

Low Carbon Transition Rating Industry Report

Oil & Gas Producers

February 2024

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Key Findings

- Companies in the Oil and Gas Producers industry are severely misaligned with the net zero by 2050 target, with an average Implied Temperature Rise of 4.2 degrees Celsius. This is driven by high exposure and insufficient investment alignment and transition preparedness.
- There is increasing international pressure for Oil and Gas Producers to align to a decarbonization pathway, with the COP28 agreement to “transition away from” fossil fuels being a significant milestone. Mandatory ESG and climate disclosure standards are also shaping the industry.
- Oil and Gas Producers have a weak overall management score. Top performers actively engage in decarbonization by investing in renewable energy production. The uptake of carbon capture and underground storage (CCUS) technologies and the growth of blue and green hydrogen can provide companies in the industry an opportunity to reduce their emissions intensity.
- From a regional perspective, European producers are leading in managing their transition, and Asian producers are lagging. This trend is influenced by state ownership and regulatory requirements.

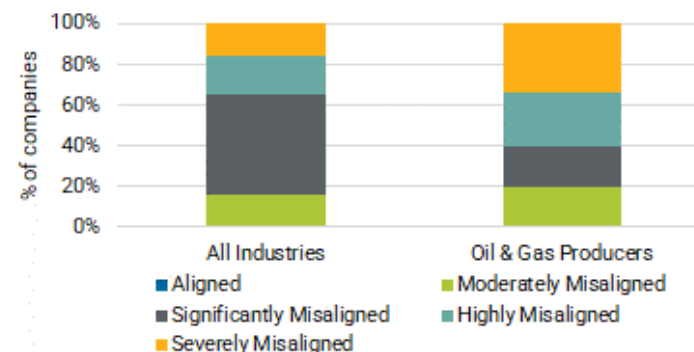
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Key facts [1]

Number of companies:	143
Industry LCTR score	4.2
Industry LCTR score rank	40 / 42
Industry Exposure score	3.9
Industry Exposure score rank	39 / 42
Industry Management score	44.6
Industry Management score rank	38 / 42
Data as of:	Jan-24
Total number of companies:	8,286
Universe:	Ratings
Number of industries	42

Low Carbon Transition Rating distribution



Industry Characteristics

Overview

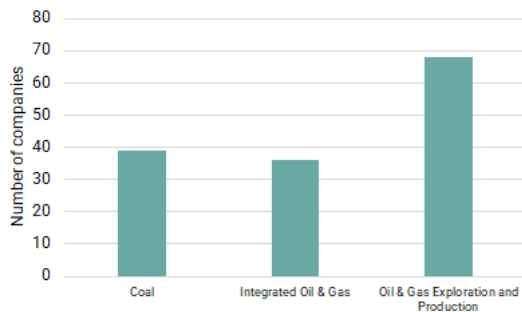
Industry Composition

The Oil & Gas Producers industry comprises 143 companies in three subindustries: Exploration and Production (E&P) is the largest (48%), followed by Coal (26.3%) and Integrated Oil and Gas (25.7%). Companies in this industry are primarily involved in the discovery and production of fossil fuels, namely oil, natural gas and coal. The largest companies, by market cap, in each subindustry are Exxon Mobil Corp (integrated), ConocoPhillips (E&P) and China Shenhua Energy Co Ltd (coal). Integrated Oil & Gas is notable for its high average market capitalization (USD55,854.73 million) and a maximum of USD399,597.51 million, indicating the presence of very large companies. E&P and Coal companies have lower averages (USD7,311.82 million) but also feature significant players, with a maximum market capitalization of USD84,601.97 million in Coal. Geographically, most companies are in North America (45%), followed by Asia-Pacific (30%) and Europe (20%).

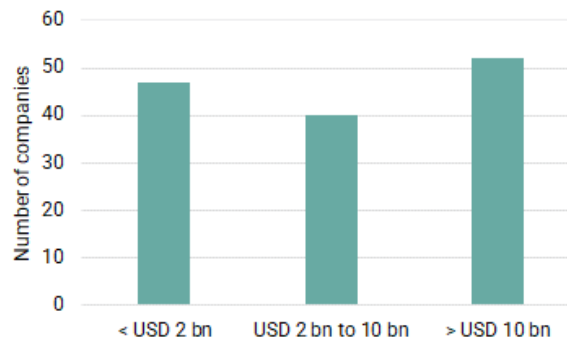
Industry Trends

In 2023, the price of crude oil slipped by more than 10% to close out the year at the lowest year-end level since 2020. The geopolitical environment, with wars in Ukraine and the Middle East, are drivers influencing the industry’s performance. The evolving international regulatory environment has resulted in increased pressure on Oil and Gas companies to engage in decarbonization. The recent non-binding agreement made at the United Nations COP28 conference in December 2023 to “transition away from” fossil fuels reflects the increasingly stricter disclosure standards. Still, companies have opportunities for reinvention by integrating short-term oil demand with renewables. The REPowerEU [2] Plan provides a comprehensive framework of financial, legislative and market-based incentives to encourage Oil and Gas companies to invest in renewable energy. In 2023, there was a dilution of climate targets as companies increased their focus on energy security at the national level.

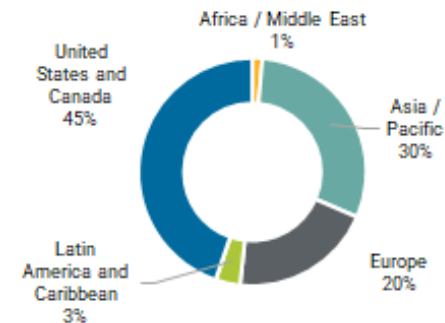
Composition by subindustry



Composition by market cap



Composition by region (Headquarters location)



Industry Budget

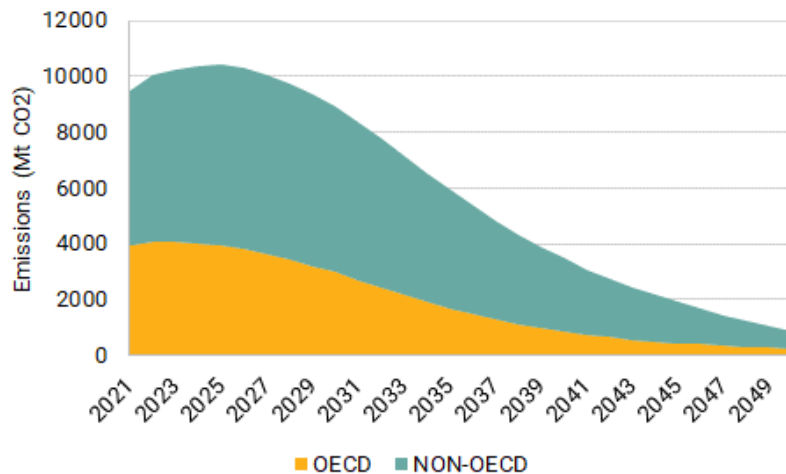
Overview

Industry budget

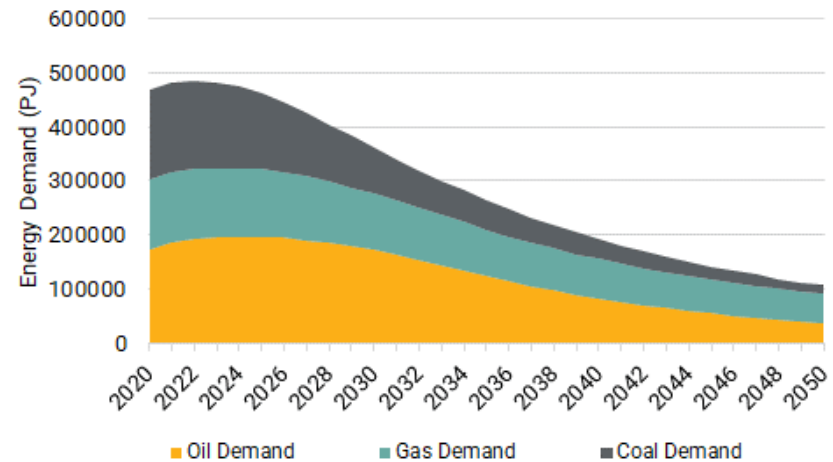
Company GHG budgets are based on GHG emissions pathways downscaled from the UN PRI sponsored Implied Policy Response – Required Policy Response Scenario (IPR RPS). This scenario demonstrates an orderly transition between now and 2050, maintaining warming at 1.5 degrees while meeting the net zero GHG emissions by 2050 target. The scenario is a high-conviction policy-based forecast anchored in realistic policy and technology expectations. The underlying data covers all regions and builds on the IEA Net Zero Emissions Scenario. The budget is a combination of IPR aligned pathways to determine total absolute GHG emissions reductions covering the whole value chain.

The Oil and Gas Producers budget is aggregated from industries that are reliant on oil and gas, including transportation, automobiles and chemicals for scope 3, which is the primary pathway for this industry, and also includes the coal pathway. The main driver of the budget assumes that fossil fuel demand will peak in the mid-2020s before declining rapidly, with coal declining at a faster and deeper rate, by 90% by 2050, oil by 80% and natural gas by 60%. Under the aggregated pathway, the assumption is that 70% of the remaining fossil fuels are utilized with Carbon Capture and Storage (CCUS). Coal phase-out, hydrogen and electrification will significantly reduce the need for fossil fuels in most economies for most industries by 2050, with heavy industry reliant on fossil fuel use with CCUS. Regional policies will dictate the rate of decarbonization, which ranges from 3% to 10% per year.

Industry budget



Technology



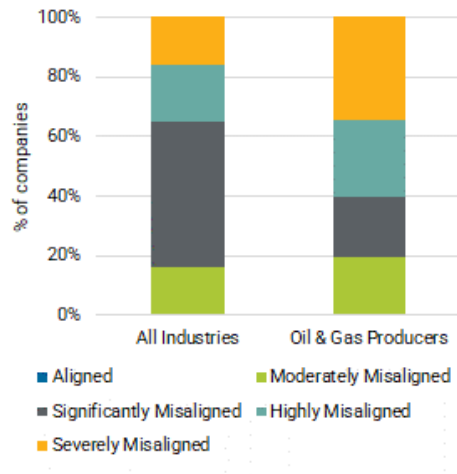
Low Carbon Transition Rating Analysis

Analyst commentary

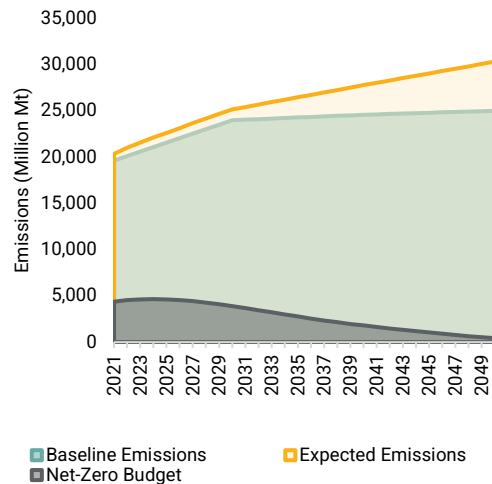
In the Oil & Gas Producers industry, a substantial majority (60%) of companies are categorized as Severely Misaligned or Highly Misaligned to meet the Paris Agreement target of 1.5 degrees. The baseline and expected emissions will increase further under current investment plans and transition preparedness, with many companies planning capacity expansion. The overall low management scores of companies in this industry suggest that cumulative expected emissions are likely to exceed almost 900% the allocated industry emissions budget by 2050. As a whole, the industry decomposition of the LCTR shows that the industry is underperforming in managing projected emissions, resulting in Severely Misaligned LCTR scores throughout the industry.

Oil and Gas Producers are leaders in the path to decarbonization of scope 1 and 2 emissions. Companies in this industry, particularly ones based in Europe and North America, are increasingly electrifying their operations and investing in low-carbon and carbon capture technologies. Thus, achieving a good LCTR score for scope 1 and 2. However, it is the industry’s scope 3 emissions, specifically downstream, that represent about 85% of total baseline emissions. Scope 3 downstream emissions are not being properly addressed. Achieving net zero goals for this industry means expanding renewable energy production, which produce lower carbon emissions in scope 3 downstream. As long as companies in this industry continue to extract and sell fossil fuels, their overall LCTR will remain misaligned with net zero pathways. The LCTR universe data show that companies that invest in renewable energy production and adopt strong product decarbonization plans achieve better LCTR scores.

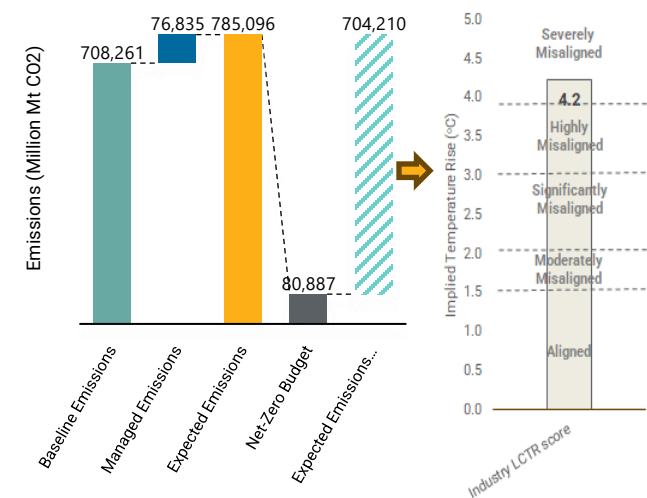
LCTR category distribution



Expected emissions projections [1]

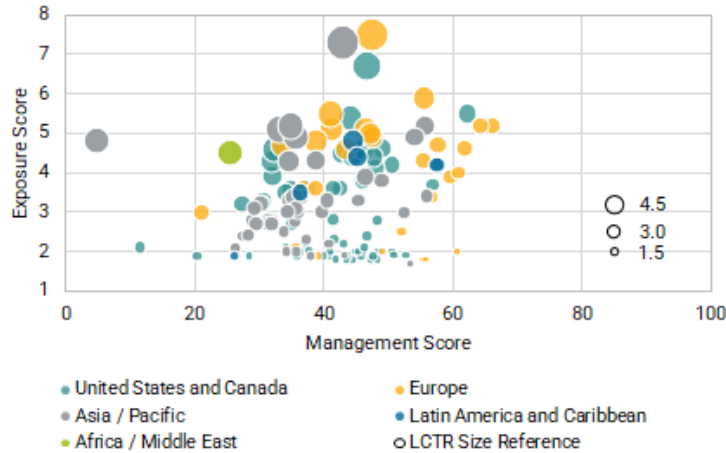


Industry decomposition [1]



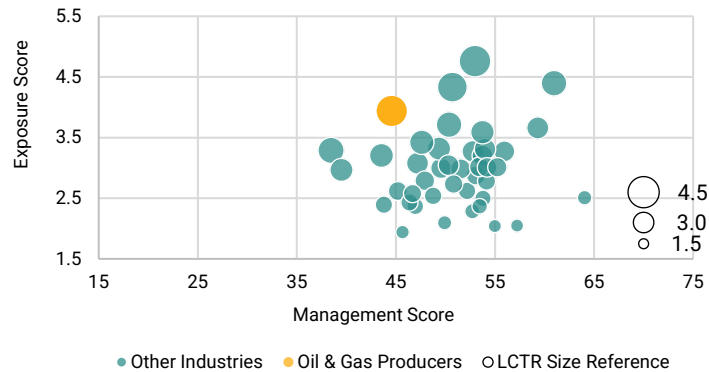
Exposure-management analysis

Company exposure-management by region



Companies located in the United States, Canada and Europe tend to have a higher exposure score, which is partly explained by the smaller emissions budgets placed on these historically high-emitting regions. For all regions, exposure scores range from Moderately Misaligned to Severely Misaligned. Only a minority of companies (18%) have a management score higher than 50, and most of them are headquartered in Europe. Most companies located in Asia-Pacific have a management score below 50. Oil and Gas companies in Asia-Pacific are mainly state-owned and could benefit from stronger policies. For example, mandatory carbon pricing could be applied to limit the emissions from these companies.

Industry exposure-management landscape [1]



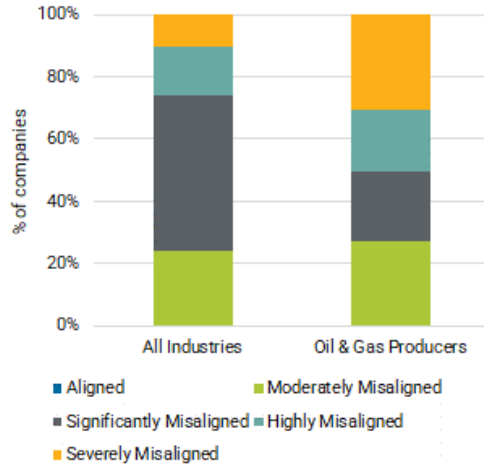
The Oil & Gas Producers industry has one of the highest overall exposure scores (3.9). Oil & Gas Producers as a whole, have one of the lowest overall management scores (44.6), which results in an overall rise in expected emissions for the industry, with an LCTR of 4.2. The industry’s low carbon transition preparedness is currently weak, exemplified by the low number of companies (13%) with strong or very strong emissions reduction targets. The industry’s exposure is driven largely by use-of-products emissions and, across the industry, there is limited focus among companies to manage these emissions by transitioning to low-carbon products.

Top three performers in overall LCTR scores

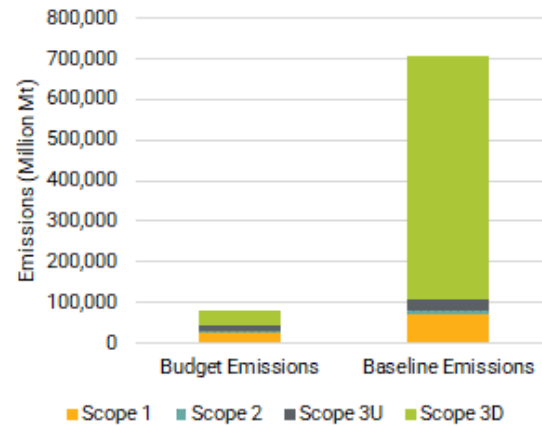
Company Name	Region	Subindustry	Mkt cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
PTT Exploration & Production Plc	Asia / Pacific	Oil & Gas Exploration and Production	17,304.6	1.7	Moderately Misaligned	1.7	53.4
Harbour Energy Plc	Europe	Oil & Gas Exploration and Production	3,028.5	1.7	Moderately Misaligned	1.8	55.7
DNO ASA	Europe	Oil & Gas Exploration and Production	964.2	1.7	Moderately Misaligned	1.8	55.2

Overall Exposure

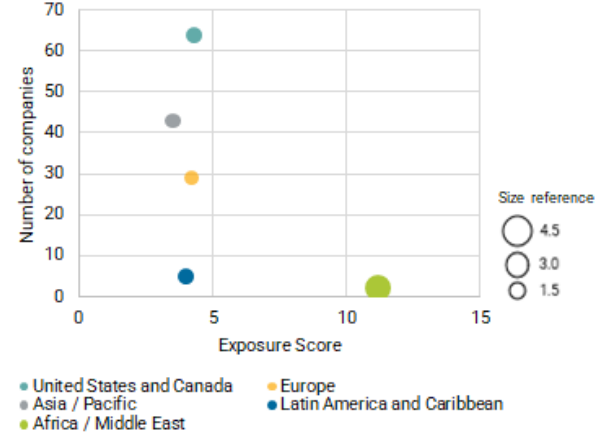
Exposure category distribution



Baseline and budget emissions by scope [1]



Weighted average exposure score by region [1]

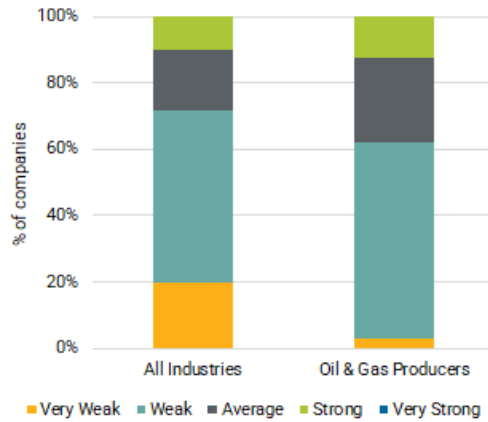


Analyst commentary

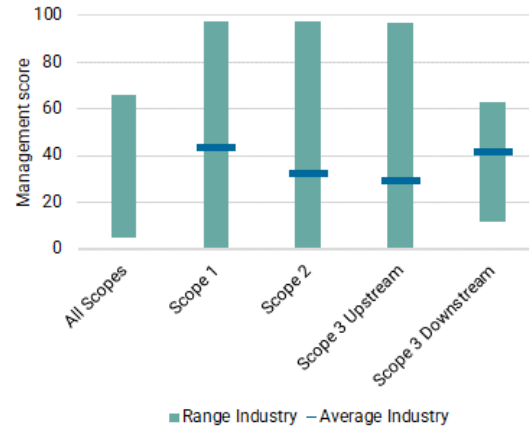
The overall exposure of the Oil & Gas Producers industry is very high and it has a higher proportion of companies with an exposure category of Severely Misaligned and Highly Misaligned compared to all other industries. Exposure calculations in this industry are largely based on estimated baseline emissions, given that only 42% of companies in the industry disclose their GHG emissions. Most of the exposure for this industry is from scope 3 downstream emissions, which represents more than 85% of total emissions and which greatly exceeds the allocated budget under the UN PRI budget emissions (see Overall Budget section). Scope 3 downstream emissions are the indirect emissions associated with the use of a company’s oil and gas products. This includes emissions from the combustion of fossil fuels by end-users, such as in vehicles or industrial processes. When looking at regional characteristics, all regions have a high exposure score, ranging between 3.5 and 4.3. Oil & Gas Producers are predominantly located in the United States and Canada (approximately 68%), followed by Europe (16%) and Asia-Pacific (12%). Companies in Latin America and the Caribbean, and the Africa/Middle East, meanwhile, have the lowest representation (3% and 1%, respectively).

Overall Management

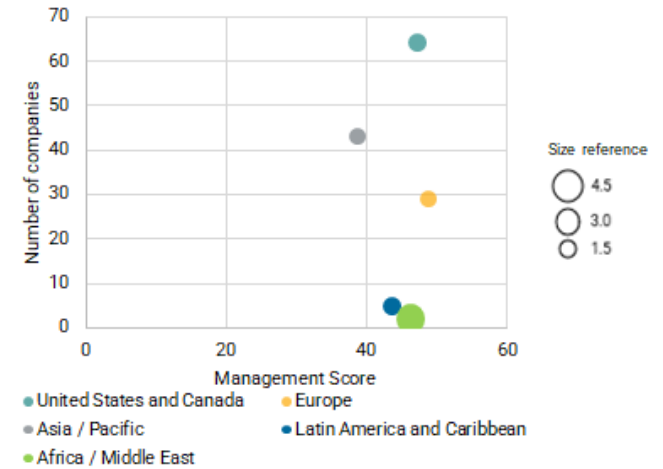
Management category distribution



Variation in management score by scope



Weighted average management score by region [1]



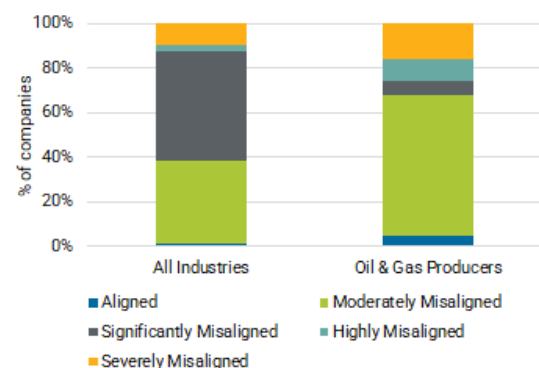
Analyst commentary

Most companies (59.4%) in the Oil & Gas Producers industry have a weak management score. Compared to all industries, this industry has a smaller proportion (2.8%) of companies with very weak management and a larger proportion (25%) of companies with average and strong management (12.6%). There are currently no companies in the Oil and Gas Producers industry with a very strong management score. Management of transition risk in this industry has been focused mostly on scope 1, resulting in the highest management score by scope. Conversely, scope 3 upstream has the lowest management score. Management of direct and indirect operational emissions includes the reduction of methane through flaring and the expansion of electrification of the business operations [3]. However, the main source of emissions in this industry is scope 3 downstream, which account for 85% of the industry’s total GHG emissions.

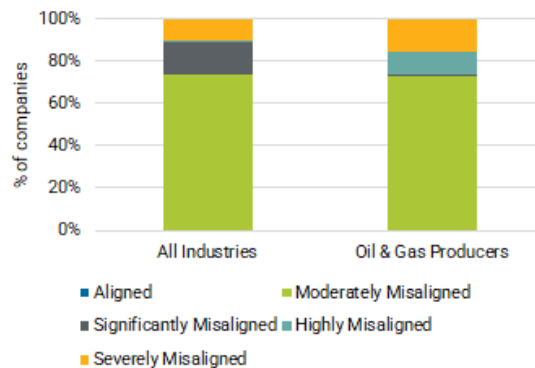
Top performers in scope 3 downstream are those companies that are investing to diversify their energy sources, mainly renewables, while laying out plans to reduce their fossil fuels portfolio. Additional indicators of good management include having a strong carbon pricing policy, scaling carbon capture and storage technologies, and the production and distribution of blue and green hydrogen. Currently, only four companies (2.7%) have an adequate Low Carbon Innovation programme, leaving significant room for improvement. By region, the top performers are located in Europe and the bottom performers are in Asia-Pacific. We note that state-owned enterprises tend to have less robust transition plans and, hence, lower management scores.

Scope 1

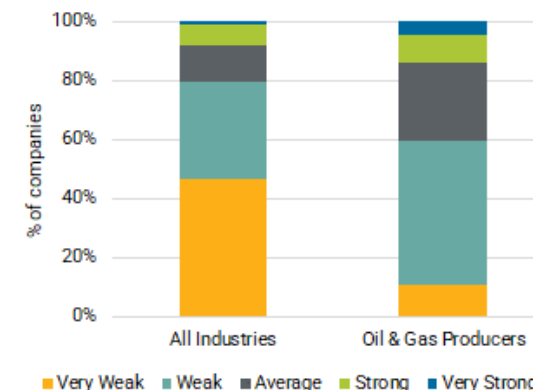
Scope 1 LCTR category distribution



Exposure score category distribution



Management score category distribution



Analyst commentary

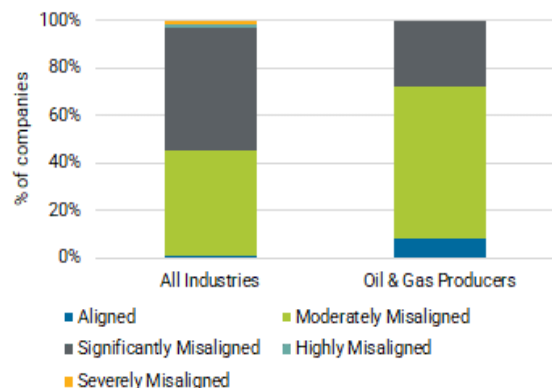
Scope 1 emissions refer to direct greenhouse gas emissions from sources that are owned or controlled by the company, such as emissions associated with extraction, processing and refining, transport and flaring. The distribution of LCTR scores for scope 1 shows that compared to all other industries, Oil & Gas Producers have a higher proportion of companies with a rating of Severely Misaligned and Highly Misaligned. Most companies have an LCTR score of Moderately Misaligned and a larger proportion are Aligned for scope 1, compared to all industries. The proportion of companies with an exposure score of Severely Misaligned and Highly Misaligned is also higher than for all other industries. However, Oil & Gas Producers have an overall better management score than other industries. This can be attributed to the essential management indicators at which Oil & Gas Producers excel, for example, disclosing all scopes of emissions, setting strong reduction targets (scope 1), and having GHG performance incentives for executives. Overall, there are various decarbonization strategies for scope 1 emissions, including methane and flaring reduction technologies and electrification of upstream operations. CCUS and clean hydrogen technologies for refining decarbonization are still in early stages of development and adoption.

Top three performers for scope 1

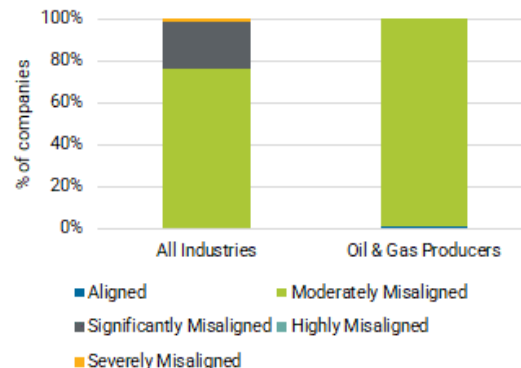
Company Name	Region	Subindustry	Mkt cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Galp Energia SGPS SA	Europe	Integrated Oil & Gas	12,026.8	1.2	Aligned	1.8	97.5
SK Innovation Co., Ltd.	Asia / Pacific	Integrated Oil & Gas	10,344.2	1.3	Aligned	1.8	91.9
ConocoPhillips	United States and Canada	Oil & Gas Exploration and Production	137,822.4	1.4	Aligned	1.8	86.2

Scope 2

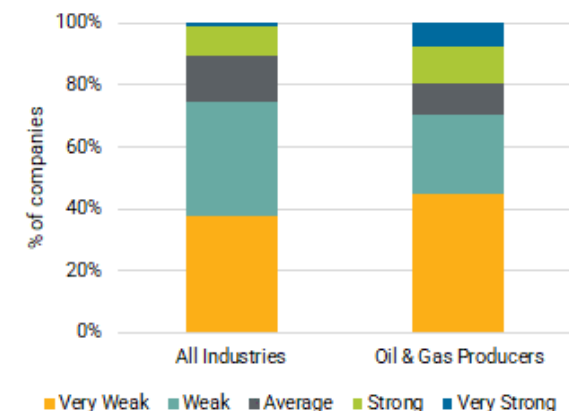
Scope 2 LCTR category distribution



Exposure score category distribution



Management score category distribution



Analyst commentary

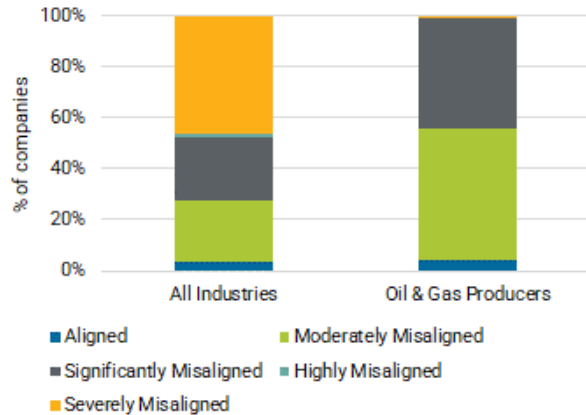
Scope 2 emissions arise from the generation of energy that is purchased by Oil & Gas Producers, such as the generation of electricity taken from a centralized grid to power auxiliary services. Scope 2 represents a small percentage of this industry’s total emissions (1%). Compared to all industries, Oil & Gas Producers have an overall better LCTR score for scope 2. A higher proportion of companies in this industry have an LCTR category of Aligned and Moderately Misaligned, compared to all industries. The Exposure Score Category Distribution shows Oil & Gas Producers are predominantly in the Moderately Misaligned category. The Oil & Gas Producers companies generally have a higher management score for scope 2 compared to all other industries. Their relatively good performance is the result of scope 2 being a small percentage of the industry’s total emissions and the increasing adoption of renewable energy. Companies that manage their scope 2 exposure well tend to have ambitious targets to achieve net zero emissions of scope 1 and 2 by 2050.

Top three performers for scope 2

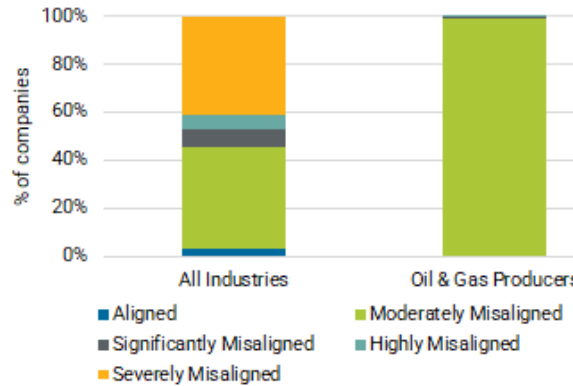
Company Name	Region	Subindustry	Mkt cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Galp Energia SGPS SA	Europe	Integrated Oil & Gas	12,026.8	1.2	Aligned	1.8	97.6
SK Innovation Co., Ltd.	Asia / Pacific	Integrated Oil & Gas	10,344.2	1.3	Aligned	1.9	92.1
Woodside Energy Group Ltd.	Asia / Pacific	Oil & Gas Exploration and Production	40,229.3	1.4	Aligned	1.8	81.7

Scope 3 Upstream

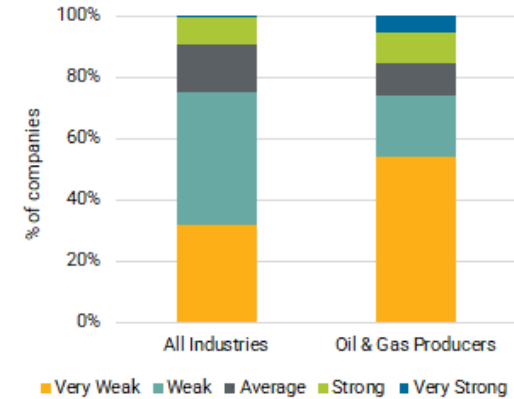
Scope 3 upstream LCTR category distribution



Exposure score category distribution



Management score category distribution



Analyst commentary

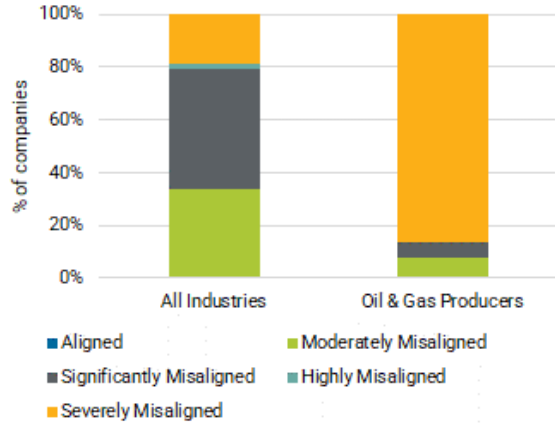
Scope 3 upstream emissions in the Oil & Gas Producers industry represent only 1% of total emissions. Supplier-related emissions are minimal compared to emissions from the use phase and consumption of fossil fuels. As such, this scope does not represent a significant transition risk to the industry. Compared to all industries, Oil & Gas Producers score better in LCTR for scope 3 upstream, with only 0.7% of the industry having an LCTR score of Severely Misaligned compared to 46% of all industries in the same LCTR category. However, most companies are rated as Significantly Misaligned for scope 3 upstream, indicating room for improvement in supplier engagement strategies to reduce upstream emissions. The Management Score Category distribution reveals a small segment of Oil & Gas companies with very strong management practices compared to all industries. Top performers are located in OECD countries. There is a larger proportion of companies in this industry with a management score of very weak, compared to all industries. Laggards are geographically distributed across the globe. While scope 3 upstream emissions are not the highest in volume, these figures depict an industry that simultaneously has more leaders and more laggards, compared to all industries. This can be explained by the low proportion of emissions that scope 3 upstream emissions represent. Companies tend to prioritize scope 1 and scope 2 emission reduction targets.

Top three performers for scope 3 upstream

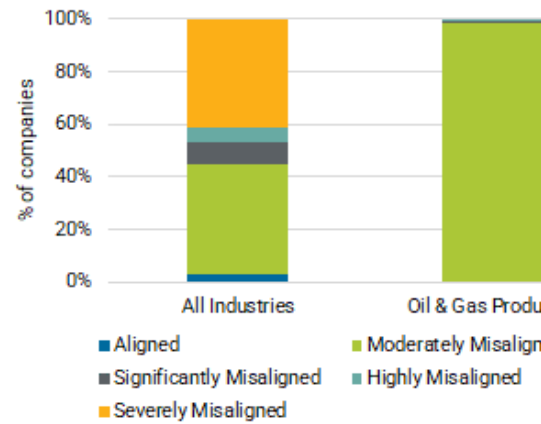
Company Name	Region	Subindustry	Mkt cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Galp Energia SGPS SA	Europe	Integrated Oil & Gas	12,026.8	1.2	Aligned	1.8	96.9
SK Innovation Co., Ltd.	Asia / Pacific	Integrated Oil & Gas	10,344.2	1.4	Aligned	2.2	89.8
ConocoPhillips	United States and Canada	Oil & Gas Exploration and Production	137,822.4	1.4	Aligned	1.9	82.8

Scope 3 Downstream

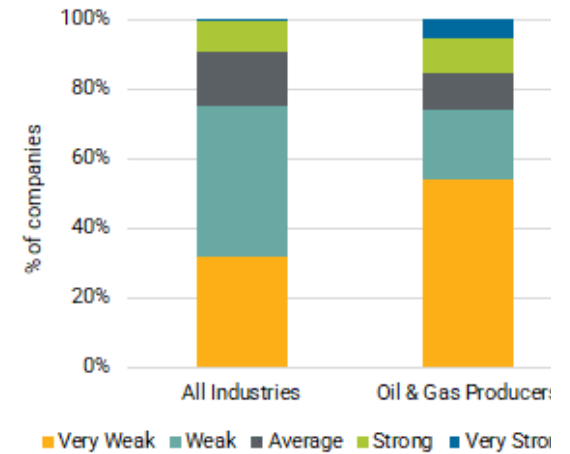
Scope 3 downstream LCTR category distribution



Exposure score category distribution



Management score category distribution



Analyst commentary

Most companies in the industry (86%) have a Severely Misaligned LCTR score of above 2 degrees Celsius in terms of their scope 3 downstream emissions. Scope 3 downstream emissions result from the end use of the products a company sells; in this case the combustion of fossil fuels. Within this sector, there is a significant challenge in achieving alignment with the established temperature targets aimed at mitigating climate change. As such, the large majority of companies in this industry (86%) has a Severely Misaligned exposure score. Most of the companies in the industry (65.7%) have a weak management score. Top performers in the management of scope 3 downstream emissions tend to proactively engage with the low-carbon transition and are investing in renewable energy production while reducing their share of fossil fuels. Increasing investments and scaling of blue and green hydrogen, and the diversification of renewable energy production will have a positive effect on the industry’s LCTR score for scope 3 downstream.

Top three performers for scope 3 downstream

Company Name	Region	Subindustry	Mkt cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Gujarat Mineral Development Corp. Ltd.	Asia / Pacific	Coal	1,555.5	1.7	Moderately Misaligned	1.6	40.8
PT Bayan Resources Tbk	Asia / Pacific	Coal	42,952.6	1.8	Moderately Misaligned	1.7	41.7
PT Bukit Asam Tbk	Asia / Pacific	Coal	1,814.9	1.9	Moderately Misaligned	1.7	11.9

List of Companies Covered

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Advantage Energy Ltd.	United States and Canada	Oil & Gas Exploration and Production	1,065.06	1.9	Moderately Misaligned	1.8	44.4
Africa Oil Corp.	United States and Canada	Oil & Gas Exploration and Production	872.40	11.6	Severely Misaligned	9	33
Aker BP ASA	Europe	Oil & Gas Exploration and Production	18,319.32	1.9	Moderately Misaligned	2	60.6
Alliance Resource Partners LP	United States and Canada	Coal	2,692.47	4.3	Severely Misaligned	3.6	34.9
Alpha Metallurgical Resources, Inc.	United States and Canada	Coal	4,502.08	4.2	Severely Misaligned	3.3	30.5
Amplify Energy Corp.	United States and Canada	Integrated Oil & Gas	231.84	4.9	Severely Misaligned	3.9	32.1
Antero Resources Corp.	United States and Canada	Oil & Gas Exploration and Production	6,816.34	2.8	Significantly Misaligned	2.8	48.3
APA Corp.	United States and Canada	Oil & Gas Exploration and Production	11,005.09	3.9	Highly Misaligned	3.6	42.4
ARC Resources Ltd.	United States and Canada	Oil & Gas Exploration and Production	8,989.05	2	Moderately Misaligned	2	48.4
Athabasca Oil Corp.	United States and Canada	Oil & Gas Exploration and Production	1,799.82	2	Moderately Misaligned	1.9	38.1
Baytex Energy Corp.	United States and Canada	Oil & Gas Exploration and Production	2,796.85	1.9	Moderately Misaligned	1.9	46
Beach Energy Ltd.	Asia / Pacific	Oil & Gas Exploration and Production	2,489.90	1.9	Moderately Misaligned	1.9	43.2
Birchcliff Energy Ltd.	United States and Canada	Oil & Gas Exploration and Production	1,163.82	2.1	Significantly Misaligned	1.9	37.8
Bisichi Plc	Europe	Coal	17.34	4.2	Severely Misaligned	3.6	36.9
BP Plc	Europe	Integrated Oil & Gas	101,985.24	3.4	Highly Misaligned	3.9	59.5
Canadian Natural Resources Ltd.	United States and Canada	Oil & Gas Exploration and Production	71,299.01	2	Moderately Misaligned	2	50.6
Capricorn Energy Plc	Europe	Oil & Gas Exploration and Production	202.61	2	Moderately Misaligned	2	49.1
Cenovus Energy, Inc.	United States and Canada	Integrated Oil & Gas	31,403.29	7	Severely Misaligned	6.7	46.6
Centrus Energy Corp.	United States and Canada	Coal	852.91	3.1	Highly Misaligned	2.7	35
Chesapeake Energy Corp.	United States and Canada	Oil & Gas Exploration and Production	10,084.70	4.1	Severely Misaligned	4.2	50.6
Chevron Corp.	United States and Canada	Integrated Oil & Gas	281,576.59	4.7	Severely Misaligned	4.6	49
China Coal Energy Co., Ltd.	Asia / Pacific	Coal	16,274.72	3.4	Highly Misaligned	2.8	31.9
China Coal Xinji Energy Co., Ltd.	Asia / Pacific	Coal	1,926.23	2.9	Significantly Misaligned	2.5	33.8
China Petroleum & Chemical Corp.	Asia / Pacific	Integrated Oil & Gas	87,310.66	4	Highly Misaligned	3.4	36.3
China Shenhua Energy Co., Ltd.	Asia / Pacific	Coal	84,601.97	3.4	Highly Misaligned	3	39.7
Chord Energy Corp.	United States and Canada	Integrated Oil & Gas	6,861.71	4.2	Severely Misaligned	3.5	34
Civitas Resources, Inc.	United States and Canada	Integrated Oil & Gas	6,412.26	3.1	Highly Misaligned	2.8	41.5
Coal India Ltd.	Asia / Pacific	Coal	27,856.68	2	Moderately Misaligned	1.9	37.9

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Compañía Española de Petróleos SA	Europe	Integrated Oil & Gas	No Data	4.2	Severely Misaligned	4.7	57.7
ConocoPhillips	United States and Canada	Oil & Gas Exploration and Production	137,822.44	3.7	Highly Misaligned	4.2	57.4
Continental Resources, Inc.	United States and Canada	Oil & Gas Exploration and Production	26,454.17	2	Moderately Misaligned	1.9	41
Coterra Energy, Inc.	United States and Canada	Oil & Gas Exploration and Production	19,195.93	2	Moderately Misaligned	1.9	45.8
Crescent Point Energy Corp.	United States and Canada	Oil & Gas Exploration and Production	4,349.34	1.9	Moderately Misaligned	1.9	50.8
Dana Gas PJSC	Africa / Middle East	Integrated Oil & Gas	1,508.35	6.1	Severely Misaligned	4.5	25.5
Devon Energy Corp.	United States and Canada	Oil & Gas Exploration and Production	29,023.71	4.8	Severely Misaligned	4.5	45.3
Diamondback Energy, Inc.	United States and Canada	Oil & Gas Exploration and Production	27,760.56	2.4	Significantly Misaligned	2.2	37
Diversified Energy Co. Plc	United States and Canada	Oil & Gas Exploration and Production	680.70	1.8	Moderately Misaligned	1.9	52.7
DNO ASA	Europe	Oil & Gas Exploration and Production	964.17	1.7	Moderately Misaligned	1.8	55.2
Ecopetrol SA	Latin America and Caribbean	Integrated Oil & Gas	24,480.51	3.7	Highly Misaligned	4.2	57.5
Empire Petroleum Corp.	United States and Canada	Oil & Gas Exploration and Production	251.59	2.4	Significantly Misaligned	2.1	34.2
Energiean Plc	Europe	Oil & Gas Exploration and Production	2,440.17	5.4	Severely Misaligned	5.1	46.5
Enerplus Corp.	United States and Canada	Oil & Gas Exploration and Production	3,153.10	1.9	Moderately Misaligned	1.8	47.3
Eni SpA	Europe	Integrated Oil & Gas	54,693.29	3.1	Highly Misaligned	3.4	56.7
EOG Resources, Inc.	United States and Canada	Oil & Gas Exploration and Production	70,531.94	2.1	Significantly Misaligned	2	41
EQT Corp.	United States and Canada	Oil & Gas Exploration and Production	15,902.10	4.9	Severely Misaligned	4.5	42.8
Equinor ASA	Europe	Integrated Oil & Gas	93,191.37	4	Highly Misaligned	5.2	66.2
Exxaro Resources Ltd.	Africa / Middle East	Coal	2,659.66	12.4	Severely Misaligned	11.8	45.8
Exxon Mobil Corp.	United States and Canada	Integrated Oil & Gas	399,597.51	4.7	Severely Misaligned	4.4	44.3
Freehold Royalties Ltd.	United States and Canada	Oil & Gas Exploration and Production	1,558.20	2	Moderately Misaligned	2	44.9
Galp Energia SGPS SA	Europe	Integrated Oil & Gas	12,026.84	4.1	Severely Misaligned	5.2	64.3
Gazprom PJSC	Europe	Integrated Oil & Gas	79,805.94	4.1	Severely Misaligned	3.6	38.8
Genel Energy Plc	Europe	Oil & Gas Exploration and Production	273.00	2.4	Significantly Misaligned	2.5	52.1
GeoPark Ltd.	Latin America and Caribbean	Oil & Gas Exploration and Production	480.93	5.2	Severely Misaligned	4.8	44.5
Guanghui Energy Co., Ltd.	Asia / Pacific	Integrated Oil & Gas	6,614.39	4	Highly Misaligned	3.2	30.2
Guizhou Panjiang Refined Coal Co., Ltd.	Asia / Pacific	Coal	1,868.74	2.9	Significantly Misaligned	2.4	27.5
Gujarat Mineral Development Corp. Ltd.	Asia / Pacific	Coal	1,555.55	5.2	Severely Misaligned	4.3	34.7
Hallador Energy Co.	United States and Canada	Coal	292.98	3.9	Highly Misaligned	3.2	30.5
Harbour Energy Plc	Europe	Oil & Gas Exploration and Production	3,028.47	1.7	Moderately Misaligned	1.8	55.7
Headwater Exploration, Inc.	United States and Canada	Oil & Gas Exploration and Production	1,115.97	2.3	Significantly Misaligned	1.9	20.4
Henan Shenhua Coal & Power Co., Ltd.	Asia / Pacific	Coal	5,332.64	3.3	Highly Misaligned	2.8	31.4

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Hess Corp.	United States and Canada	Oil & Gas Exploration and Production	44,280.01	4.3	Severely Misaligned	4.1	47.9
Huaibei Mining Holdings Co., Ltd.	Asia / Pacific	Coal	5,821.47	2.5	Significantly Misaligned	2.1	26.2
Inner Mongolia Dian Tou Energy Corp. Ltd.	Asia / Pacific	Coal	4,513.19	3.3	Highly Misaligned	2.8	35.5
Inner Mongolia Yitai Coal Co., Ltd.	Asia / Pacific	Coal	4,514.00	3.5	Highly Misaligned	3	36
INPEX Corp.	Asia / Pacific	Oil & Gas Exploration and Production	16,973.41	3.8	Highly Misaligned	3.8	49
International Petroleum Corp.	United States and Canada	Oil & Gas Exploration and Production	1,512.73	1.8	Moderately Misaligned	1.8	48.2
Jizhong Energy Resources Co., Ltd.	Asia / Pacific	Coal	3,559.72	3.1	Highly Misaligned	2.7	31.9
Karoon Energy Ltd.	Asia / Pacific	Oil & Gas Exploration and Production	1,109.50	2.4	Significantly Misaligned	2.2	40.7
Lubelski Wegiel BOGDANKA SA	Europe	Coal	294.51	2.3	Significantly Misaligned	2.1	35.4
Marathon Oil Corp.	United States and Canada	Oil & Gas Exploration and Production	14,139.58	4	Highly Misaligned	3.8	45.9
Matador Resources Co.	United States and Canada	Oil & Gas Exploration and Production	6,774.01	2.3	Significantly Misaligned	2	36.2
MOL Hungarian Oil & Gas Plc	Europe	Integrated Oil & Gas	6,451.90	5.1	Severely Misaligned	4.9	47.4
Murphy Oil Corp.	United States and Canada	Oil & Gas Exploration and Production	6,589.82	4.9	Severely Misaligned	4.6	46.1
NACCO Industries, Inc.	United States and Canada	Coal	273.95	4.1	Severely Misaligned	3.2	27.3
National Company KazMunayGas JSC	Asia / Pacific	Integrated Oil & Gas	15,364.41	3.6	Highly Misaligned	3.3	40.5
National Fuel Gas Co.	United States and Canada	Integrated Oil & Gas	4,607.09	4.2	Severely Misaligned	3.6	37.3
NOVATEK JSC	Europe	Integrated Oil & Gas	45,254.15	5.7	Severely Misaligned	5.1	41.2
NuVista Energy Ltd.	United States and Canada	Oil & Gas Exploration and Production	1,777.99	2.5	Significantly Misaligned	2.3	41.5
Occidental Petroleum Corp.	United States and Canada	Integrated Oil & Gas	52,400.37	3.3	Highly Misaligned	3.7	56.9
Oil & Natural Gas Corp. Ltd.	Asia / Pacific	Integrated Oil & Gas	31,011.20	6.3	Severely Misaligned	5.1	33.1
Oil Co. LUKOIL PJSC	Europe	Integrated Oil & Gas	42,909.77	5	Severely Misaligned	4.6	43.5
OMV AG	Europe	Integrated Oil & Gas	14,389.83	5.2	Severely Misaligned	5	47.1
Orrön Energy AB	Europe	Oil & Gas Exploration and Production	227.58	5.4	Severely Misaligned	5.9	55.5
Ovintiv, Inc.	United States and Canada	Oil & Gas Exploration and Production	11,932.97	2	Moderately Misaligned	2	46.1
Pantheon Resources Plc	Europe	Oil & Gas Exploration and Production	304.42	2.4	Significantly Misaligned	2.1	35.6
Paramount Resources Ltd.	United States and Canada	Oil & Gas Exploration and Production	2818.4951	2	Moderately Misaligned	1.9	43.5
Parex Resources, Inc.	United States and Canada	Oil & Gas Exploration and Production	1968.5693	5.9	Severely Misaligned	5.4	44.1
PDC Energy, Inc.	United States and Canada	Oil & Gas Exploration and Production	6601.4992	2	Moderately Misaligned	2	45.3
Peabody Energy Corp.	United States and Canada	Coal	3188.352	4	Highly Misaligned	3.6	41.5
Permian Resources Corp.	United States and Canada	Oil & Gas Exploration and Production	7346.0635	2.1	Significantly Misaligned	1.9	28.4
Petróleo Brasileiro SA	Latin America and Caribbean	Integrated Oil & Gas	102181.1305	4.8	Severely Misaligned	4.4	45.2

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Petróleos Mexicanos EPE	Latin America and Caribbean	Integrated Oil & Gas	No Data	4.1	Severely Misaligned	3.5	36.4
Peyto Exploration & Development Corp.	United States and Canada	Oil & Gas Exploration and Production	1751.1671	2.1	Significantly Misaligned	1.9	35.9
Pingdingshan Tianan Coal Mining Co., Ltd.	Asia / Pacific	Coal	3774.026	3.3	Highly Misaligned	2.7	31.4
Pioneer Natural Resources Co.	United States and Canada	Oil & Gas Exploration and Production	52466.5018	2.1	Significantly Misaligned	2.1	46.2
PrairieSky Royalty Ltd.	United States and Canada	Oil & Gas Exploration and Production	4188.32	2	Moderately Misaligned	1.9	37.9
PRIO SA	Latin America and Caribbean	Oil & Gas Exploration and Production	7921.3322	2.2	Significantly Misaligned	1.9	26.1
PT Adaro Energy Indonesia Tbk	Asia / Pacific	Coal	4759.1393	5.8	Severely Misaligned	4.9	35.7
PT Bayan Resources Tbk	Asia / Pacific	Coal	42952.5601	6	Severely Misaligned	4.8	4.9
PT Bukit Asam Tbk	Asia / Pacific	Coal	1814.9371	3.4	Highly Misaligned	3.3	45.4
PT Bumi Resources Tbk	Asia / Pacific	Coal	2043.7384	4	Highly Misaligned	3.3	34.7
PT Golden Eagle Energy Tbk	Asia / Pacific	Coal	189.6927	2.3	Significantly Misaligned	2	35.7
PT Indika Energy Tbk	Asia / Pacific	Coal	483.434	8.1	Severely Misaligned	7.3	42.9
PT Pertamina (Persero)	Asia / Pacific	Integrated Oil & Gas	No Data	4.1	Severely Misaligned	3.9	46.4
PT Prima Andalan Mandiri Tbk	Asia / Pacific	Coal	1300.8094	2.6	Significantly Misaligned	2.3	37.3
PTT Exploration & Production Plc	Asia / Pacific	Oil & Gas Exploration and Production	17304.5897	1.7	Moderately Misaligned	1.7	53.4
PTT Public Co., Ltd.	Asia / Pacific	Integrated Oil & Gas	29772.2058	2.9	Significantly Misaligned	3	52.5
Rain Industries Ltd.	Asia / Pacific	Coal	623.3012	4	Highly Misaligned	3.4	35.4
Ramaco Resources, Inc.	United States and Canada	Coal	871.1518	2.8	Significantly Misaligned	2.1	11.5
Range Resources Corp.	United States and Canada	Oil & Gas Exploration and Production	7345.3206	2.5	Significantly Misaligned	2.4	46.6
Repsol SA	Europe	Integrated Oil & Gas	18269.5426	3.4	Highly Misaligned	4	60.8
Riley Exploration Permian, Inc.	United States and Canada	Integrated Oil & Gas	556.4097	5.3	Severely Misaligned	4.3	32
Rosneft Oil Co.	Europe	Integrated Oil & Gas	53351.3042	5.8	Severely Misaligned	4.7	33.6
Santos Ltd.	Asia / Pacific	Oil & Gas Exploration and Production	16837.3127	3.2	Highly Misaligned	3.4	56
Shaanxi Coal Industry Co., Ltd.	Asia / Pacific	Coal	28575.4568	3.6	Highly Misaligned	3.1	35.6
Shan Xi Hua Yang Group New Energy Co. Ltd.	Asia / Pacific	Coal	4967.7884	3.3	Highly Misaligned	2.7	31.9
Shanxi Coking Coal Energy Group Co., Ltd.	Asia / Pacific	Coal	7913.8989	3.3	Highly Misaligned	2.8	29

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Shanxi Lu'An Environmental Energy Development Co., Ltd.	Asia / Pacific	Coal	9247.5168	3.4	Highly Misaligned	2.7	29.6
Shanxi Meijin Energy Co., Ltd.	Asia / Pacific	Coal	4065.2816	3	Significantly Misaligned	2.4	28.2
Shell Plc	Europe	Integrated Oil & Gas	213640.8634	3.9	Highly Misaligned	4.6	61.8
SK Innovation Co., Ltd.	Asia / Pacific	Integrated Oil & Gas	10344.1718	4.8	Severely Misaligned	5.2	55.7
Southwestern Energy Co.	United States and Canada	Oil & Gas Exploration and Production	7214.583	2.2	Significantly Misaligned	2	37.8
Spartan Delta Corp.	United States and Canada	Oil & Gas Exploration and Production	389.8707	1.9	Moderately Misaligned	1.8	41.9
Strike Energy Ltd.	Asia / Pacific	Oil & Gas Exploration and Production	936.9544	5	Severely Misaligned	4.3	38.8
Suncor Energy, Inc.	United States and Canada	Integrated Oil & Gas	41524.7233	4.6	Severely Misaligned	4.4	47.7
Tamarack Valley Energy Ltd.	United States and Canada	Oil & Gas Exploration and Production	1290.9971	2	Moderately Misaligned	1.9	40
Tatneft PJSC	Europe	Integrated Oil & Gas	12142.4757	5.6	Severely Misaligned	4.8	38.8
TerraCom Ltd.	Asia / Pacific	Coal	229.4759	3.8	Highly Misaligned	3.1	29.2
Tethys Oil AB	Europe	Oil & Gas Exploration and Production	140.2128	7.7	Severely Misaligned	7.5	47.5
Texas Pacific Land Corp.	United States and Canada	Oil & Gas Exploration and Production	12068.3446	2.3	Significantly Misaligned	2.2	43
TotalEnergies SE	Europe	Integrated Oil & Gas	160354.9628	4	Highly Misaligned	4.3	55.5
Tourmaline Oil Corp.	United States and Canada	Oil & Gas Exploration and Production	15338.7345	2	Moderately Misaligned	1.9	43.7
Tullow Oil Plc	Europe	Oil & Gas Exploration and Production	720.0593	2	Moderately Misaligned	1.9	39.1
Ur-Energy, Inc.	United States and Canada	Coal	405.8534	5.8	Severely Misaligned	4.6	32.3
Vermilion Energy, Inc.	United States and Canada	Oil & Gas Exploration and Production	1974.7293	4.5	Severely Misaligned	5.5	62.2
W&T Offshore, Inc.	United States and Canada	Oil & Gas Exploration and Production	477.8319	2.1	Significantly Misaligned	1.9	47.7
Whitecap Resources, Inc.	United States and Canada	Oil & Gas Exploration and Production	4061.5661	1.9	Moderately Misaligned	1.8	43.5
Whitehaven Coal Ltd.	Asia / Pacific	Coal	4245.8508	6.3	Severely Misaligned	5.2	34.8
Wintershall Dea AG	Europe	Oil & Gas Exploration and Production	No Data	6.3	Severely Misaligned	5.5	41.1
Woodside Energy Group Ltd.	Asia / Pacific	Oil & Gas Exploration and Production	40229.3218	4.6	Severely Misaligned	4.9	54.1
Xinjiang Xintai Natural Gas Co., Ltd.	Asia / Pacific	Oil & Gas Exploration and Production	1828.4691	2.3	Significantly Misaligned	2	34.1
Yankuang Energy Group Co., Ltd.	Asia / Pacific	Coal	18258.0458	3.5	Highly Misaligned	3	34.3
Établissements Maurel & Prom SA	Europe	Oil & Gas Exploration and Production	1340.057	4	Highly Misaligned	3	21.1

References

1. The average scores at industry level are calculated based on the cumulative emissions of the industry, by adding up the emissions of each company in the industry. The industry exposure score is calculated based on the total baseline emissions and total budget emissions in the industry, the industry LCTR score is calculated based on the total baseline emissions and the total expected emissions in the industry, and the industry management score is calculated based on the total managed emissions and the total baseline emissions. When it comes to Industry score ranking, #1 represents the top-performing industry.
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