

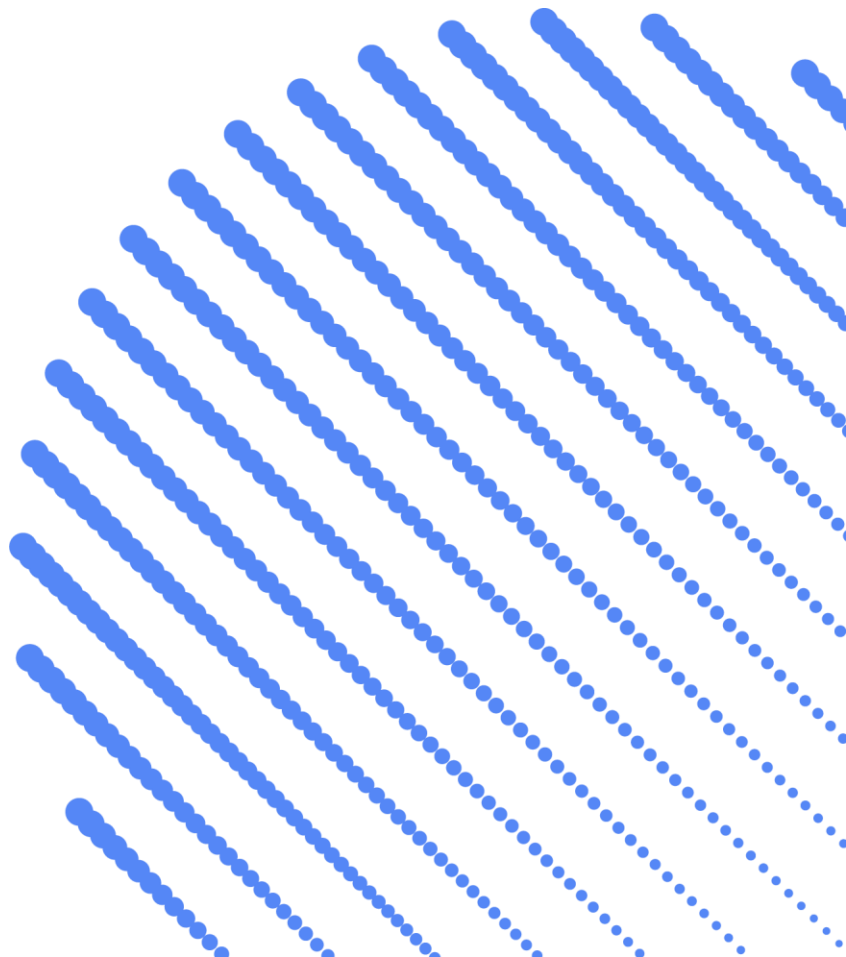


Transition  
Pathway  
Initiative



# A survey of the net zero positions of the world's largest energy companies

Simon Dietz, Valentin Jahn, Jolien Noels, Rupert Stuart-Smith  
and Cameron Hepburn



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# TPI Research Funding Partners



We would like to thank the TPI Research Funding Partners for their ongoing support and their enabling the research behind this report and its publication.

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# Key messages

We surveyed the disclosures of 132 of the world's largest publicly listed energy companies, assessing their positions on net zero carbon emissions.

We looked for evidence of their acknowledgement of and support for the temperature goals of the 2015 UN Paris Agreement on climate change and, in particular, assessed how many companies have set net zero commitments for their own emissions, and plans to deliver on those commitments.

We find that a majority of companies (54%) explicitly acknowledge the aims of the Paris Agreement to limit the increase in global temperature to well below 2°C above the pre-industrial level and pursue efforts to limit it to 1.5°C. However, only 39% explicitly state their support for these aims. Only 20% of companies explicitly acknowledge the need for net global CO<sub>2</sub> emissions to reach zero in order to stop global temperatures from rising.

Most importantly, only 13 companies out of 132 (10%) had made net zero commitments in relation to their own emissions at the time of analysis. Net zero thinking seems to be at an early stage in the energy sector.

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## Key messages

The specifics of companies' net zero commitments vary. Most set a date of 2050 to achieve net zero; a few set a date of 2030, or even 2025. Some commitments cover all, or at least the majority, of a company's lifecycle carbon emissions, others cover a small share. Fossil-fuel extraction companies that have set net zero commitments have mostly limited the scope of these to their own operational emissions, rather than downstream emissions from burning fossil fuels.

Companies' net zero positions and commitments are strongly associated with their carbon Management Quality as assessed by TPI. Companies that have high carbon Management Quality, by means of implementing a wide range of carbon management practices, are more likely to acknowledge/support the Paris Agreement temperature goals and net zero, and to have set net zero commitments themselves.

The vast majority of companies acknowledging/supporting the Paris temperature goals and net zero also disclose their membership and involvement in trade associations engaged in climate issues. 100% of companies with net zero commitments do so. But few companies assessed as Yes on our net zero survey questions ensure consistency between their own positions and the positions taken by lobby groups of which they are a member.

Most companies, for which we can compare their net zero commitments and Carbon Performance as assessed by TPI, are able to back up their net zero commitments with current emissions and/or future targets that are aligned with 2°C and below.

# About the Transition Pathway Initiative



# About TPI

TPI is a global initiative led by Asset Owners and supported by Asset Managers. Established in January 2017, TPI now has over 50 supporters with over \$15 trillion of combined Assets Under Management and Advice.

Using publicly disclosed data, TPI assesses the progress companies are making on the transition to a low-carbon economy, supporting efforts to mitigate climate change:

- In line with the recommendations of TCFD;
- Providing data for the Climate Action 100+ initiative.

All TPI data are published via an open-access online tool: [www.transitionpathwayinitiative.org](http://www.transitionpathwayinitiative.org).



# TPI strategic relationships

The Grantham Research Institute on Climate Change and the Environment, a research centre at the London School of Economics and Political Science (LSE), is TPI's *academic partner*. It has developed the assessment framework, provides company assessments, and hosts the online tool.

FTSE Russell is TPI's *data partner*. FTSE Russell is a leading global provider of benchmarking, analytics solutions and indices.

The Principles for Responsible Investment (PRI) manages and provides supporter coordination to TPI. PRI is an international network of investors implementing the six Principles for Responsible Investment.





# TPI design principles

Company assessments are based only on publicly available information: *disclosure-based*

Outputs should be useful to Asset Owners and Asset Managers, especially with limited resources: *accessible and easy to use*

Aligned with existing initiatives and disclosure frameworks, such as CDP and TCFD: *not seeking to add unnecessarily to the reporting burden*

Pitched at a high level of aggregation: *corporation-level*





# Overview of the standard TPI Tool

TPI's company assessments are divided into 2 parts:

1. *Management Quality* covers companies' management/governance of greenhouse gas emissions and the risks and opportunities arising from the low-carbon transition;
2. *Carbon Performance* assessment involves quantitative benchmarking of companies' emissions pathways against the international targets and national pledges made as part of the 2015 UN Paris Agreement, for example limiting global warming to below 2°C.

Both of these assessments are based on company disclosures.

## TPI Tool

The TPI tool enables the assessment of companies' carbon management quality and carbon performance, within a selected sector.

A tutorial to help you use the tool can be found [here](#).

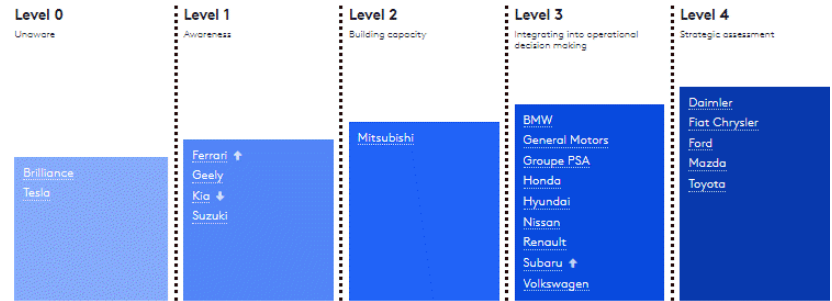
[Download complete data set as an MS Excel file](#) (updated May 2019)

Filter by sector: Autos [Submit] [Clear all]

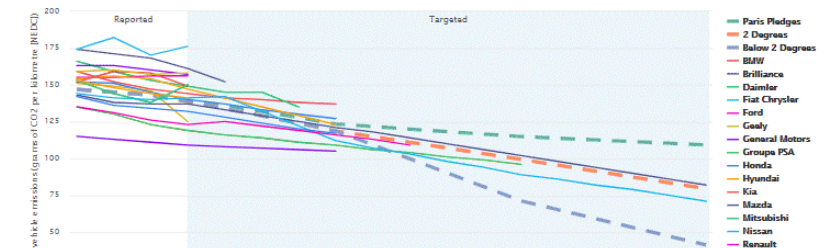
Go straight to a company: [Choose a company]

Filter companies

### Management Quality: Autos



### Carbon Performance: Autos





# Carbon Performance

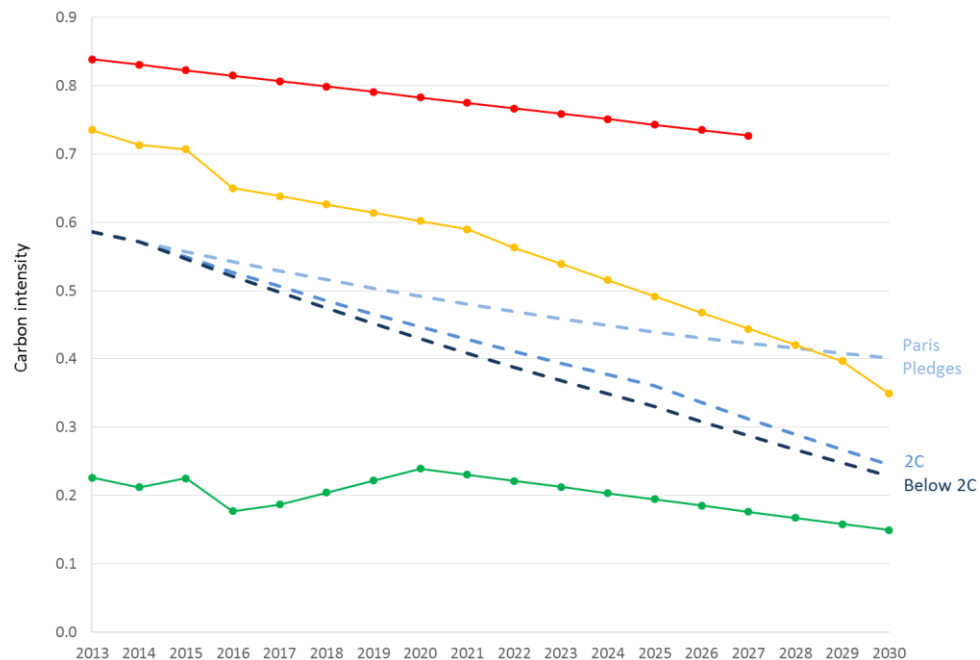
TPI's Carbon Performance assessment tests the alignment of company targets with the UN Paris Agreement goals\*.

We use 3 benchmark scenarios, which in the energy sector are:

1. *Paris Pledges*, consistent with emissions reductions pledged by countries as part of the Paris Agreement (i.e. NDCs);
2. *2 Degrees*, consistent with the overall aim of the Paris Agreement, albeit at the low end of the range of ambition;
3. *Below 2 Degrees*, consistent with a more ambitious interpretation of the Paris Agreement's overall aim.

Benchmarking is sector-specific and based on emissions intensity (e.g. tonnes of CO<sub>2</sub> per MWh electricity generated). Data for the energy sector come from IEA. Further details on sectoral methodologies can be found on the TPI website.

\*We use the Sectoral Decarbonization approach (SDA), which was created by CDP, WWF & WRI in 2015 & is also used by the Science Based Targets Initiative.



Company A is not aligned with any Paris benchmark

Company B is eventually aligned with the Paris Pledges, but neither 2C nor Below 2C

Company C is aligned with all Paris benchmarks, including Below 2C

# About the Oxford Martin School



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# About the Oxford Martin School

The Oxford Martin School at the University of Oxford is a world-leading centre of pioneering research that addresses global challenges. It invests in research that cuts across disciplines to tackle a wide range of issues such as climate change, disease and inequality.

The School supports novel, high risk and multidisciplinary projects that may not fit within conventional funding channels, because breaking boundaries can produce results that could dramatically improve the wellbeing of this and future generations.

Underpinning all our research is the need to translate academic excellence into impact – from innovations in science, medicine and technology, through to providing expert advice and policy recommendations.



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# The Oxford Martin Programme on the Post Carbon Transition



## The Challenge

Modern human civilisation has been built upon energy from carbon-intensive fossil fuels. We are now on the cusp of a once-in-a-civilisation transition to a post-carbon society. The outcome of this transition could be a world that is cleaner, safer, smarter, more technologically advanced, and more prosperous. But the transition will necessarily involve structural transformation in many economic sectors. Doing more of the same will not achieve this.

Identifying self-reinforcing socioeconomic, technological and legal tipping points could help move the global economy firmly onto a zero-carbon path at a pace commensurate with the challenge. While there has been considerable research on catastrophic tipping points in the climate system, relatively little research has sought to identify potential tipping points in the societal response to climate change that might accelerated the transition to a post-carbon society.

## Our Approach

Delivering a richer understanding of complex socioeconomic systems to help policy makers and business leaders identify intervention points in these systems that are 'sensitive' – for which a modest action might trigger an outsized response and accelerate the transition to global net zero emissions.

# Energy companies' net zero positions

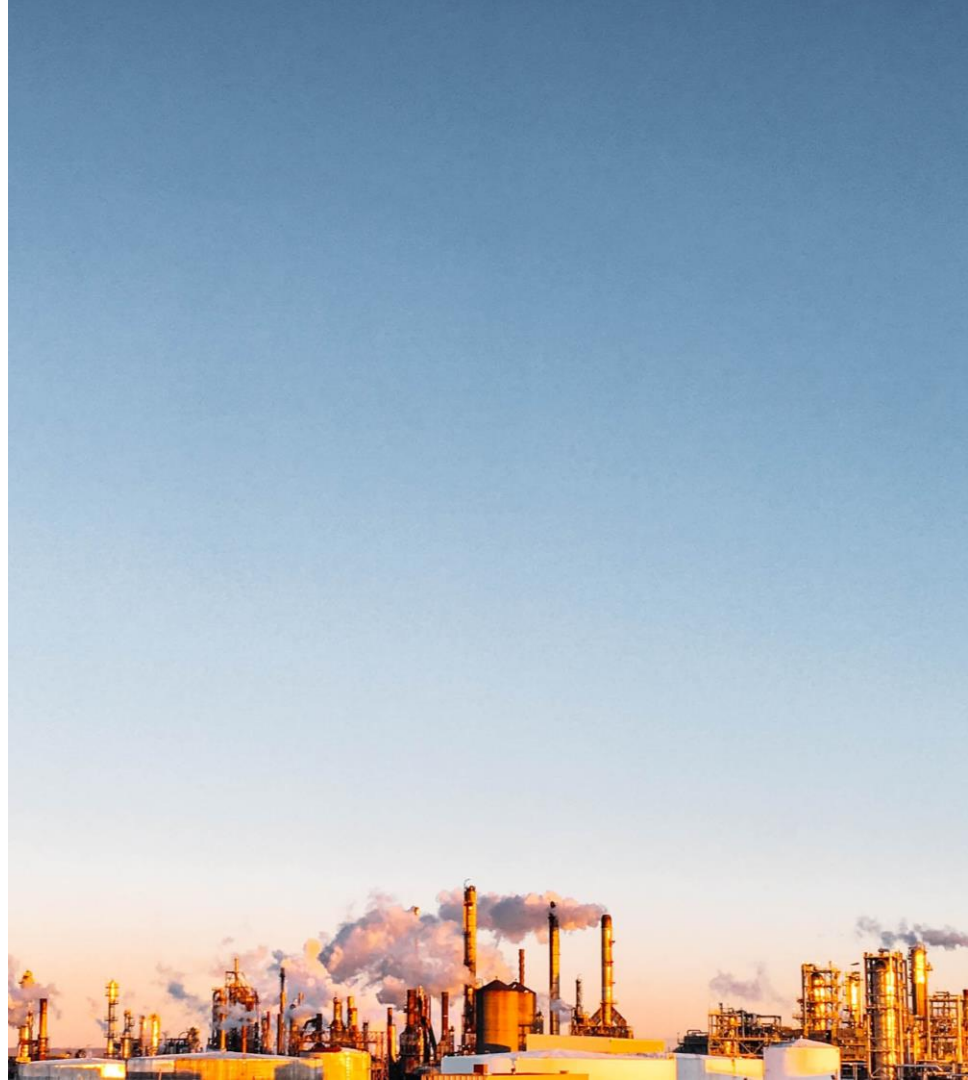


# Why survey companies' net zero positions?

Climate science tells us that net CO<sub>2</sub> emissions must fall to zero to stabilise global temperatures. Achieving the Paris temperature goals requires that net CO<sub>2</sub> emissions must be zero well before temperatures exceed 2°C. Thereafter no further CO<sub>2</sub> may be emitted into the atmosphere without offsetting CO<sub>2</sub> removal.

According to IPCC, limiting global warming to 1.5°C requires CO<sub>2</sub> emissions to reach net zero around 2050. Limiting warming to below 2°C requires emissions to reach net zero around 2070.

TPI's current Management Quality framework assesses whether companies have set targets to reduce their greenhouse gas emissions, whether they are quantitative or qualitative and whether they extend at least five years into the future. In addition, TPI's Carbon Performance assessment compares companies' emissions intensity with below 2°C and 2°C scenarios, usually with a time horizon of 2030 (2050 in oil and gas). However, currently TPI does not explicitly identify companies positions on net zero. Hence this survey.



# Energy companies covered by this report

This report covers 132 of the world's largest and highest-emitting public companies across three sectors involved in energy supply:

- coal mining (20 companies comprising both diversified mining companies and pure play coal companies);
- electricity (62);
- oil and gas (50).

Energy supply and use accounts for around 70% of global greenhouse gas emissions.

Big energy companies often make up a significant portion of investors' portfolios.

In each sector, we select the largest companies by market capitalisation (using the free-float measure), and we also include other companies that are subject to engagement as part of the Climate Action 100+ Initiative.



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# Building on the Oxford Martin Principles for Climate-Conscious Investment

This survey builds on the Oxford Martin Principles for Climate-Conscious Investment.\* These principles aim to guide investors who wish to align their investments with climate-change goals.

The principles are:

1. Commitment to net zero emissions;
2. Profitable net zero business model;
3. Quantitative medium-term targets.

We investigate the extent to which the world's largest energy companies conform with these principles, with a focus on the first of them, i.e. commitment to net zero emissions. We also include data collected elsewhere in the TPI tool on companies' medium-term emissions goals and their positioning vis-à-vis the Paris Agreement goals, including their policies on company and trade association lobbying.

We provide a snapshot of how far the Oxford Martin Principles have permeated corporate strategy so far, how much more is needed and in which particular areas.

\* Millar, R. J. *et al.* (2018) 'Principles to guide investment towards a stable climate', *Nature Climate Change*, 8(1), pp. 2–4.



# Oxford Martin Principle 1 in more detail

Companies should commit to a date (or a temperature increase, such as 1.5°C or “well below 2°C”) before which the net CO<sub>2</sub> emissions associated with their activities (including both supply chains and products sold) will be zero.

Companies should develop and publish a net zero transition plan.

If the company envisages a substantial role for offsetting of residual emissions, what is the offset mechanism, is it reliable and available at sufficient scale for a global transition, and who is going to pay for it?

The company’s public statements and support for other organisations and lobby groups should be consistent with advancing public, political and corporate action towards net zero emissions.



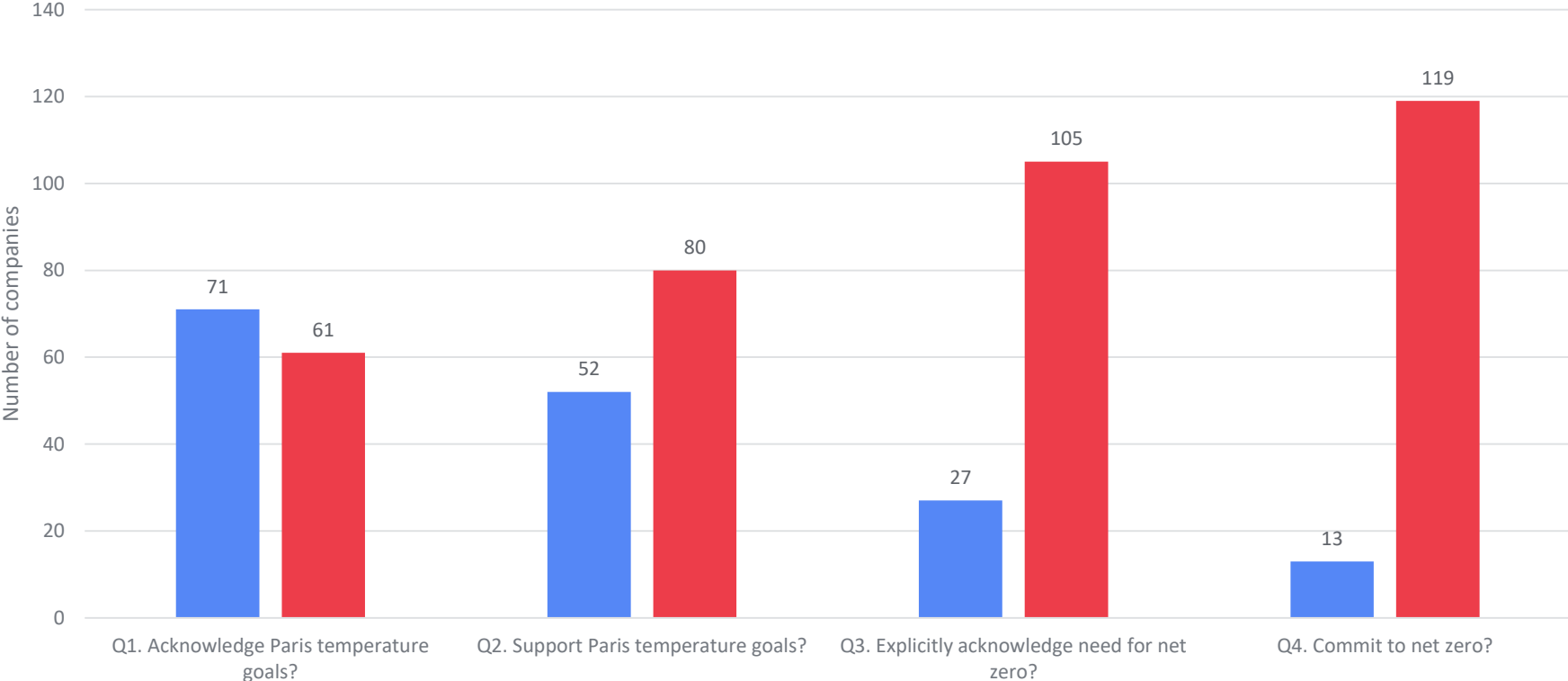
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# Our survey questions

Building on Oxford Martin Principle #1, we asked six questions of companies' public disclosures on climate change:

1. Does the company acknowledge Article 2 of the Paris Agreement on climate change as the objective of international climate action?
2. Does the company state its support for Article 2 of the Paris Agreement?
3. Does the company explicitly acknowledge the need for net global CO<sub>2</sub> emissions to reach zero?
4. Does the company commit to a year (e.g. 2050), or a temperature rise (e.g. 1.5°C), by which point its emissions should be net zero?
5. Does the company plan to offset emissions in reaching net zero, or thereafter?
6. Does the company explain what the offset mechanism will be and who will pay for it?

# Overview of results on questions 1-4



■ Yes ■ No

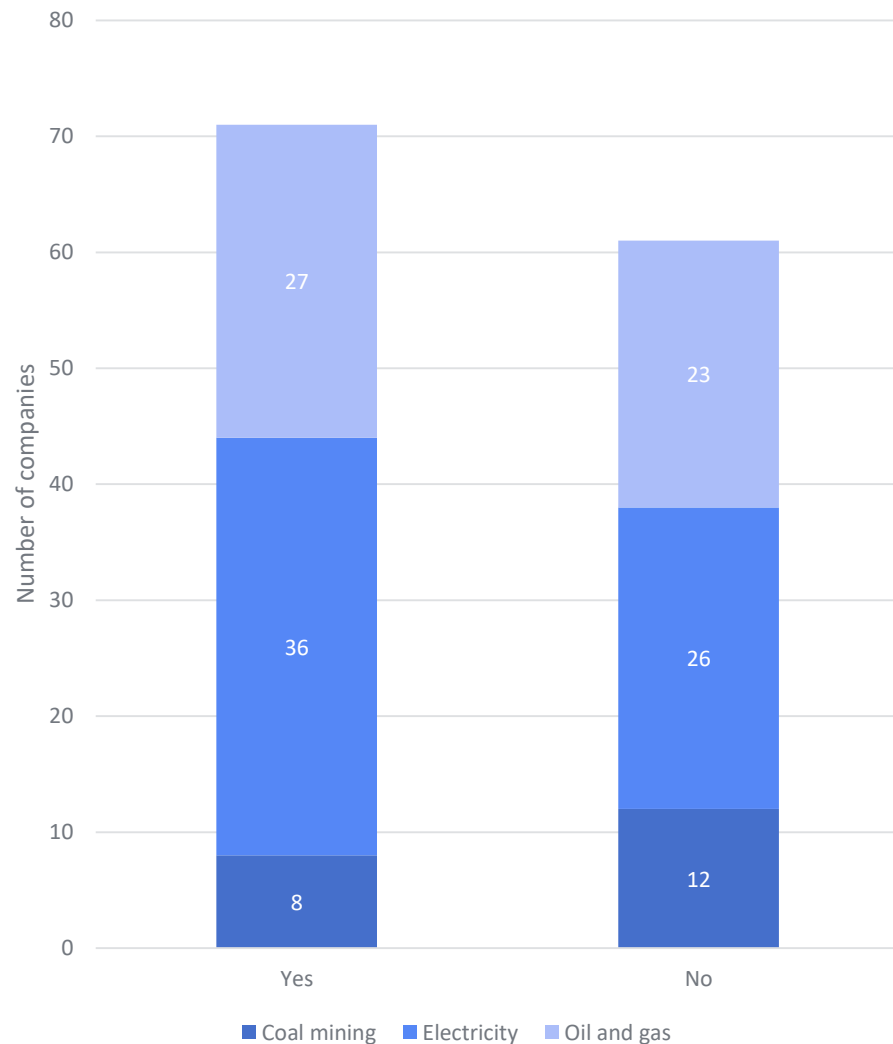


## Q1. Does the company acknowledge Article 2 of the Paris Agreement on climate change as the objective of international climate action?

We first looked at company disclosures to see whether they acknowledge Article 2 of the Paris Agreement as the objective of international climate action, i.e. “Holding the increase in the global average temperature to well below 2°C above preindustrial levels and pursuing efforts to limit the temperature increase to 1.5°C above preindustrial levels.”

We found that 71 out of 132 companies (54%) did so. By sector the shares of companies that did so are:

- Coal mining: 40%
- Electricity: 58%
- Oil and gas: 54%





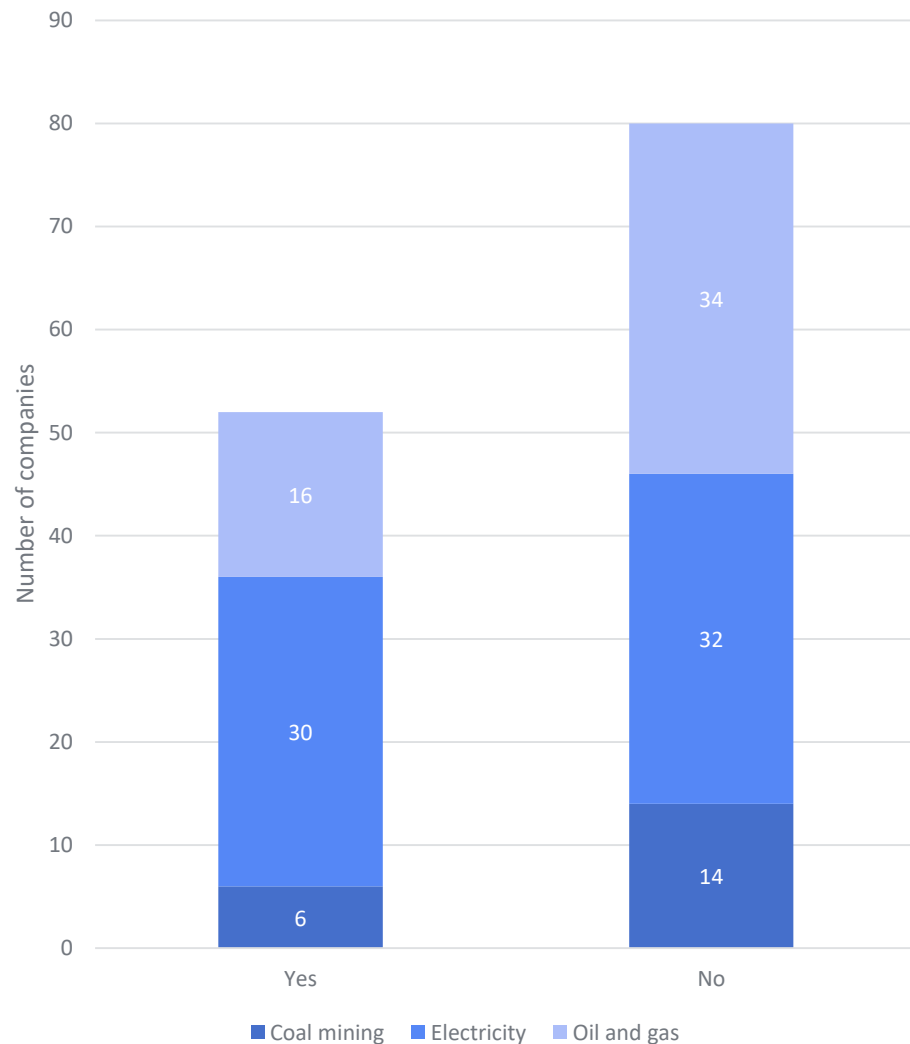
## Q2. Does the company state its support for Article 2 of the Paris Agreement?

Beyond simply acknowledging Article 2 of the Paris Agreement as the objective of international climate action, we then asked how many companies had publicly stated their support for this objective?

The overall share of companies that are assessed as Yes on this question falls to 39%. The sector breakdown is:

- Coal mining: 30%
- Electricity: 48%
- Oil and gas: 32%

Therefore the share of companies that had done so is significantly higher in electricity than in coal mining or, unlike Q1, oil and gas.



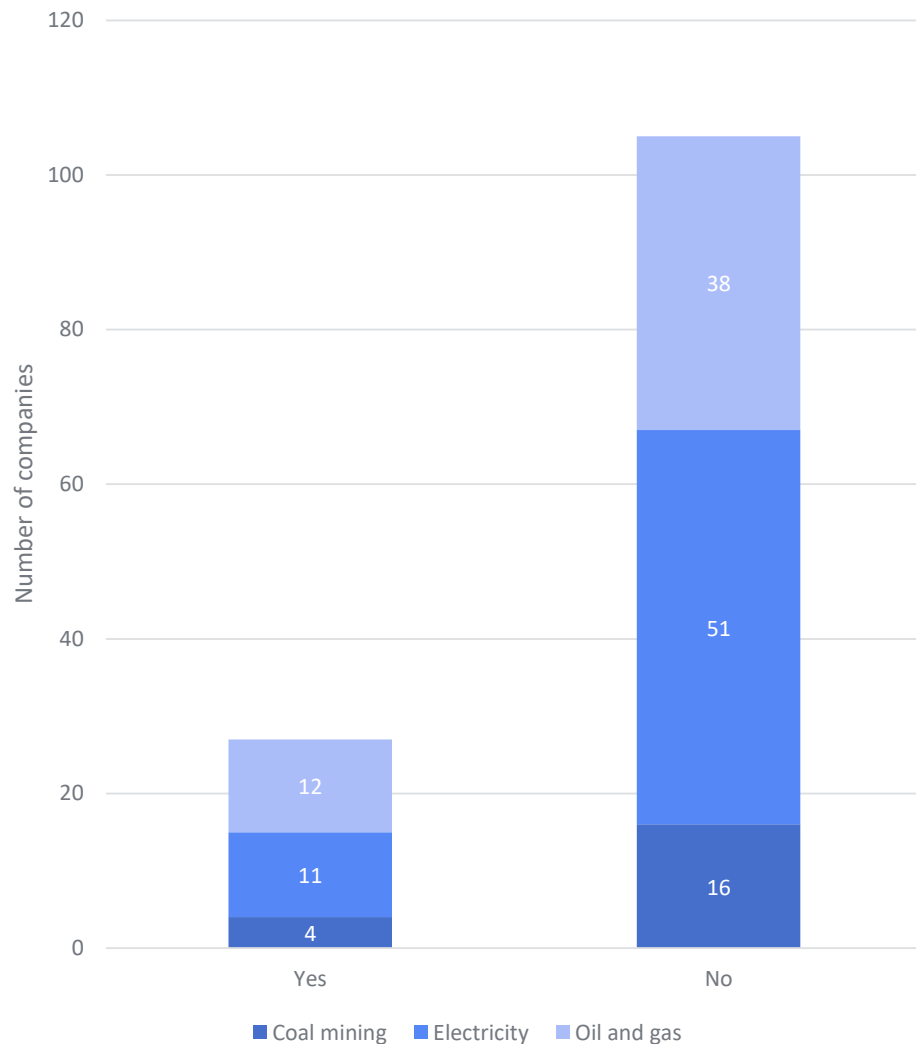
### Q3. Does the company explicitly acknowledge the need for net global CO<sub>2</sub> emissions to reach zero?

We looked at company disclosures to see whether they explicitly acknowledged the need for net global CO<sub>2</sub> emissions to reach zero. This examines companies' positions with regard to global emissions, not their own emissions.

Only 20% of companies had done so, including:

- Coal mining: 20%
- Electricity: 18%
- Oil and gas: 24%

So unlike Qs 1 and 2, electricity is not a stand-out performer on this question, nor is the coal-mining sector lagging behind.

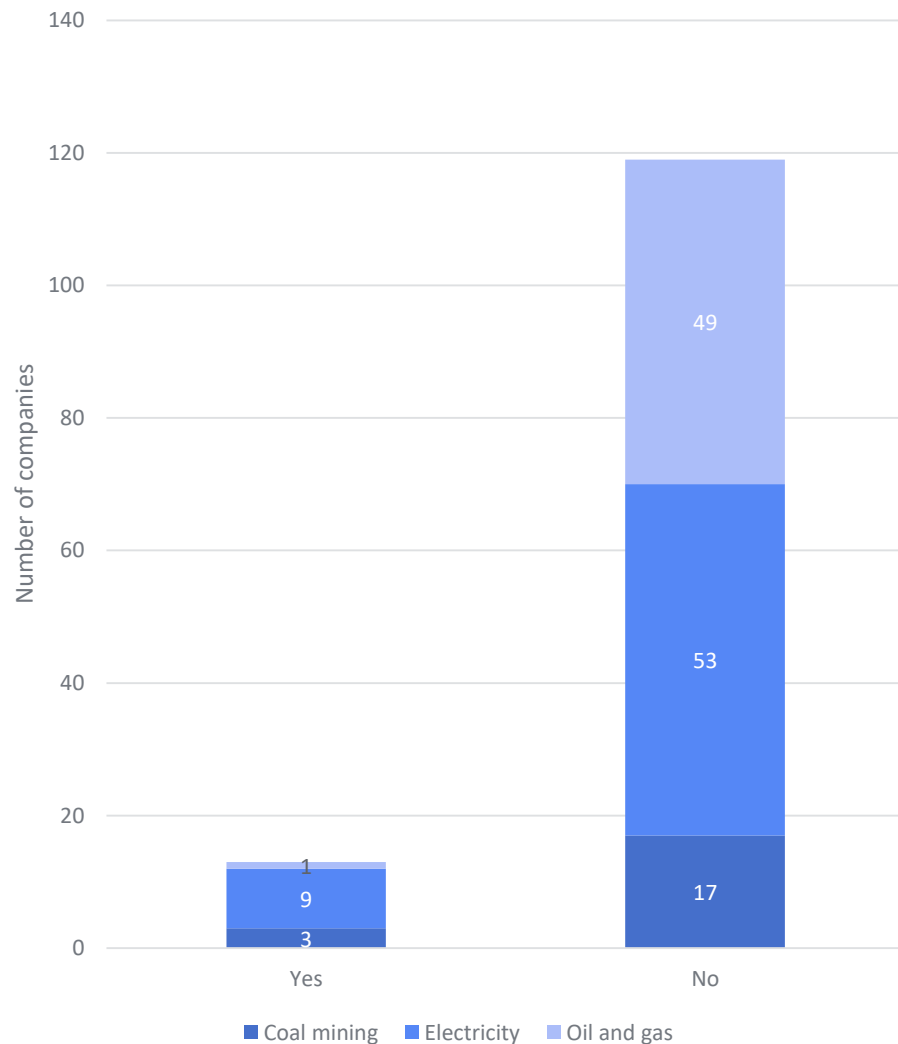


## Q4. Does the company commit to a year (e.g. 2050), or a temperature rise (e.g. 1.5°C), by which point its emissions should be net zero?

This is the central question of the survey. Rather than merely acknowledging and supporting the temperature goals of the Paris Agreement, this question asks whether companies have made commitments to reduce their own carbon emissions to net zero and if so by when.\*

We found that only 13 out of 132 companies (10%) had made a public commitment to reduce their emissions to net zero by a certain date.

\*See Technical Appendix for further details of what qualifies as a net zero commitment.



# Companies' net zero commitments in detail

Four fossil-fuel extraction companies had set net zero goals, three of which are mining companies (BHP Billiton, Exxaro Resources and South32) and one of which is an oil and gas producer (Eni). With the exception of Exxaro Resources, these companies' goals cover their operational emissions, which are only a small share of lifecycle emissions.

Nine electricity utilities had set net zero goals, covering at least direct emissions from their electricity generation. Scope 1 emissions can make up the vast majority of lifecycle emissions for companies in this sector.

Nine goals are anchored on 2050 (or thereafter), two on 2030 and two on 2025.

Note: the cut-off date for this analysis was 16/08/2019. Since then some companies such as Duke Energy, DTE Energy and RWE have set new net zero commitments.

Company	Scope*	% lifecycle emissions covered**	Year
BHP Billiton	1 & 2	~3	2050-2100
CEZ	1?	≥95	2050
EDF	1?	~34	2050
Endesa	1	~51	2050
Enel	1	~93	2050
Eni	1 (upstream business only)	≤15	2030
E.ON	1?	~6	2050
Exxaro Resources	1, 2 & 3?	Unclear	2030
Iberdrola	1	~53	2050
National Grid	1? (Electricity distribution in GB)	≤12	2025
Orsted	1?	≥95	2025
South32	1	~7	2050
XCEL Energy	1? & 2?	~85	2050

\* Companies who have not stated the scope of their net zero commitment in terms of Scope 1, 2 and/or 3 (including Scope 3 categories specified) are indicated with a “?” \*\*Calculations based on CDP disclosure

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## Q5 and Q6. Use of offsetting

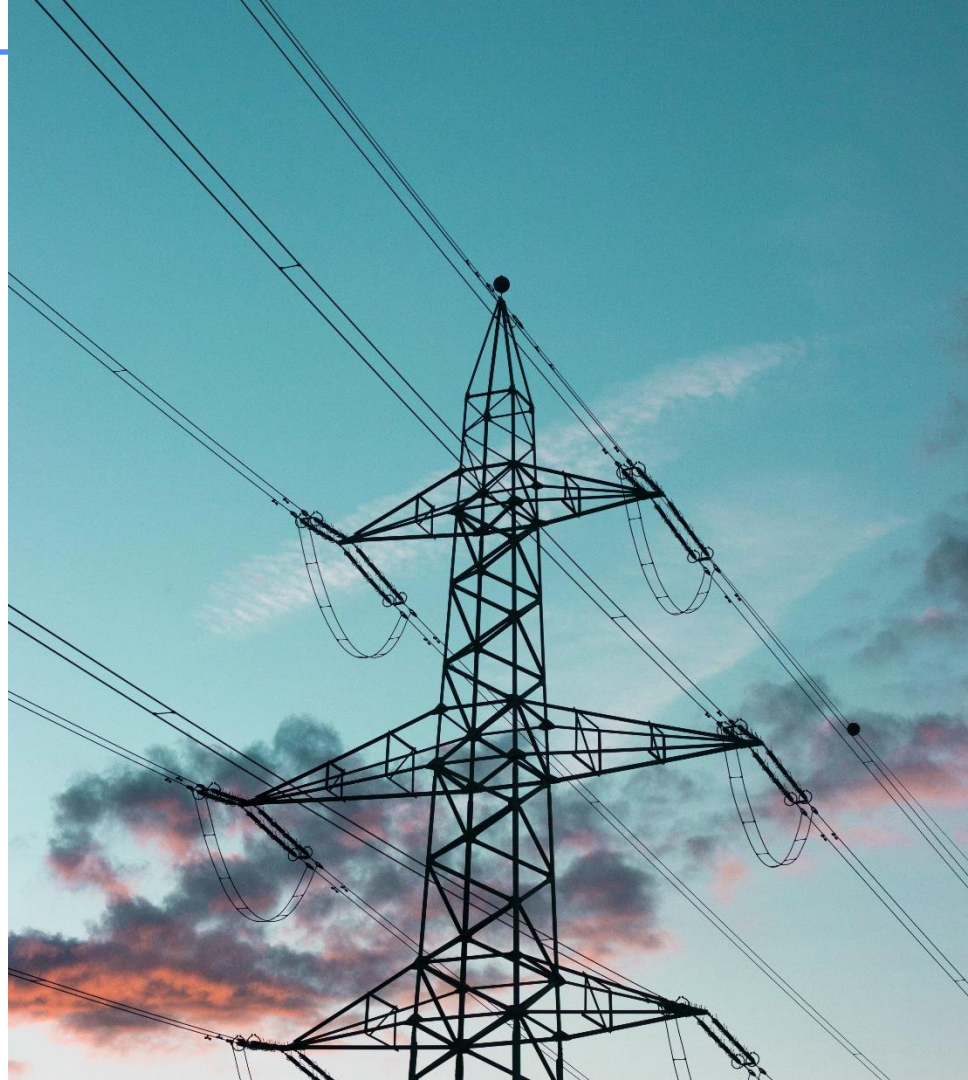
For those companies with net zero commitments, we went on to ask whether they plan to offset emissions in reaching net zero, and/or thereafter, and if so whether the companies explain what the offset mechanism will be and who will pay for it.

Eni, Exxaro Resources and South32 have disclosed that they plan to use offsetting in reaching net zero.\* Only Eni has provided further detail on what the offset mechanism will be (forests and land use management and preservation).

The other companies either do not plan to use offsetting in reaching net zero (this is particularly true of electricity utilities with net zero commitments), or have not disclosed enough detail on how they plan to reach net zero.

In general, the net zero transition plans, envisaged as part of the first of the Oxford Martin Principles, are yet to be seen.

\* To be assessed as Yes on Q5 and Q6, companies needed to mention offsetting in relation to their net zero plans specifically.

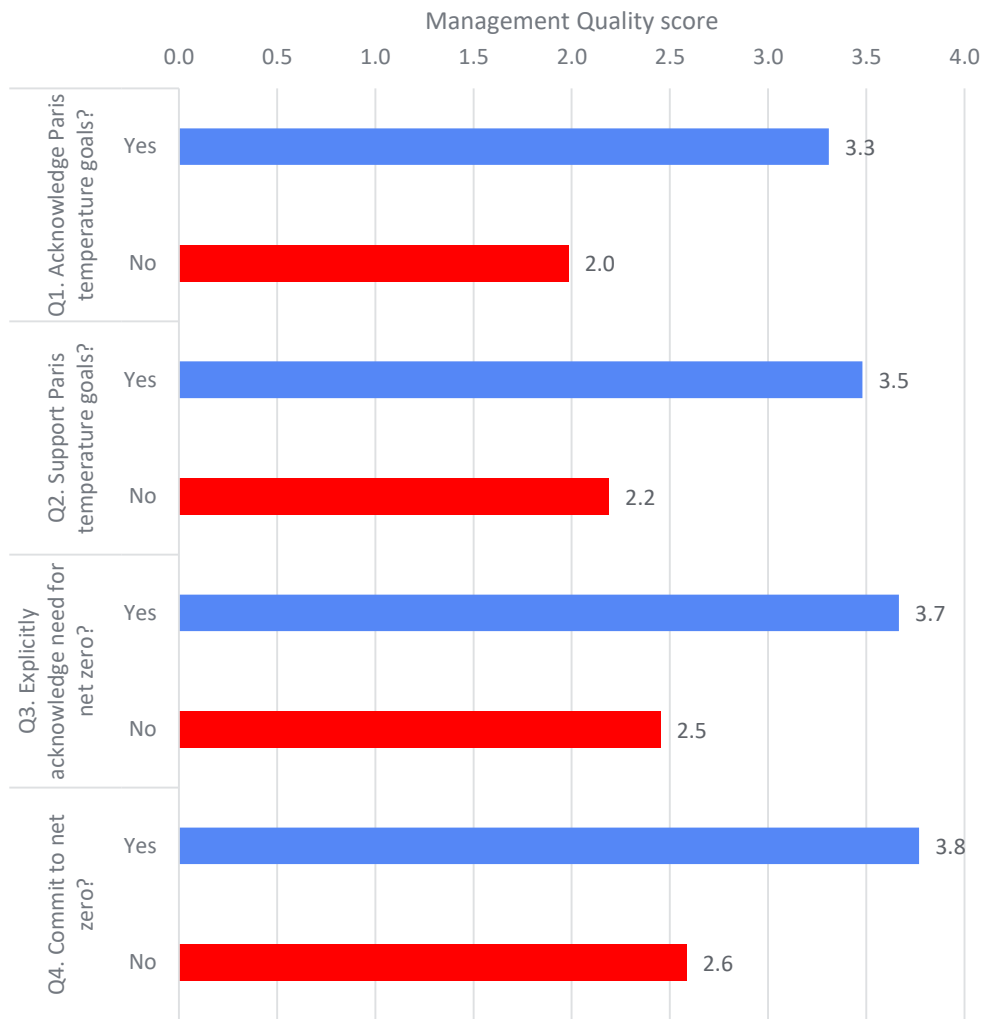


# Net zero positions versus carbon Management Quality

Companies' overall TPI Management Quality score (0-4) is strongly associated with whether they have acknowledged/supported the Paris temperature goals, net zero, and have themselves made net zero commitments.

For instance, the average Management Quality score of the 13 companies with net zero commitments is 3.8, versus 2.6 for the remaining 119 companies (see chart).

Using an alternative Management Quality measure – the proportion of criteria satisfied (out of 18-19 depending on the sector) – the 13 companies to have made net zero commitments satisfy on average 87% of criteria, whereas the remaining 119 companies satisfy on average 56%.



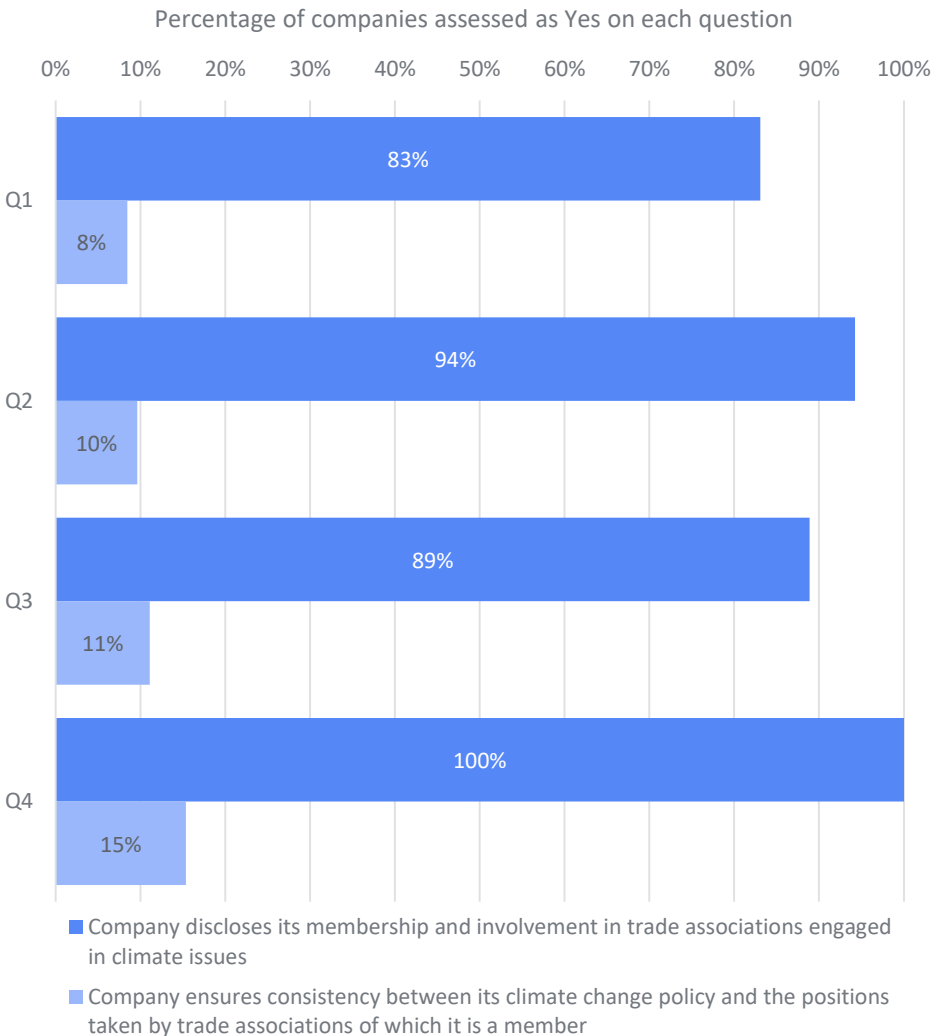
## Net zero positions versus companies' climate-change lobbying activities

Oxford Martin Principle #1 calls for companies' public statements and support for other organisations and lobby groups to be consistent with net zero. Accordingly, we assessed how many companies satisfying questions 1-4 of our net zero survey also satisfied TPI's two Management Quality criteria specifically related to lobbying:

- Does the company disclose its membership and involvement in trade associations engaged in climate issues?
- Does the company ensure consistency between its climate change policy and the positions taken by trade associations of which it is a member?

The vast majority of companies acknowledging/supporting the Paris temperature goals and net zero also disclose their membership and involvement in trade associations engaged in climate issues. 100% of companies with net zero commitments do so.

But few companies assessed as Yes on our net zero survey questions ensure consistency between their own positions and the positions taken by lobby groups of which they are a member.



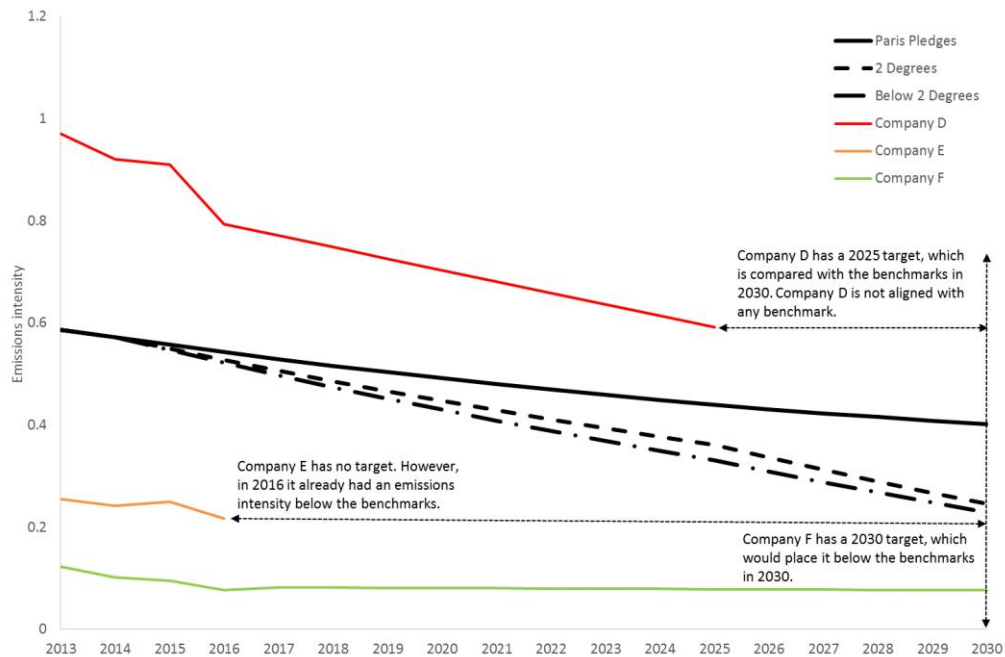


# Net zero commitments versus current emissions intensity and medium-term targets

Are companies with net zero commitments (Yes on Q4) aligned with the Paris temperature goals, using TPI's Carbon Performance framework? At present, data on Carbon Performance are available for the electricity and oil and gas sectors only. How we assess alignment is shown in the chart. The time horizon for analysis is 2030 for electricity and 2050 for oil and gas.

Six out of ten companies with net zero commitments and which have been assessed on Carbon Performance are aligned with 2°C or below. They are all in the electricity sector: EDF, Enel, E.On, Iberdrola, Orsted and XCEL Energy.

Eni, the only oil and gas producer with a net zero commitment, is not aligned with any of our Paris Agreement benchmarks. To put this in context, no oil and gas producer is currently on a 2°C pathway according to TPI.



# Technical appendix

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# Company assessment process

The net zero data underpinning this report were collected by analysts at the LSE's Grantham Research Institute on Climate Change and the Environment, and the Oxford Martin School at the University of Oxford.

The net zero data were obtained from companies' public disclosures, including annual reports, sustainability reports and responses to the CDP questionnaire.

The data have been subject to internal quality control, according to which analysts reviewed each other's company assessments in detail, and overall trends across companies have been looked at with a view to identifying outliers and unusual patterns. Unlike data in the TPI toolkit, the data underpinning this report have not been through a company review stage.

Further details on TPI's Methodology can be found in our *Methodology and Indicators Report v3.0, June 2019*. This includes information on how Management Quality and Carbon Performance data are generated.

## Question 1: Does the company acknowledge Article 2 of the Paris Agreement on climate change as the objective of international climate action?

### Primary search terms:

- Paris
- UN / U.N. / United Nations
- 1.5 / [well below] 2

### Scoring Criteria:

A company is assessed as Yes if it acknowledges (Article 2 of) the Paris Agreement. To that end there are both necessary and sufficient conditions:

- Necessary conditions to score Yes:
  - A company must show at least a minimal understanding/recognition of the importance of the Paris Agreement; and
  - Acknowledge the goals of the Paris Agreement in terms of either:
    - A specific global temperature goal; or
    - A general need for action to limit global temperature rise; or
    - The goals of the Paris Agreement without explicit reference to temperatures; and
  - Mention the Paris Agreement in a non-negative context (e.g. a company is assessed as No when it only mentions the Paris Agreement in the context of the US withdrawal); and
  - Mention the Paris Agreement in a context beyond purely its factual regulatory impact on the business; and
  - Acknowledge the Paris Agreement as an objective of international action beyond its own country and/or sector. A company scores No if it only acknowledges the NDCs.
- Sufficient conditions to score Yes:
  - A company acknowledges a specific global temperature goal; or
  - Publicly states that it is the member/signatory of an organization which advocates for the goals of the Paris Agreement (such as UNFCCC's Paris Pledge, Magritte Initiative, We are Still in Coalition).

## Question 2: Does the company state its support for Article 2 of the Paris Agreement?

### Primary search terms:

- Paris (with 'support' / 'welcome' / 'endorse' / 'uphold' / 'agree with').
- 1.5 / (well below) 2 (with support / welcome etc)

### Scoring Criteria:

A company is assessed as Yes if it states or shows support for the Paris in any of the following ways:

- It explicitly states support for the Paris Agreement itself and/or its goals and/or Article 2; or
- It mentions support for, or has registered commitments with, initiatives/organizations that support the Paris Agreement (such as We are Still in Coalition); or
- It states a commitment to reduce emissions aligned with (the goals of) the Paris Agreement; or
- It states support for the outcomes of COPs held after COP21 (e.g. they support the outcomes of COP24).

In addition to satisfying at least one of the previous criteria, a company must state/show its support in the context of:

- A global agreement: Companies are assessed as No if they only state support for NDCs or if their support is confined to one sector of the economy.
- Its whole entity: Companies are assessed as No if the only disclosure about a commitment to the Paris Agreement is from a subsidiary.

### Question 3: Does the company explicitly acknowledge the need for net global emissions of CO2 to reach zero?

#### Primary search terms:

- Zero (in the context of 'Paris' / 'temperature stabilisation')
- Decarbonisation / decarbonization
- Carbon neutral

#### Scoring Criteria:

A company is assessed as Yes if it acknowledges the need for global CO<sub>2</sub> emissions to reach net zero in any of the following ways:

- It mentions global emissions needing to reach net zero; or
- It mentions that global temperatures need to stabilise in a given time frame/by a certain point in time/at safe levels; or
- It mentions the need for decarbonization of the economy (generic reference to “complete decarbonization of the economy” is assumed to refer to the global economy); or
- It references Article 4.1 of the Paris Agreement.

In addition to satisfying at least one of the previous criteria, a company must acknowledge the need for net zero CO<sub>2</sub> emissions in the context of:

- Global CO<sub>2</sub> emissions from all sectors:
  - Companies are not assessed as Yes for mentioning that its state/country (needs to) aim(s) for carbon neutrality.
  - Companies are assessed as No when they state that only a partial decarbonization of their sector is necessary (rather than complete decarbonization to net zero CO<sub>2</sub> emissions).

#### Question 4: Does the company commit to a year (e.g. 2050), or a temperature rise (e.g. 1.5°C), by which point its emissions should be net zero?

##### Primary search terms:

- Zero
- [Carbon] emissions
- GHG / greenhouse gas / carbon dioxide / CO<sub>2</sub>.
- Carbon neutral
- [Net-]carbon footprint

##### Scoring Criteria:

To be assessed as Yes, a company must currently commit to reach net zero emissions and;

- Commit to a year and/or temperature rise by which point its emissions should reach net zero; and
- Cover direct and/or indirect emissions associated with at least one of the company's main business operations, however, it must relate to the whole core business activity (e.g. zero flaring targets or targets related to emissions from buildings are insufficient to score Yes); and
- Have clearly replaced previous less ambitious emissions reduction targets if a company had set such targets.

A company cannot be assessed as Yes if:

- It supports the net zero target of its state or region without disclosing a commitment to reduce its own CO<sub>2</sub> emissions to net zero.
- It only indicates that a net zero commitment will be set in the future.

A commitment can be expressed as a target or ambition.

### Question 5: Does the company plan to offset emissions in reaching net zero, or thereafter?

#### Primary search terms:

- Removal / CDR
- Sequestration / sequester
- Offset (in context of emission removals to compensate for an emissions / temperature overshoot, not offsetting of residual emissions during decarbonisation)

#### Scoring Criteria:

- This indicator cannot be scored Yes if the company does not have a net zero commitment (Q4).
- The offsetting scheme must be mentioned in the context of the company's net zero target.
- When a company commits to full decarbonisation, it is assumed that there is no offsetting involved.

### Question 6: Does the company explain what the offset mechanism will be [and who will pay for it]? Yes/No + record details

#### Primary search terms:

- Offset
- Compensate
- Forest / nature / land
- Sequest[ration/er]
- Carbon sinks

#### Scoring Criteria:

- The offsetting scheme must be mentioned in relation to the company's net zero target.

Any disclosure since the Paris Agreement was adopted on December 12, 2015 until the research cut-off date August 16, 2019 was analysed according to the criteria set out in this appendix.



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