

Low Carbon Transition Rating Industry Report

Utilities

January 2024

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Key Findings

- Companies in the Utilities industry are significantly misaligned with the net zero by 2050 target, with an average Implied Temperature Rise of 2.6 degrees Celsius. This is driven by high exposure and insufficient investment alignment and transition preparedness.
- Power generation is the largest source of emissions globally, and companies will continue to face the pressure to transition to carbon-free sources of power. Utilities are facing a tight net zero budget, driven by the global fossil fuel phase-out and the fast-paced integration of renewable energy.
- Utilities have an unexceptional average overall management score, though investment in renewable electricity is increasing. Still, management of scope 1 and scope 3 downstream emissions – the main drivers of baseline emissions – is inadequate to meet the requirements for the transition to net zero.
- From a regional perspective, European utilities are leading in managing their transition, and Asian utilities are lagging, but scores vary widely within these regions.

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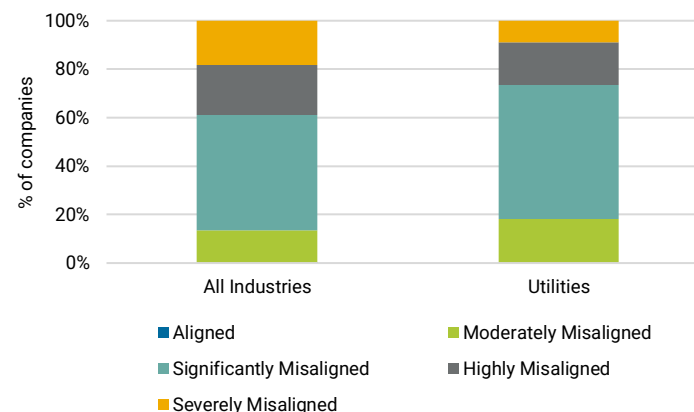
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Key facts [1]

Number of companies:	328
Industry LCTR score:	2.6
Industry LCTR score rank:	14 / 42
Industry Exposure score:	2.5
Industry Exposure score rank:	12 / 42
Industry Management score:	48.6
Industry Management score rank:	28 / 42
Data as of:	Jan-24
Total number of companies:	8,278
Universe:	Ratings
Number of industries:	42

Low Carbon Transition Rating distribution



Industry Characteristics

Overview

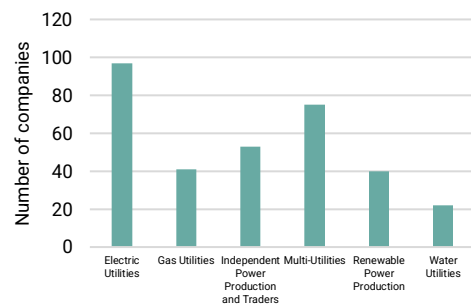
Industry composition

The Utilities industry is composed of 328 companies in six subindustries: Electric Utilities, Gas Utilities, Independent Power Production and Traders (IPP), Multi-Utilities, Renewable Power Production, and Water Utilities. Firms in the industry generate and transmit electricity, treat and deliver water, collect and treat wastewater, and operate gas transmission and delivery networks. Electric Utilities and Multi-Utilities are the largest subindustries, respectively representing 30% and 23% of the industry, followed by the IPP (16%) and Renewable Power Production (12%) subindustries. The industry comprises primarily mid- and small-cap companies, with mid-cap companies making up the largest segment (38%), followed by small-cap companies (36%). The Utilities industry is primarily split between Asia-Pacific (40%), Europe (25%), and the US and Canada (24%). Additionally, most large companies in the sector are state-owned enterprises, particularly those in Asia. These companies have a relatively high level of influence over the country's national decarbonization and energy security plans.

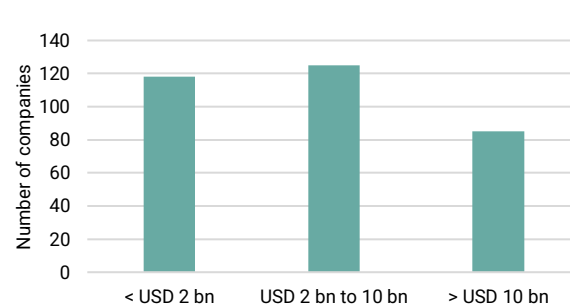
Industry trends

Global electricity demand is surging as economies develop and the world deploys electrification as a key strategy for carbon reduction in many sectors, including transportation and buildings. As a result, demand is expected to more than double by 2050. [2] However, power generation is the largest sector in terms of greenhouse gas (GHG) emissions, at 40% of the global total. [3] While a transition is already underway, meeting national and international targets will require a major effort across all countries to decarbonize the electricity generation mix in the coming decades. In 2023, global renewable capacity additions increased by almost 50% annually, the fastest annual growth rate in the past two decades. [4] Still, meeting most countries' GHG targets will require accelerated efforts, coupled with continued incentives in the form of renewable portfolio standards, favourable tax treatment and reduced fossil fuel subsidies. In addition, carbon pricing and regulations, combined with declining renewable prices, continue to put pressure on existing fossil fuel plants. Power generation utilities will therefore face increased pressure to consider early retirement of older fossil fuel plants.

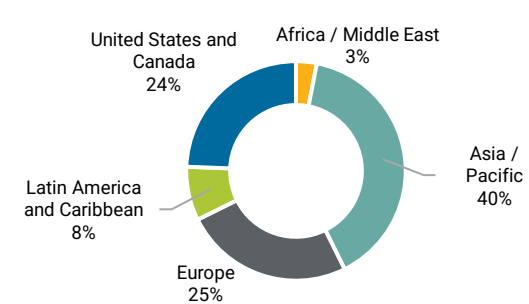
Composition by subindustry



Composition by market cap



Composition by region (Headquarters location)



Industry Budget

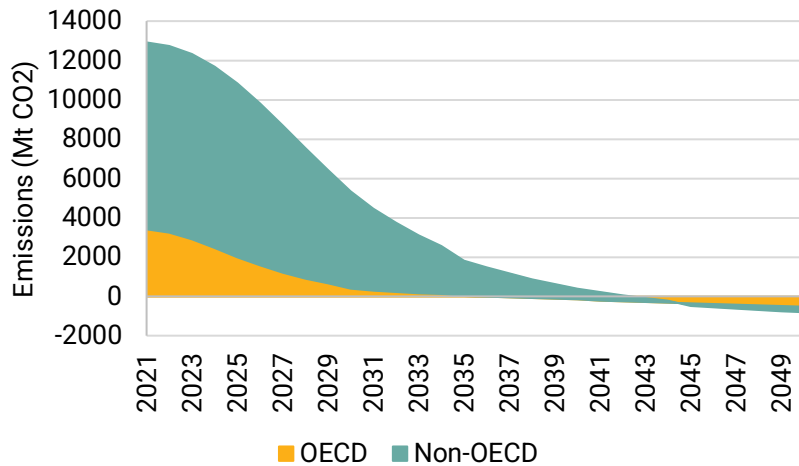
Overview

Industry budget

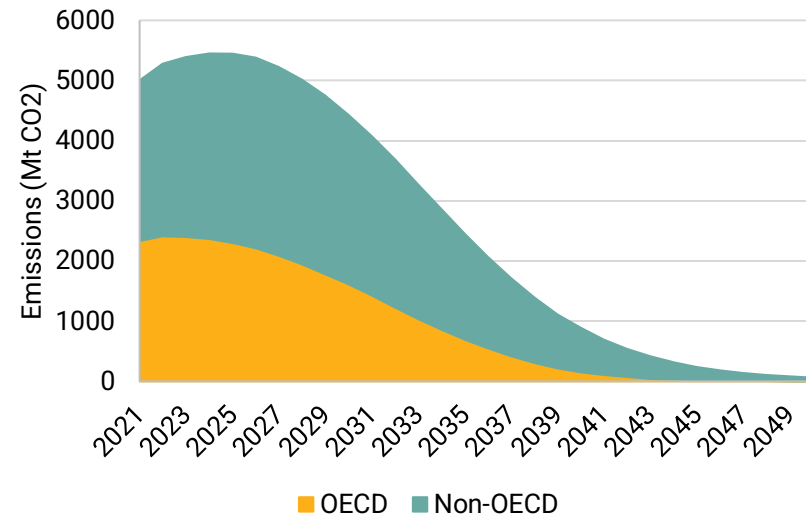
The Utilities industry budget is matched to the Inevitable Policy Response (IPR) Required Policy Scenario (RPS) Power pathway covering electricity and heat for scope 1 emissions, which is the primary pathway in the budget. The budget is driven by GHG reductions based on a global fossil fuel phase-out and the fast-paced integration of renewable energy.

The underlying assumptions of the IPR RPS Power pathway are that coal phase-out policies are immediate and total coal phase-out is achieved by 2045, with a faster phase-out in OECD countries, especially in Europe and North America. Furthermore, the average reduction in coal use is between 4% and 20% per year, and 100% clean power is achieved by 2045. Demand-side actions also play a contributing role, with the assumption that new fossil fuel heating systems will be phased out by 2040, with an annual reduction of between 5% and 10% per year in fossil heating system sales. Renewable energy supply is expected to increase from 28% in 2020 to 87% in 2050, with some reliance on carbon capture and storage for generation associated with fossil fuel use in the late 2040s and early 2050s.

Industry budget



Technology



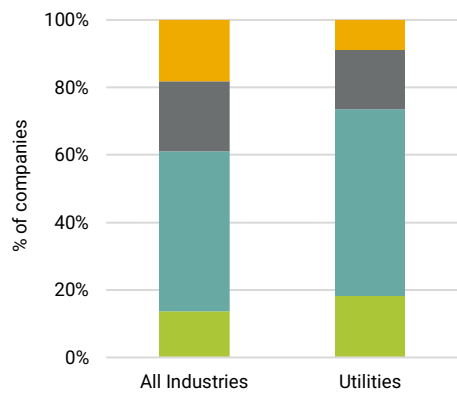
Low Carbon Transition Rating Analysis

Analyst commentary

The Utilities industry has high baseline emissions, and emissions from the industry are expected to increase further under current investment plans and transition preparedness. The expected cumulative emissions through 2050 would overshoot the net zero budget by 253 billion metric tons of CO₂e. This indicates that the world would warm by 2.6 degrees above pre-industrial levels if all industries had the same investment alignment and transition preparedness as this industry.

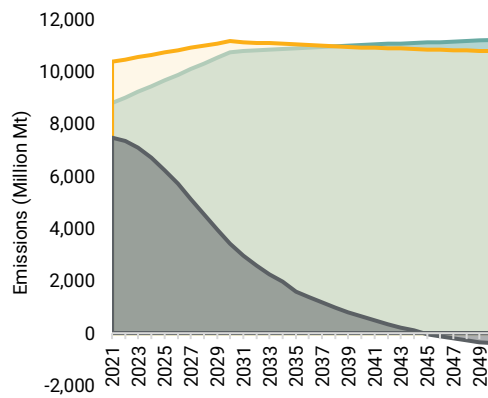
Most companies in the industry (55%) are significantly misaligned with a net zero pathway. Relative to all industries, the proportion of highly and severely misaligned utilities is much lower, while the proportion of moderately misaligned utilities is higher. This is primarily because utilities began the transition significantly earlier than companies in other industries, due to the availability of technology, innovation, economic drivers and climate advocacy. In particular, larger utilities companies in Asia, with direct government influence and support, have proactively invested in renewable energy to expand generation capacity. However, transition plans for utilities remain insufficient under the net zero pathway, especially as electrification in other industries will boost electricity demand. With the need to phase out fossil fuels globally in the coming decades, utilities have a tight (and shrinking) annual GHG emission budget. With new fossil fuel projects planned and in the pipeline across the industry, utilities have insufficient current investment alignment and transition preparedness to substantially reduce the industry’s expected emissions. The gap between expected emissions and emissions budgets will remain high even after 2040, when a much higher percentage of renewable electricity is expected to come online.

LCTR category distribution



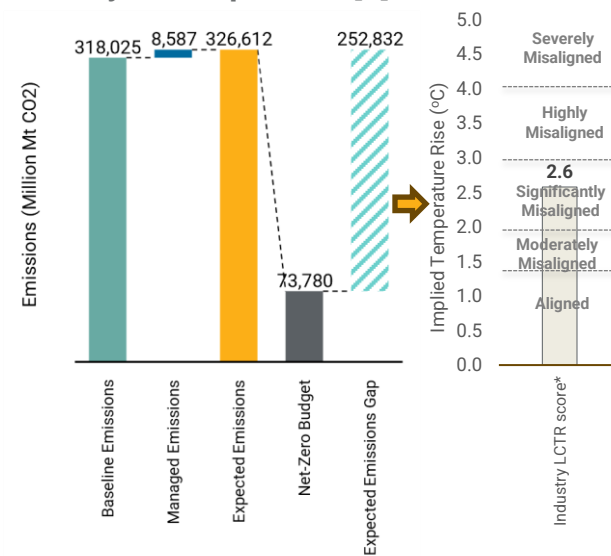
- Aligned
- Significantly Misaligned
- Severely Misaligned
- Moderately Misaligned
- Highly Misaligned

Expected emissions projections [1]



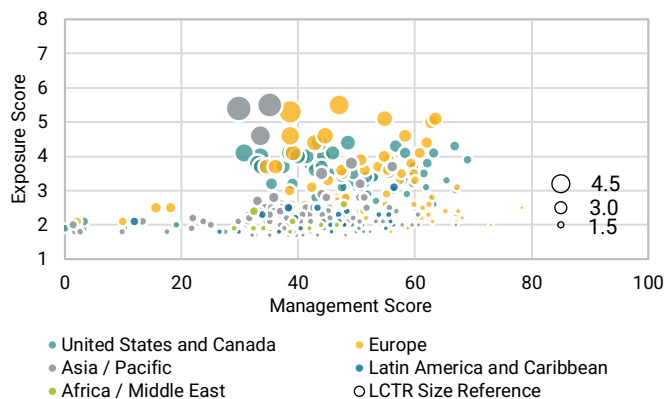
- Baseline Emissions
- Net-Zero Budget
- Expected Emissions

Industry decomposition [1]



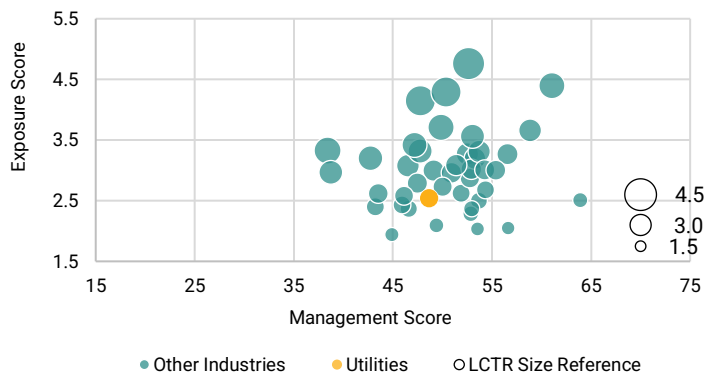
Exposure-management analysis

Company exposure-management by region



Most companies in the Utilities industry have exposure scores concentrated between 2 and 3 degrees Celsius, with management scores of between 40 and 60. Companies based in Europe, the US and Canada typically have higher exposure scores, as these regions are expected to phase out fossil fuel plants faster than other regions, considering their historical GHG emissions. Nevertheless, companies from these regions also exhibit higher management performance. Owing to larger emissions budgets, companies from Asia-Pacific (and particularly those situated in emerging markets) have relatively low exposure scores, but they also have weak or very weak management performance.

Industry exposure-management landscape [1]



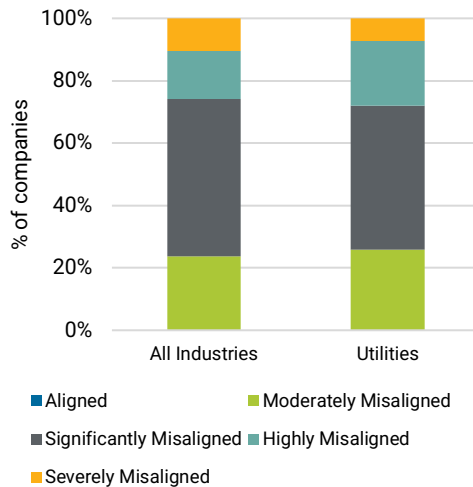
When compared with other industries, companies in the Utilities industry face lower exposure and exhibit close to average management. The relatively low exposure stems from the relatively high percentage of non-OECD companies assessed in the Utilities industry. Companies in the industry exhibit average performance in terms of investment alignment and management preparedness, owing to the concentration of high scores among OECD companies and low scores among non-OECD companies. This mirrors national efforts, as OECD countries set strong targets and use incentives to reduce GHG emissions, while most non-OECD countries are continuing to expand fossil fuel deployment to meet development objectives.

Top three performers in overall LCTR scores

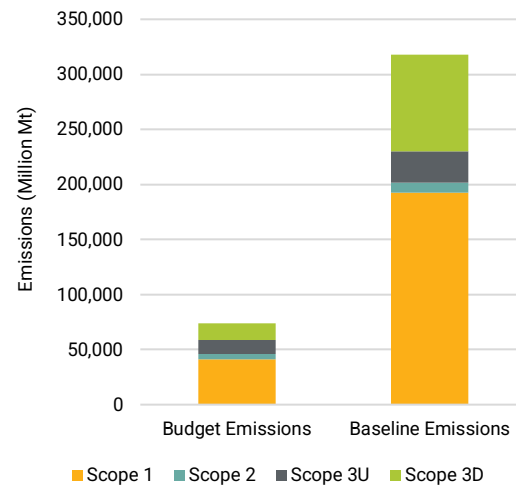
Company Name	Region	Subindustry	Mkt cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Corporación Acciona Energias Renovables SA	Europe	Renewable Power Production	10,143.9	1.6	Moderately Misaligned	2	73
Scatec ASA	Europe	Renewable Power Production	1,282.0	1.7	Moderately Misaligned	1.8	55.9
Contact Energy Ltd.	Asia-Pacific	Electric Utilities	3,995.3	1.7	Moderately Misaligned	2	67

Overall Exposure

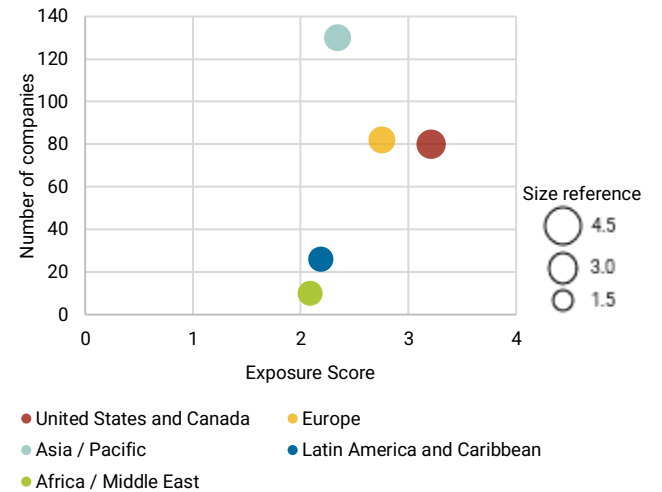
Exposure category distribution



Baseline and budget emissions by scope [1]



Weighted average exposure score by region [1]



Analyst commentary

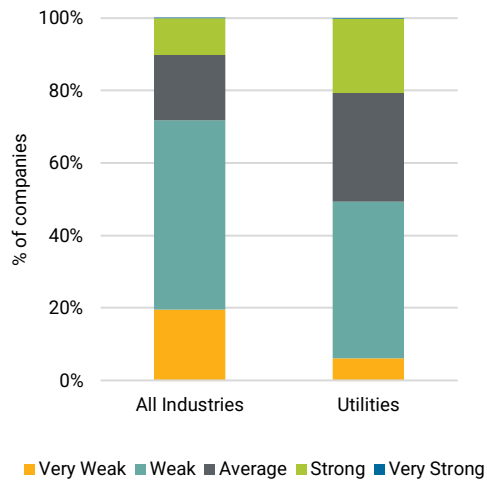
The cumulative baseline emissions projections of the Utilities industry exhibit better alignment with the net zero budget compared with the average among all industries. Forty-six percent of Utilities companies are severely misaligned, which is slightly lower than the percentage of companies in the same category among all industries (50%). The percentage of severely misaligned companies is also lower for the Utilities industry than across all industries, while 26% of companies in the Utilities industry are moderately misaligned, higher than the figure across all industries (24%).

Breaking down the cumulative emission to scope level, the highest weight of emissions for the Utilities industry originates from scope 1 (60%), followed by scope 3 downstream (28%). This is because, globally, the electricity and gas provided by utilities still primarily originates from fossil fuels. The combustion of fossil fuels to generate electricity contributes to scope 1 emissions at the power plants, while the use of fossil-fuel based electricity and gas at the end use stage leads to high scope 3 downstream emissions. The net zero budget is proportioned based on the distribution of baseline emissions among all four scope categories. Scope 1 and scope 3 downstream are thus the two major scopes contributing to the Utilities industry’s exposure.

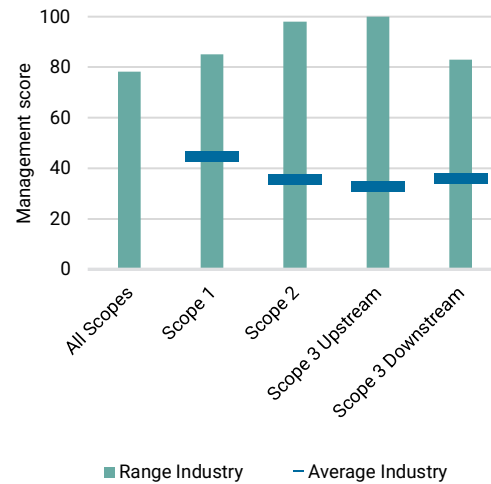
Regionally, companies from the US and Canada have the highest average exposure, followed by companies in Europe. This is mainly because OECD countries face tighter emissions budgets, as they are expected to phase out fossil fuels, particularly coal, more quickly than other regions.

Overall Management

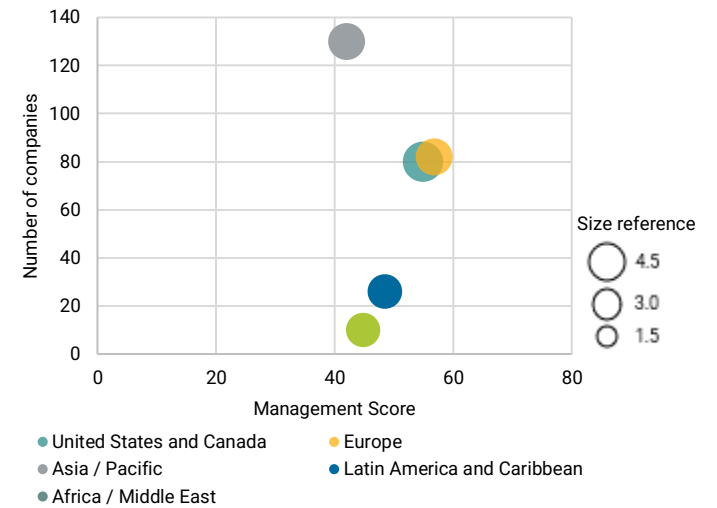
Management category distribution



Variation in management score by scope



Weighted average management score by region [1]



Analyst commentary

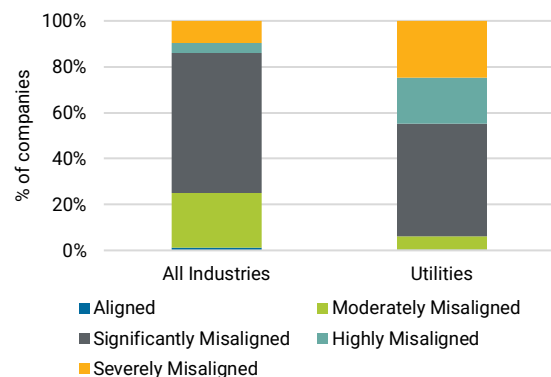
Companies in the Utilities industry exhibit stronger management than the overall universe, with 21% of companies exhibiting strong (scores above 55) or very strong (scores above 75) management (scores of 55-75 and above 75, respectively). Electric company EDP – Energies de Portugal SA has the highest management score (78.3) in the Utilities industry. Forty-nine percent of companies in this industry exhibit weak or very weak management (scores of 25-45 and below 25, respectively), which is much lower than the percentage across all industries (72%). The Utilities industry demonstrates the strongest performance among all industries (44.7) in managing scope 1 emissions, and the investment alignment is relatively high for this scope, given high levels of investment in producing renewable electricity. On the other hand, the management of scope 3 downstream emissions is weak, with an average score of only 35.6.

Considering that scope 1 and scope 3 downstream emissions represent the main drivers of baseline emissions for the Utilities industry, the management scores in these two scopes are insufficiently high to manage baseline emissions, leading to a higher Implied Temperature Rise than the exposure scores would typically warrant.

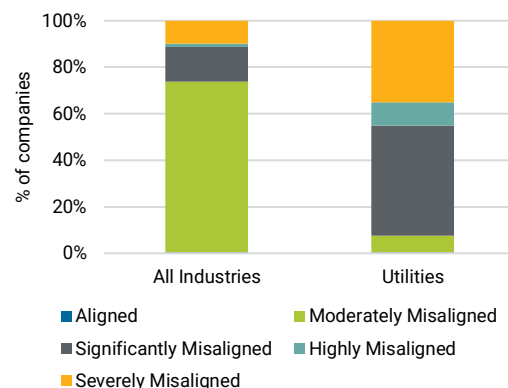
Regionally, European utilities have the highest average management score (56.8 points), as they are more likely to set emission reduction targets, use carbon prices in decision-making and demonstrate strong product decarbonization programmes. Companies in the US and Canada come second, with an average management score of 54.9. Utilities in Asia-Pacific lag behind in managing their baseline emissions (average score of 42), as investment in fossil fuel projects in this region is still catching up to installed fossil fuel capacities, especially in emerging markets such as China and India.

Scope 1

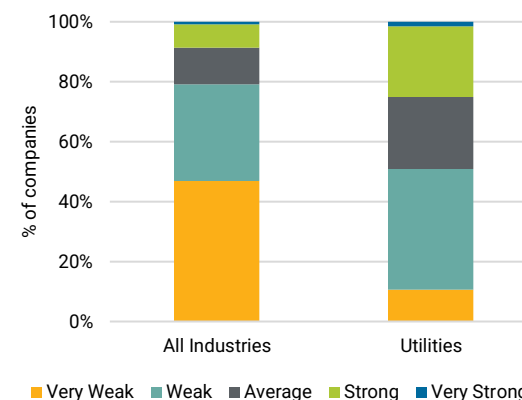
Scope 1 LCTR category distribution



Exposure score category distribution



Management score category distribution



Analyst commentary

The bulk of utilities (47%) have scope 1 emissions that are significantly misaligned with the net zero by 2050 target. When compared with all industries, the Utilities industry exhibits worse performance in terms of scope 1 emissions, with 95% of utilities having an Implied Temperature Rise above 2 degrees (indicating either severe, high or significant misalignment), versus 74% for all industries. This gap stems largely from exposure scores, as 94% of utilities have scope 1 exposure of above 2 degrees, much higher than across all industries (28%). This is due to utilities’ high baseline scope 1 emissions, which result from the burning of fossil fuels to generate heat and electricity. Achieving the net zero by 2050 target will require the phase-out of fossil fuel plants, especially those that run on coal. The availability of viable low-carbon alternatives results in a tight scope 1 emissions budget for utilities. The gap between high projected baseline emissions and a low net zero budget leads to high scope 1 exposure for utilities.

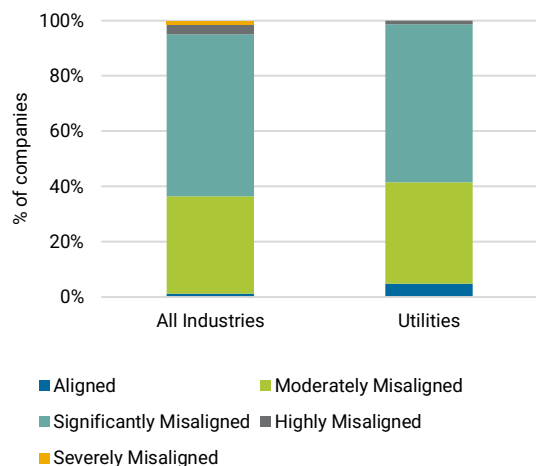
In terms of management, the Utilities industry has a higher percentage of companies with average to strong scope 1 management scores than all industries, owing to growing renewable energy investment plans and improved emissions disclosures. This explains the large reduction from severely misaligned exposure (35%) to a severely misaligned Implied Temperature Rise (25%). Still, overall scope 1 management performance is inadequate to reduce the Implied Temperature Rise below the exposure mark; as a result, a high percentage of utilities still have scores above 2 degrees.

Top three performers for scope 1

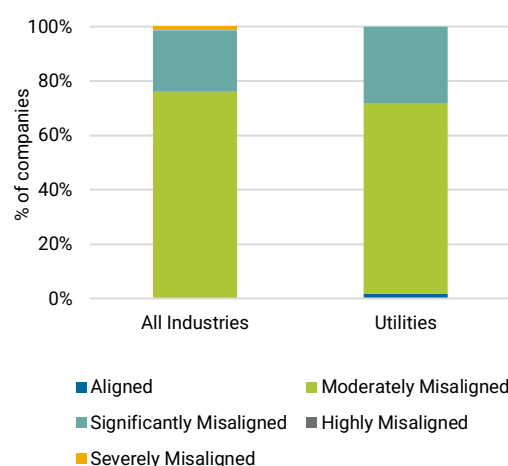
Company Name	Region	Subindustry	Mkt cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Cloudberry Clean Energy ASA	Europe	Renewable Power Production	327.9	1.5	Aligned	1.5	37.5
Contact Energy Ltd.	Asia-Pacific	Electric Utilities	3,995.3	1.7	Moderately Misaligned	2.1	70
Ørsted A/S	Europe	Multi-Utilities	23,347.1	1.8	Moderately Misaligned	3.3	85

Scope 2

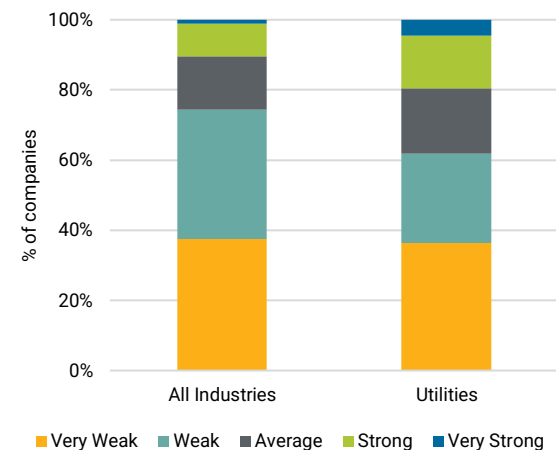
Scope 2 LCTR category distribution



Exposure score category distribution



Management score category distribution



Analyst commentary

Most utilities (57%) have a scope 2 Implied Temperature Rise of above 2 degrees, but the percentage is lower than that across all industries. Notably, 6% of utilities are aligned with 1.5 degrees for their scope 2 emissions, as they use less electricity sourced from third parties. In terms of exposure, most utilities (66%) are moderately misaligned (66%). This is mainly because only a small percentage of these companies’ total emissions fall into scope 2, as they have low levels of purchased electricity and heat for their own consumption.

In terms of management, 58% of Utilities companies exhibit weak or very weak management of their scope 2 emissions. This ultimately boosts their expected scope 2 emissions and increases their Implied Temperature Rise.

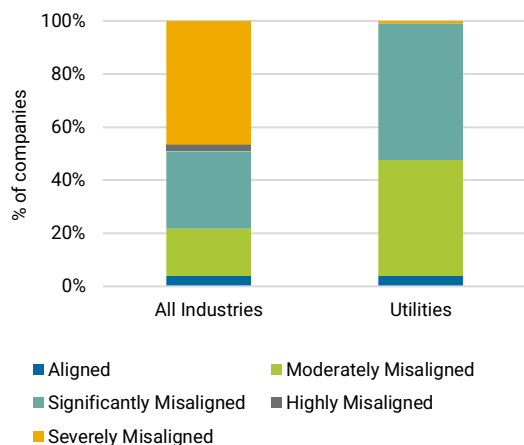
The top three performers in terms of Implied Temperature Rise for scope 2 emissions mainly fall into the Electric Utilities subindustry. These companies consume limited amounts of purchased energy, leading to a very low proportion of total scope 2 emissions.

Top three performers for scope 2

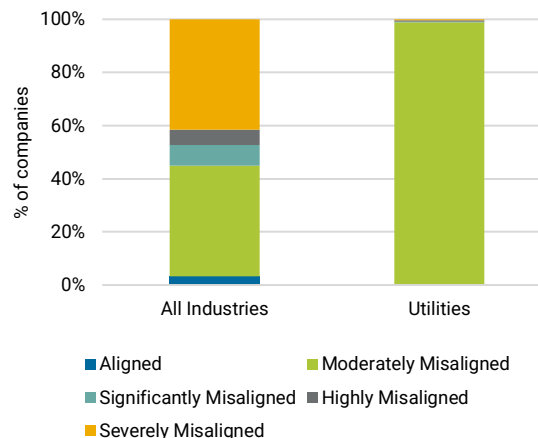
Company Name	Region	Subindustry	Mkt cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
EDP-Energias de Portugal SA	Europe	Electric Utilities	20,988.7	1.2	Aligned	2.1	98
Iberdrola SA	Europe	Electric Utilities	81,005.9	1.3	Aligned	2.1	91.2
Veolia Environnement SA	Europe	Multi-Utilities	22,591.7	1.4	Aligned	2.1	86.3

Scope 3 Upstream

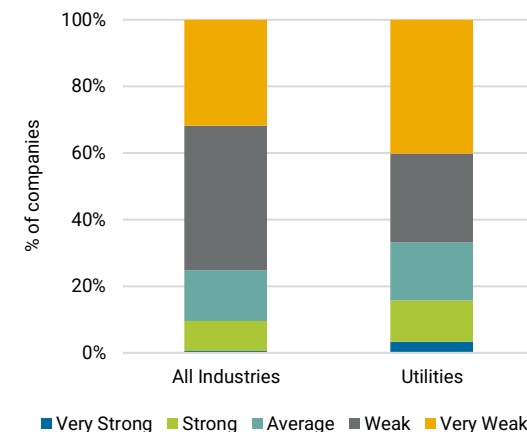
Scope 3 upstream LCTR category distribution



Exposure score category distribution



Management score category distribution



Analyst commentary

Most utilities are outperforming the average across all industries in terms of managing their supply chain emissions. Fifty-two percent of Utilities are moderately misaligned or aligned with a net zero by 2050 target for their scope 3 upstream emissions, compared with 22% for all industries. Utilities also have significantly better exposure than across all industries, with 99% facing moderate misalignment. This is mainly because utilities sit higher up in the value chain and usually have a shorter supply chain, leading to lower baseline scope 3 upstream emissions compared with other industries.

Moreover, 17% of utilities exhibit strong or very strong management, higher than for all industries (11%). Utilities are therefore outperforming all industries when it comes to the Implied Temperature Rise.

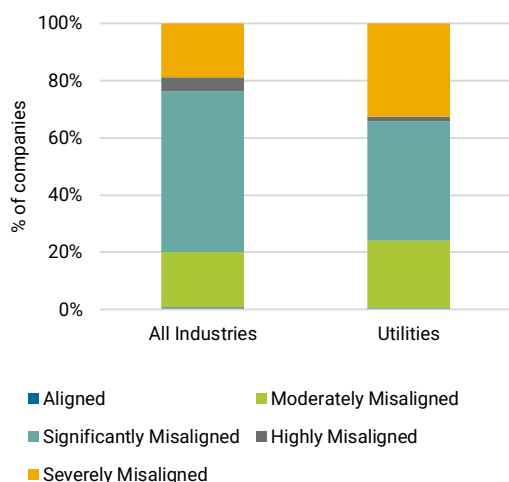
The top performers in terms of Implied Temperature Rise largely fall into the Electric Utilities subindustry, as these companies are taking very strong action to manage the emissions coming from their supply chain.

Top three performers for scope 3 upstream

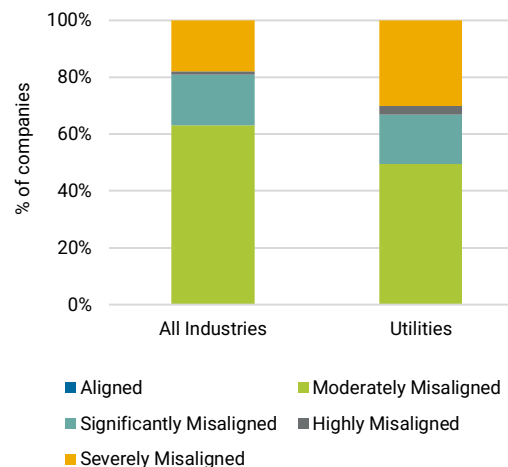
Company Name	Region	Subindustry	Mkt cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
EDP-Energias de Portugal SA	Europe	Electric Utilities	20,988.7	1.2	Aligned	1.9	100
SNAM SpA	Europe	Gas Utilities	17,262.4	1.3	Aligned	2	91.7
Iberdrola SA	Europe	Electric Utilities	81,005.9	1.3	Aligned	1.9	89.5

Scope 3 Downstream

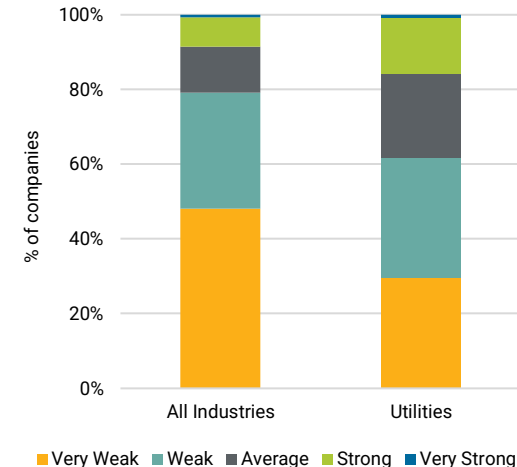
Scope 3 downstream LCTR category distribution



Exposure score category distribution



Management score category distribution



Analyst commentary

Most utilities (77%) have an Implied Temperature Rise of above 2 degrees Celsius in terms of their scope 3 downstream emissions (77%), as end-user emissions of fossil-fuel-based electricity and gas is high for this industry. This figure is much lower when looking only at exposure: 56% of utilities face an Implied Temperature Rise of above 2 degrees, based on their exposure. This is mainly because 58% of utilities have weak or very weak management scores for this scope; for example, a large percentage lack adequate product decarbonization plans. This pushes up expected scope 3 downstream emissions, and in turn the Implied Temperature Rise.

The top performers in terms of Implied Temperature Rise for scope 3 downstream emissions are mainly renewable power producers or electric utilities supplying a comparatively higher proportion of renewable power. By increasing the supply of renewable energy and reducing power generation based on fossil fuels, these companies can significantly decrease end-use emissions.

Top three performers for scope 3 downstream

Company Name	Region	Subindustry	Mkt cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Corporación Acciona Energias Renovables SA	Europe	Renewable Power Production	10,143.9	1.5	Aligned	2.2	83
Sembcorp Industries Ltd.	Asia-Pacific	Independent Power Production and Traders	7,160.0	1.5	Aligned	1.8	75.6
Global Power Synergy PCL	Asia-Pacific	Independent Power Production and Traders	3,987.3	1.6	Moderately Misaligned	1.9	69.1

List of Companies Covered

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
2i Rete Gas SpA	Europe	Gas Utilities	No data	4.7	Severely Misaligned	4.1	39.1
A2A SpA	Europe	Multi-Utilities	6441.7718	4	Highly Misaligned	4.6	58.3
Aboitiz Equity Ventures, Inc.	Asia-Pacific	Electric Utilities	4527.1737	2	Moderately Misaligned	1.8	38.7
Aboitiz Power Corp.	Asia-Pacific	Independent Power Production and Traders	4919.8268	2.4	Significantly Misaligned	1.9	21.7
Absolute Clean Energy PCL	Asia-Pacific	Renewable Power Production	449.4641	2.2	Significantly Misaligned	1.8	17.5
Acciona SA	Europe	Multi-Utilities	8061.0801	3	Significantly Misaligned	3.3	57.4
Acea SpA	Europe	Multi-Utilities	3251.3049	3.6	Highly Misaligned	3.5	47.7
ACEN Corp.	Asia-Pacific	Independent Power Production and Traders	3138.989	2.4	Significantly Misaligned	2.3	47.6
Adani Energy Solutions Ltd.	Asia-Pacific	Electric Utilities	14,027.07	1.8	Moderately Misaligned	1.8	51.2
Adani Green Energy Ltd.	Asia-Pacific	Renewable Power Production	30,412.43	1.7	Moderately Misaligned	1.7	48.1
Adani Power Ltd.	Asia-Pacific	Independent Power Production and Traders	24,335.85	2	Moderately Misaligned	1.9	44.4
Adani Total Gas Ltd.	Asia-Pacific	Gas Utilities	13,071.60	2.4	Significantly Misaligned	2.2	41.9
AES Andes SA	Latin America and Caribbean	Independent Power Production and Traders	950.4779	2.3	Significantly Misaligned	2.2	46.9
Algonquin Power & Utilities Corp.	United States and Canada	Multi-Utilities	4351.7879	3.4	Highly Misaligned	3.4	48.2
ALLETE, Inc.	United States and Canada	Electric Utilities	3515.3181	2.2	Significantly Misaligned	2	36.4
Alliander NV	Europe	Multi-Utilities	No data	2.9	Significantly Misaligned	2.8	46.5
Alliant Energy Corp.	United States and Canada	Multi-Utilities	13,090.69	2.9	Significantly Misaligned	3.9	69
AltaGas Ltd.	United States and Canada	Multi-Utilities	6184.4311	3.3	Highly Misaligned	3.4	53.2
Altus Power, Inc.	United States and Canada	Renewable Power Production	1094.1486	2.4	Significantly Misaligned	2	19.1

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Alupar Investimento SA	Latin America and Caribbean	Electric Utilities	1978.6695	2	Moderately Misaligned	1.8	36.7
Ameren Corp.	United States and Canada	Multi-Utilities	19,021.44	3.2	Highly Misaligned	3.7	60
American Electric Power Co., Inc.	United States and Canada	Electric Utilities	42,711.65	2.2	Significantly Misaligned	2.6	63.3
American Water Works Co., Inc.	United States and Canada	Water Utilities	25,699.11	1.9	Moderately Misaligned	2	59
An Hui Wenergy Co., Ltd.	Asia-Pacific	Electric Utilities	2002.196	2.3	Significantly Misaligned	2.1	34.3
Arise AB	Europe	Renewable Power Production	201.86	3.3	Highly Misaligned	2.5	18.1
Ascopiave SpA	Europe	Gas Utilities	539.3121	5.4	Severely Misaligned	4.6	38.6
ATCO Ltd.	United States and Canada	Multi-Utilities	3323.7205	4.3	Severely Misaligned	4	44.3
Atlantica Sustainable Infrastructure Plc	Europe	Electric Utilities	2497.4197	2.2	Significantly Misaligned	2.5	61.3
Atmos Energy Corp.	United States and Canada	Gas Utilities	17,481.61	5	Severely Misaligned	4	33.5
Auren Energia SA	Latin America and Caribbean	Renewable Power Production	2742.1814	2.1	Significantly Misaligned	1.8	26.5
Ausnet Pty Ltd. (Victoria)	Asia-Pacific	Multi-Utilities	7019.1299	2.6	Significantly Misaligned	2.3	35.7
Avangrid, Inc.	United States and Canada	Multi-Utilities	12,535.25	3.1	Highly Misaligned	3.1	50
Avista Corp.	United States and Canada	Multi-Utilities	2765.1185	3	Significantly Misaligned	2.8	42.9
Aydem Yenilenebilir Enerji AS	Africa / Middle East	Renewable Power Production	417.501	2	Moderately Misaligned	1.8	38.6
B.Grimm Power Public Co. Ltd.	Asia-Pacific	Electric Utilities	2071.2002	2.3	Significantly Misaligned	2	34.2
BCPG Public Co., Ltd.	Asia-Pacific	Renewable Power Production	768.6361	1.9	Moderately Misaligned	1.8	36.5
Beijing Energy International Holding Co., Ltd.	Asia-Pacific	Renewable Power Production	380.2469	1.9	Moderately Misaligned	1.7	39.7
Beijing Enterprises Holdings Ltd.	Asia-Pacific	Multi-Utilities	4379.9069	2.8	Significantly Misaligned	2.5	36.1
Beijing Enterprises Water Group Ltd.	Asia-Pacific	Water Utilities	2237.8101	1.8	Moderately Misaligned	1.7	38.3
Beijing Jingneng Clean Energy Co., Ltd.	Asia-Pacific	Independent Power Production and Traders	1825.8509	2.7	Significantly Misaligned	2.5	42

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
BKW AG	Europe	Electric Utilities	9378.4513	4.8	Severely Misaligned	4.4	42.8
Borex, Inc.	United States and Canada	Renewable Power Production	2614.4235	2.2	Significantly Misaligned	2.2	46.6
Brookfield Infrastructure Corp.	United States and Canada	Gas Utilities	4654.6821	2.6	Significantly Misaligned	2.5	43.5
Brookfield Renewable Corp.	United States and Canada	Renewable Power Production	5175.6637	2	Moderately Misaligned	1.9	44.8
Brookfield Renewable Partners LP	Latin America and Caribbean	Renewable Power Production	7552.4475	1.9	Moderately Misaligned	2	56.3
California Water Service Group	United States and Canada	Water Utilities	2993.4696	2	Moderately Misaligned	1.9	46.1
Calpine Corp.	United States and Canada	Independent Power Production and Traders	No data	4.3	Severely Misaligned	3.7	37.4
Çan2 Termik AS	Africa / Middle East	Electric Utilities	537.1402	2.1	Significantly Misaligned	1.9	34
Canadian Utilities Ltd.	United States and Canada	Multi-Utilities	4867.5409	4.3	Severely Misaligned	4.1	45.9
Canal de Isabel II SA	Europe	Water Utilities	No data	4.5	Severely Misaligned	3.7	34.6
Canvest Environmental Protection Group Co. Ltd.	Asia-Pacific	Renewable Power Production	1164.8538	2.6	Significantly Misaligned	2.5	45.3
Capex SA	Latin America and Caribbean	Electric Utilities	1118.2251	2.5	Significantly Misaligned	2.2	39.5
Capital Power Corp.	United States and Canada	Independent Power Production and Traders	3344.8475	3.4	Highly Misaligned	3.6	54.7
CECEP Solar Energy Co., Ltd.	Asia-Pacific	Renewable Power Production	3077.741	2	Moderately Misaligned	1.8	35.1
CECEP Wind-Power Corp.	Asia-Pacific	Renewable Power Production	2740.6195	2.1	Significantly Misaligned	1.8	27.5
Celeo Redes Operacion Chile SA	Latin America and Caribbean	Electric Utilities	No data	2.9	Significantly Misaligned	2.1	11.9
CenterPoint Energy, Inc.	United States and Canada	Multi-Utilities	18,034.06	3.2	Highly Misaligned	3.3	51.4
Centrais Elétricas Brasileiras SA	Latin America and Caribbean	Electric Utilities	19,941.63	2	Moderately Misaligned	2.1	55.8
Centrica Plc	Europe	Multi-Utilities	9704.9032	3.6	Highly Misaligned	3.9	55.5
CESC Ltd.	Asia-Pacific	Electric Utilities	2110.3658	2.3	Significantly Misaligned	2.1	39.6
CEZ as	Europe	Electric Utilities	23,015.72	2.9	Significantly Misaligned	2.8	48.1

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
CGN New Energy Holdings Co., Ltd.	Asia-Pacific	Independent Power Production and Traders	1104.0563	2.8	Significantly Misaligned	2.5	38.6
CGN Power Co., Ltd.	Asia-Pacific	Independent Power Production and Traders	20,123.80	2.6	Significantly Misaligned	2.4	40.3
Chengdu Xingrong Environment Co., Ltd.	Asia-Pacific	Water Utilities	2396.8779	1.9	Moderately Misaligned	1.7	32.7
Chesapeake Utilities Corp.	United States and Canada	Gas Utilities	2348.7186	4.8	Severely Misaligned	4.1	38.5
China Datang Corp. Renewable Power Co. Ltd.	Asia-Pacific	Renewable Power Production	1676.0323	1.8	Moderately Misaligned	1.7	40.7
China Everbright Greentech Ltd.	Asia-Pacific	Electric Utilities	343.8306	2.4	Significantly Misaligned	2.3	41.5
China Gas Holdings Ltd.	Asia-Pacific	Gas Utilities	5364.8076	2.2	Significantly Misaligned	2.1	48.5
China Longyuan Power Group Corp. Ltd.	Asia-Pacific	Independent Power Production and Traders	16,631.33	2.6	Significantly Misaligned	2.3	35.9
China National Nuclear Power Co., Ltd.	Asia-Pacific	Independent Power Production and Traders	19,982.31	2.6	Significantly Misaligned	2.4	39.3
China Oil & Gas Group Ltd.	Asia-Pacific	Gas Utilities	174.6235	2.9	Significantly Misaligned	2.5	37.8
China Power International Development Ltd.	Asia-Pacific	Independent Power Production and Traders	4544.764	2.8	Significantly Misaligned	2.5	37.6
China Resources Gas Group Ltd.	Asia-Pacific	Gas Utilities	7583.3339	2.7	Significantly Misaligned	2.4	38.8
China Resources Power Holdings Co., Ltd.	Asia-Pacific	Independent Power Production and Traders	9631.1103	2.8	Significantly Misaligned	2.5	38.8
China Suntien Green Energy Corp., Ltd.	Asia-Pacific	Multi-Utilities	3353.9751	3	Significantly Misaligned	2.6	37.1
China Three Gorges Renewables (Group) Co., Ltd.	Asia-Pacific	Renewable Power Production	17,648.30	2.4	Significantly Misaligned	1.8	1.7
China Water Affairs Group Ltd.	Asia-Pacific	Water Utilities	896.4326	1.8	Moderately Misaligned	1.7	43.3
China Yangtze Power Co., Ltd.	Asia-Pacific	Renewable Power Production	80,576.82	2.4	Significantly Misaligned	1.8	2.6
Chongqing Water Group Co., Ltd.	Asia-Pacific	Water Utilities	3840	1.9	Moderately Misaligned	1.7	34.8
Chubu Electric Power Co., Inc.	Asia-Pacific	Electric Utilities	9732.2099	1.9	Moderately Misaligned	2	59.5
CK Infrastructure Holdings Ltd.	Asia-Pacific	Multi-Utilities	13,933.87	2.8	Significantly Misaligned	2.8	50.5
Cloudberry Clean Energy ASA	Europe	Renewable Power Production	327.9274	2.2	Significantly Misaligned	2	39.7

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
CLP Holdings Ltd.	Asia-Pacific	Electric Utilities	20,844.34	2.1	Significantly Misaligned	2.3	60.5
CMS Energy Corp.	United States and Canada	Multi-Utilities	16,942.71	3.2	Highly Misaligned	3.5	55.6
Colbún SA	Latin America and Caribbean	Independent Power Production and Traders	2770.2586	2.4	Significantly Misaligned	2.3	46.9
Companhia de Saneamento de Minas Gerais	Latin America and Caribbean	Water Utilities	1599.9085	2	Moderately Misaligned	1.8	29.8
Companhia de Saneamento do Paraná	Latin America and Caribbean	Water Utilities	1804.7622	1.9	Moderately Misaligned	1.8	39.2
Companhia Energética de Minas Gerais SA	Latin America and Caribbean	Multi-Utilities	5757.935	2.9	Significantly Misaligned	3.1	56.4
Companhia Paranaense de Energia	Latin America and Caribbean	Electric Utilities	2557.9548	1.9	Moderately Misaligned	1.8	45.7
Concord New Energy Group Ltd.	Asia-Pacific	Renewable Power Production	691.8622	2.7	Significantly Misaligned	2.5	41.3
Consolidated Edison, Inc.	United States and Canada	Multi-Utilities	31,404.64	3.2	Highly Misaligned	3.1	47.9
Constellation Energy Corp.	United States and Canada	Multi-Utilities	37,332.53	3.2	Highly Misaligned	3.2	48.7
Contact Energy Ltd.	Asia-Pacific	Electric Utilities	3995.2502	1.7	Moderately Misaligned	2	67
ContourGlobal Ltd.	Europe	Independent Power Production and Traders	1962.0405	2.6	Significantly Misaligned	2.7	51.4
Corporación Acciona Energias Renovables SA	Europe	Renewable Power Production	10,143.89	1.6	Moderately Misaligned	2	73
CPFL Energia SA	Latin America and Caribbean	Electric Utilities	9141.975	1.9	Moderately Misaligned	1.9	55
DAESUNG HOLDINGS Co., Ltd.	Asia-Pacific	Gas Utilities	123.9038	6.9	Severely Misaligned	5.4	29.8
Datang International Power Generation Co., Ltd.	Asia-Pacific	Independent Power Production and Traders	5197.6464	2.8	Significantly Misaligned	2.5	37.3
Dominion Energy, Inc.	United States and Canada	Multi-Utilities	39,329.45	2.6	Significantly Misaligned	3.1	61.9
Doral Group Renewable Energy Resources Ltd.	Africa / Middle East	Renewable Power Production	404.9944	2.2	Significantly Misaligned	1.9	29
Drax Group Plc	Europe	Independent Power Production and Traders	2399.352	1.8	Moderately Misaligned	2.1	66.7
DTE Energy Co.	United States and Canada	Multi-Utilities	22,742.09	3.5	Highly Misaligned	3.7	55.1
Dubai Electricity & Water Authority	Africa / Middle East	Multi-Utilities	33,486.70	2.1	Significantly Misaligned	2	43.9

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Duke Energy Corp.	United States and Canada	Electric Utilities	74,789.87	2.6	Significantly Misaligned	2.9	58.6
E.ON SE	Europe	Multi-Utilities	35,079.92	3.4	Highly Misaligned	3.6	54.5
Edison International	United States and Canada	Electric Utilities	27,421.33	2.1	Significantly Misaligned	2	44.3
EDP Energias do Brasil SA	Latin America and Caribbean	Electric Utilities	2754.4892	2	Moderately Misaligned	2	47.9
EDP Renováveis SA	Europe	Renewable Power Production	20,981.07	2.2	Significantly Misaligned	2.1	45.2
EDP-Energias de Portugal SA	Europe	Electric Utilities	20,988.72	1.7	Moderately Misaligned	2.5	78.3
Electric Power Development Co., Ltd.	Asia-Pacific	Independent Power Production and Traders	2957.018	2.5	Significantly Misaligned	2.4	45.1
Électricité de France SA	Europe	Electric Utilities	51,176.26	2	Moderately Misaligned	2.4	67.4
Electricity Generating Public Co., Ltd.	Asia-Pacific	Independent Power Production and Traders	1964.7653	2	Moderately Misaligned	2.1	54.5
Electricity Supply Board Ltd.	Europe	Electric Utilities	No data	2.8	Significantly Misaligned	2.7	46.6
Elenia Oy (Old)	Europe	Electric Utilities	No data	2.2	Significantly Misaligned	2.3	55
Elia Group SA/NV	Europe	Electric Utilities	9211.7573	2.1	Significantly Misaligned	2.3	62.3
Elmera Group ASA	Europe	Independent Power Production and Traders	322.2479	2.9	Significantly Misaligned	2.1	9.9
Emera, Inc.	United States and Canada	Multi-Utilities	10,425.72	3	Significantly Misaligned	3.5	59.4
Empresas Públicas de Medellín ESP	Latin America and Caribbean	Multi-Utilities	No data	2.9	Significantly Misaligned	2.5	38.3
Enagás SA	Europe	Gas Utilities	4411.225	4.1	Severely Misaligned	5	62.8
EnBW Energie Baden Württemberg AG	Europe	Multi-Utilities	23,726.89	3.3	Highly Misaligned	3.8	59.3
Encavis AG	Europe	Renewable Power Production	2776.7198	2	Moderately Misaligned	2	46.6
Endesa SA	Europe	Electric Utilities	21,612.23	2.3	Significantly Misaligned	2.6	59.8
Enel Américas SA	Latin America and Caribbean	Electric Utilities	11,819.56	2.2	Significantly Misaligned	2.1	44.3
Enel Chile SA	Latin America and Caribbean	Electric Utilities	4454.2364	2.2	Significantly Misaligned	2.3	55.5

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Enel SpA	Europe	Electric Utilities	75,611.00	2.1	Significantly Misaligned	2.4	65.2
Energa SA	Europe	Electric Utilities	986.4238	2.7	Significantly Misaligned	2.4	37.9
Energisa SA	Latin America and Caribbean	Electric Utilities	5329.5138	1.9	Moderately Misaligned	1.8	41.7
Energy Absolute Public Co. Ltd.	Asia-Pacific	Renewable Power Production	4793.2777	1.8	Moderately Misaligned	1.8	49.9
Enexis Holding NV	Europe	Multi-Utilities	No data	2.7	Significantly Misaligned	2.6	45.8
ENGIE Brasil Energia SA	Latin America and Caribbean	Multi-Utilities	7620.01	2.4	Significantly Misaligned	2.4	48.3
ENGIE SA	Europe	Multi-Utilities	42,632.50	3.2	Highly Misaligned	3.5	57.7
ENN Energy Holdings Ltd.	Asia-Pacific	Gas Utilities	8326.48	2.6	Significantly Misaligned	2.6	47.4
ENN Natural Gas Co., Ltd.	Asia-Pacific	Gas Utilities	7353.0932	2.9	Significantly Misaligned	2.5	37
Energy Corp.	United States and Canada	Electric Utilities	21,398.96	2.4	Significantly Misaligned	2.8	62.5
Equatorial Energia SA	Latin America and Caribbean	Electric Utilities	8274.0488	2.1	Significantly Misaligned	2	45.5
eREX Co., Ltd.	Asia-Pacific	Renewable Power Production	327.3482	2.8	Significantly Misaligned	2	1.4
ERG SpA	Europe	Independent Power Production and Traders	4704.4858	3.6	Highly Misaligned	4.4	62
Eskom Holdings SOC Ltd.	Africa / Middle East	Electric Utilities	No data	2.6	Significantly Misaligned	2.6	47.8
Essential Utilities, Inc.	United States and Canada	Multi-Utilities	10,202.74	3.2	Highly Misaligned	3.1	48
Eurogrid GmbH	Europe	Electric Utilities	No data	2.4	Significantly Misaligned	2.4	48.7
Evergy, Inc.	United States and Canada	Electric Utilities	11,993.72	3.9	Highly Misaligned	4.3	56.7
Eversource Energy	United States and Canada	Multi-Utilities	21,560.41	3	Significantly Misaligned	3	51.3
EVN AG	Europe	Multi-Utilities	5609.233	3.5	Highly Misaligned	3.3	45.1
EWE AG	Europe	Multi-Utilities	No data	4.4	Severely Misaligned	3.7	36.1
Exelon Corp.	United States and Canada	Multi-Utilities	35,736.20	2.8	Significantly Misaligned	3	56.2

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
FCC Aqualia SA	Europe	Water Utilities	No data	2.9	Significantly Misaligned	2.6	38.9
Federal Hydro-Generating Co. RusHydro PJSC	Europe	Electric Utilities	4906.6556	2.1	Significantly Misaligned	2	43.3
Ferrelgas Partners LP	United States and Canada	Gas Utilities	265.7178	4.7	Severely Misaligned	3.8	32.6
FirstEnergy Corp.	United States and Canada	Electric Utilities	21,036.05	2.1	Significantly Misaligned	2.2	55.3
Fortis, Inc.	United States and Canada	Multi-Utilities	20,113.83	3.3	Highly Misaligned	3.4	52.9
Fortum Oyj	Europe	Multi-Utilities	12,985.92	3.1	Highly Misaligned	3.5	59.8
GAIL (India) Ltd.	Asia-Pacific	Gas Utilities	12,809.14	2.3	Significantly Misaligned	2.2	45.4
Gas Malaysia Bhd.	Asia-Pacific	Gas Utilities	897.472	6.7	Severely Misaligned	5.5	35.1
Gas Networks Ireland	Europe	Gas Utilities	No data	3.4	Highly Misaligned	3	38.5
GD Power Development Co., Ltd.	Asia-Pacific	Independent Power Production and Traders	10,468.60	2.8	Significantly Misaligned	2.5	36
Genesis Energy Ltd.	Asia-Pacific	Multi-Utilities	1703.6426	2	Moderately Misaligned	2	51
Global Power Synergy PCL	Asia-Pacific	Independent Power Production and Traders	3987.3134	1.8	Moderately Misaligned	2	60.6
Global Water Resources, Inc.	United States and Canada	Water Utilities	315.9217	2.7	Significantly Misaligned	1.9	0
Greenvolt – Energias Renováveis SA	Europe	Independent Power Production and Traders	1259.1418	3.7	Highly Misaligned	3.6	47.4
Grenergy Renovables SA	Europe	Renewable Power Production	1113.7517	1.9	Moderately Misaligned	1.9	46
Grupo Energia Bogotá SA ESP	Latin America and Caribbean	Gas Utilities	4594.596	2.2	Significantly Misaligned	2.3	53.8
Guangdong Electric Power Development Co., Ltd.	Asia-Pacific	Independent Power Production and Traders	3292.9894	2.9	Significantly Misaligned	2.5	32.2
Guangdong Investment Ltd.	Asia-Pacific	Water Utilities	4753.7445	3	Significantly Misaligned	2.8	45.1
Guangxi Guiguan Electric Power Co., Ltd.	Asia-Pacific	Electric Utilities	6161.3225	2.4	Significantly Misaligned	2.2	40
Gujarat Gas Ltd.	Asia-Pacific	Gas Utilities	3817.5667	3	Significantly Misaligned	2.5	32.7
Gujarat State Petronet Ltd.	Asia-Pacific	Gas Utilities	2073.8477	3.2	Highly Misaligned	2.7	33

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Gulf Energy Development Public Co. Ltd.	Asia-Pacific	Independent Power Production and Traders	15,223.20	2.4	Significantly Misaligned	2.1	29.7
Hawaiian Electric Industries, Inc.	United States and Canada	Electric Utilities	1562.661	2.5	Significantly Misaligned	2.5	51.4
Hera SpA	Europe	Multi-Utilities	4757.6042	3.5	Highly Misaligned	3.7	53.7
HK Electric Investments & HK Electric Investments Ltd.	Asia-Pacific	Electric Utilities	5327.7138	2.4	Significantly Misaligned	2.3	46.9
Hokkaido Electric Power Co., Inc.	Asia-Pacific	Electric Utilities	907.5619	2.6	Significantly Misaligned	2.5	51.7
Huadian Power International Corp. Ltd.	Asia-Pacific	Independent Power Production and Traders	6936.9626	2.7	Significantly Misaligned	2.5	38.6
Huaneng Lancang River Hydropower Inc.	Asia-Pacific	Electric Utilities	21,917.46	2.5	Significantly Misaligned	2.2	39.6
Huaneng Power International, Inc.	Asia-Pacific	Independent Power Production and Traders	14,446.70	2.9	Significantly Misaligned	2.5	34.3
Hydro One Ltd.	United States and Canada	Electric Utilities	17,965.00	2.6	Significantly Misaligned	2.3	39.1
Iberdrola SA	Europe	Electric Utilities	81,005.88	1.8	Moderately Misaligned	2.2	68.1
IDACORP, Inc.	United States and Canada	Electric Utilities	4976.4901	3.7	Highly Misaligned	3.5	45.3
Ignitis grupe AB	Europe	Multi-Utilities	1508.4535	3.4	Highly Misaligned	3.6	55.3
Inner Mongolia Mengdian Huaneng Thermal Power Corp. Ltd.	Asia-Pacific	Independent Power Production and Traders	3591.515	2.8	Significantly Misaligned	2.5	35.4
Innergex Renewable Energy, Inc.	United States and Canada	Renewable Power Production	1418.3496	2.2	Significantly Misaligned	2	36.7
Inter RAO UES PJSC	Europe	Multi-Utilities	2787.2256	2.2	Significantly Misaligned	2.2	46.4
Interconexión Eléctrica SA ESP	Latin America and Caribbean	Electric Utilities	4400.4674	2.2	Significantly Misaligned	2.1	47
Inversiones Aguas Metropolitanas SA	Latin America and Caribbean	Water Utilities	829.6912	2.1	Significantly Misaligned	1.9	40.4
Iren SpA	Europe	Multi-Utilities	2800.0002	3.5	Highly Misaligned	4.1	60.8
Italgas SpA	Europe	Gas Utilities	4645.0761	4.7	Severely Misaligned	5.1	54.8
Jaiprakash Power Ventures Ltd.	Asia-Pacific	Electric Utilities	1149.3507	2.5	Significantly Misaligned	2.3	36.8
Jinneng Holding Shanxi Electric Power Co., Ltd.	Asia-Pacific	Electric Utilities	1306.7508	2.5	Significantly Misaligned	2.2	34.5

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Jionto Energy Investment Co., Ltd. Hebei	Asia-Pacific	Electric Utilities	1266.4618	2.4	Significantly Misaligned	2.1	34.5
JSW Energy Ltd.	Asia-Pacific	Independent Power Production and Traders	8070.2859	2.2	Significantly Misaligned	2.2	49.4
Kenon Holdings Ltd.	Asia-Pacific	Independent Power Production and Traders	1311.79	2.5	Significantly Misaligned	2.1	23.7
Keppel Infrastructure Trust	Asia-Pacific	Multi-Utilities	2131.7224	2.5	Significantly Misaligned	2.3	36.9
Korea East-West Power Co., Ltd.	Asia-Pacific	Multi-Utilities	No data	3.1	Highly Misaligned	2.9	44
Korea Electric Power Corp.	Asia-Pacific	Electric Utilities	9315.6854	3.4	Highly Misaligned	3.7	56.1
Korea Hydro & Nuclear Power Co., Ltd.	Asia-Pacific	Independent Power Production and Traders	No data	2.2	Significantly Misaligned	2	36.9
Korea South-East Power Co., Ltd.	Asia-Pacific	Electric Utilities	No data	2.6	Significantly Misaligned	2.4	43.8
Kyushu Electric Power Co., Inc.	Asia-Pacific	Electric Utilities	3410.7757	2.3	Significantly Misaligned	2.3	47.7
Luenmei Quantum Co., Ltd.	Asia-Pacific	Multi-Utilities	1830.4956	2.7	Significantly Misaligned	2.4	35.9
Mahanagar Gas Ltd.	Asia-Pacific	Gas Utilities	1425.5747	2.7	Significantly Misaligned	2.3	31.5
Malakoff Corp. Bhd.	Asia-Pacific	Independent Power Production and Traders	675.7148	2.2	Significantly Misaligned	2	42.2
Manawa Energy Ltd.	Asia-Pacific	Electric Utilities	850.3969	2	Moderately Misaligned	1.9	38.2
Manila Electric Co.	Asia-Pacific	Electric Utilities	8122.8304	1.9	Moderately Misaligned	1.9	47.1
Mega First Corp. Bhd.	Asia-Pacific	Independent Power Production and Traders	757.4921	2.1	Significantly Misaligned	2	43.6
Mercury NZ Ltd.	Asia-Pacific	Renewable Power Production	5815.6664	1.9	Moderately Misaligned	1.9	50.4
Meridian Energy Ltd.	Asia-Pacific	Independent Power Production and Traders	9076.4194	1.7	Moderately Misaligned	1.8	52.3
MidAmerican Energy Co.	United States and Canada	Electric Utilities	No data	4.2	Severely Misaligned	3.8	42
Middlesex Water Co.	United States and Canada	Water Utilities	1168.4754	2.6	Significantly Misaligned	1.9	10.1
Montauk Renewables, Inc.	United States and Canada	Electric Utilities	1281.4625	3.7	Highly Misaligned	3.2	35.4
National Central Cooling Co. PJSC	Africa / Middle East	Water Utilities	2773.1434	2.4	Significantly Misaligned	2.1	39

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
National Gas & Industrialization Co.	Africa / Middle East	Gas Utilities	1333.3109	2.9	Significantly Misaligned	2.4	32.4
National Grid Electricity Distribution (East Midlands) Plc	Europe	Electric Utilities	No data	2.7	Significantly Misaligned	2.5	41
National Grid North America, Inc.	United States and Canada	Multi-Utilities	No data	3.2	Highly Misaligned	3.1	47.5
National Grid Plc	Europe	Multi-Utilities	49,708.16	2.9	Significantly Misaligned	3.3	60
Naturgy Energy Group SA	Europe	Multi-Utilities	28,949.01	3.5	Highly Misaligned	3.6	51.4
Nederlandse Gasunie NV	Europe	Gas Utilities	No data	5.7	Severely Misaligned	5.5	47
Nevada Power Co.	United States and Canada	Electric Utilities	No data	3.6	Highly Misaligned	3.2	39
New Jersey Resources Corp.	United States and Canada	Gas Utilities	4359.3328	5.3	Severely Misaligned	4.1	30.7
NextEnergy Solar Fund Ltd.	Europe	Renewable Power Production	695.435	2.9	Significantly Misaligned	2.1	2.1
NextEra Energy, Inc.	United States and Canada	Electric Utilities	124,620.73	3.9	Highly Misaligned	3.8	48.7
NiSource, Inc.	United States and Canada	Multi-Utilities	10,976.18	3.2	Highly Misaligned	3.2	51.4
NLC India Ltd.	Asia-Pacific	Independent Power Production and Traders	4223.3018	2.6	Significantly Misaligned	2.3	34.1
Nortegas Energía Distribución SA	Europe	Gas Utilities	No data	6.3	Severely Misaligned	5.3	38.6
Northland Power, Inc.	United States and Canada	Independent Power Production and Traders	4621.247	3.2	Highly Misaligned	3.2	51.4
Northwest Natural Holding Co.	United States and Canada	Gas Utilities	1432.1459	4.6	Severely Misaligned	4	40.7
NorthWestern Corp.	United States and Canada	Multi-Utilities	3116.6175	4	Highly Misaligned	3.6	42.8
NRG Energy, Inc.	United States and Canada	Independent Power Production and Traders	11,672.02	3.2	Highly Misaligned	4.3	66.8
Ntpc Ltd.	Asia-Pacific	Independent Power Production and Traders	36,271.11	2.5	Significantly Misaligned	2.3	41.9
Odas Elektrik Uretim Sanayi Ticaret AS	Africa / Middle East	Electric Utilities	390.852	2.2	Significantly Misaligned	1.9	32.3
OGE Energy Corp.	United States and Canada	Electric Utilities	6996.0376	2.6	Significantly Misaligned	2.7	53.3
Omega Energia SA	Latin America and Caribbean	Renewable Power Production	1309.9178	2.7	Significantly Misaligned	2.3	33.8

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
ONE Gas, Inc.	United States and Canada	Gas Utilities	3533.5321	4.5	Severely Misaligned	4	41.4
Ørsted A/S	Europe	Multi-Utilities	23,347.07	1.8	Moderately Misaligned	2.1	67.1
Osaka Gas Co., Ltd.	Asia-Pacific	Multi-Utilities	8604.2163	3.8	Highly Misaligned	3.5	44
Otter Tail Corp.	United States and Canada	Electric Utilities	3544.143	3.7	Highly Misaligned	3.4	51.7
PacifiCorp	United States and Canada	Electric Utilities	No data	4	Highly Misaligned	3.7	44
Pennon Group Plc	Europe	Water Utilities	2501.8606	1.9	Moderately Misaligned	2.1	63
Petronas Gas Bhd.	Asia-Pacific	Multi-Utilities	7496.9922	2.9	Significantly Misaligned	2.8	44.8
PG&E Corp.	United States and Canada	Multi-Utilities	45,859.45	3.1	Highly Misaligned	3.1	50.7
PGE Polska Grupa Energetyczna SA	Europe	Multi-Utilities	4955.6873	2.9	Significantly Misaligned	2.8	48.1
Pinnacle West Capital Corp.	United States and Canada	Electric Utilities	8146.5372	2.6	Significantly Misaligned	3.3	65.4
PNM Resources, Inc.	United States and Canada	Electric Utilities	3570.7308	3.8	Highly Misaligned	3.5	49.4
Portland General Electric Co.	United States and Canada	Electric Utilities	4382.71	2.8	Significantly Misaligned	2.9	51.9
Power Assets Holdings Ltd.	Asia-Pacific	Multi-Utilities	12,344.63	2.7	Significantly Misaligned	2.8	51.3
PPL Corp.	United States and Canada	Electric Utilities	19,976.07	2.4	Significantly Misaligned	3	66.9
Promigas SA ESP	Latin America and Caribbean	Gas Utilities	1328.0576	2.6	Significantly Misaligned	2.5	43.3
PT Cikarang Listrindo Tbk	Asia-Pacific	Electric Utilities	725.6659	2.1	Significantly Misaligned	2	47.2
PT Perusahaan Gas Negara Tbk	Asia-Pacific	Gas Utilities	1773.7618	2.3	Significantly Misaligned	2	31.1
PT Perusahaan Listrik Negara (Persero)	Asia-Pacific	Electric Utilities	No data	2.1	Significantly Misaligned	1.9	41.4
Public Power Corp. SA	Europe	Electric Utilities	4715.2664	3.8	Highly Misaligned	3.9	50.7
Public Service Enterprise Group, Inc.	United States and Canada	Multi-Utilities	30,471.92	3	Significantly Misaligned	3.3	58.1
Puget Energy, Inc.	United States and Canada	Multi-Utilities	No data	3.5	Highly Misaligned	3.4	47.4

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Pure Cycle Corp.	United States and Canada	Water Utilities	252.1775	2.7	Significantly Misaligned	1.9	3.1
Ratch Group Public Co. Ltd.	Asia-Pacific	Independent Power Production and Traders	1997.5654	2.3	Significantly Misaligned	2.1	42.1
RattanIndia Enterprises Ltd.	Asia-Pacific	Independent Power Production and Traders	1266.3028	1.9	Moderately Misaligned	1.7	32.1
Redeia Corporacion SA	Europe	Electric Utilities	8898.4066	1.9	Moderately Misaligned	2.3	67
Redes Energeticas Nacionais SGPS SA	Europe	Multi-Utilities	1705.7607	2.4	Significantly Misaligned	2.6	54.9
Reliance Infrastructure Ltd.	Asia-Pacific	Electric Utilities	999.6394	2.4	Significantly Misaligned	2.1	35.1
Reliance Power Ltd.	Asia-Pacific	Independent Power Production and Traders	1066.1658	2.6	Significantly Misaligned	2.3	35.1
Renova, Inc. (Japan)	Asia-Pacific	Renewable Power Production	661.649	2.7	Significantly Misaligned	2.1	13.3
RWE AG	Europe	Independent Power Production and Traders	33,878.27	2.4	Significantly Misaligned	2.8	62.9
Samchully Co., Ltd.	Asia-Pacific	Gas Utilities	249.7485	5.7	Severely Misaligned	4.6	33.5
Saudi Electricity Co.	Africa / Middle East	Electric Utilities	20,674.67	2	Moderately Misaligned	1.9	41.9
Scatec ASA	Europe	Renewable Power Production	1282.0324	1.7	Moderately Misaligned	1.8	55.9
SDIC Power Holdings Co., Ltd.	Asia-Pacific	Independent Power Production and Traders	13,861.88	2.5	Significantly Misaligned	2.1	31.4
Sembcorp Industries Ltd.	Asia-Pacific	Independent Power Production and Traders	7159.9638	2	Moderately Misaligned	2.1	53.3
Sempra Energy	United States and Canada	Multi-Utilities	47,029.69	2.8	Significantly Misaligned	3.2	59.6
Severn Trent Plc	Europe	Water Utilities	9826.1055	3.7	Highly Misaligned	4	54.7
Shanghai Dazhong Public Utilities (Group) Co., Ltd.	Asia-Pacific	Gas Utilities	1116.9863	2.1	Significantly Misaligned	2	38.1
Shanghai Electric Power Co., Ltd.	Asia-Pacific	Independent Power Production and Traders	3362.2083	2.7	Significantly Misaligned	2.2	21.9
Shenzhen Energy Group Co., Ltd.	Asia-Pacific	Independent Power Production and Traders	4329.4765	2.8	Significantly Misaligned	2.4	33.3
Sichuan Chuantou Energy Co., Ltd.	Asia-Pacific	Renewable Power Production	9516.4194	2.5	Significantly Misaligned	2	25
Sichuan New Energy Power Co., Ltd.	Asia-Pacific	Independent Power Production and Traders	2767.558	2.6	Significantly Misaligned	2.2	31.6

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
SJVN Ltd.	Asia-Pacific	Electric Utilities	4296.7607	2.4	Significantly Misaligned	2.2	38
SNAM SpA	Europe	Gas Utilities	17,262.37	4.1	Severely Misaligned	5.1	63.5
Solaria Energía y Medio Ambiente SA	Europe	Renewable Power Production	2571.9609	3.4	Highly Misaligned	2.5	15.6
SPCG Public Co. Ltd.	Asia-Pacific	Renewable Power Production	381.7073	1.9	Moderately Misaligned	1.8	35.2
Spire Inc.	United States and Canada	Gas Utilities	3318.308	4.6	Severely Misaligned	4	39.9
SSE Plc	Europe	Electric Utilities	25,838.95	2.3	Significantly Misaligned	2.6	62.4
Star Energy Geothermal (Wayang Windu) Ltd.	Asia-Pacific	Renewable Power Production	No data	2.1	Significantly Misaligned	1.9	37.6
Star Group LP	United States and Canada	Gas Utilities	410.3435	4.7	Severely Misaligned	3.8	33
Statkraft AS	Europe	Renewable Power Production	No data	3	Significantly Misaligned	2.8	45.2
Statnett SF	Europe	Electric Utilities	No data	2.9	Significantly Misaligned	2.7	45.2
Stedin Holding NV	Europe	Multi-Utilities	No data	2.8	Significantly Misaligned	2.6	41.1
Suburban Propane Partners LP	United States and Canada	Gas Utilities	1136.9065	4.6	Severely Misaligned	3.7	33.6
Super Energy Corp. Public Co. Ltd.	Asia-Pacific	Renewable Power Production	326.937	2.3	Significantly Misaligned	1.8	9.8
Tata Power Co., Ltd.	Asia-Pacific	Electric Utilities	12,755.25	2.5	Significantly Misaligned	2.4	43.4
TAURON Polska Energia SA	Europe	Electric Utilities	1665.5648	2.7	Significantly Misaligned	2.6	45.4
Telecom Plus Plc	Europe	Independent Power Production and Traders	1622.6457	2.1	Significantly Misaligned	2	44
Tenaga Nasional Bhd.	Asia-Pacific	Electric Utilities	12,652.11	1.9	Moderately Misaligned	2	57.6
TenneT Holding BV	Europe	Electric Utilities	No data	2.4	Significantly Misaligned	2.4	50.5
Terna Energy SA	Europe	Renewable Power Production	2025.9839	1.8	Moderately Misaligned	1.9	58.8
TERNA Rete Elettrica Nazionale SpA	Europe	Electric Utilities	16,758.63	2	Moderately Misaligned	2.2	60.3
Thames Water Utilities Ltd.	Europe	Water Utilities	No data	3.4	Highly Misaligned	3.1	42.3

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
The AES Corp.	United States and Canada	Electric Utilities	12,890.36	2.6	Significantly Misaligned	2.6	51.3
The Chugoku Electric Power Co., Inc.	Asia-Pacific	Electric Utilities	2562.0831	2.2	Significantly Misaligned	2.4	56.8
The Hong Kong & China Gas Co., Ltd.	Asia-Pacific	Gas Utilities	14,284.47	2.1	Significantly Misaligned	2.1	50.5
The Kansai Electric Power Co., Inc.	Asia-Pacific	Electric Utilities	11,805.55	2.4	Significantly Misaligned	2.3	44.1
The Okinawa Electric Power Co., Inc.	Asia-Pacific	Electric Utilities	427.9009	2.5	Significantly Misaligned	2.3	40.7
The Southern Co.	United States and Canada	Multi-Utilities	76,474.23	3.2	Highly Misaligned	3.8	62.1
The York Water Co.	United States and Canada	Water Utilities	553.1064	2.9	Significantly Misaligned	2.1	3.3
Tohoku Electric Power Co., Inc.	Asia-Pacific	Electric Utilities	3387.9244	2.4	Significantly Misaligned	2.5	55.6
Tokyo Electric Power Co. Holdings, Inc.	Asia-Pacific	Electric Utilities	8360.5103	1.9	Moderately Misaligned	2	57.8
Tokyo Gas Co., Ltd.	Asia-Pacific	Multi-Utilities	9262.0913	3.8	Highly Misaligned	3.8	49.1
Torrent Power Ltd.	Asia-Pacific	Electric Utilities	5395.0826	2.3	Significantly Misaligned	2.1	40.4
Towngas Smart Energy Co. Ltd.	Asia-Pacific	Gas Utilities	1395.6152	2.7	Significantly Misaligned	2.5	42.6
TPI Polene Power Public Co., Ltd.	Asia-Pacific	Electric Utilities	832.7016	2.1	Significantly Misaligned	2	47.3
TransAlta Corp.	United States and Canada	Independent Power Production and Traders	2579.6283	3.3	Highly Misaligned	4.1	63.2
TransAlta Renewables, Inc.	United States and Canada	Independent Power Production and Traders	2438.6982	4.8	Severely Misaligned	4.4	43.6
Transmissora Aliança de Energia Elétrica SA	Latin America and Caribbean	Electric Utilities	2728.1803	1.9	Moderately Misaligned	1.8	42
UGI Corp.	United States and Canada	Gas Utilities	5153.6027	4.5	Severely Misaligned	4.4	48.5
Uniper SE	Europe	Independent Power Production and Traders	26,256.86	2.1	Significantly Misaligned	2.2	51.6
United Utilities Group Plc	Europe	Water Utilities	9203.2833	2	Moderately Misaligned	2.2	61.1
UNITIL Corp.	United States and Canada	Electric Utilities	846.2847	2	Moderately Misaligned	2	49.2
Vattenfall AB	Europe	Multi-Utilities	No data	2.6	Significantly Misaligned	2.7	51.6

Company Name	Region	Subindustry	Mkt Cap (USD mn)	LCTR	LCTR Category	Exposure Score	Management Score
Vector Ltd.	Asia-Pacific	Multi-Utilities	2362.4078	3.2	Highly Misaligned	3.2	50.6
Veolia Environnement SA	Europe	Multi-Utilities	22,591.70	2.5	Significantly Misaligned	3.1	67.2
VERBUND AG	Europe	Electric Utilities	32,297.27	2.4	Significantly Misaligned	2.4	51.1
Vier Gas Transport GmbH	Europe	Gas Utilities	No data	4.9	Severely Misaligned	4.6	44.6
Vigie SA (Old)	Europe	Multi-Utilities	14,166.47	2.8	Significantly Misaligned	2.9	55.1
Vistra Corp.	United States and Canada	Independent Power Production and Traders	13,772.92	3.6	Highly Misaligned	4.1	58.3
WEC Energy Group, Inc.	United States and Canada	Multi-Utilities	26,550.12	3	Significantly Misaligned	3.5	61.5
WHA Utilities & Power Public Co. Ltd.	Asia-Pacific	Multi-Utilities	439.3988	1.9	Moderately Misaligned	1.9	45.9
Xcel Energy, Inc.	United States and Canada	Multi-Utilities	34,162.95	3.2	Highly Misaligned	3.7	59.8
Xinyi Energy Holdings Ltd.	Asia-Pacific	Renewable Power Production	1511.4408	1.8	Moderately Misaligned	1.7	40.8
YTL Corp Bhd.	Asia-Pacific	Multi-Utilities	4512.2897	2.7	Significantly Misaligned	2.4	36.9
YTL Power International Bhd.	Asia-Pacific	Multi-Utilities	4481.1044	3.3	Highly Misaligned	2.8	35.8
Zhongshan Public Utilities Group Co., Ltd.	Asia-Pacific	Water Utilities	1521.42	1.9	Moderately Misaligned	1.7	35.1
Zhongyu Energy Holdings Ltd.	Asia-Pacific	Gas Utilities	2049.5873	2.1	Significantly Misaligned	2	48
Zorlu Enerji Elektrik Üretim AS	Africa / Middle East	Multi-Utilities	715.716	2.1	Significantly Misaligned	2	46.6

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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