

Discussion of

Decarbonizing Institutional Investor Portfolios: Helping to Green the Planet or Just Greening Your Portfolio?

Vaska Atta-Darkua, Simon Glossner, Philipp Krueger, Pedro Matos*

This version: September 2023

Marco Becht

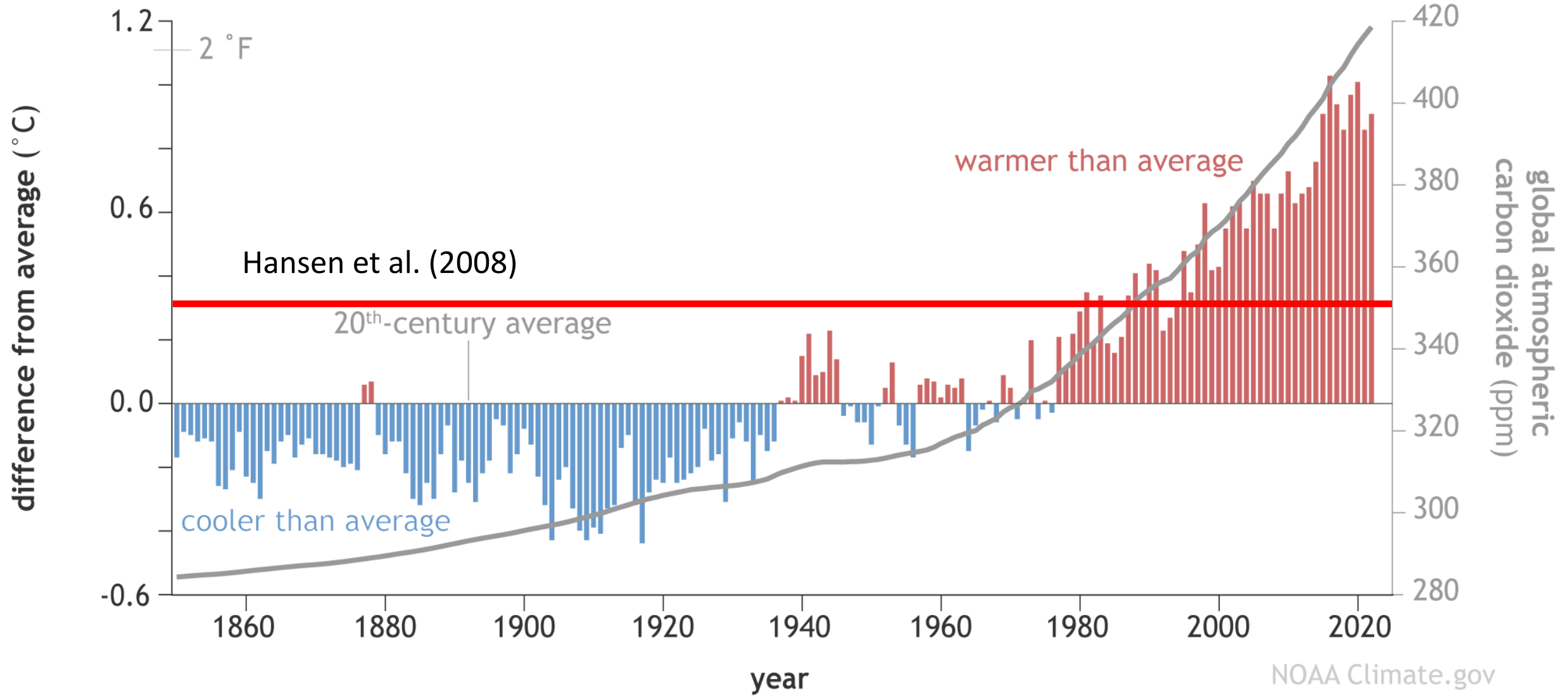
Solvay Brussels School, ECGI and CEPR

GCGC 2024, Columbia Law School, New York

Summary

- How do institutional investors that join climate-related investor initiatives decarbonize their equity portfolios?
- Decarbonisation via
 - re-weighting portfolios towards lower carbon emitting firms;
 - or alternatively via targeted engagements with portfolio companies to reduce their emissions.
- Highly relevant
- A wealth of data and information about portfolio evolution over time

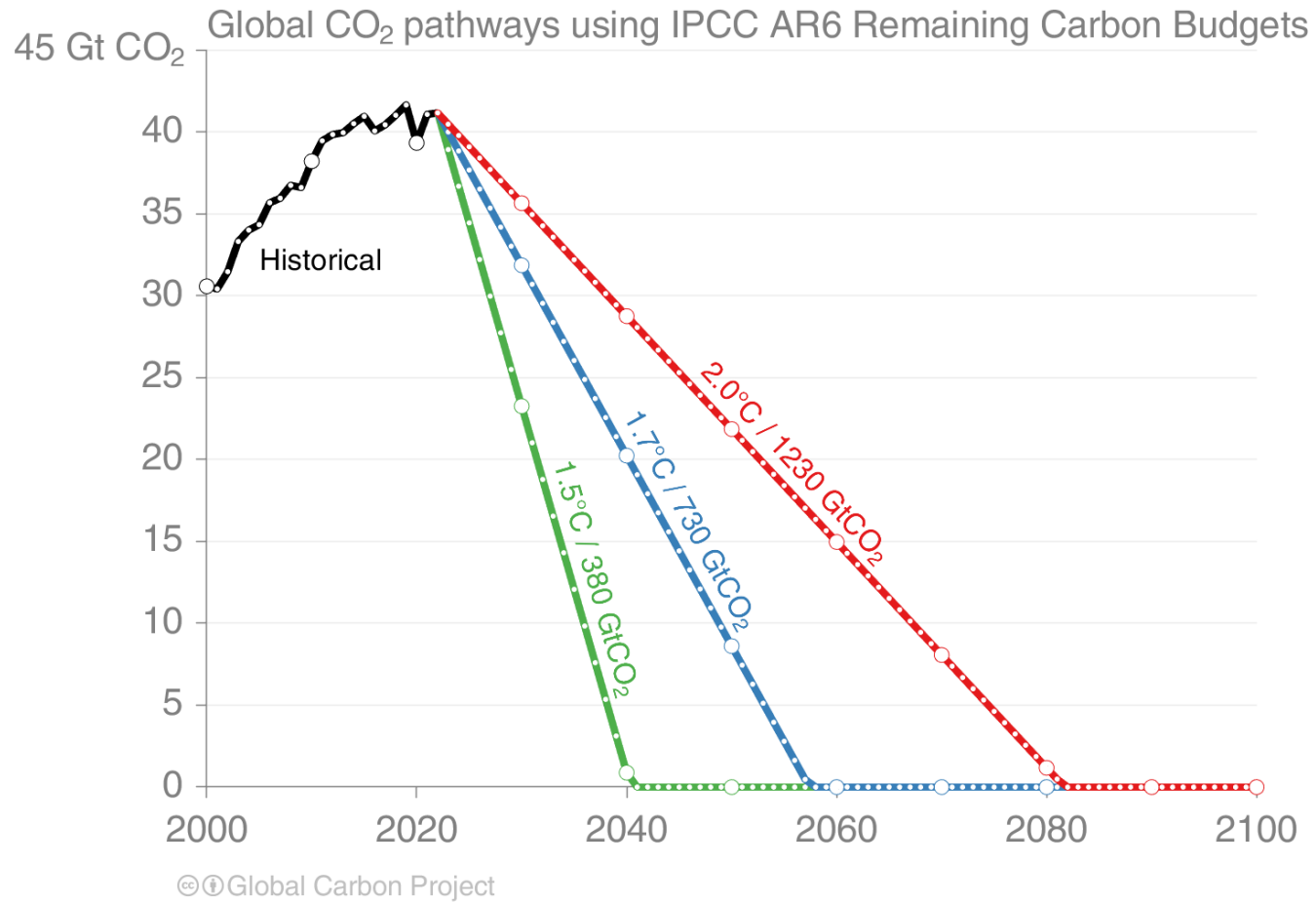
Yearly global surface temperature and atmospheric carbon dioxide (1850-2022)



NOAA Climate.gov
Data: ESRL/ETHZ/NCEI

Remaining carbon budget

Global CO₂ emissions must reach zero to limit global warming



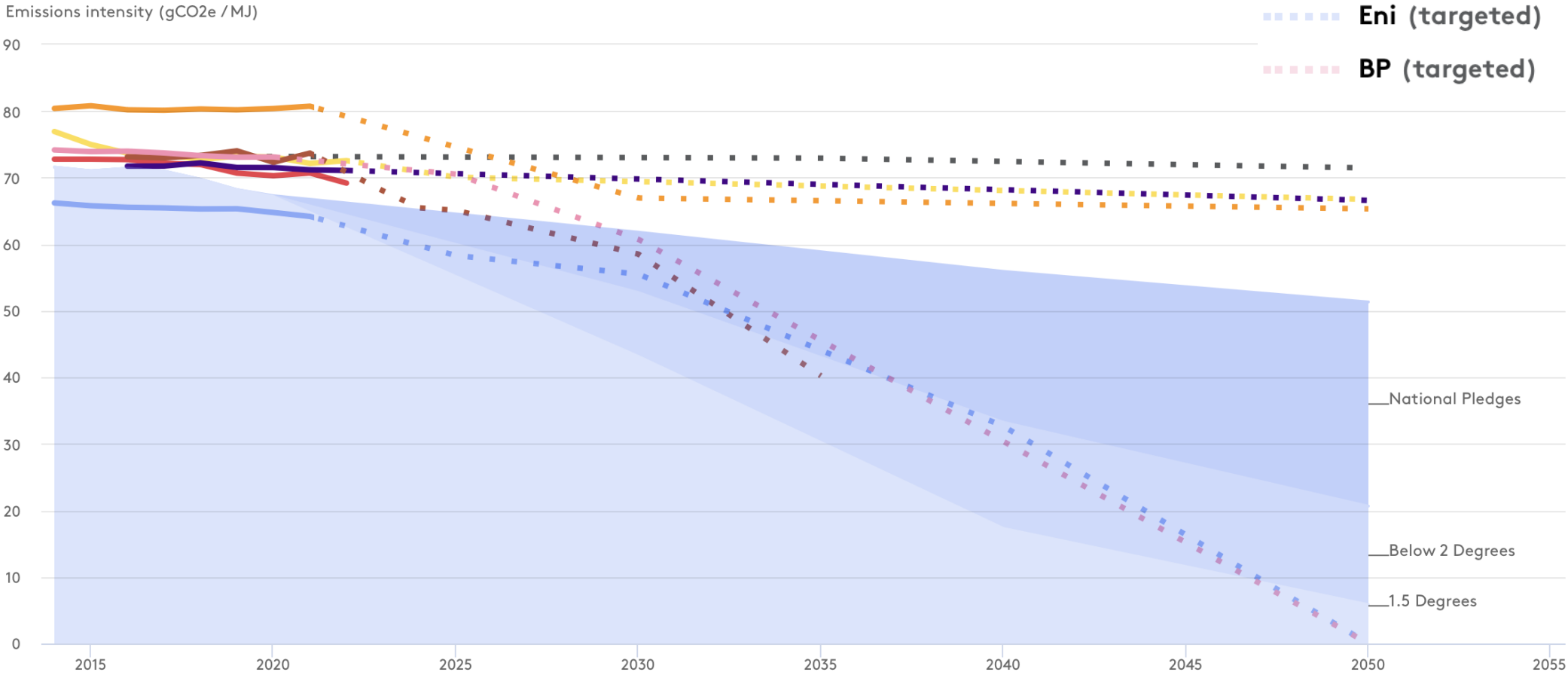
Source: [Friedlingstein et al 2022](#); [Global Carbon Project 2022](#)

National and Corporate Pledges: TPI

Carbon Performance: Oil & Gas

— Reported - - - - Targeted

Emissions intensity (gCO ₂ e / MJ)	
— - - - -	Saudi Aramco (targeted) 71.47
— - - - -	Hess (targeted) 66.75
— - - - -	Exxon Mobil (targeted) 66.59
— - - - -	Phillips 66 (targeted) 65.32
— - - - -	Eni (targeted) 0
— - - - -	BP (targeted) 0




Legend for companies: Saudi Aramco (black circle), Chevron (red circle), Hess (yellow circle), Exxon Mobil (purple circle), Phillips 66 (orange circle), Shell (brown circle), Eni (blue circle), BP (pink circle).

Why do investors want to decarbonise?

- Moral imperative
 - Divest without regard to the financial consequences or impact
 - Make a statement (“Voice Through Divestment”)
- (Transition) Risk management
 - Divest/reduce exposure to high-carbon emitters
 - Engage: reduce carbon emissions in existing portfolio
 - Escalation: Engage – vote – divest if unsuccessful

Why CA100+ and CDP?

- CA100+ - Engagement with the highest carbon emitters 
 - Net Zero Engagement Initiative (NZEI) is too recent (March 2023)
- CDP: Not an obvious choice
 - Net-Zero Asset Owner Alliance (NZAOA) – UN convened
 - Paris Aligned Asset Owners (PAAO)
 - The Net Zero Asset Managers (NZAM)
- What is the right benchmark?

Net-Zero Portfolio Alignment

- Bolton, Patrick, Marcin Kacperczyk, and Frédéric Samama. "Net-zero carbon portfolio alignment." *Financial Analysts Journal* 78, no. 2 (2022): 19-33.
- Cenedese, Gino and Han, Shangqi and Kacperczyk, Marcin T., Carbon-Transition Risk and Net-Zero Portfolios (September 11, 2023). Available at SSRN: <https://ssrn.com/abstract=4565220>

Net-zero portfolios

- ▶ Net-zero portfolios aim to align with the global decarbonization objectives.
 - ▶ NZAMI: “ambition to reach net zero emissions by 2050 or sooner across all assets under management.”
- ▶ Main steps to construct a net-zero portfolio:
 - 1 Define the investable stock universe (all Trucost stocks)
 - 2 Add up all firms’ scope 1–3 emissions in a given year (25.8 GtCO₂ in 2020)
 - 3 Multiply the sum by the number of years left (**6.6 years** × 25.8 = 170.3 GtCO₂ beginning of 2021)
 - 4 Select companies so that total emissions cumulatively do not exceed the yearly emission budget

Net-Zero Alignment: Conditional Divestment Commitment

Disinvestment Roadmap for Utilities*

NATURGY ENERGY GROUP SA														UNITED UTILITIES GROUP		
ENGIE														ORSTED A/S		
FORTUM OYJ														SEVERN TRENT PLC		
TERNA RETE ELETTRICA NAZIONALE SP.														ENAGAS		
RED ELECTRICA CORPORACION														SNAM SPA		
VEOLIA ENVIRONNEMI	RWE	ENDESA	EDP ENERGIAS DE Portugal	SUEZ	EDF	SSE	ENEL	E.ON	BERDROLJ	NATIONAL GRID	ELIA GROUP	VERBUND				
2021	2022	2023	2024	2025	2026	2027	2028	2032	2035	2036	2037	2041	2044	2049		



Source: Bolton et al. 2022

Disinvestment Roadmap for Energy*

TENARIS										KONINKLIJKE VOPAK	
OMV AG	REPSOL	ENI	GALP ENERGIA SGPS	BP	EQUINOR	ROYAL DUTCH SHELL	TOTALENERGIES	NESTE OYJ	LUNDIN ENERGY		
2021	2022	2023	2024	2030	2031	2035	2039	2047	2049		

Source: Bolton et al. 2022

Net-Zero Carbon Portfolio Alignment

Patrick Bolton, Marcin Kacperczyk , and Frédéric Samama 

Patrick Bolton is a professor of finance at Columbia University and Imperial College London. Marcin Kacperczyk is a professor of finance at Imperial College London. Frédéric Samama is the founder of SWF RI and a researcher at Paris Dauphine University and Sciences Po.

We outline a simple and robust methodology to align portfolios with a science-based, carbon budget consistent with maintaining a temperature rise below 1.5°C with 83% probability. We show how to keep the tracking error at a negligible level. This approach works for both passive and active managers. It also establishes an exit roadmap for carbon-intensive corporates, thereby generating a form of competition to decarbonize within each sector. We also discuss four sources of risks: uncertainty around a rapidly shrinking carbon budget, time impacts on decarbonization rates, implementation risk due to market-wide selling pressure, and uncertainty about taxes on polluting companies.

Keywords: benchmarking; climate change; net neutrality; net-zero portfolio construction

Introduction

Over the last few years, the world has witnessed a major shift in its approach to tackle the looming climate crisis. One of the defining moments has been the Paris Agreement of 2015, which set in motion a global effort to reduce carbon emissions with the highly ambitious goal of containing global average temperature increases to no more than 2 degrees Celsius, and later an even more ambitious target of 1.5°C. This latter goal requires a reduction in global emissions to zero by 2050, an objective coined as *carbon net neutrality*. The carbon neutrality objective has by now been embraced by many players, including governments, corporates, municipalities, asset owners, asset managers, and banks. In this paper, we address the question of how to structure net-zero aligned portfolios of investors, in a world where companies are not necessarily aligned with this objective. The premise of our analysis is that even if companies are not fully aligned with carbon neutrality, then at least investors should strive to be aligned by gradually reducing their carbon footprint through divestment of high-carbon emitters.

Investors may want to do their part even if others do not, and if a sufficient mass of such investors align their portfolios to a net-zero target, then companies will be more incentivized to follow suit. But how can investors be aligned while maintaining their market exposure and reducing the tracking error of their portfolio with respect to the market benchmark? We approach the alignment question from the perspective of an investor who takes the world as given, in contrast to most other current approaches that focus on corporate pathways to carbon neutrality and the implied risks for investors holding these companies. Corporate decarbonization commitments are in their infancy and the projected carbon reduction trajectories are still highly unreliable. It is thus highly uncertain to what extent and at what speed companies will decarbonize their activities, so that investors need to be prepared to implement a scenario where they can

We are grateful to Mehdi Bourai, Alexandra de Hemptinne, and Mathieu Jouanneau for their excellent research assistance. The views are those of the authors, not necessarily those of their affiliated institutions. For their helpful comments, we are grateful to two anonymous referees, N. Boyson (editor), M. Billing, J. Boissinot, S. Chatterjee, E. Chew, N. Ekvall, A. Gautier, S. Gaulard, A. Grandjean, R. Hodge, J. Koeb, T. Loytyniemi, R. Mattison, M. Maurin, L. Pereira da Silva, O. Rousseau, R. Svartzman, E. White, and seminar participants at the ECB.

Disclosure: No potential conflict of interest was reported by the author(s).

PL Credits: 20

S&P Global



Sustainable 1

* with constant parameters including emissions

S&P Net Zero 2050 Carbon Budget Indices *Methodology*

Appendix I

The appendix seeks to show how the carbon budgets, initial, and annual decarbonization rates are used at each rebalancing, and how the choice of annual decarbonization rate (when considered at the level of one decimal place) results in the remaining absolute emissions budget (as at the launch date of the indices) so as to not be exhausted as at the 2050 rebalancing.

2022 Vintage Indices

Rebalancing Since Launch 't'	Year 'y'	Remaining Absolute GtCO ₂ Budget, prior to the rebalancing before launch in 2022	Annual AGE _y , (GtCO ₂)	Initial Decarbonization Rate (%) (at t=0 only)	Annual Decarbonization Decrease Requirement within Year (%)	Target AGE _y , (GtCO ₂)	Projected Remaining Absolute GtCO ₂ Budget after the annual rebalancing (GtCO ₂)
	2020	300.00	31.50				
	2021	268.50	33.00				
0	2022	235.50	33.00 ⁶	-25.00%		24.75	210.75
1	2023				-10.10%	22.25	188.50
2	2024				-10.10%	20.00	168.50
3	2025				-10.10%	17.98	150.51
4	2026				-10.10%	16.17	134.35
5	2027				-10.10%	14.53	119.81
6	2028				-10.10%	13.07	106.75
7	2029				-10.10%	11.75	95.00
8	2030				-10.10%	10.56	84.44

Carbon Pledges and Commitments: Sweden and Largest Countries by GDP

Status Year	ISO	Country Name	End Target	Target Year	Target Status	Real GDP
2018	SWE	Sweden	Net zero	2045	In law	618B
2020	CHN	China	Carbon neutral(ity)	2060	In policy document	27.3E+12
2021	USA	United States of America	Net zero	2050	In policy document	23.0E+12
2020	XXX	European Union	Climate neutral	2050	In law	21.7E+12
2021	IND	India	Net zero	2070	Declaration / pledge	10.2E+12
2021	JPN	Japan	Net zero	2050	In law	5.4E+12
2021	RUS	Russian Federation	Carbon neutral(ity)	2060	In law	4.8E+12
2021	DEU	Germany	Climate neutral	2045	In law	4.6E+12
2021	IDN	Indonesia	Net zero	2060	Proposed / in discussion	3.6E+12
2020	BRA	Brazil	Carbon neutral(ity)	2050	Declaration / pledge	3.4E+12
2020	FRA	France	Net zero	2050	In law	3.4E+12
2020	GBR	United Kingdom	Net zero	2050	In law	3.3E+12
2021	ITA	Italy	Climate neutral	2050	In policy document	2.7E+12
	MEX	Mexico	Carbon neutral(ity)	2050	Proposed / in discussion	2.6E+12
2021	TUR	Turkey	Net zero	2053	In policy document	2.6E+12
2021	KOR	South Korea	Net zero	2050	In law	2.3E+12
2021	CAN	Canada	Net zero	2050	In law	2.0E+12
2021	ESP	Spain	Climate neutral	2050	In law	1.9E+12

Source: <https://zerotracker.net>

Carbon Pledges and Commitments: 20 Largest Regions by GDP

Year	Name	Country	Region	Race to Zero Member	End Target	End Target Year	
2020	California	USA	North America	Yes	Net zero	2045	In law
2020	England	GBR	Europe	No	Net zero	2050	In law
	Texas	USA	North America	No	No target		
2019	New York State	USA	North America	Yes	Net zero	2050	In law
2007	Florida	USA	North America	No	Emissions reduction target	2050	In law
2019	Illinois	USA	North America	No	Net zero	2050	Declaration / pledge
	Île-de-France	FRA	Europe	No	Zero carbon	2050	In policy document
	Pennsylvania	USA	North America	No	Emissions reduction target	2050	In policy document
2018	Ontario	CAN	North America	No	Emissions reduction target	2030	In policy document
	Ohio	USA	North America	No	No target		
2018	New Jersey	USA	North America	No	Emissions reduction target	2050	In law
2020	Washington State	USA	North America	Yes	Net zero	2050	In law
2020	Massachusetts	USA	North America	No	Net zero	2050	In law
2018	North Carolina	USA	North America	No	Emissions reduction target	2025	In law
	Virginia	USA	North America	No	Net zero	2045	Proposed / in discussion
2020	Michigan	USA	North America	No	Carbon neutral(ity)	2050	In law
	Maryland	USA	North America	No	Net zero	2045	In law
2021	Maharashtra	IND	South Asia	No	Other	2050	Declaration / pledge
2023	Colorado	USA	North America	No	Net zero	2050	In law
2007	Minnesota	USA	North America	No	Emissions reduction target	2050	In law

Source: <https://zerotracker.net>

New EU Sustainable Fund Naming Rules Could Lead to \$40 Billion Divestments: Morningstar



Mark Segal

June 10, 2024

Two-thirds of funds in the EU labelled with sustainable or ESG-related terms may need to sell assets or change their names to align with new anti-greenwashing rules, with stock divestments of as much as \$40 billion if all were to keep their names, according to a new report released by investment research firm Morningstar.

The new report [follows the release last month](#) by EU markets regulator the European Securities and Markets Authority (ESMA) of its finalized guidelines for the use of ESG and sustainability-related terms in investment fund names. ESMA launched the new rules after noting a sharp increase in the use of sustainability-related terms in fund names in Europe over the past several years, leading to an increased risk of greenwashing.



Live Anti-ESG State Action Tracker

Pleiades maintains a live public tracker of anti-ESG bills (2021-2024) and anti-ESG executive actions (2018-2024) as a tool for investors, policymakers, journalists, and academics seeking to understand the evolving contours of the anti-ESG state legislative campaign in US states. Additional context and analysis can be found in our [Summer 2023 Statehouse Report](#), [2024 State Legislative Outlook](#), and [May 2024 Anti-ESG State Executive Action Report](#).

Please [contact us](#) for assistance navigating the tracker, custom statistics, and additional analysis.

Anti-ESG State Legislation Tracker 2020-2024 legislative trends and analysis

Since 2022, Pleiades Strategy has monitored ongoing state legislative attacks on the freedom to invest responsibly in order to help stakeholders understand the evolving anti-ESG policy landscape.



This year's proxy season has officially begun. Discover the [latest flagged votes](#) and [follow updates here](#).



NEWS

ABOUT CLIMATE ACTION 100+

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THE THREE GOALS

APPROACH ▾

WHO'S INVOLVED ▾

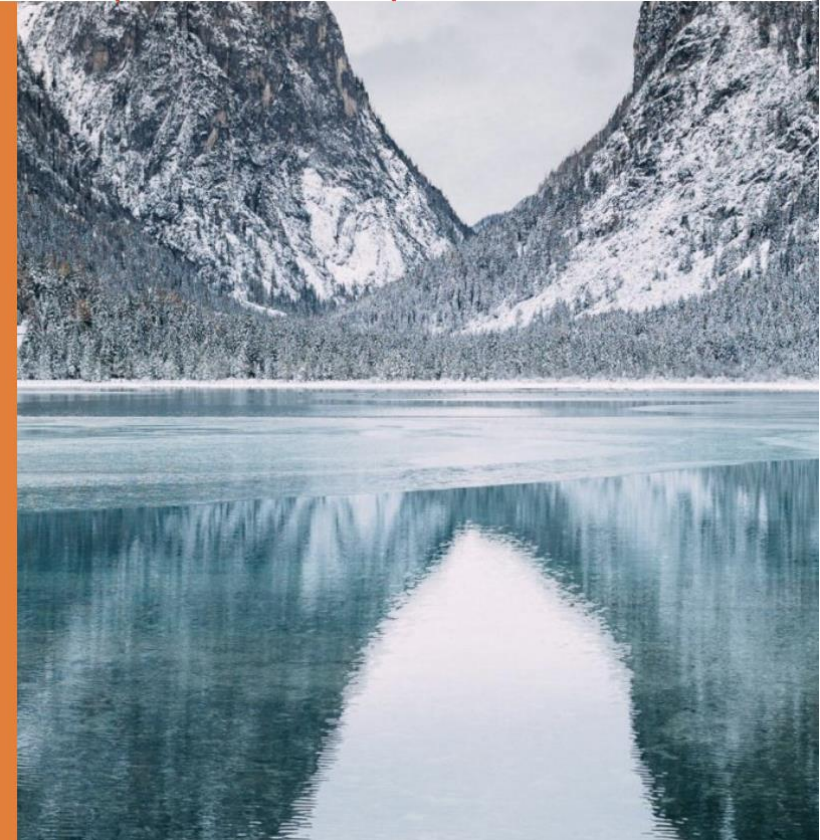
PROGRESS ▾

NET ZERO COMPANY
BENCHMARK ▾

PROGRESS UPDATE

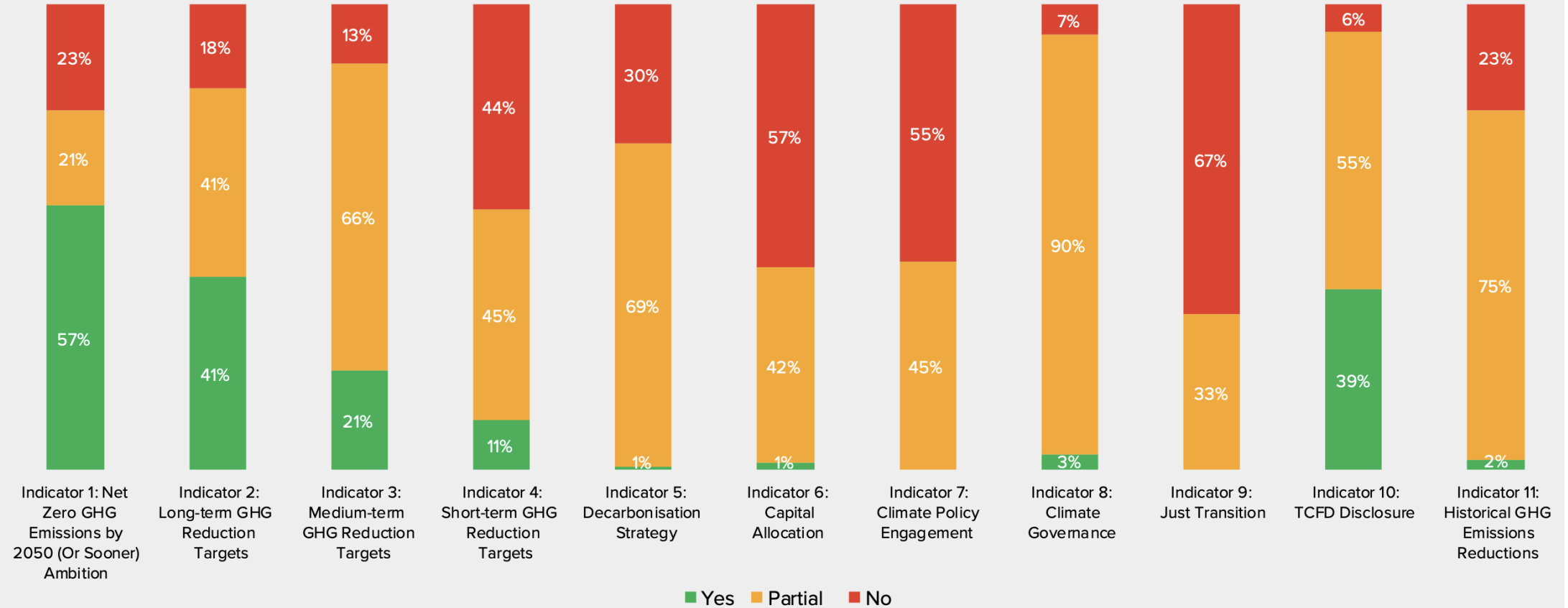
Climate Action 100+ tracks the progress of focus companies against a number of key indicators through regular progress reporting and benchmarking. Annual progress updates also provide key information about the evolution and operation of Climate Action 100+.

[Download the 2023 update](#)



2023 Results by Indicator

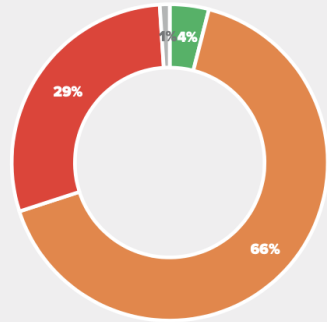
Despite continuous improvement on long and medium-term GHG reduction target setting and TCFD disclosures, significant progress is still needed on short-term target setting, capital allocation, climate policy engagement, just transition and GHG emissions reductions.



Due to rounding of percentages in the data analysis, the total for Indicator 1 does not equal a hundred percent.

CA100+ 2023 Alignment Assessment

Climate Policy Engagement Alignment (InfluenceMap)



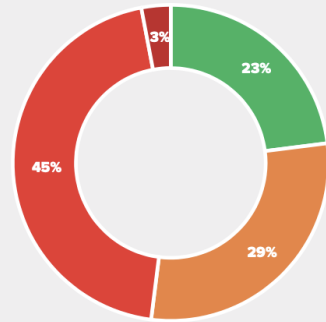
■ Broadly aligned with Paris
■ Misaligned with Paris
■ Mixed engagement
■ Not assessed

Capital Allocation Alignment for Automotive, Aviation, Cement, Electric Utilities & Steel Sectors (RMI)

Electric utilities	1 company aligned with 1.5°C and 30 companies misaligned
Autos	2 companies aligned and 10 companies misaligned with 1.5°C
Steel	2 companies approaching and 5 companies a moderate distance to being aligned with 1.5°C
Cement	All 11 companies a significant distance from 1.5°C
Aviation	All 5 airlines a significant distance to being aligned with a Beyond 2 Degrees scenario

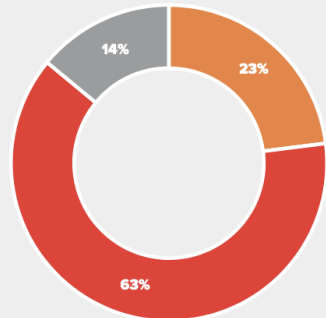
Capital Allocation Alignment for Utilities and Oil & Gas (Carbon Tracker)

Electric Utilities: Coal Phase-out



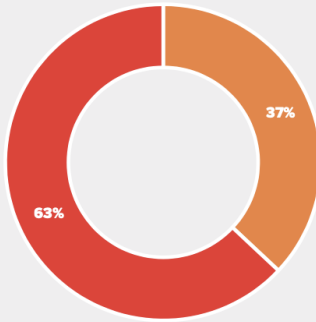
■ Full retirement - consistent with NZE (1.5°C)
■ Full retirement not consistent with NZE (1.5°C)
■ Partial retirement
■ Unannounced / insufficient data

Oil & Gas: Future CapEx Alignment with 1.5°C



■ Compatible with ~1.7°C
■ Incompatible with 1.5°C
■ Not assessed

Climate Accounting & Audit (Carbon Tracker)



■ Assessment criteria partially met
■ Assessment criteria not met



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Climate Control: Decarbonization Collusion in Environmental, Social, and Governance (ESG) Investing

Meeting Status: Scheduled | [Hearing](#)

Date: Wed, 06/12/2024 - 10:30 AM

Location: Capitol Complex, 2141 RHOB, Washington, DC, 20515, USA



WASHINGTON, D.C. – The House Judiciary Subcommittee on the Administrative State, Regulatory Reform, and Antitrust will hold a [hearing](#) on Wednesday, June 12, 2024, at 10:30 a.m. ET. The hearing, "Climate Control: Decarbonization Collusion in Environmental, Social, and Governance (ESG) Investing," will examine whether existing civil and criminal penalties and current antitrust law enforcement efforts are sufficient to deter anticompetitive collusion to promote ESG-related goals in the investment industry.



California public pension divestment bill building momentum; passed Senate Labor and Judiciary Committees

By [Shana DeClercq](#) | April 18, 2023

SB 252 now heads to Appropriations and then a Senate floor vote

FOR IMMEDIATE RELEASE
April 18, 2023

Investments

Why We're Opposing Divestment in Senate Bill 252

4 weeks ago



During the CalPERS Board of Administration meeting in March, board members voted to formally oppose Senate Bill 252 (Gonzalez), legislation that would require divestment from fossil fuel companies.



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Investment portfolio

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Path to net zero



We believe climate change is one of the greatest threats to our future, with undeniable links to business and financial investments. Climate change impacts health and safety, the environment and the global economy, which puts the CalSTRS Investment Portfolio at risk. Our mission is to support the retirement security of California's educators. Virtually all companies and assets in our portfolio are affected by climate risk and must prepare for climate change.

Escalating engagement
with companies
The ShareAction
framework and in practice

*Responsible Investment Standards &
Expectations (RISE) - Guidance Paper #2*

Our model toolkit	1 Private persuasion	2 Broader challenge	3 From talk to action <i>Voting (3.1)</i>	<i>Intensified actions (3.2)</i>	<i>Exceptional measures (3.3)</i>	4 Capital allocation decisions	5 Levers of last resort
Listed Equity	Unilateral private calls/ meetings (non-routine, more frequent, with board members)	Collaborative calls/ meetings with the senior management and/ or the board Collaborative private letters to senior management and/ or the board Challenge management on earnings calls, corporate events or roadshows	Vote against standing items incl. director (re)election, audited accounts, management Compensation Vote for shareholder resolutions on ESG topics, against mgmt. recommendation Ask questions or making statements of intent at AGMs	Pre-disclose voting intention (private/ public) (Co)Filing shareholder resolutions	Seek board seats Call an EGM	Legal processes Divest/ exclude from labelled funds* Reduce exposure/ underweight in all funds*	Divest and exclude (communicate privately to company)* Divest and exclude (communicate publicly)*
Fixed Income	Unilateral letter(s) to senior management and/ or the board	Unilateral public statements/ letters to senior management and/ or the board Collaborative public statements/ letters to senior management and/ or the board Be cited in the media challenging a company's position		Reject documentation amendment request Convene bondholder meeting (subject to holding threshold) and represent to company		Engage index provider to exclude company at next rebalancing Do not participate in primary issuance (new debt/ refinancings) for labelled funds* Do not participate in primary issuance (new debt/ refinancings) for all funds*	Divest and exclude (communicate publicly)* STRENGTH 

Church of England

Voice Through Divestment

Anglican Church

+ Add to myFT

Church of England dumps oil majors over climate concerns

Anglican Church announces its endowment and pension funds plan to sell out of 11 groups, including Shell and BP



Justin Welby, Archbishop of Canterbury: 'We have long urged companies to take climate change seriously' © Hollie Adams/Getty Images

Attracta Mooney and Tom Wilson in London JUNE 22 2023

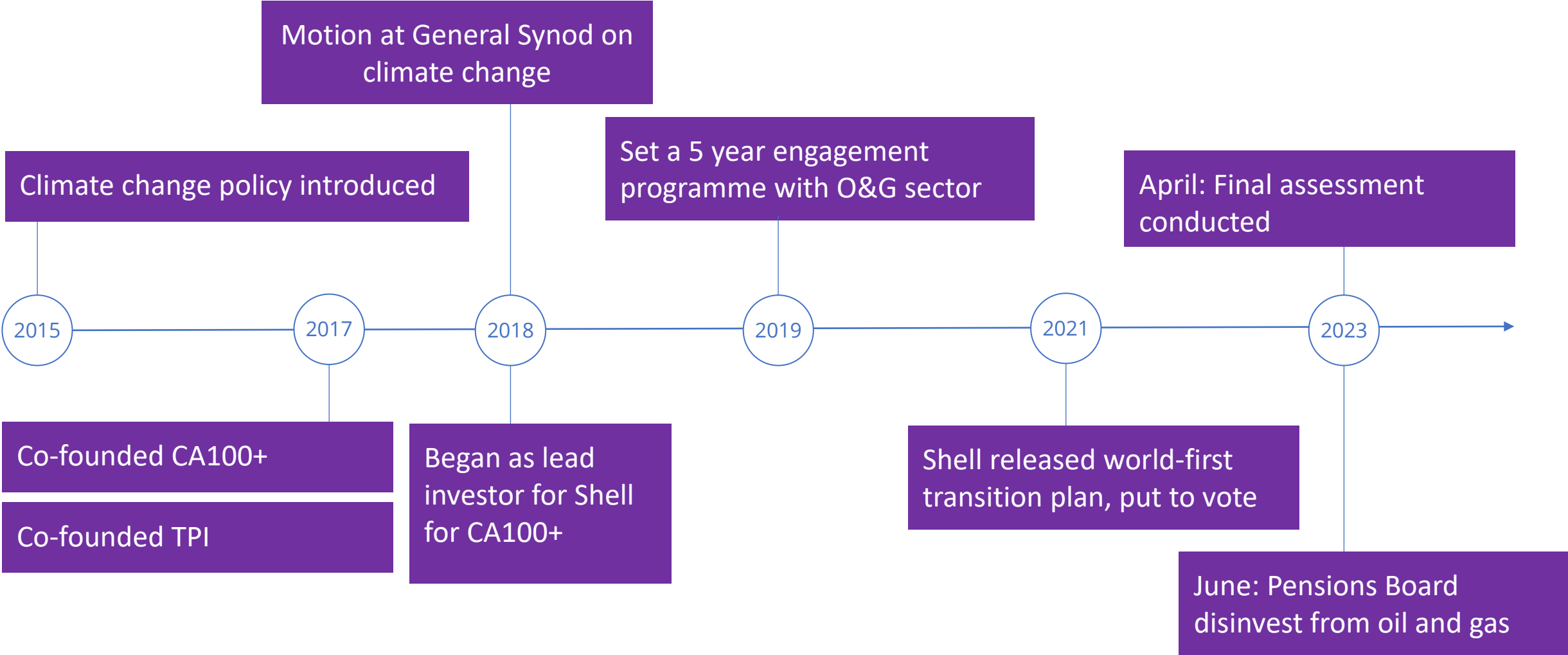


In 2021, the Church Commissioners excluded 20 oil and gas majors from its investment portfolio. It is now also excluding BP, Ecopetrol, Eni, Equinor, ExxonMobil, Occidental Petroleum, Pemex, Repsol, Sasol, Shell, and Total, after concluding that none are aligned with the goals of the Paris Climate Agreement, as assessed by the Transition Pathway Initiative (TPI).

“Soberingly, the energy majors have not listened to significant voices in the societies and markets they serve and are not moving quickly enough on the transition. If any of these energy companies come into alignment with our criteria in the future, we would reconsider our position. Indeed, that is something we would hope for.”

<https://www.churchofengland.org/media-and-news/press-releases/church-commissioners-england-exclude-oil-and-gas-companies-over>

Engagement with the oil and gas sector



Engagement

We engaged with the O&G sector for more than a decade to urge them to focus on 1.5C alignment of targets and investments. **We publicly escalated where companies were misaligned.**

Exclusion

We have excluded all O&G companies across equity and debt holdings which are focused on exploration, production, refining or pipelines, as none were aligned with a 1.5C pathway.

Next steps

We will not reinvest without alignment with 1.5C and demonstrable alignment of capital expenditure & lobbying.

We will focus on diminishing demand for oil and gas through engagement with companies which are the largest users (e.g. electric utilities, autos and steel), and the financers of fossil fuels (ie. Global banks).

“ COMMENT

Why the Church of England is taking on Shell

Short-term profits cannot come before the long-term health of our planet

ADAM MATTHEWS

9 May 2023 • 6:00am

The oil and gas industry in Europe is at a crossroads.

The decisions the sector makes on where to allocate capital could make or break our collective efforts to limit global warming to 1.5°C, with massive implications for the economy, for communities and in particular the poorest and most vulnerable on the planet.

CofE Pensions Board to divest from all oil and gas holdings

Plans to divest from Shell and other oil and gas companies



Holly Roach

22 June 2023 • 3 min read

The Church of England (CofE) Pensions Board has revealed it will divest from all oil and gas holdings over a lack of progress towards net zero.

The divestment will apply to Shell and other oil and gas companies that fail show attempts to decarbonise in line with the goals of the Paris Agreement. The CofE Pensions Board said

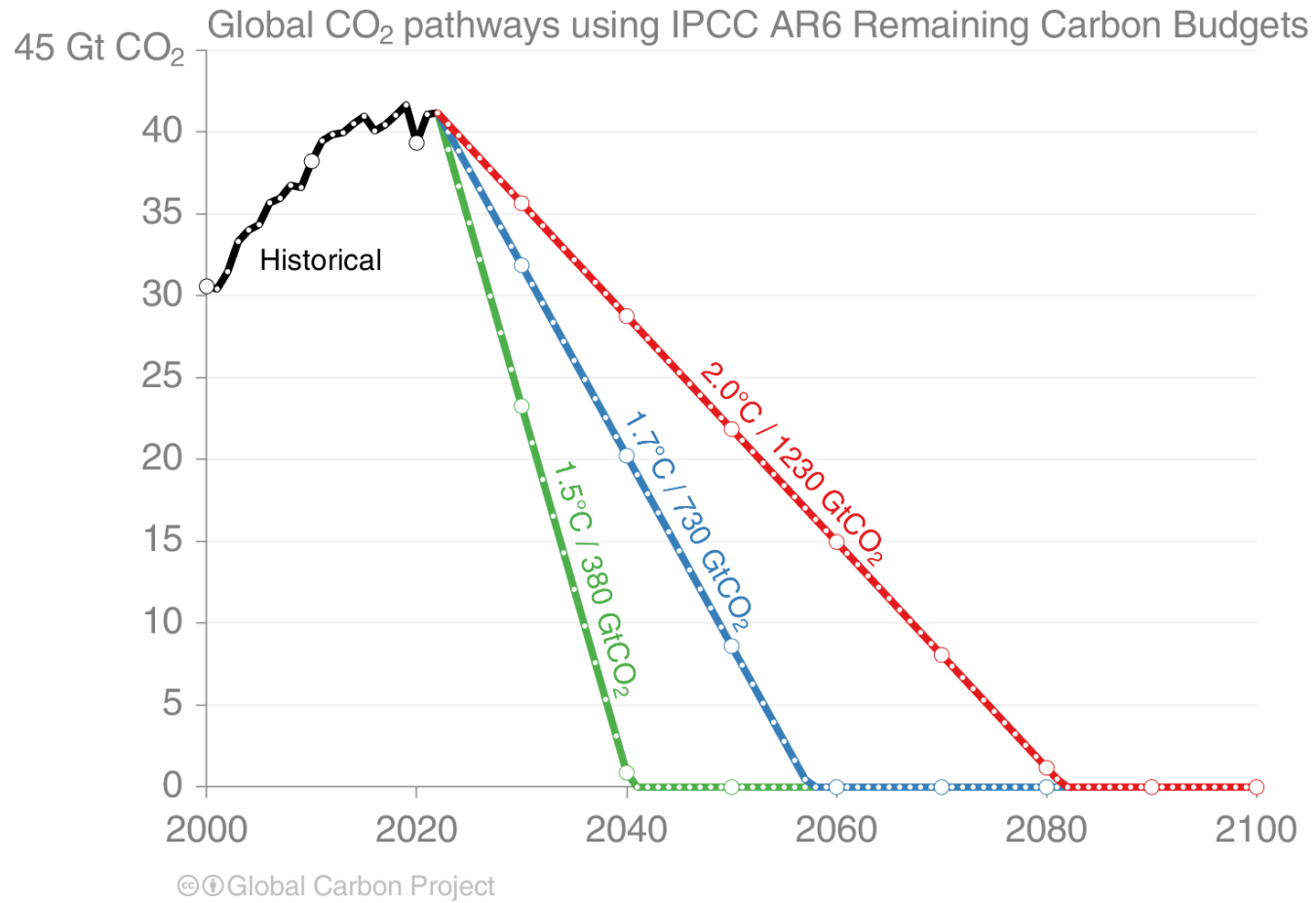
Church of England Pensions Board pre-declares votes against Volkswagen Board of Management and Supervisory Board

14/04/2023

The Church of England Pensions Board has been engaging with Volkswagen AG (VW) for over four years on its approach to climate change.

Remaining carbon budget

Global CO₂ emissions must reach zero to limit global warming



Source: [Friedlingstein et al 2022](#); [Global Carbon Project 2022](#)

NET ZERO

INVESTMENT
FRAMEWORK

1.5°C

IMPLEMENTATION GUIDE

PRODUCED BY

IIGCC

The Institutional Investors
Group on Climate Change



PARIS ALIGNED INVESTMENT INITIATIVE

VERSION 1.0 MARCH 2021