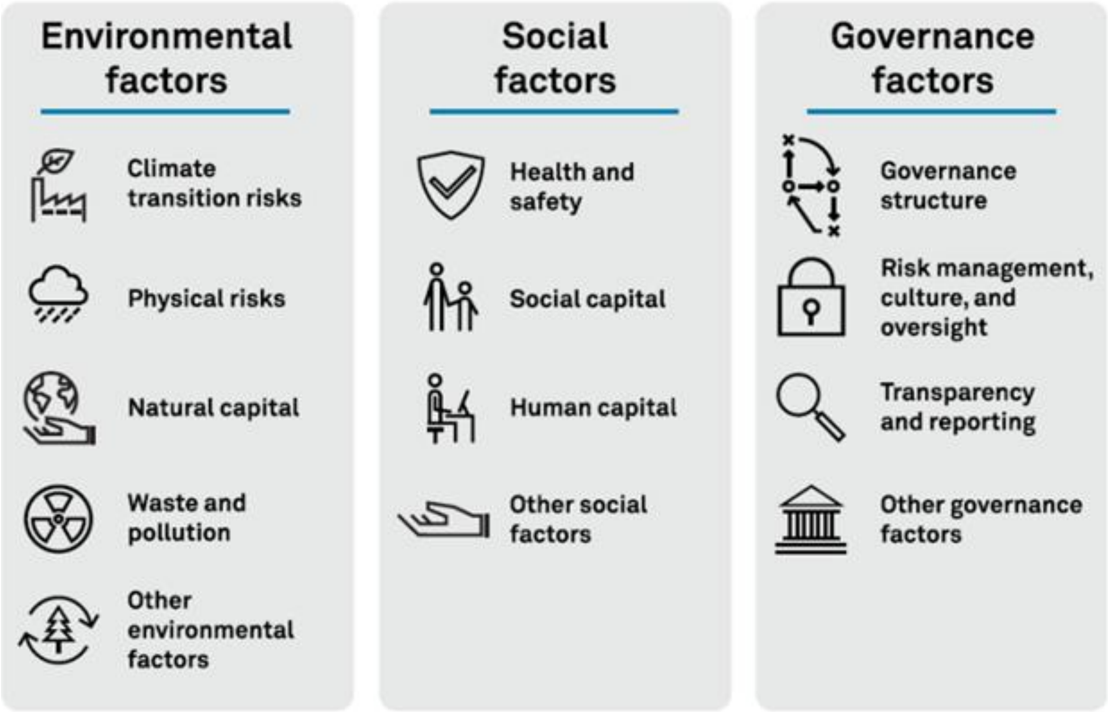
Source: S&P Global Market Intelligence. For illustrative purposes only. As of May 2023.

1. Get transparency into ESG factors affecting credit risk.



ESG--Environmental, social, and governance. Source: S&P Global Ratings.

ESG Credit Factors



Source: S&P Global Market Intelligence. For illustrative purposes only. As of May 2023.

Case Study: Large Oil and Gas Company

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Company Name		Country of Domicile	Australia
Group		Analyst	Analyst 1
Industry / Sub-Industry	Integrated Oil and Gas	Date of Analysis	1/1/2022
Competitive Position Group Profile	Commodity focus / cost driven		

ESG Credit Metrics	Positive 1	Neutral 2	Moderately Negative 3	Negative 4	Strongly Negative 5
e				e - 3.98	
s		s - 2.26			
g		g - 1.82			

	S&P GMI Scale	S&P GMI Score
CICRA	4	7.06
Competitive Position	Excellent	2.92
Business Risk Profile	Strong	3.52
Financial Risk Profile	Modest	2.74
Anchor without ESG	a+	3.13
Anchor with ESG	a+	3.31

Modifiers	***Assessment***	***Impact on Anchor***
Diversification	Neutral	0.00
Capital Structure	Neutral	0.00
Financial Policy	Neutral	0.00
Liquidity	Strong	0.00
Management & Governance	Satisfactory	0.00
Management & Governance with ESG	Satisfactory	0.00

	S&P GMI Scale	S&P GMI Score
SACP	a+	3.31
Group or Government Support		0.00
Score above the Sovereign		0.00
Final Credit Score	a+	3.31
ESG Notch Impact	0.00	

Source: S&P Global Market Intelligence. For illustrative purposes only. As of May 2023.

Summary:

- Environmental factors are a negative consideration in our credit scoring analysis. At least as much as for its peers and the industry, climate transition risk is a structural issue. The effectiveness of the company's strategic adaptation and implementation remains critical in addressing numerous climate-related and energy transition risks.
- Social factors are neutral, the company is subject to various international and local environmental and social regulations. we think the industry's significant safety challenges are balanced by the company's operational procedures and diversity.
- Governance factors are neutral, the company demonstrate robust governance practices.

Stress test credit quality against the medium- to long-term impact of transition and physical risk

Climate Credit Analytics
Fundamentals Driven

Full financial statement conditioned on climate-linked transition scenarios.

Advantages:

- Financials can be used as an input to any fundamentals driven model
- Sector-specific granular data; bottom-up modelling of emissions
- In-depth scenario analysis of large exposures to borrowers. Loan origination and benchmarking.
- Captures downside risk as well as transition related opportunities
- Automated and embedded with company, industry and environment data

Climate risk gauge
Market Valuation Driven

Selected financials conditioned on climate-linked transition scenarios.

Advantages:

- Credit score change as overlay to credit scores produced by internal or external credit risk models
- Compact set of variables / fast and comparable framework for all sectors
- Particularly suitable for SMEs or companies with few financial.
- Quick scenario analysis of thousands of exposures.
- Challenger and complementary model to fundamentals approach.
- Captures risk, and multiple response types
- Assist with portfolio analysis

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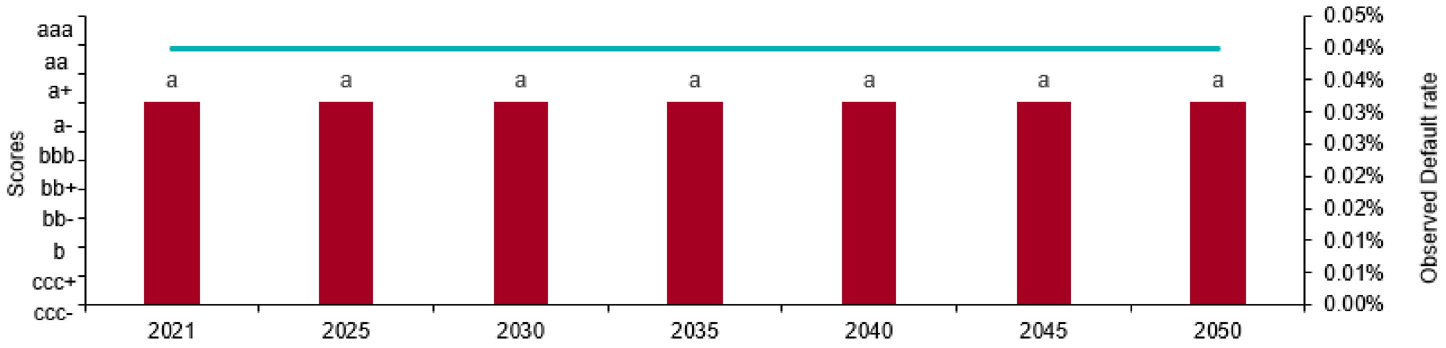
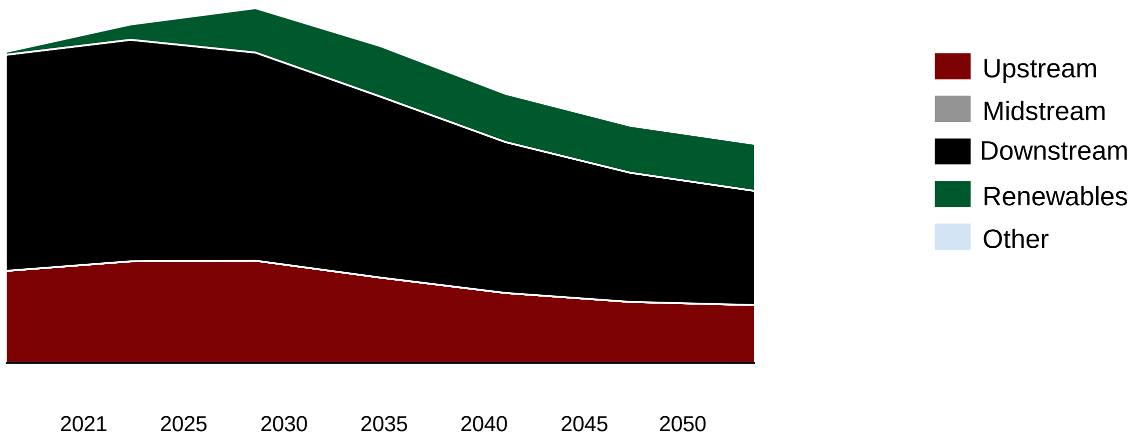
Source: S&P Global Market intelligence, Oliver Wyman. Oliver Wyman is a global management consulting firm and is not an affiliate of S&P Global, or any of its divisions

Case Study: Oil and Gas Company

Climate Credit Analytic Fundamentals Driven
Credit Quality under the NGFS Climate Scenario Net Zero 2050 including Company Transition Plans



Company Revenue split by Segment



Summary:

- A Large Global Oil and Gas maintains its credit quality even under the most ambitious orderly transition scenario, Net Zero 2050. until 2050.
- The modest transition plan allows it to diversify revenues in a net zero economy.
- The company additional source of revenue is generated through the adoption of renewable generation (wind and solar).

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Case Study: Counterparty Portfolio

Climate Risk Gauge Market Valuation Driven
Net Zero 2050 – REMIND - Integrated Physical Damage Scenario by 2030

Net Zero 2050 – REMIND - Integrated Physical Damage Scenario by 2050

Summary:

- We run 473 using Climate Risk Gauge under the Net Zero 2050 scenario, REMIND integrated assessment model with physical damage.

- By 2030, credit quality of most of the companies remains stable, only 39 experience credit quality deterioration by 1 notch, 4 by 2 notches and 5 default.

  Not surprisingly, by 2050 we see a higher level of deterioration in credit quality, 146 by 1 notch, 19 by 2 notches, 5 by 3 notches and 15 defaults.

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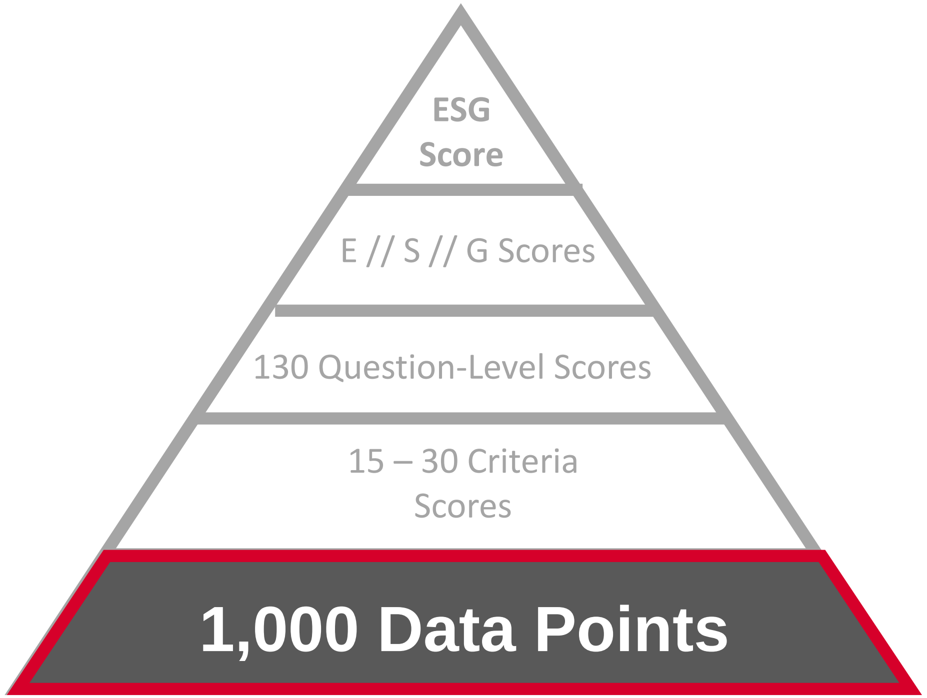
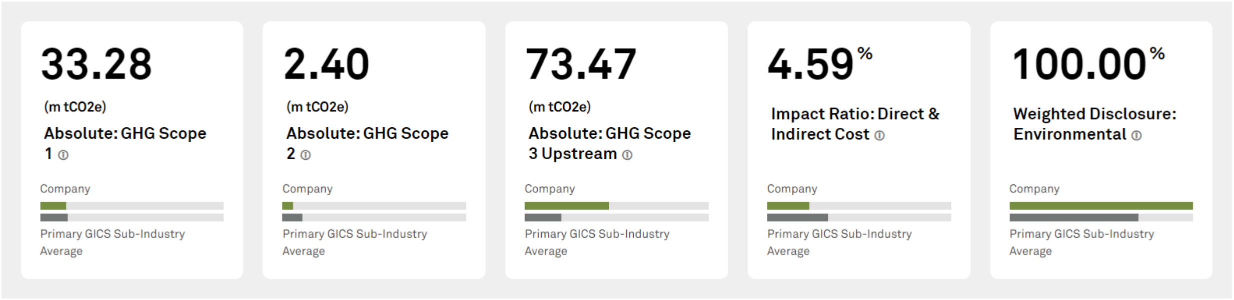
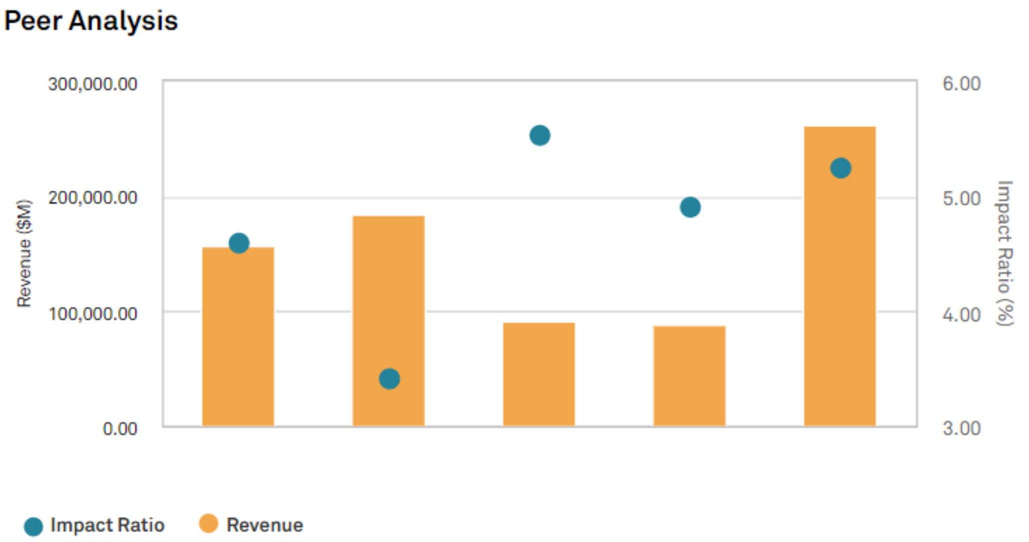
ESG Scores



Environmental Data





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Q&A

Thank you