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Evaluating corporate target setting in the Netherlands

An assessment of the climate action plans of 29 Dutch companies and financial institutions

July 2022

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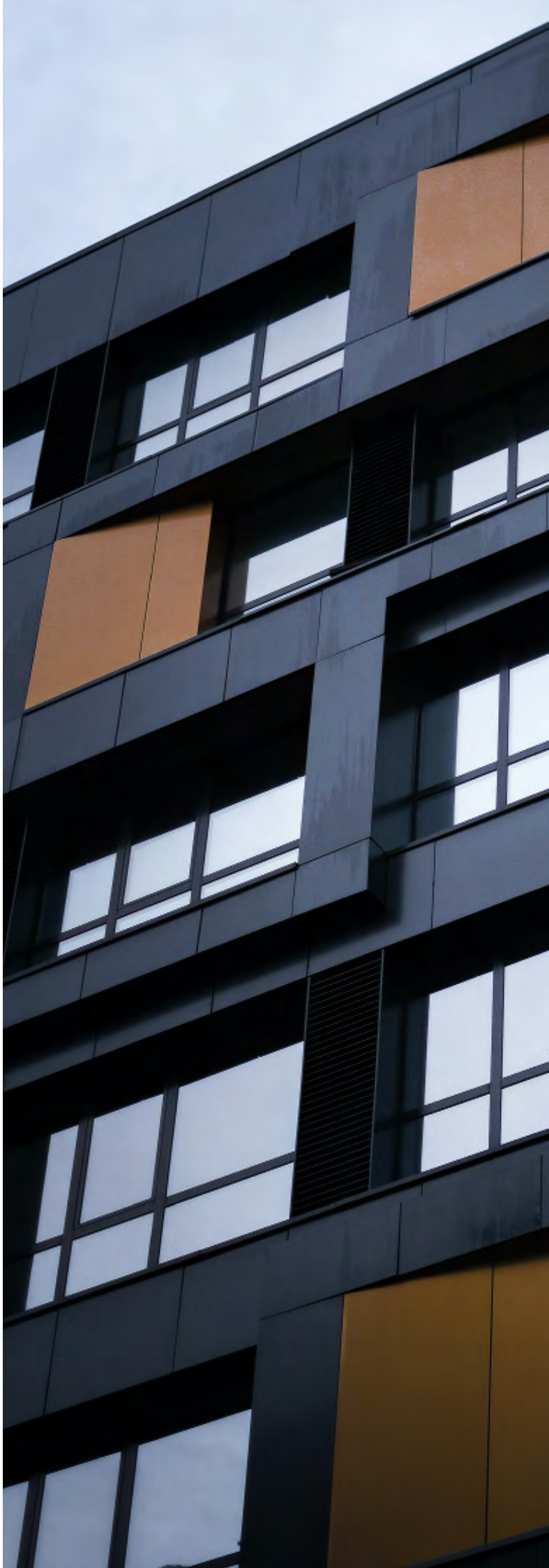
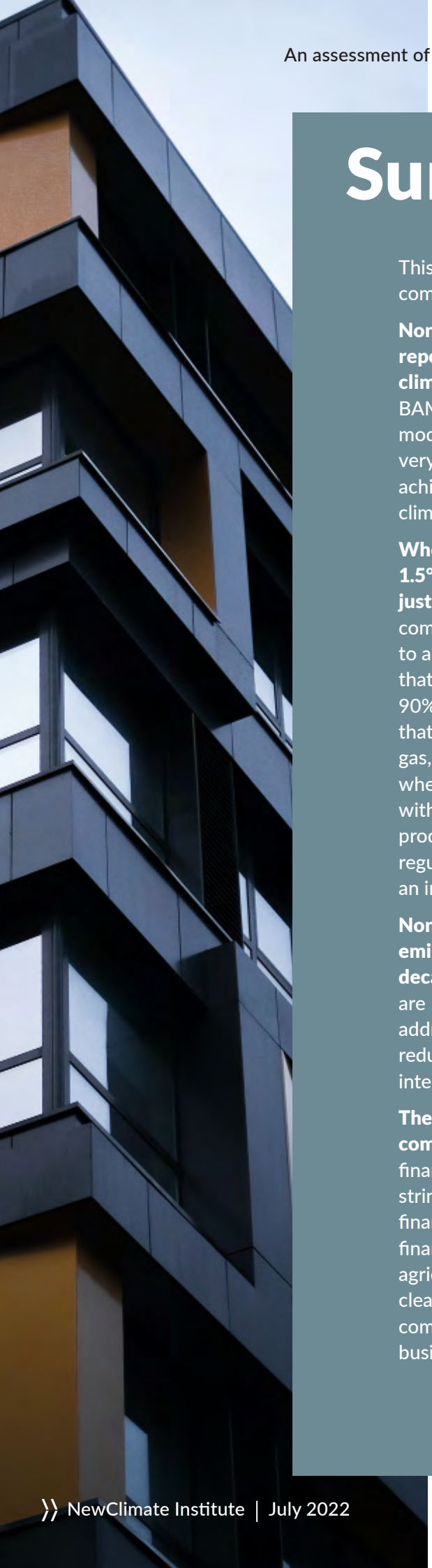




Summary

This report analyses the transparency and integrity of 29 Dutch companies' and financial institutions' climate pledges.

None of the 21 companies and eight financial institutions in this report achieved a high or even reasonable integrity rating for their climate responsibility approaches. Just five companies, AkzoNobel, BAM Group, DSM, Stellantis and Tata Steel Netherlands, achieved a moderate integrity rating. The majority of companies fall in the low or very low integrity categories. Seven of the financial institutions achieved a low integrity rating, while Atradius, which provides no climate targets and plans at all, achieved a very low rating.

Whereas global emissions must be halved by 2030 to stay below 1.5°C of global warming, the 21 companies commit to reductions of just 19% on average (median 10%). There is also a lack of clarity on companies' long-term targets. While most of the companies pledge to achieve net-zero emissions beyond 2030, only two explicitly state that they will reduce emissions across their value chain by at least 90%. Several companies with a net-zero pledge are active in sectors that are highly emission-intensive by nature, for instance, oil, fossil gas, meat and synthetic nitrogen-based fertilisers. It is contentious whether producing and consuming those products can be aligned with the Paris Agreement objectives. Pledges to decarbonise only the production of products may give consumers, shareholders, and regulators an inaccurate impression on the prospects for decarbonising an inherently emissions intensive industry.

None of the companies present concrete and publicly accessible emissions reduction plans that place them on a Paris-compatible decarbonisation pathway. The existing plans and reduction measures are insufficient to realise deep emission reductions, or they do not address key emission sources. Some companies undermine their own reduction efforts by continuing to lobby for the expansion of carbon-intensive infrastructure.

The eight financial institutions in this report have not yet adopted comprehensive exclusion or engagement policies. While the financial institutions' exclusion policies differ in their coverage and stringency, all evaluated institutions continue to directly or indirectly finance fossil fuel value chains. Most of them also continue to provide financial services for other harmful activities such as unsustainable agriculture. Further, the institutions have mostly not yet developed clear, comprehensive, and targeted approaches to engage with companies in all relevant sectors on their shift towards Paris aligned business models.

Table 1: Overview of companies assessed as of June 2022

Including 13 companies headquartered in the Netherlands and 8 Dutch subsidiaries. Companies shown in alphabetical order within each rating category.

	Headline pledge	Transparency	Integrity	Page
High integrity				
	No companies achieved a high integrity rating.			
Reasonable integrity				
	No companies achieved a reasonable integrity rating.			
Moderate integrity			*Ranking determined by integrity scores only*	
AkzoNobel	50% reduction across scope 1, 2 & selected scope 3 emissions by 2030	Moderate	Moderate	p. 48
BAM Group	80% scope 1 & 2 emission intensity reduction by 2026; 50% scope 3 emission reduction by 2030	Moderate	Moderate	p. 54
DSM	Net-zero GHG by 2050	Reasonable	Moderate	p. 66
Stellantis	Carbon net zero by 2038	Moderate	Moderate	p. 100
Tata Steel Netherlands *(Dutch subsidiary)*	CO_2-neutral steelmaking by 2050	Moderate	Moderate	p. 152
Low integrity			*Ranking determined by integrity scores only*	
Ahold Delhaize	Net-zero emissions by 2050	Moderate	Low	p. 42
Dow Benelux *(Dutch subsidiary)*	Carbon neutrality by 2050	Moderate	Low	p. 134
FrieslandCampina	Net climate neutrality by 2050	Moderate	Low	p. 72
KLM	Net-zero CO_2 emissions by 2050	Moderate	Low	p. 78
RWE Generation NL & RWE Renewables Benelux *(Dutch subsidiary)*	Carbon neutrality by 2040	Low	Low	p. 145
Schiphol Group	Energy-positive airports and net-zero-carbon aviation by 2050	Moderate	Low	p. 92
Unilever Nederland *(Dutch subsidiary)*	Net-zero by 2039	Moderate	Low	p. 158
Uniper Benelux *(Dutch subsidiary)*	Carbon-neutral operations in Europe by 2035	Moderate	Low	p. 164
Yara Sluiskil *(Dutch subsidiary)*	Climate neutrality by 2050	Low	Low	p. 170
Very low integrity			*Ranking determined by integrity scores only*	
Boskalis	Climate neutral operations by 2050	Low	Very low	p. 60
bp Nederland *(Dutch subsidiary)*	Net zero across operations, production and sales by 2050 or sooner	Low	Very low	p. 126
ExxonMobil Benelux *(Dutch subsidiary)*	Net-zero scope 1 and 2 emissions from operated assets by 2050	Low	Very low	p. 140
LyondellBasell Industries	Net-zero GHG emissions by 2050	Low	Very low	p. 86
Vion Food Group	Net-zero emissions by 2050	Very low	Very low	p. 106
Vitol	No pledge identified	Very low	Very low	p. 112
Vopak	Carbon neutral by 2050	Low	Very low	p. 118

Table 2: Overview of eight financial institutions assessed as of June 2022

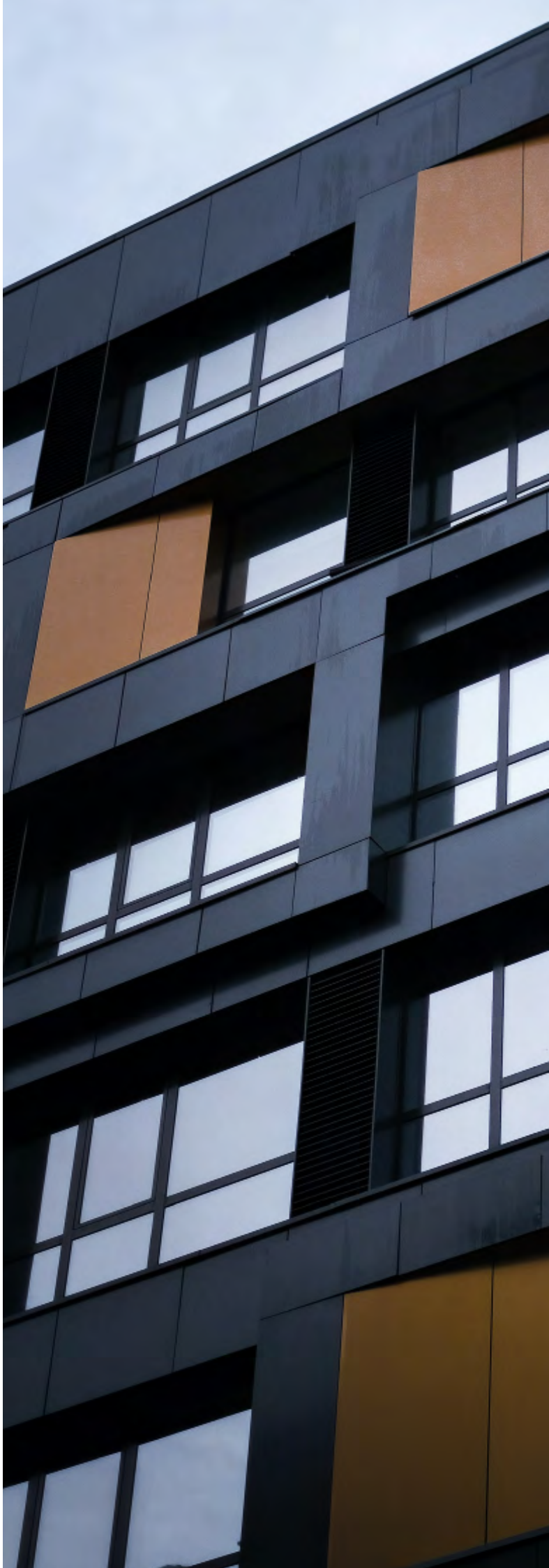
Financial institutions shown in alphabetical order within each rating category.

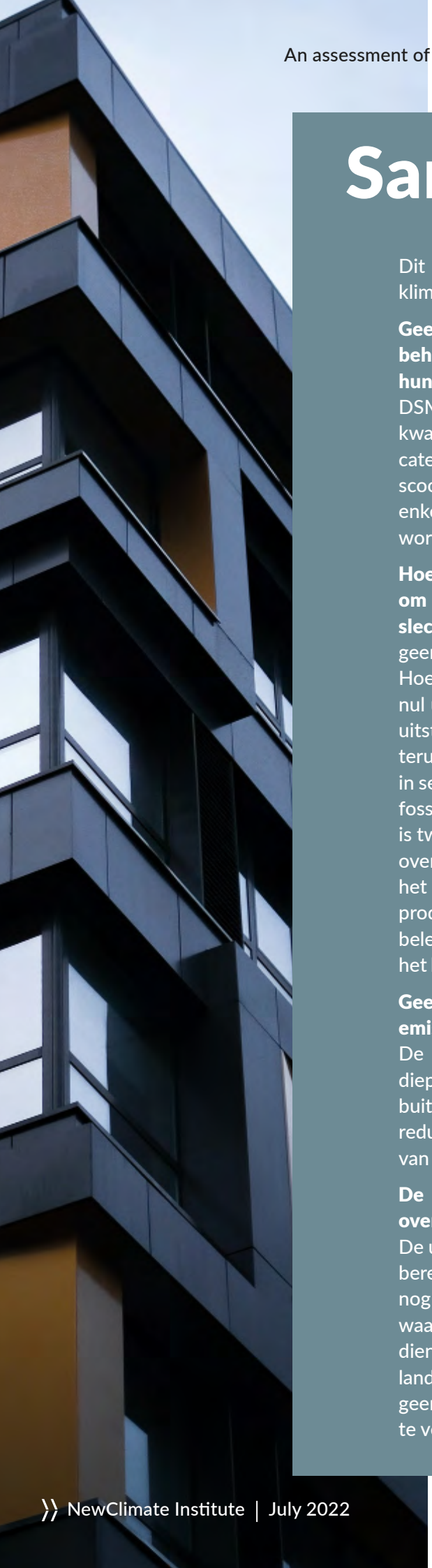
	Headline pledge	Transparency	Integrity	Page
High integrity				
	No financial institutions achieved a high integrity rating.			
Reasonable integrity				
	No financial institutions achieved a reasonable integrity rating.			
Moderate integrity				
	No financial institutions achieved a moderate integrity rating.			
Low integrity			*Ranking determined by integrity scores only*	
ABN Amro	1.5°C alignment and net zero by 2050	Moderate	Low	p. 178
ABP	Climate neutral investment portfolio by 2050	Low	Low	p. 184
Aegon	Net zero investment portfolio by 2050	Low	Low	p. 188
ING	1.5°C compatible loan book	Reasonable	Low	p. 198
NN Group	Supporting global transition towards net zero by 2050	Reasonable	Low	p. 204
PFZW	Climate neutral portfolio by 2050	Reasonable	Low	p. 210
Rabobank	Aligning lending and investment portfolios with pathways to net zero by 2050	Moderate	Low	p. 216
Very low integrity			*Ranking determined by integrity scores only*	
Atradius	No pledge identified	Very low	Very low	p. 194

Ratings

Overall: 5-point scale. High | Reasonable | Moderate | Low | Very low

Assessments were made based on public information identified by the authors. A poor rating may not necessarily be an indication that a company's climate strategy is weak, but could also indicate that the information was insufficient to confirm good practice. Ambitious companies can improve their ratings by ensuring that all aspects of their climate responsibility strategies are transparently and accurately disclosed, and in the public domain.





Samenvatting

Dit rapport analyseert de transparantie en kwaliteit van de klimaatdoelen van 29 Nederlandse bedrijven en financiële instellingen.

Geen van de 21 bedrijven en 8 financiële instellingen in dit rapport behaalde een hoge of zelfs maar een redelijke kwaliteitsscore voor hun klimaatbeleid. Slechts vijf bedrijven, AkzoNobel, BAM Group, DSM, Stellantis en Tata Steel Nederland, scoorden een matig op de kwaliteitsschaal. Het gros van de bedrijven komt niet verder dan de categorie laag of zeer laag. Zeven van de financiële instellingen scoorden laag waar het ging om kwaliteit. Atradius, dat met geen enkel klimaatdoel of -plan over de brug komt, moest zelfs beoordeeld worden als zeer laag.

Hoewel de wereldwijde uitstoot tegen 2030 gehalveerd moet zijn om onder de 1,5°C opwarming te blijven, zeggen de 21 bedrijven slechts reducties van gemiddeld 19% toe (mediaan 10%). Er is ook geen duidelijkheid over de lange-termijndoelen van deze bedrijven. Hoewel de meeste bedrijven beloven dat ze na 2030 richting netto nul uitstoot gaan, zijn er maar twee die expliciet aangeven dat zij de uitstoot in hun hele waardeketen met tenminste 90% zullen terugbrengen. Zeker zes bedrijven die 'netto-nul' beloven zijn actief in sectoren die een zeer emissie-intensief karakter hebben, zoals olie, fossiel gas, vlees en synthetische stikstofhoudende meststoffen. Het is twijfelachtig of de productie en consumptie van deze producten in overeenstemming kan worden gebracht met de doelstellingen van het Parijs-akkoord. Toezeggingen om slechts de emissies van productie te verlagen, kunnen consumenten, aandeelhouders en beleidsmakers een verkeerd beeld geven van de vooruitzichten voor het koolstofarm maken van een inherent emissie-intensieve industrie.

Geen van de bedrijven presenteert concrete en openbare emissiereductieplannen die in overeenstemming zijn met 'Parijs'. De bestaande plannen en reductiemaatregelen leiden niet tot diepgaande emissiereducties of laten belangrijke emissiebronnen buiten beschouwing. Sommige bedrijven ondermijnen hun eigen reductie-inspanningen door tegelijkertijd te lobbyen voor uitbreiding van koolstof-intensieve infrastructuur.

De acht financiële instellingen in dit rapport zijn nog niet overgegaan tot een sluitend uitsluitings- of engagementsbeleid. De uitsluitingsstrategieën van de financiële instellingen verschillen in bereik en striktheid. Alle beoordeelde instellingen houden zich echter nog altijd bezig met de directe of indirecte financiering van fossiele waardeketens. De meeste verstrekken ook nog steeds financiële diensten aan andere schadelijke activiteiten, zoals niet-duurzame landbouw. Bovendien hebben deze instellingen in het algemeen nog geen duidelijk engagementbeleid voor het aansporen van bedrijven te verduurzamen.

Tabel 1A: Overzicht van de per juni 2022 beoordeelde bedrijven

Waaronder dertien bedrijven met hun hoofdkantoor in Nederland en acht Nederlandse dochterondernemingen. De bedrijven worden binnen elke categorie in alfabetische volgorde genoemd.

	Doelstelling	Transparantie	Kwaliteit	Pagina
Hoge kwaliteit	**Dit predicaat kon aan geen enkel bedrijf worden toegekend.**			
Redelijke kwaliteit	**Dit predicaat kon aan geen enkel bedrijf worden toegekend.**			
Matige kwaliteit		*Rangschikking uitsluitend gebaseerd op de kwaliteitsscore van het betreffende bedrijf*		
AkzoNobel	50% emissiereductie voor scope 1, 2 & bepaalde scope 3 emissies in 2030	Matig	Matig	p. 48
BAM Group	80% emissiereductie in scope 1 en 2 in 2026, 50% emissiereductie in scope 3 in 2030	Matig	Matig	p. 54
DSM	Netto-nul uitstoot in 2050	Redelijk	Matig	p. 66
Stellantis	Netto-nul CO_2 in 2038	Matig	Matig	p. 100
Tata Steel Netherlands *(Nederlandse dochter)*	CO_2-neutrale staalproductie in 2050	Matig	Matig	p. 152
Laag kwaliteit		*Rangschikking uitsluitend gebaseerd op de kwaliteitsscore van het betreffende bedrijf*		
Ahold Delhaize	Netto-nul uitstoot in 2050	Matig	Laag	p. 42
Dow Benelux *(Nederlandse dochter)*	CO_2-neutraal in 2050	Matig	Laag	p. 134
FrieslandCampina	Netto-klimaatneutraal in 2050	Matig	Laag	p. 72
KLM	Netto-nul-CO_2 in 2050	Matig	Laag	p. 78
RWE Generation NL & RWE Renewables Benelux *(Nederlandse dochter)*	CO_2-neutraal in 2040	Laag	Laag	p. 145
Schiphol Group	Energie-positieve luchthavens en CO_2-neutrale luchtvaart in 2050	Matig	Laag	p. 92
Unilever Nederland *(Nederlandse dochter)*	Netto-nul uitstoot in 2039	Matig	Laag	p. 158
Uniper Benelux *(Nederlandse dochter)*	CO_2-neutrale bedrijfsvoering in Europa in 2035	Matig	Laag	p. 164
Yara Netherlands *(Nederlandse dochter)*	Klimaatneutraal in 2050	Laag	Laag	p. 170
Zeer lage kwaliteit		*Rangschikking uitsluitend gebaseerd op de kwaliteitsscore van het betreffende bedrijf*		
Boskalis	Klimaatneutrale bedrijfsvoering in 2050	Laag	Zeer laag	p. 40
bp Nederland *(Nederlandse dochter)*	Netto-nul uitstoot in bedrijfsvoering, productie en verkoop in 2050 (of eerder)	Laag	Zeer laag	p. 126
ExxonMobil Benelux *(Nederlandse dochter)*	Netto-nul uitstoot uit bedrijfsactiva (scope 1 en 2) in 2050	Laag	Zeer laag	p. 140
LyondellBasell Industries	Netto-nul uitstoot in 2050	Laag	Zeer laag	p. 86
Vion Food Group	Netto-nul uitstoot in 2050	Zeer laag	Zeer laag	p. 106
Vitol	Geen doelstelling gevonden	Zeer laag	Zeer laag	p. 112
Vopak	CO_2-neutraal in 2050	Laag	Zeer laag	p. 118

Tabel 2A: Overzicht van de acht financiële instellingen beoordeeld in juni 2022

Deze instellingen worden binnen elke categorie in alfabetische volgorde genoemd.

	Doelstelling	Transparantie	Kwaliteit	Pagina
Hoge kwaliteit	**Dit predicaat kon aan geen enkel bedrijf worden toegekend.**			
Redelijke kwaliteit	**Dit predicaat kon aan geen enkel bedrijf worden toegekend.**			
Matige kwaliteit	**Dit predicaat kon aan geen enkel bedrijf worden toegekend.**			
Laag kwaliteit		*Rangschikking uitsluitend gebaseerd op de kwaliteitsscore van de betreffende financiële instelling*		
ABN Amro	Bank in lijn met doelstelling van 1,5°C opwarming	Matig	Laag	p. 178
ABP	Klimaatneutrale investeringsportefeuille in 2050	Laag	Laag	p. 184
Aegon	Algemene rekening beleggingsportefeuille naar netto-nul emissies in 2050	Laag	Laag	p. 188
ING	Met 1,5°C verenigbare leningenportefeuille	Redelijk	Laag	p. 198
NN Group	Ondersteuning van netto-nul transitie	Redelijk	Laag	p. 204
PFZW	Klimaatneutrale portefeuille in 2050	Redelijk	Laag	p. 210
Rabobank	Netto-nul uitstoot in 2050	Matig	Laag	p. 216
Zeer lage kwaliteit		*Rangschikking uitsluitend gebaseerd op de kwaliteitsscore van de betreffende financiële instelling*		
Atradius	Geen doelstelling gevonden	Zeer laag	Zeer laag	p. 194

Beoordeling

Beoordeling: 5-puntsschaal Hoog Redelijk Matig Laag Zeer laag

Beoordelingen zijn gemaakt op basis van openbare informatie die door de auteurs is geïdentificeerd. Een slechte beoordeling hoeft niet per se een indicatie te zijn dat de klimaatstrategie van een bedrijf zwak is, maar kan ook aangeven dat de informatie onvoldoende was om te kunnen bevestigen of er wel of niet sprake is van goed beleid. Ambitieuze bedrijven kunnen hun beoordeling verbeteren door ervoor te zorgen dat alle aspecten van hun klimaatbeleid openbaar worden gemaakt.

1

About this report

1.1 Need for scrutiny of corporate climate pledges

There is broad consensus that companies and financial institutions should contribute to both short-term emissions reductions towards 2030 and the global goal of net-zero emissions by mid-century. In 2021, the Hague district court ordered Royal Dutch Shell to reduce its CO_2 emissions by net 45% by 2030 across the value chain and stressed that all companies are to work towards net-zero emissions by 2050 (The Hague District Court, 2021). The Dutch coalition agreement of December 2021 underlined that industry and businesses need to reduce their emissions to contribute to the national target of reducing emissions by at least 55% by 2030 (VVD et al., 2021) . Pressure from consumers and shareholders is increasing too, for instance through the initiative Follow This, which files resolutions at shareholder meetings of oil firms. The Dutch advertisement watchdog has received various complaints from consumers who are concerned about advertisements that suggest one can buy carbon-intensive products such as gasoline or airplane flights without harming the climate. The watchdog has recently called on Shell and KLM to refrain from their 'CO_2 neutral' and 'CO_2 zero' claims (RCC, 2021, 2022).

Many Dutch companies put themselves at the forefront of climate action and make bold climate pledges, but it is difficult for consumers, shareholders, and regulators to distinguish climate leadership from greenwashing.

This report analyses the climate pledges of 29 Dutch companies and financial institutions . We assess the transparency and integrity of corporate climate pledges and underpinning climate strategies against good practice in four key areas:

1. **Tracking and disclosure of emissions**
2. **Setting specific and substantiated targets**
3. **Reducing own emissions**
4. **Responsibility for unabated emissions**

The 29 corporates in this report include eight financial institutions and 21 businesses with their main activities in the 'real economy'. For simplicity, we refer to these two groups as 'financial institutions' and 'companies' in this summary (see Table 3). All 29 organisations are climate-relevant players in the Netherlands considering emission profiles across their value chains. Of the 21 companies assessed, eight are Dutch subsidiaries of companies headquartered outside of the Netherlands. There are large differences in the subsidiaries' degree of influence over their climate strategies: whereas the majority follow their holding companies' strategy, others set their own targets and reduction plans. Our analysis takes the subsidiaries' own climate targets and strategies as the starting point, but we consider their holding companies' targets if the subsidiary is included in those.

Table 3: Companies and financial institutions in this report

Companies headquartered in the Netherlands	Ahold Delhaize, AkzoNobel, BAM Group, Boskalis, DSM, FrieslandCampina, KLM, LyondellBasell Industries, Schiphol Group, Stellantis, Vion Food Group, Vitol, Vopak
Dutch subsidiaries	bp Europe SE – bp Nederland, Dow Benelux, ExxonMobil Benelux, RWE Generation NL and RWE Renewables Benelux, Tata Steel Netherlands, Unilever Nederland, Uniper Benelux, Yara Sluiskuil
Financial institutions	ABN Amro, ABP, Aegon, Atradius, ING Group, NN Group, PFZW, Rabobank

We assess the transparency and integrity of corporate climate pledges and strategies. Transparency relates to the availability and clarity of the information that is needed to understand the integrity of a company's approaches to the various elements of corporate climate responsibility. Integrity, in this context, refers to the quality, credibility and comprehensiveness. Companies and financial institutions may be very transparent about their climate responsibility approaches, but score very low on integrity. We evaluated the 29 companies and financial institutions on the basis of information they shared with Milieudefensie (Friends of the Earth the Netherlands) and complemented this with publicly available documents, such as annual sustainability reports. A low integrity evaluation does not necessarily imply that the company has a poor climate strategy in place, but may be the result of limited available information.

While we assess all 29 organisations against criteria across the four areas outlined above, there are several differences between our assessment methodology for companies and the methodology for financial institutions. We outline our full methodology and differences between the assessments of companies and financial institutions in an accompanying document *Guidance and assessment criteria for good practice corporate emission reduction and net zero targets* (Version 2.0; July 2022), referred to in Annex I. Two key differences relate to:

1 Key emission sources that companies and financial institutions should report and focus their reduction efforts on.

Whereas we expect companies to address all relevant emissions across their value chain (i.e., scope 1, scope 2 and upstream and downstream scope 3), we expect financial institutions to focus their climate strategies on financed emissions (i.e. scope 3, category 15). Those emissions are on average 700 times larger than emissions from business operations (CDP, 2020). Whereas companies may invest in alternative production methods, switch to lower-carbon resources, or implement energy efficiency measures to reduce their emissions, financial institutions have less direct influence over the main share of their greenhouse gas (GHG) footprint. Our evaluation of their emission reduction measures focuses on their engagement and exclusion and divestment policies. Through robust engagement and exclusion policies, financial institutions can influence their investees', borrowers' and clients' business activities and emission profiles.

2 The evaluation of headline pledges and interim reduction targets.

We evaluated the headline pledges and interim emission reduction targets of the 21 Dutch companies against the need to halve global emissions by 2030 and bring them to net zero around mid-century. Where available, we also compared the targets with sector-specific decarbonisation milestones that show the required emissions reductions for particular industries to limit global warming to 1.5°C. We acknowledge the limited availability and applicability of specific benchmarks for some (sub-)sectors. We do not evaluate the integrity of financial institutions' interim targets in the absence of clear scientific benchmarks that reflect the financial sector's heterogeneity and take the role of financial institutions as financiers and insurers of change into account. The development of a comprehensive framework to assess the alignment of corporate targets with 1.5°C compatible emission pathways remains beyond the scope of this methodology, and an important avenue for future work.

1

Over dit rapport

1.1 De klimaatbeloften van bedrijven onder de loep nemen is noodzakelijk

Er is een brede consensus dat bedrijven en financiële instellingen moeten bijdragen aan zowel de korte-termijn emissiereducties richting 2030 als het mondiale doel van netto-nul emissies tegen het midden van de eeuw. In 2021 droeg de Haagse rechtbank Royal Dutch Shell op om zijn CO_2-emissies tegen 2030 in de hele waardeketen met netto 45% terug te brengen en benadrukte nog eens dat alle bedrijven moeten toewerken naar netto-nul emissies tegen 2050. Het Nederlandse coalitieakkoord van december 2021 onderstreepte dat industrieën en bedrijven hun emissies moeten reduceren om bij te dragen aan de nationale klimaatdoelen (VVD et al., 2021). De druk vanuit consumenten en aandeelhouders neemt eveneens toe, bijvoorbeeld middels het *Follow This*-initiatief, dat moties voor reducties indient op aandeelhoudersvergaderingen van oliebedrijven.

De Nederlandse advertentiewaakhond heeft diverse klachten ontvangen van consumenten die zich zorgen maken over reclame-uitingen die suggereren dat je koolstof-intensieve producten zoals benzine of vliegreizen kunt kopen zonder het klimaat te schaden. De waakhond heeft Shell en KLM meermaals opgedragen te stoppen met hun 'CO_2-neutraal' en 'nul CO_2 'claims (RCC, 2021, 2022).

Veel Nederlandse bedrijven plaatsen zichzelf in de frontlinie van klimaatactie en doen fikse klimaatbeloftes, maar het is moeilijk voor consumenten, aandeelhouders en beleidsmakers om te bepalen wanneer er echt klimaatleiderschap wordt getoond en wanneer er sprake is van 'greenwashing'.

In dit rapport analyseren we de klimaatdoelen van 29 Nederlandse bedrijven en financiële instellingen. We beoordelen de transparantie en integriteit van klimaattoezeggingen en de onderliggende klimaatstrategieën aan de hand van wat zij in de praktijk brengen op vier belangrijke terreinen:

1. **Het in kaart brengen en openbaar maken van emissies**
2. **Het stellen van doelen voor emissiereductie**
3. **Vermindering van de eigen uitstoot**
4. **Claims ten aanzien van klimaatbijdragen en compensatie**

Onder de 29 bedrijven in dit rapport bevinden zich acht financiële instellingen en 21 bedrijven met hun belangrijkste activiteiten in de 'reële economie'. Voor het gemak duiden we deze twee groepen in deze samenvatting aan als respectievelijk 'financiële instellingen' en 'bedrijven' (zie tabel 3A). Alle 29 organisaties zijn klimaatrelevante spelers in Nederland als

Tabel 3A: De bedrijven en financiële instellingen in dit rapport

Bedrijven met een hoofdkantoor in Nederland	Ahold Delhaize, AkzoNobel, BAM Group, Boskalis, DSM, FrieslandCampina, KLM, LyondellBasell Industries, Schiphol Group, Stellantis, Vion Food Group, Vitol, Vopak
Nederlandse dochterondernemingen	bp Europe SE – bp Nederland, Dow Benelux, ExxonMobil Benelux, RWE Generation NL and RWE Renewables Benelux, Tata Steel Netherlands, Unilever Nederland, Uniper Benelux, Yara Sluiskuil
Financiële instellingen	ABN Amro, ABP, Aegon, Atradius, ING Group, NN Group, PFZW, Rabobank

we kijken naar de emissieprofielen in hun waardeketen. Van de 21 beoordeelde bedrijven zijn er acht Nederlandse dochterondernemingen van bedrijven met een hoofdkantoor buiten Nederland. Er zijn grote verschillen in de mate van invloed van de dochterondernemingen op hun klimaatstrategieën: de meerderheid volgt de strategie van hun holdingmaatschappij, maar anderen bepalen zelf hun eigen doelen en emissiereductieplannen. Onze analyse neemt de eigen klimaatdoelstellingen en -strategieën van de dochterondernemingen als uitgangspunt, maar we houden rekening met de doelstellingen van hun moedermaatschappijen als de dochteronderneming daarin wordt opgenomen.

We beoordelen de transparantie en kwaliteit van de klimaattoezeggingen en -strategieën van bedrijven. Transparantie heeft betrekking op de beschikbaarheid, volledigheid en duidelijkheid van de informatie over de klimaatverantwoordelijkheid van bedrijven. Deze informatie is nodig om een oordeel te kunnen vellen over de manier waarop een bedrijf omgaat met de verschillende onderdelen van de klimaatverantwoordelijkheid die zij hebben. Bij kwaliteit gaat het om hoe alomvattend, betrouwbaar en toereikend hun aanpak is. Het is mogelijk dat bedrijven en financiële instellingen transparant zijn over hun aanpak ten aanzien van hun klimaatverantwoordelijkheid, maar laag scoren kwaliteit. We hebben de 29 bedrijven en financiële instellingen geëvalueerd op basis van de informatie die ze zelf met Milieudefensie hebben gedeeld, aangevuld met openbaar beschikbare documenten, zoals jaarlijkse duurzaamheidsverslagen. Een lage kwaliteitsbeoordeling betekent niet noodzakelijkerwijs dat het bedrijf er ook een slechte klimaatstrategie op nahoudt: dit kan ook komen doordat er slechts beperkt informatie beschikbaar is.

Hoewel we alle 29 organisaties beoordelen aan de hand van criteria op de vier hierboven beschreven gebieden, verschilt onze beoordelingsmethodologie voor bedrijven op een aantal punten van de methodologie die we gebruiken voor financiële instellingen. We bespreken onze volledige methodologie, inclusief de verschillen in de beoordeling van bedrijven en financiële instellingen in de bijlage *Guidance and assessment criteria for good practice corporate emission reduction and net zero targets (Version 2.0; July 2022)* (Annex I). Twee belangrijke verschillen hebben betrekking op:

1 De belangrijkste emissiebronnen waarover bedrijven en financiële instellingen moeten rapporteren en waar ze hun reductie-inspanningen op moeten richten.

Terwijl we van bedrijven verwachten dat ze alle relevante emissies in hun waardeketen aanpakken (d.w.z. scope 1, scope 2 en upstream en downstream scope 3), verwachten we dat financiële instellingen hun klimaatstrategieën richten op gefinancierde emissies (d.w.z. scope 3, categorie 15). Die uitstoot is gemiddeld 700 keer groter dan de uitstoot uit de bedrijfsvoering (CDP, 2020). Terwijl bedrijven kunnen investeren in alternatieve productiemethoden, kunnen overstappen op koolstofarme hulpbronnen of energie-efficiëntiemaatregelen kunnen nemen om hun uitstoot te verminderen, hebben financiële instellingen minder directe invloed op het grootste deel van de broeikasgassen die ze uitstoten. Onze evaluatie van hun emissiereductiemaatregelen is gericht op hun engagement-strategie (d.w.z. het aangaan van de dialoog met bedrijven), alsmede hun beleid inzake uitsluiting en desinvestering. Door middel van een robuust engagements- en uitsluitingsbeleid kunnen financiële instellingen invloed uitoefenen op de bedrijfsactiviteiten en emissieprofielen van de ondernemingen waarin zij beleggen, hun kredietnemers en klanten.

2 De evaluatie van hoofddoelen en tussentijdse reductiedoelstellingen

We hebben de hoofddoelen en tussentijdse emissiereductiedoelstellingen van de 21 Nederlandse bedrijven beoordeeld door ze af te zetten tegen de noodzaak om de wereldwijde emissies tegen 2030 te hebben gehalveerd en ze tegen het midden van de eeuw te hebben teruggebracht tot netto nul. Waar mogelijk hebben we hun doelen ook vergeleken met benchmarks voor specifieke sectoren. Deze benchmarks geven aan welke emissiereducties specifieke industrieën moeten realiseren om de

wereldwijde opwarming te beperken tot 1,5°C. We zijn ons ervan bewust dat zulke specifieke benchmarks voor sommige (sub)sectoren maar beperkt beschikbaar en toepasbaar zijn.

We beoordelen de kwaliteit van de tussentijdse doelstellingen van financiële instellingen niet, omdat er op dit moment nog geen duidelijke wetenschappelijke benchmarks zijn die de heterogeniteit van de financiële sector weerspiegelen en rekening houden met de rol van financiële instellingen als financiers en verzekeraars van verandering.

De ontwikkeling van een alomvattend kader om te beoordelen of bedrijfsdoelstellingen voldoende in overeenstemming zijn met emissiepaden die compatibel zijn met 1,5°C-scenario's valt buiten het bestek van deze methodologie, maar vormt een belangrijk werkterrein voor de toekomst.

2

Key messages

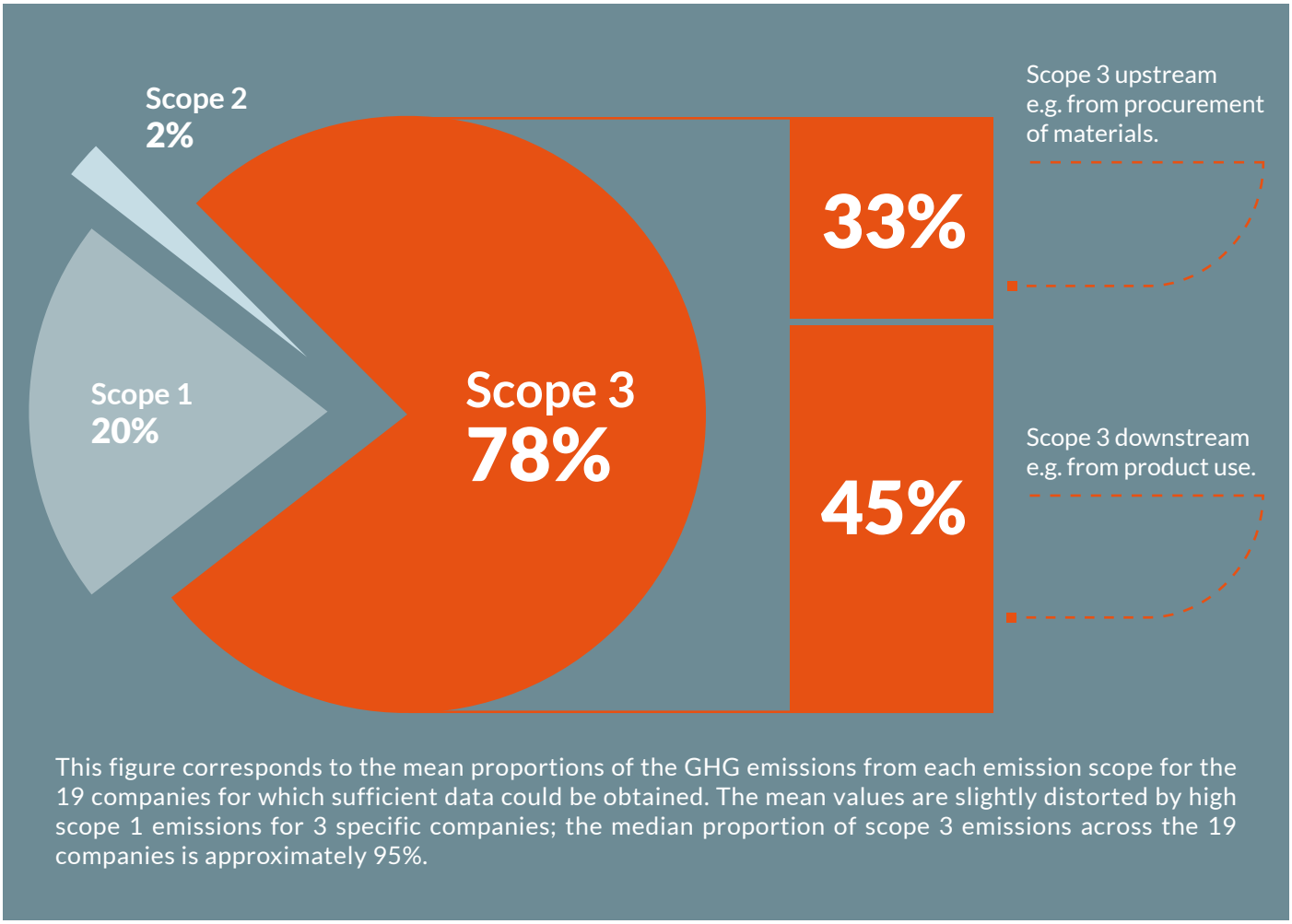
2.1 Tracking and disclosure of emissions

Companies

There is a lack of transparency and comprehensiveness in most companies' emission disclosures. Just nine of 21 companies in this report fully and transparently disclose emissions of their operations (scope 1) emissions, only three companies provide full transparency on their emissions from purchased energy (scope 2) emissions, three on emission in the upstream supply chain and two on downstream supply chain (scope 3). The lack of disclosure of the supply chains is particularly worrying, as those emissions typically account for the lion's share of a company's emissions. Companies' reported upstream and downstream value chain emissions account on average for 78% of all disclosed emissions (median 95%).[1]

Companies in the aviation and shipping sector focus on reporting CO_2 emissions but miss reporting on their other climate impacts,

Figure 1: Importance of scope 3 emissions: Proportion of the average company's reported GHG emissions from each emission scope



This figure corresponds to the mean proportions of the GHG emissions from each emission scope for the 19 companies for which sufficient data could be obtained. The mean values are slightly distorted by high scope 1 emissions for 3 specific companies; the median proportion of scope 3 emissions across the 19 companies is approximately 95%.

1 *13 of the 21 companies are headquartered in the Netherlands, while the other eight are subsidiaries of holding companies headquartered in other countries. As subsidiaries' emissions disclosure was incomplete, we calculated the relative importance of scope 3 emissions using the emissions disclosure of their holding companies.*

which for aviation are larger than the CO_2 impact. Emissions from aviation and shipping have direct and indirect climate impacts. For instance, when aircraft fly at high altitudes this typically leads to the formation of contrail cirrus clouds. For aviation these effects are up to a factor two larger than the effect of CO_2 alone in terms of global warming potential. For full transparency, it is key that companies disclose their non-GHG climate impact – or estimates thereof. Although KLM and Schiphol acknowledge that non-CO_2 effects account for most of aviation's climate impact, they do not provide estimates of non-CO_2 effects in their disclosures. Companies like Boskalis and Vitol, which have their own maritime shipping fleet, do not report on black carbon emissions from the use of maritime fuel.

It is important that companies report on indirect emissions from product use if those emissions are inherently linked to their business model. Several companies in this report are part of fossil fuel supply chains, but do not disclose all related emissions of use of their products (scope 3). Boskalis develops infrastructure for fossil fuel exploration and transport, Vitol buys and sells fossil fuels on the wholesale market, and Vopak handles and stores fossil fuels, among other substances. None of these three companies report on the full breadth of associated use-phase emissions, which diverts the attention away from their role in providing fossil fuels and chemicals to other supply chain actors and eventually end users as part of their value chain.

Financial institutions

Seven of the eight financial institutions in our assessment report on all or a share of their investees', borrowers' and clients' scope 1 and 2 emissions, but none of them comprehensively report on their scope 3 emissions. Financial institutions commonly mention data unavailability as the reason for the lack of data on their investees', borrowers' and clients' scope 3 emissions. However, financial institutions have a responsibility to encourage and improve tracking of those emissions. Various guidelines for emissions disclosure in the financial sector require financial institutions to track or estimate and report on those scope 3 emissions.

2.2 Setting emission reduction targets

Companies

Targets for 2030 fall well short of the ambition required to align with the internationally agreed goals of the Paris Agreement that avoid the most damaging effects of climate change. In its recently published Sixth Assessment Report, the IPCC reemphasised that global CO_2 emissions must decrease by 48% between 2019 and 2030 to stand a reasonable chance of limiting global warming to 1.5°C. Yet, the interim targets of most of the 21 Dutch companies assessed do not reflect this sense of urgency, with only three companies committing to halve emissions across their value chain (AkzoNobel, BAM Group, and Stellantis). This becomes particularly relevant in the context of The Hague District Court's unprecedented ruling of 2021 ordering Royal Dutch Shell to reduce CO_2 emissions across all emission scopes by net 45% by 2030 below 2019 baseline.

While 19 out of the 21 companies set some type of interim target for 2030, our analysis finds that the average emission reduction commitment of full value chain emissions by 2030 is just 19% (median 10%), excluding the six companies whose emission reduction commitments we could not quantify. We identify four companies whose interim targets have 'moderate integrity' (AkzoNobel, BAM Group, Stellantis, and Tata Steel Netherlands). These companies do a moderate job to align their targets with 1.5°C compatible

Table 4: Integrity assessments for 2030 interim targets

Targets set by 21 companies in the Netherlands assessed as of June 2022 including 13 companies headquartered in the Netherlands and 8 companies being Dutch subsidiaries (latter labelled as 'Dutch subsidiaries'). Companies shown in alphabetical order within each assessment box.

	Emission reductions by 2030 below 2019 emissions across the entire value chain	Global benchmarks for 2030	Sectoral benchmarks for 2030	Other targets within 5-year timeframe	Alignment with long-term vision
High integrity					
	No companies achieved a high integrity rating				
Moderate integrity					
AkzoNobel	**<46%** reduction	■	*No sector-benchmarks available*	■	■
BAM Group	**<49%** reduction *(estimate)*	■	?	■	■
Stellantis	**50%** reduction *(compared to a 2021 baseline)*	■	■	■	■
Tata Steel Netherlands *(Dutch subsidiary)*	**Not quantifiable**	■	■	■	■
Low integrity					
Boskalis	**No targets identified**	*Company neglects the urgent need for immediate and accountable climate action by all actors to limit global warming below 1.5°C*			
bp Netherlands *(Dutch subsidiary)*	**Not quantifiable**	■	■	■	■
Dow Benelux *(Dutch subsidiary)*	**Not quantifiable for Dutch subsidiary,** <4% reduction for parent-company	■	*No sector-benchmarks available*	■	■
DSM	**4%** reduction	■	*No sector-benchmarks available*	■	■
ExxonMobil Benelux *(Dutch subsidiary)*	**Not quantifiable**	■	■	■	■
KLM	**~10%** reduction *(estimate)*	■	■	■	■
LyondellBasell Industries	**8%** reduction *(compared to a 2020 baseline)*	■	*No sector-benchmarks available*	■	■
RWE Generation NL & RWE Renewables Benelux *(Dutch subsidiary)*	**Not quantifiable**	■	■	■	■
Schiphol Group	**5-10%** reduction *(estimate)*	■	■	■	■
Unilever Nederland *(Dutch subsidiary)*	**Not quantifiable for Dutch subsidiary,** ~4% reduction for parent-company	■	*No sector-benchmarks available*	■	■
Uniper Benelux *(Dutch subsidiary)*	**Not quantifiable**	■	■	■	■
Vion Food Group	**Not quantifiable**	■	?	■	■
Vitol	**No targets identified**	*Company neglects the urgent need for immediate and accountable climate action by all actors to limit global warming below 1.5°C*			
Vopak	**<1%** reduction *(estimate)*	■	*No sector-benchmarks available*	■	■
Yara Netherlands *(Dutch subsidiary)*	**~2-9%** reduction *(estimate, compared to a 2020 baseline)*	■	*No sector-benchmarks available*	■	■
Unclear integrity					
Ahold Delhaize	**~22%** reduction *(estimate)*	■	*No sector-benchmarks available*	■	■
FrieslandCampina	**~25%** reduction *(estimate)*	■	?	■	■

■ Meets the criteria ■ Partially meets the criteria ■ Misses the criteria ? Inconclusive on whether or not the company meets the criteria

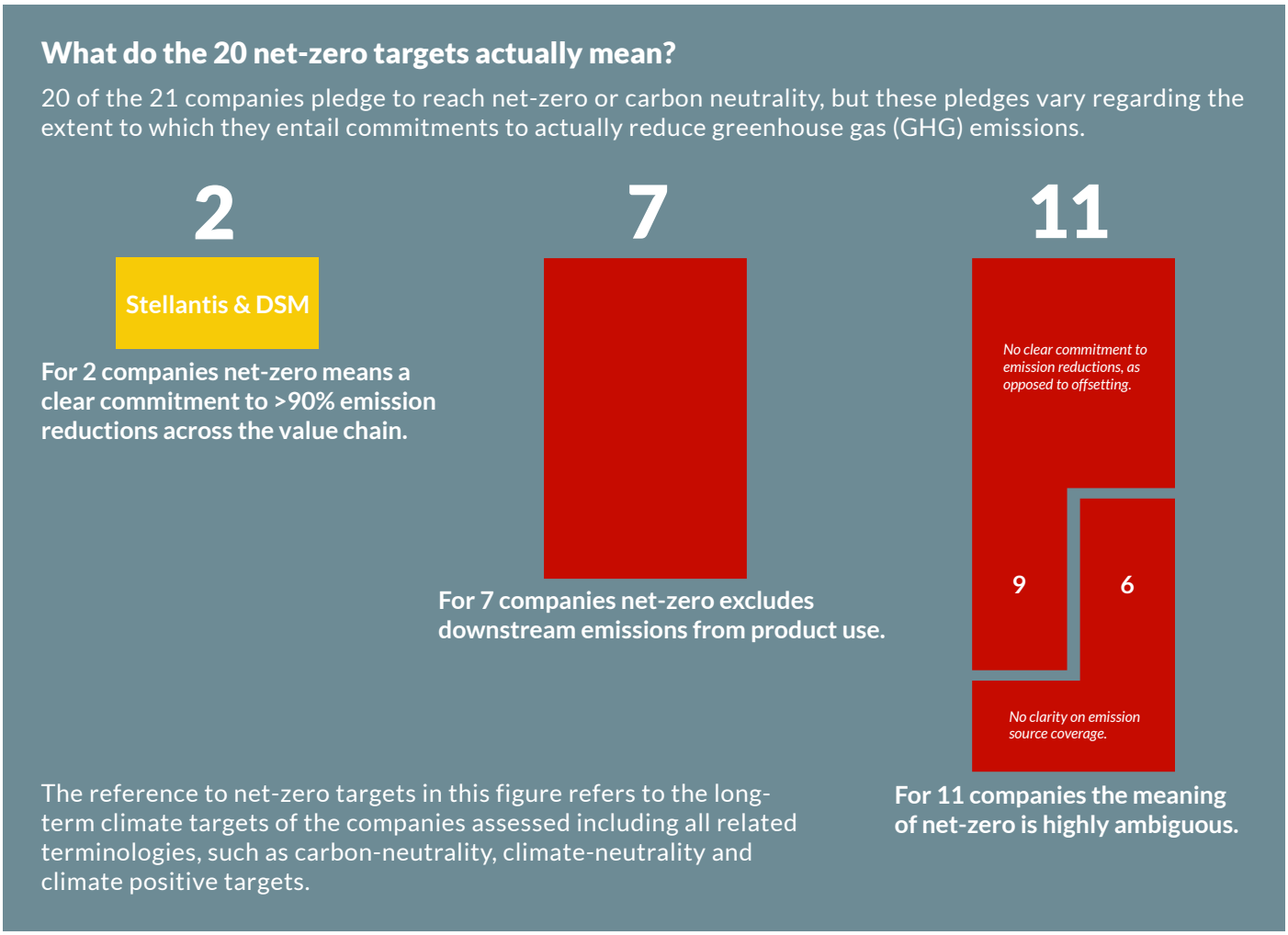
See section 2.3 of the methodology referred to in Annex I for the full assessment criteria.

decarbonisation milestones at the global and sector-level. We assess all other companies' interim targets to have 'low integrity' (15 out of 21) or we cannot come to a conclusive evaluation (2 out of 21).

Most of the 21 companies pledge some form of a net-zero emissions or climate neutrality target, but the majority of these pledges remain highly ambiguous and potentially misleading. Twenty of the 21 real-economy companies communicate net-zero or similar pledges as their long-term targets, but only 2 of those companies specify that this entails a commitment to deep decarbonisation across the full value chain: Stellantis and DSM confirm that their net-zero targets should be interpreted as a commitment to reduce their full value chain emissions by at least 90%. Schiphol commits to reduce its emissions by at least 90%, but it is unclear whether this commitment covers emissions from both outgoing and incoming flights. For a further 8 companies, their net-zero pledges encompass a commitment to the decarbonisation of only some specific emission sources, counting for a minor portion of their full value chain emissions. Nine companies do not clearly communicate to what extent they intend to achieve their net-zero targets through emission reductions within their own value chain as opposed to offsetting. Since almost all companies prominently mention their net-zero targets in their external communications, it is possible that consumers, shareholders and regulators are misled about the extent to which those companies have committed to deep decarbonisation trajectories.

Net-zero pledges that exclude relevant emission scopes present the risk of greenwashing carbon-intensive industries. Of the 20 companies with a net-zero pledge, at least 7 explicitly exclude downstream emissions associated with product end use from those pledges, while for 6 other companies the coverage of these emissions remains unclear. At least 6 of those companies produce or supply products that are highly carbon-intensive by nature, such as oil, fossil gas, meat and synthetic nitrogen- based fertilisers. It is contentious whether producing and consuming those products can be aligned with the Paris Agreement objectives. Pledges to decarbonise only the production of products may give consumers, shareholders and regulators an inaccurate impression on the prospects for decarbonising an industry. This is especially critical for industries for which the major issue lies in the carbon-intensive nature of the product *use* rather than its *production*. In the worst-case scenario, if shareholders and consumers misunderstand the degree to which a given company is on a decarbonisation trajectory, they may increase their investments into and consumption of products that are fundamentally not aligned with international decarbonisation objectives. The integration of scope 3 emissions into companies' targets is important, especially in the case where the prospects for the decarbonisation of scope 3 emissions are limited. This can provide a clear signal for the sector to transition to business models and product offerings that are aligned with the Paris Agreement objectives and can reduce the risk that observers are misled about the sustainability prospects of specific carbon intensive products and industries.

Figure 2: The integrity of corporate net zero targets: what do companies' net zero targets mean in terms of emissions coverage and emission reduction commitments



Financial institutions

The financial institutions in this report set diverse and often ill-defined targets, which makes it difficult to evaluate and compare them. Seven of the analysed institutions have pledged to either align their portfolios with a 1.5°C temperature target or to steer portfolios to net-zero or carbon or climate neutrality by 2050. Atradius has not committed to any climate target for its portfolio emissions. The financial institutions do not specify what 'net-zero' or 'climate neutral' portfolio emissions imply in terms of their business strategies, what residual emissions are expected to remain, and how any residual emissions will be netted. Only PFZW states that it plans to offset residual portfolio emissions with additional investments in negative emissions but provides no further information. Offsetting residual portfolio emissions is a questionable approach; financial institutions should rather acknowledge their role as financiers and insurers of transformations and proactively engage with and promote positive change in hard-to-abate sectors. They must divest where engagement is unsuccessful or in sectors where their counterparties refuse to take the necessary climate measures.

Large diversified financial institutions should have clear reduction targets and strategies that reflect global emission reduction pathways, despite the indirect nature of the link between financial markets and real-world economic decisions. Five financial institutions present only qualitative or intensity based interim targets, which could still lead to overall growth of emissions. Two institutions (ABP and NN Group) set absolute reduction targets for parts of their portfolio for the period until 2030. Atradius is the only financial institution in this report that does not commit to any short- or long-term reduction targets.

2.3 Emission reduction measures

Companies

None of the 21 companies' publicly communicated reduction plans are sufficient to place them on a Paris-compatible trajectory. We evaluated the reduction plans of just 3 companies to have 'moderate integrity' (DSM, Stellantis, and Tata Steel Netherlands), with 13 companies presenting 'low integrity' plans. Due to a lack of information, we are unable to assess the integrity of the final 5 companies. Generally, companies' reduction plans are shallow and focus on just few emissions sources. Some companies undermine their own reduction efforts by continuing to lobby for the expansion of carbon-intensive infrastructure. Companies could show their climate leadership by adopting existing good practice reduction measures; investing in and scaling up new zero-carbon technologies; and phasing out all carbon-intensive infrastructure and products.

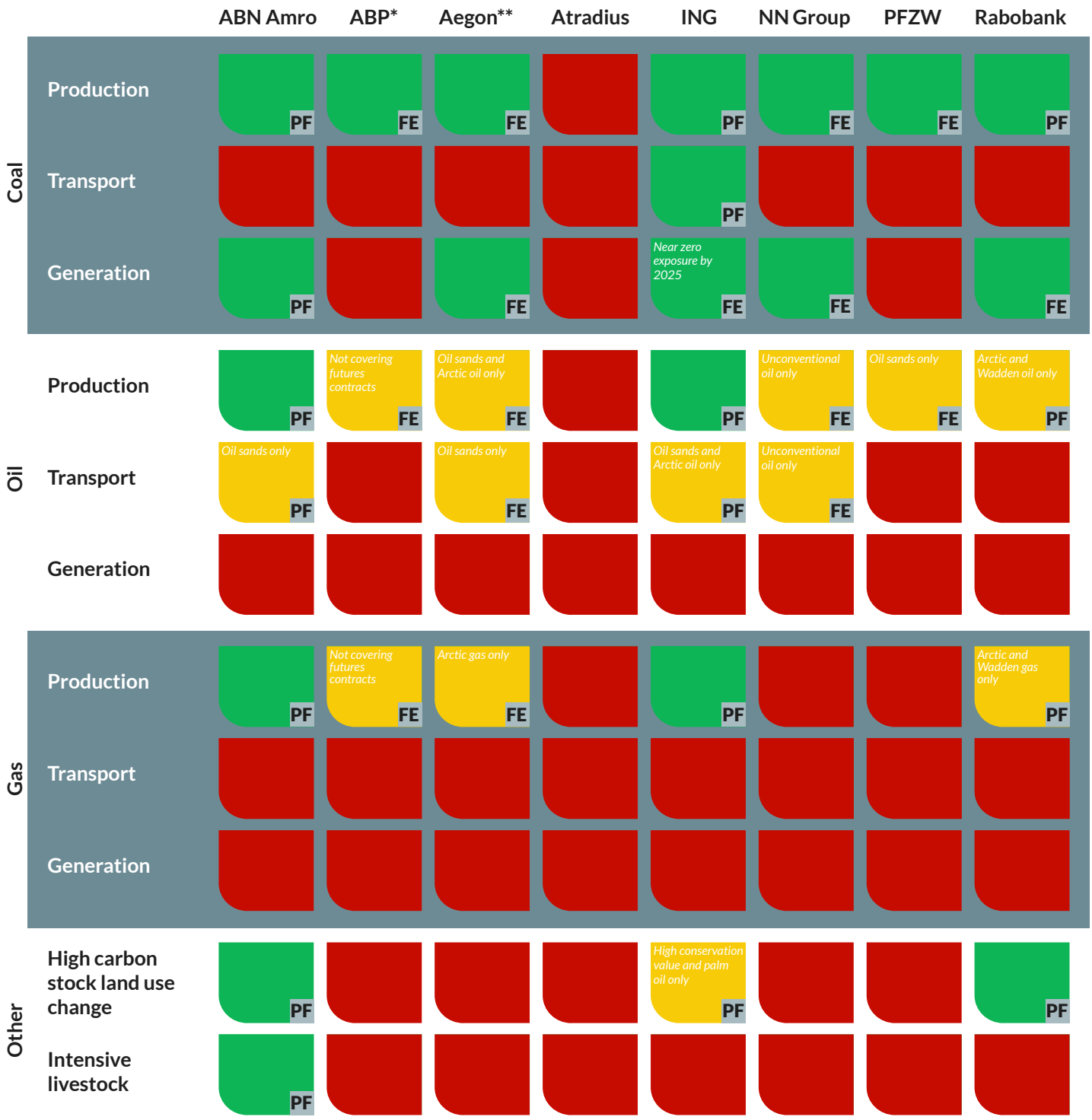
Many companies rely on the availability of sufficient renewable energy and green hydrogen to meet their climate targets. Current available renewable energy capacity in the Netherlands is insufficient to generate the energy that the 21 companies in our assessment need to meet their climate targets. Yet only a few companies in this report show leadership with pursuing higher quality approaches for securing renewable energy. Most companies that buy renewable energy do so through the questionable practice of buying RECs instead of generating local energy capacity on their premises. The Schiphol Group is an exception in that it generates significant renewable energy on its premises to power its own operations and supply other actors and procures the rest through Power Purchase Agreements (PPAs) from Dutch wind parks. Companies should take a proactive approach to minimise their own energy consumption and build additional renewable energy capacity to ensure that their demand can be met, specifically through installing on-site installations with storage capacity.

Financial institutions

All the eight financial institutions' policies to exclude finance for certain high emission activities are insufficient. Most financial institutions exclude coal mining, and several exclude varying forms of unconventional oil and fossil gas production. ING and ABN Amro are the only financial institutions that exclude all direct finance for upstream fossil fuel exploration and extraction. However, they do not commit to refrain from providing working capital to companies engaged in these sectors, which remains a large loophole. Financial institutions need to carefully review who they finance to understand what the climate plans of companies are and to make sure that they are shifting away from excluded activities. None of the financial institutions assessed fully exclude fossil fuel value chains and most of them continue to provide financial services for harmful activities in the land use or agriculture sector including industrial livestock production. Some financial institutions apply their exclusion criteria or policies inconsistently across different financial services, and most only apply criteria for project finance or with unambitious revenue thresholds.

None of the eight financial institutions in this report have engagement policies with comprehensive thematic coverage. While all financial institutions, with the exception of Atradius, report on direct and indirect engagement efforts, none of the institutions provide sufficient detail. Specifically, on how they engage with their counterparties, how demands are escalated, and whether relations are terminated in the event of non-compliance. With the exception of NN Group, none of the financial institutions have an engagement policy

Figure 3: Sectoral coverage and type of exclusion policies set by eight Dutch financial institutions



Sector coverage Full · Partial · Sector not covered

Exclusion type

PF Project finance *(Project finance means that the financial institution does not directly finance a harmful activity, but that it not generally excludes financial service provision to companies exposed to harmful activities).)*

FE Full exclusion (*Full exclusion means that the financial institutions does not provide any financial services to companies exposed to a harmful activity (subject to exposure thresholds, which can vary between companies and sectors).)*

**Divestment decision, no general exclusion policy*
*** Exclusion criteria superseded by third-party exclusion list and therefore not necessarily implemented*

with clear thematic focus covering most harmful sectors. ING has a relatively detailed Environmental and Social Risk Framework that outlines their engagement approach for a number of issue areas including some climate considerations, but it includes potential loopholes and is not thematically comprehensive.

2.4 Offsetting and climate contributions

Eight companies and four financial institutions use highly contentious carbon offset credits to claim neutralisation of all, or some of, their emissions today. ING buys such credits but has recently revised the claim associated with its purchase of offsets from 'neutrality' to 'compensation'. All of these companies rely on nature-based solutions, like forests, or projects that are unlikely to result in truly additional permanent emission reductions. The support of biogas production at Dutch farms claimed by Schiphol Group and Rabobank, for example, cannot be considered additional mitigation measure in the context of the Paris Agreement, which requires all countries to set and regularly enhance ambitious emission reduction targets. The reduction of methane emissions from farming and the increase of renewable electricity production are part of the ongoing Dutch government abatement efforts and can therefore not be considered 'additional'.

Although carbon dioxide removals from forestry and other nature-based solutions need financial support, they are generally not suitable for making neutrality claims due to their scarce availability and very likely limited permanence. The potential for biological CO_2 sequestration is limited and needed to bring global emissions to net zero on the way to net-negative in the second half of the century. This limited potential should be considered a public good and should not be claimed by individual companies to allegedly neutralise their footprint and substitute actual emission reductions. Further, it is very likely that carbon sequestered in soils or trees will be released within decades to centuries, which would negate the impact of sequestering it in the first place (see Methodology, Annex I).

Just one of the 21 companies – Tata Steel Netherlands – states that they will not use offsetting to achieve their long-term headline pledge, although the company's pledge only covers scope 1 and 2 emissions. Nine companies indicate they will rely on offset credits and another 11 provide either unclear or no information on the degree to which their targets rely on offsets.

While most companies' plans are undermined by contentious offsetting practices, the more constructive approach of making climate contributions without neutralisation claims appears to be gaining traction. We identified four companies and financial institutions that plan to make climate contributions beyond their value chain without claiming these contributions reduce their own emission footprint. DSM considers making climate contributions for beyond value chain mitigation, without claiming neutralisation of emissions, but full details regarding volume of finance and projects supported remain undisclosed at present. BAM Group planted 150,000 trees in 2019 without claiming neutralisation of own emissions in its value chain, but it is not clear if the company made similar contributions in 2020 and 2021. Stellantis also planted trees, but further details are not available. NN Group contributes to various environmental initiatives and plans to contribute 1% of its operating results to communities by 2023. Not all of its contributions are climate relevant.

2

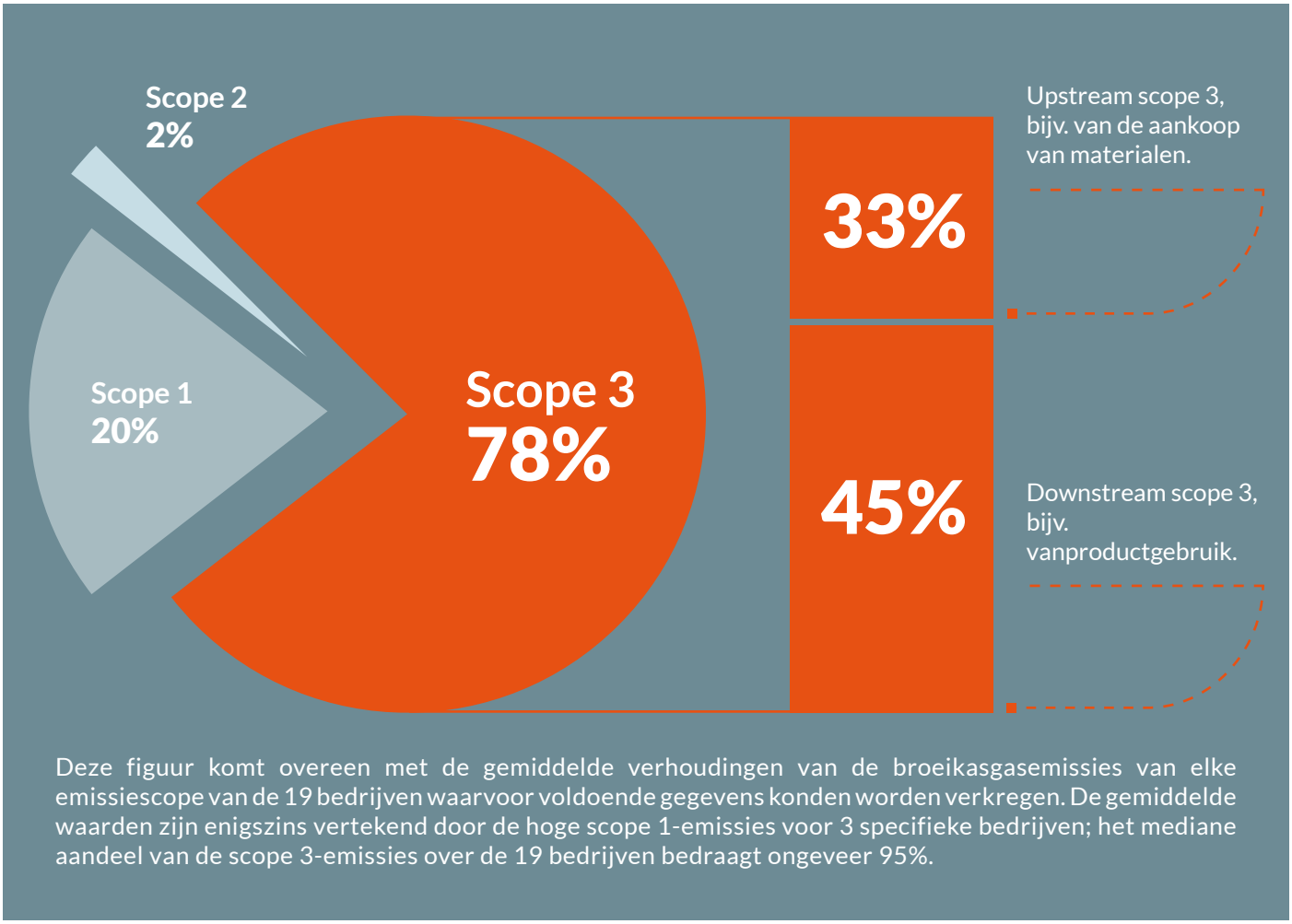
Belangrijkste bevindingen

2.1 Het in kaart brengen en openbaar maken van emissies

Bedrijven

De meeste bedrijven schieten tekort als het gaat om transparantie en volledigheid in het inzichtelijk maken van hun emissies. Slechts negen van de 21 bedrijven in dit rapport geven volledige openheid over de emissies als gevolg van hun bedrijfsvoering (scope 1-emissies), slechts drie bedrijven bieden volledige transparantie over de emissies die zijn gekoppeld aan de energie die ze inkopen (scope 2-emissies), drie over de emissies stroomopwaarts in hun waardeketen en twee over de emissies stroomafwaarts (scope 3). Het gebrek aan openbaarmaking van scope 3 emissies is bijzonder zorgwekkend, aangezien die emissies doorgaans het leeuwendeel van de emissies in de waardeketen uitmaken. De door de bedrijven gerapporteerde stroomopwaartse (upstream) en stroomafwaartse (downstream) emissies in hun leveringsketen

Figuur 1A: Belang van scope 3 emissies: Percentage van de gerapporteerde broeikasgasemissies van het gemiddelde bedrijf uit elke emissiescope



Deze figuur komt overeen met de gemiddelde verhoudingen van de broeikasgasemissies van elke emissiescope van de 19 bedrijven waarvoor voldoende gegevens konden worden verkregen. De gemiddelde waarden zijn enigszins vertekend door de hoge scope 1-emissies voor 3 specifieke bedrijven; het mediane aandeel van de scope 3-emissies over de 19 bedrijven bedraagt ongeveer 95%.

vertegenwoordigen gemiddeld 78% van alle naar buiten gebrachte emissies (mediaan 95%).[2]

Bedrijven in de luchtvaart- en scheepvaartsector richten zich op het rapporteren van hun CO_2-emissies, maar verzuimen te rapporteren over hun bredere klimaatimpact. Emissies uit de lucht- en scheepvaart hebben een direct en indirect effect op het klimaat. Zo zorgen vliegtuigen die op grote hoogte vliegen voor condenssporen. Voor de luchtvaart zijn zulke indirecte effecten twee keer groter dan het effect van CO_2 alleen waar het gaat om de bijdrage die ze leveren aan de wereldwijde opwarming. Als ze volledig transparant willen zijn, dan is het van belang dat bedrijven ook rapporteren over hun bredere klimaatimpact of ten minste schattingen daarvan geven. Hoewel KLM en Schiphol erkennen dat non-CO_2-emissies verantwoordelijk zijn voor het grootste deel van de klimaatimpact van de luchtvaart, geven ze in hun emissieverslagen geen schattingen van hun non-CO_2-emissies. Bedrijven als Boskalis en Vitol, die een eigen vloot hebben, rapporteren niet over zwarte-koolstofemissies afkomstig van het gebruik van scheepsbrandstof.

Het is belangrijk dat bedrijven rapporteren over de indirecte emissies door productgebruik als die emissies inherent verbonden zijn met hun bedrijfsmodel. Verschillende bedrijven in dit rapport maken deel uit van de toeleveringsketen van fossiele brandstoffen, maar maken niet alle emissies die gerelateerd zijn aan het gebruik van hun producten (scope 3) openbaar. Boskalis ontwikkelt infrastructuur voor de exploratie en het transport van fossiele brandstoffen, Vitol koopt en verkoopt fossiele brandstoffen op de groothandelsmarkt en Vopak verwerkt en slaat onder meer fossiele brandstoffen op. Geen van deze drie bedrijven rapporteert in de volle breedte over de bijbehorende emissies in de gebruiksfase, wat de aandacht afleidt van de rol die zij spelen in het leveren van fossiele brandstoffen en chemicaliën aan andere partijen in de fossiele sector.

Financiële instellingen

Zeven van de acht financiële instellingen in onze beoordeling rapporteren over alle of een deel van de scope 1- en scope 2-emissies van hun deelnemingen, kredietnemers en klanten, maar geen van hen rapporteert uitgebreid over hun scope 3-emissies. Financiële instellingen benoemen dat hun deelnemingen, kredietnemers en klanten niet volledig rapporteren over deze scope 3 emissies. Het is echter belangrijk dat financiële instellingen hun invloed uitoefenen om deze data in kaart te brengen. Verschillende richtlijnen voor emissievermelding in de financiële sector vragen financiële instellingen om deze scope 3-emissies te meten of er een schatting van te maken en daarover te rapporteren.

2.2 Het stellen van doelen voor emissiereductie

Bedrijven

De doelstellingen van bedrijven voor 2030 schieten tekort om het ambitieniveau te halen dat nodig is om de meest schadelijke effecten van klimaatverandering te voorkomen, zoals afgesproken onder het Akkoord van Parijs.

In het recent verschenen zesde evaluatierapport van het IPCC wordt nogmaals benadrukt dat de wereldwijde CO_2-uitstoot tussen 2019 en 2030 met 48% moet dalen, willen we een redelijke kans houden om de wereldwijde opwarming tot 1,5°C te beperken. Toch weerspiegelen de tussentijdse doelstellingen van de meeste van de 21 beoordeelde Nederlandse bedrijven dit

2 *13 van de 21 bedrijven hebben hun hoofdkantoor in Nederland, terwijl de andere acht dochterondernemingen zijn van bedrijven die hun hoofdkantoor in andere landen hebben. Aangezien de emissie-informatie van dochterondernemingen onvolledig was, berekenden wij het relatieve belang van scope 3-emissies aan de hand van de emissie-informatie van hun holdingmaatschappijen.*

gevoel van urgentie niet. Slechts drie bedrijven hebben zich ertoe verbonden de uitstoot in hun waardeketen te halveren (AkzoNobel, BAM Groep en Stellantis). Dit wordt met name relevant in de context van de baanbrekende uitspraak van de Haagse rechtbank van 2021 waarin Royal Dutch Shell wordt opgedragen zijn CO_2-emissies in alle emissiescopes tegen 2030 met netto 45% te verminderen ten opzichte van het ijkpunt van 2019.

Hoewel 19 van de 21 bedrijven een bepaalde tussentijdse reductiedoelstelling voor 2030 hebben, blijkt uit onze analyse dat de gemiddelde emissiereductie in 2030 uitkomt op 19% (mediaan 10%), ten opzichte van alle emissies in de waardeketen. Dat is exclusief de zes bedrijven waarvan we de uitstootreductiedoelstellingen niet konden kwantificeren. We onderscheiden vier ondernemingen met tussentijdse doelstellingen waarvan de kwaliteit als matig wordt beoordeeld (AkzoNobel, BAM Groep, Stellantis en Tata Steel Nederland). Deze bedrijven doen het matig als het gaat om het afstemmen van hun doelstellingen op de emissiereducties die wereldwijd nodig zijn om het 1,5°C-scenario binnen bereik te houden. De kwaliteit van de tussentijdse doelstellingen van alle andere bedrijven beoordelen we als 'laag' (vijftien van de 21), tenzij het niet mogelijk was om tot een sluitende evaluatie te komen (twee van de 21).

De meeste van de 21 bedrijven komen met doelstellingen die op verschillende manieren 'netto nul'-emissies of klimaatneutraliteit beloven, maar de meeste van deze toezeggingen blijven zeer ambigu en mogelijk misleidend. Twintig van de 21 bedrijven in de reële economie noemen 'netto nul' of soortgelijke termen als hun lange-termijndoelstelling, maar voor slechts twee van die bedrijven betekent dit een verregaande vermindering van hun uitstoot. Alleen Stellantis en DSM stellen expliciet dat hun 'netto nul'-doelstellingen moeten worden geïnterpreteerd als een toezegging om hun emissies in de volledige waardeketen met ten minste 90% te verminderen. Schiphol zegt toe zijn uitstoot met tenminste 90% terug te brengen, maar het is onduidelijk of die toezegging geldt voor zowel de binnenkomende als de uitgaande vluchten. Voor acht andere bedrijven geldt dat hun netto-nul'-beloftes slechts gelden voor het koolstofarm maken van bepaalde emissiebronnen, die minder dan 40% uitmaken van alle emissies in hun waardeketen. Negen bedrijven communiceren niet duidelijk in hoeverre ze van pan zijn hun 'netto-nul'-doelstellingen te bereiken door middel van emissiereducties binnen de eigen waardeketen in plaats van compensatie. Aangezien vrijwel alle bedrijven deze 'netto nul'-doelstellingen breed uitmeten in hun externe communicatie, kan het zijn dat consumenten, aandeelhouders en regelgevers worden misleid over de mate waarin die bedrijven zich daadwerkelijk hebben verplicht tot verregaande decarbonisatietrajecten.

Table 4A: Kwaliteitsbeoordeling van juni 2022 voor de tussentijdse doelen voor 2030

Die 21 bedrijven in Nederland zichzelf hebben gesteld, waaronder dertien bedrijven met hun hoofdkantoor in Nederland en acht Nederlandse dochterondernemingen. De bedrijven worden binnen elke categorie in alfabetische volgorde genoemd.

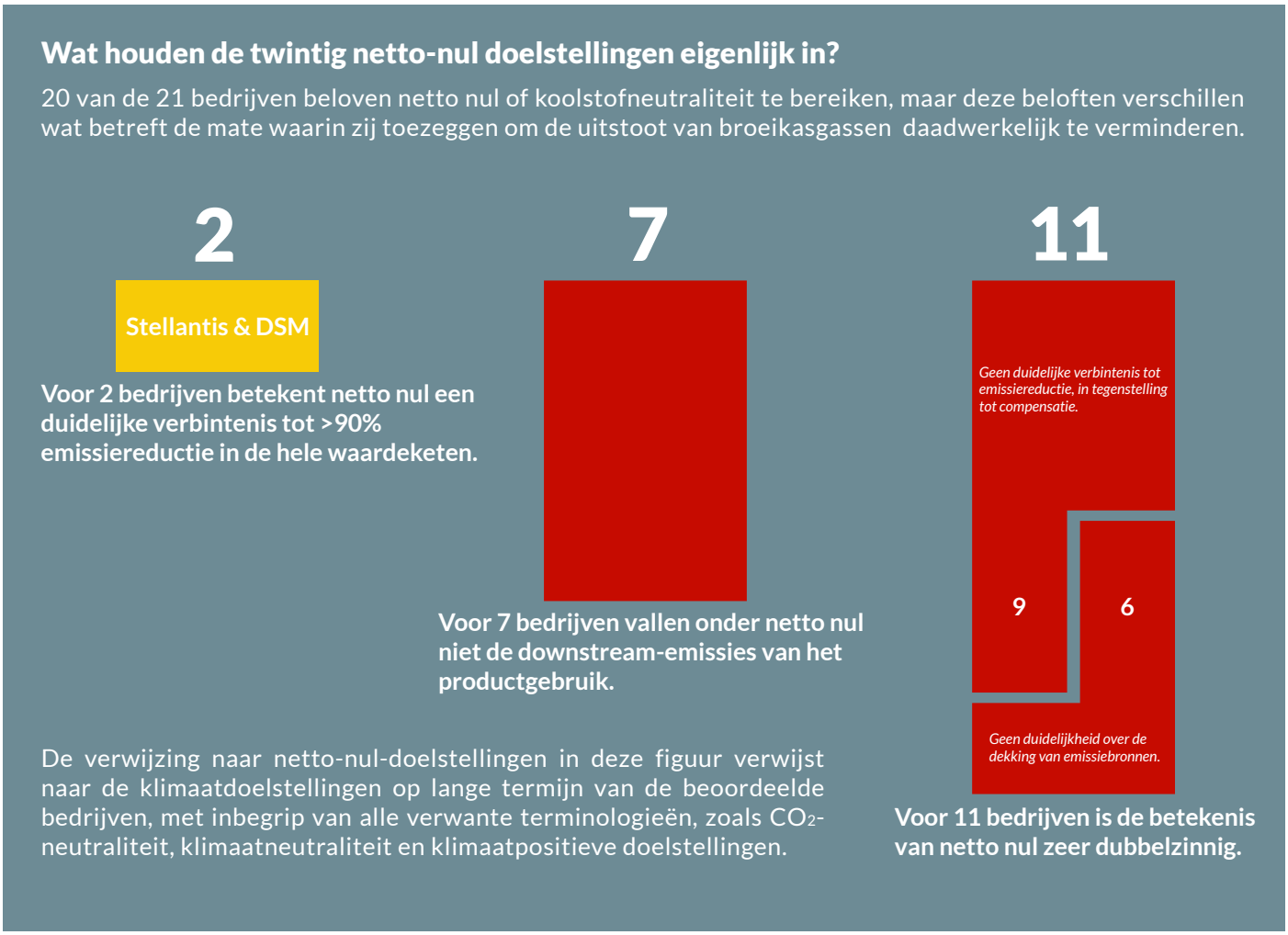
	Emissiereducties in 2030 ten opzichte van het emissieniveau van 2019 in de hele waardeketen	Mondiale benchmarks voor 2030	Sectorale benchmarks voor 2030	Andere doelstellingen voor de komende 5 jaar	In overeenstemming met de lange-termijnvisie
Hoge kwaliteit					
	Geen enkel bedrijf kon het predicaat 'hoge kwaliteit' worden toegekend.				
Redelijke kwaliteit					
AkzoNobel	**<46%** reductie	🟩	*Geen sectorale benchmarks beschikbaar*	🟩	🟥
BAM Group	**<49%** reductie *(schatting)*	🟩	?	🟩	🟥
Stellantis	**50%** reductie *(ten opzichte van 2021)*	🟩	🟨	🟩	🟩
Tata Steel Netherlands *(Nederlandse dochter)*	**Niet te kwantificeren** voor de hele waardeketen	🟥	🟨	🟥	🟩
Lage kwaliteit					
Boskalis	**Geen doelstellingen aangegeven**	*Dit bedrijf negeert de dringende noodzaak van onmiddellijke en verantwoorde klimaatactie om de opwarming van de aarde te beperken tot minder dan 1,5°C*			
bp Netherlands *(Nederlandse dochter)*	**Niet te kwantificeren**	🟥	🟥	🟩	🟥
Dow Benelux *(Nederlandse dochter)*	**Niet te kwantificeren voor de Nederlandse dochter,** 4% reductie voor het moederbedrijf	🟥	*Geen sectorale benchmarks beschikbaar*	🟩	🟥
DSM	**4%** reductie	🟥	*Geen sectorale benchmarks beschikbaar*	🟥	🟥
ExxonMobil Benelux *(Nederlandse dochter)*	**Niet te kwantificeren** voor de hele waardeketen	🟥	🟥	🟥	🟥
KLM	**~10%** reductie *(schatting)*	🟥	🟥	🟥	🟥
LyondellBasell Industries	**8%** reductie *(ten opzichte van 2020)*	🟥	*Geen sectorale benchmarks beschikbaar*	🟥	🟥
RWE Generation NL & RWE Renewables Benelux *(Nederlandse dochter)*	**Niet te kwantificeren** voor de hele waardeketen	🟥	🟥	🟥	🟥
Schiphol Group	**5-10%** reductie *(schatting)*	🟥	🟥	🟥	🟩
Unilever Nederland *(Nederlandse dochter)*	**Niet te kwantificeren voor de Nederlandse dochter,** ~4% reductie voor het moederbedrijf	🟥	*Geen sectorale benchmarks beschikbaar*	🟩	🟥
Uniper Benelux *(Nederlandse dochter)*	**Niet te kwantificeren**	🟥	🟥	🟥	🟥
Vion Food Group	**Niet te kwantificeren**	🟥	?	🟥	🟥
Vitol	**Niet te kwantificeren**	*Dit bedrijf negeert de dringende noodzaak van onmiddellijke en verantwoorde klimaatactie om de opwarming van de aarde te beperken tot minder dan 1,5°C*			
Vopak	**<1%** reductie *(schatting)*	🟥	*Geen sectorale benchmarks beschikbaar*	🟥	🟥
Yara Netherlands *(Nederlandse dochter)*	**~2-9%** reductie *(schatting, vergeleken met een basislijn voor 2020)*	🟥	*Geen sectorale benchmarks beschikbaar*	🟥	🟥
Onduidelijke kwaliteit					
Ahold Delhaize	**~22%** reductie *(schatting)*	🟥	*Geen sectorale benchmarks beschikbaar*	🟩	🟥
FrieslandCampina	**~25%** reductie *(schatting)*	🟥	?	🟩	🟥

🟩 Voldoet aan de criteria 🟨 Voldoet deels aan de criteria 🟥 Voldoet niet aan de criteria ? Onduidelijk of het bedrijf wel of niet aan de criteria voldoet

Zie punt 2.3 van de methodologie waarnaar in bijlage I wordt verwezen voor de volledige beoordelingscriteria.

'Netto-nul'-doelstellingen die belangrijke emissiebronnen niet meenemen, bevatten een risico op 'greenwashing' van vervuilende industrieën. Van detwintig bedrijven die 'netto nul' beloven, sluiten zeven daarvan downstream-emissies als gevolg van het eindgebruik van hun producten uit van deze toezeggingen. Zes andere bedrijven maken niet helder welke emissiebronnen binnen hun netto-nul doelstelling vallen. Meerdere bedrijven produceren producten die van nature zeer emissie-intensief zijn – zoals olie, gas, vlees en synthetische stikstofhoudende meststoffen. Het is de vraag of de productie en consumptie van die producten überhaupt in lijn kan worden gebracht met de doelstellingen van het Akkoord van Parijs. Toezeggingen om slechts de productie van deze producten koolstofarm te maken, kunnen consumenten, aandeelhouders en beleidsmakers een verkeerd beeld geven van de mate waarin een bepaalde industrie daadwerkelijk haar emissies verregaand kan verminderen. In het ergste geval krijgen consumenten en investeerders de valse indruk dat producten of diensten in overeenstemming zijn met de doelen van Parijsakkoord en verhogen ze de investeringen of consumpties van deze producten of diensten. Het opnemen van scope 3-emissies in de doelstellingen van bedrijven is belangrijk, vooral in het geval dat de vooruitzichten voor het koolstofvrij maken van scope 3-emissies beperkt zijn. Dit kan een duidelijk signaal zijn voor de sector om over te stappen op bedrijfsmodellen, producten en diensten die in lijn zijn met de doelstellingen van het Parijs-akkoord. Het zou tevens het risico verminderen dat waarnemers worden misleid over de duurzaamheidsvooruitzichten van specifieke koolstof-intensieve producten en industrieën.

Figuur 2A: De kwaliteit van netto-nul-doelen van bedrijven: Overzicht van wat de verschillende bedrijven bedoelen met hun 'netto-nul' doelstellingen, m.b.t. reikwijdte en emissiereductietoezeggingen.



Financiële instellingen

De financiële instellingen in dit rapport komen met zeer uiteenlopende en vaak slecht-gedefinieerde doelstellingen, wat het lastig maakt om ze te beoordelen en te vergelijken. Zeven van de geanalyseerde instellingen hebben toegezegd dat ze hun portefeuilles zullen afstemmen op een temperatuurdoelstelling van 1,5°C of deze richting 2050 zullen reduceren tot 'netto nul', CO_2- of klimaatneutraliteit. Atradius hanteert intussen geen enkele klimaatdoelstelling voor de eigen portfolio. De financiële instellingen geven geen nadere specificatie van wat 'netto-nul' of 'klimaatneutrale' portfolio-emissies betekenen voor hun bedrijfsstrategieën, welke rest-emissies naar verwachting zullen overblijven, noch hoe eventuele rest-emissies zullen worden gesaldeerd. Alleen PFZW geeft aan van plan te zijn de resterende portfolio-emissies te compenseren met extra investeringen in negatieve emissies, maar geeft daarover geen verdere informatie. Compensatie voor resterende portfolio-emissies is een discutabele aanpak; financiële instellingen zouden er beter aan doen om hun rol als financiers en verzekeraars van transformaties te erkennen en zich proactief op te stellen ten aanzien van gunstige veranderingen in sectoren waarin broeikasgasreductie moeilijk is en zulke ontwikkelingen te stimuleren. Ze moeten tot desinvestering overgaan als engagement geen vruchten afwerpt of als wederpartijen weigeren de nodige klimaatmaatregelen te nemen.

Grote gediversifieerde financiële instellingen dienen te beschikken over duidelijke reductiedoelstellingen en -strategieën die in overeenstemming zijn met wereldwijde emissiereductietrajecten, ondanks het indirecte karakter van het verband tussen financiële markten en economische beslissingen in de echte wereld. Vijf financiële instellingen presenteren alleen kwalitatieve of op intensiteit gebaseerde tussentijdse doelstellingen, die nog steeds kunnen leiden tot een algehele groei van de emissies. Twee instellingen (ABP en NN Groep) stellen absolute reductiedoelstellingen voor delen van hun portefeuille voor de periode tot 2030. Atradius is de enige financiële instelling in dit rapport die zich niet aan enige reductiedoelstelling voor de korte of lange termijn verbindt.

2.3 Maatregelen voor uitstootvermindering

Bedrijven

Geen van de 21 bedrijven heeft emissiereductieplannen gepubliceerd die in lijn zijn met opwarming van maximaal 1,5°C. We konden de integriteit van de reductieplannen van slechts drie bedrijven (DSM, Stellantis en Tata Steel Nederland) de kwalificatie 'matig' meegeven; de plannen van dertien andere bedrijven kregen het predicaat 'laag'. De kwaliteit van de plannen van de overige vijf bedrijven konden we vanwege een gebrek aan informatie niet beoordelen. Over het algemeen zijn de reductieplannen van bedrijven oppervlakkig en gericht op slechts enkele emissiebronnen. Sommige bedrijven ondermijnen hun eigen reductie-inspanningen door te blijven lobbyen voor de uitbreiding van koolstof-intensieve infrastructuur. Bedrijven zouden hun leiderschap op het gebied van klimaat kunnen tonen door bewezen effectieve maatregelen ter vermindering van broeikasgassen over te nemen; door te investeren in nieuwe koolstofvrije technologieën en deze verder op te schalen; en door alle koolstof-intensieve infrastructuur en producten uit te faseren.

Veel bedrijven maken het halen van hun klimaatdoelstellingen afhankelijk van de beschikbaarheid van voldoende hernieuwbare energie en groene waterstof. De duurzame

energiecapaciteit die op dit moment in Nederland voorhanden is, is onvoldoende om de energie op te wekken die de 21 bedrijven uit ons assessment nodig hebben om hun klimaatdoelstellingen te halen. Slechts enige bedrijven wekken zelf hernieuwbare energie op of sluiten een zogenoemd *Power Purchase Agreement (PPA's)* af (zie de *Glossary*). De Schiphol Group wekt op haar terreinen een aanzienlijke hoeveelheid hernieuwbare energie op en koop de rest via PPA's in bij Nederlandse windparken De meeste bedrijven kopen echter hernieuwbare-energiecertificaten (Renewable Energy Certicates of RECs), die over het algemeen niet leiden tot extra opwekking van duurzame energie.

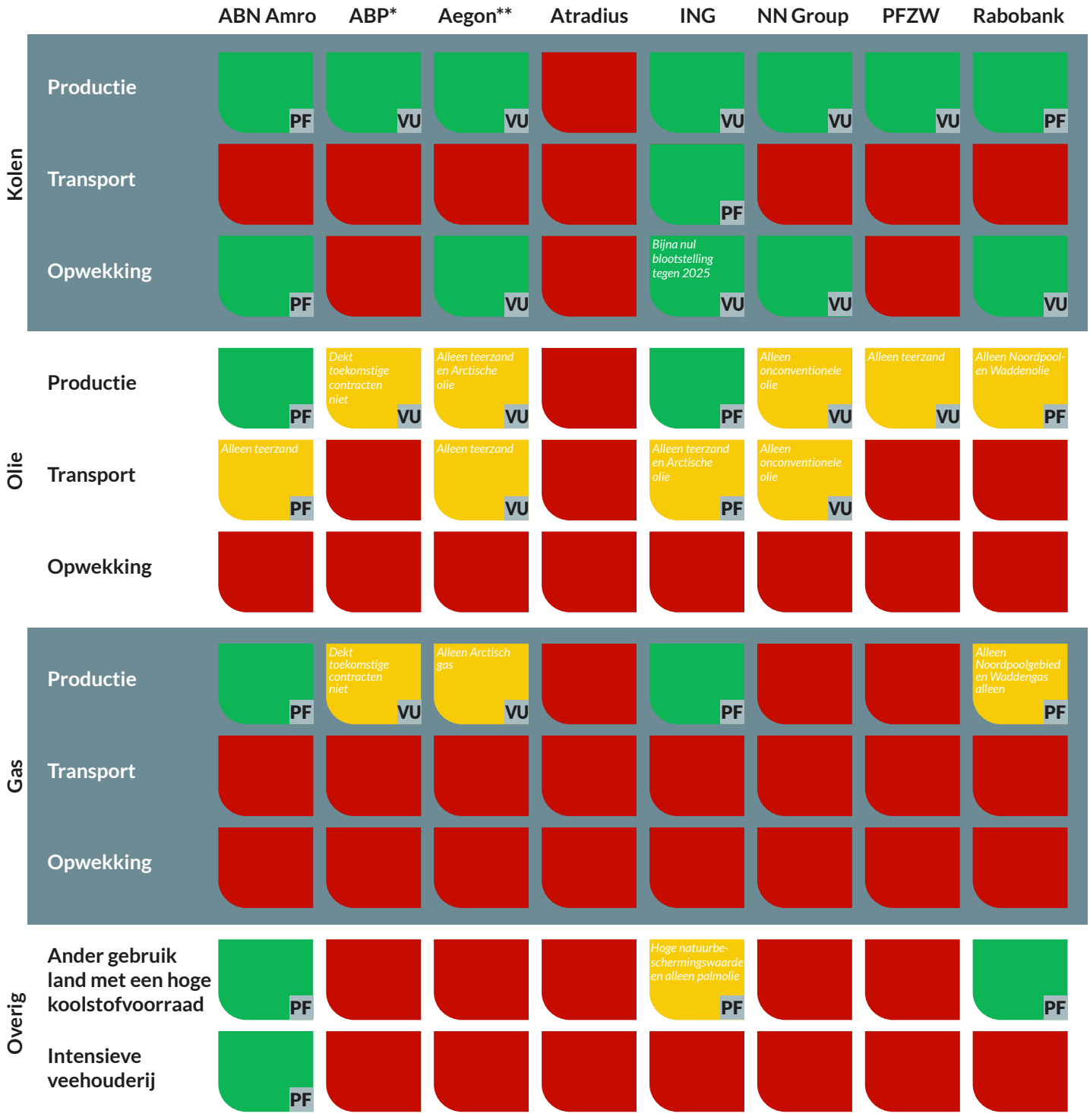
Bedrijven moeten proactief aan de slag gaan om hun eigen energieverbruik tot een minimum te beperken en extra capaciteit voor hernieuwbare energie op te bouwen om ervoor te zorgen dat aan hun vraag kan worden voldaan.

Financiële instellingen

Het beleid van alle acht financiële instellingen om geen financiering te vertrekken aan bepaalde activiteiten met een hoge uitstoot schiet tekort. De meeste financiële instellingen sluiten de winning van steenkool uit, en een aantal van hen weert ook diverse vormen van niet-conventionele olie- en gasproductie. ING en ABN Amro zijn de enige financiële instellingen die alle directe financiering voor upstream-exploratie en winning van fossiele brandstoffen uitsluiten. Ze verschaffen echter nog wel werkkapitaal aan bedrijven die in deze sectoren actief zijn: dit blijft een grote maas in hun beleid. Financiële instellingen moeten zorgvuldig nagaan wat de klimaatplannen zijn van de bedrijven die zij financieren. Alleen zo kunnen financiële instellingen zich ervan verzekeren dat zij geen uitgesloten activiteiten bekostigen. Geen van de beoordeelde financiële instellingen sluit waardeketens voor fossiele brandstoffen volledig uit en de meeste van hen blijven financiële diensten verlenen voor schadelijke activiteiten in de landgebruik- of landbouwsector, met inbegrip van de industriële veeteelt. Sommige financiële instellingen passen hun uitsluitingscriteria of -beleid inconsistent toe in de diverse financiële diensten die zij leveren, en de meeste passen alleen criteria toe bij projectfinanciering of hanteren weinig ambitieuze omzetdrempels.

Geen van de acht financiële instellingen in dit rapport hanteert een engagementsbeleid met uitgebreide thematische dekking. Alle financiële instellingen, met uitzondering van Atradius, rapporteren over directe en indirecte inspanningen op het gebied van engagement. Het blijft echter grotendeels onduidelijk welke stappen zij zullen nemen wanneer hun deelnemingen en klanten niet aan hun eisen voldoen. Een sanctie zou kunnen zijn dat een relatie wordt beëindigd wanneer deelnemingen en klanten eisen niet naleven. Met uitzondering van NN Groep heeft geen van de financiële instellingen een engagementsbeleid met een duidelijke thematische focus op de meest schadelijke sectoren. ING heeft een relatief gedetailleerd raamwerk voor milieu- en sociale risico's dat hun engagementsaanpak schetst voor een aantal thema's, waaronder enkele klimaatoverwegingen, maar dit raamwerk bevat mogelijke mazen en dekt niet alle thema's.

Figuur 3A: Sectorale dekking, aard, reikwijdte en definitie van het uitsluitingsbeleid dat wordt gevoerd door acht Nederlandse financiële instellingen



Dekking Volledig | Gedeeltelijk | Sector niet gedekt

Exclusion type

PF Uitsluiting: projectfinanciering *(projectfinanciering houdt in dat de financiële instelling niet rechtstreeks een schadelijke activiteit financiert, maar dat het financiële dienstverlening aan bedrijven die betrokken zijn bij schadelijke activiteiten niet op voorhand uitsluit).*

VU Volledige uitsluiting *(volledige uitsluiting houdt in dat de financiële instellingen geen financiële diensten verlenen aan bedrijven die betrokken zijn bij schadelijke activiteiten (waarbij er drempelwaarden voor blootstelling gelden die kunnen verschillen van bedrijf tot bedrijf en van sector tot sector).)*

** Desinvesteringsbesluit, geen algemeen beleid tot uitsluiting*
*** Een lijst met uitgesloten derde partijen heeft voorrang boven de uitsluitingscriteria, die daarom mogelijk niet toegepast worden*

2.4 Compensatie en klimaatbijdragen

Acht bedrijven en vier financiële instellingen gebruiken zeer omstreden CO_2-compensatiekredieten om neutralisatie van hun uitstoot of een deel daarvan te claimen. ING koopt dergelijke kredieten, maar heeft onlangs zijn claim in verband met de aankoop daarvan aangepast van 'neutraliteit' naar 'compensatie'. Al deze bedrijven rekenen op op de natuur gebaseerde oplossingen, zoals bebossing, of projecten die waarschijnlijk niet zullen leiden tot echte additionele permanente emissiereducties. De Schiphol Groep en Rabobank, bijvoorbeeld, kopen compensatiekredieten van projecten die biogasproductie op Nederlandse boerderijen ondersteunen. Zulke projecten zijn echter niet additioneel in het kader van het Parijs-akkoord, dat alle landen verplicht om ambitieuze emissiereductiedoelstellingen vast te stellen en regelmatig te verbeteren. De vermindering van methaanemissies door de landbouw en de toename van de productie van hernieuwbare elektriciteit maken deel uit van de lopende reductie-inspanningen van de Nederlandse overheid en kunnen daarom niet als additioneel worden beschouwd.

Hoewel bosbouw en andere vormen van CO_2-opslag financiële steun nodig hebben, is CO_2-opslag over het algemeen niet geschikt voor het maken van neutraliteitsclaims. Het potentieel voor biologische CO_2-opslag is beperkt en bovendien nodig om de wereldwijde emissies terug te brengen tot netto nul, en vervolgens naar 'netto negatief'. Dit beperkte potentieel moet als een publiek goed worden beschouwd en mag niet door individuele bedrijven worden opgeëist om zogenaamd hun voetafdruk te neutraliseren, in plaats van daadwerkelijke uitstoot te verminderen.Verder is het zeer waarschijnlijk dat koolstof die is vastgelegd in de bodem of bomen binnen enkele decennia tot eeuwen weer vrijkomt, wat de impact van het vastleggen ervan onmiddellijk teniet zou doen (zie Annex I).

Slechts één van de 21 bedrijven in de reële economie – Tata Steel Nederland – geeft aan dat het geen compensatie zal gebruiken om zijn lange-termijndoelstelling te realiseren, maar dit hoofddoel omvat alleen scope 1 en 2 emissies. Negen bedrijven geven aan dat ze rekenen op CO_2-compensatiekredieten en nog eens elf bedrijven geven onduidelijke of überhaupt geen informatie in hoeverre ze gebruik zullen maken van CO_2-compensatiekredieten.

Hoewel omstreden compensatie-praktijken de plannen van de meeste bedrijven ondergraven, lijkt de meer constructieve aanpak, waarbij klimaatbijdragen worden geleverd zonder neutralisatieclaims, terrein te winnen. We hebben slechts vier bedrijven en financiële instellingen geïdentificeerd die een klimaatbijdrage buiten hun waardeketen leveren of van plan zijn dat te doen zonder te claimen dat zo'n bijdrage eigen emissies verlaagt. DSM overweegt emissiereducties buiten de waardeketen te ondersteunen zonder neutralisatie van emissies te claimen, maar volledige details over het financieringsvolume en de ondersteunde projecten zijn tot op dit moment niet bekendgemaakt. BAM Groep heeft in 2019 150.000 bomen geplant zonder te claimen dat dit tot een reductie van de eigen emissievoetafdruk heeft geleid, maar het is niet duidelijk of het bedrijf in 2020 en 2021 vergelijkbare bijdragen heeft geleverd. Stellantis heeft ook bomen geplant, maar verdere details zijn niet beschikbaar. NN Groep draagt bij aan verschillende milieu-initiatieven en is voornemens om tegen 2023 1% van het eigen bedrijfsresultaat te schenken aan gemeenschappen. Niet al deze bijdragen zijn relevant voor het klimaat.

3

3.1 Real-economy companies

Company case studies

Ahold Delhaize

Retail

Koninklijke Ahold Delhaize N.V. is a retail company and owner of the largest supermarket chain in the Netherlands, Albert Heijn. The company aims for **net-zero emissions in global activities by 2050.**

Revenue	Emissions	Pledge
EUR 75.6bn (2021)	Across the value chain: 69.5 $MtCO_2e$ (2020)	Net-zero emissions in global activities by 2050

Transparency	Integrity
Moderate	Low

1 Tracking and disclosure of emissions

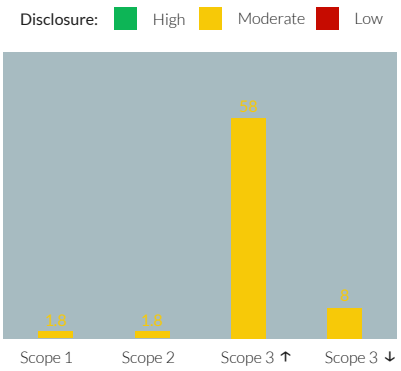
Transparency & Integrity: Moderate

- **Tracking and disclosure**
  70 $MtCO_2e$ (2020)

  Subsidiaries covered

Major emission sources: Upstream scope 3 emissions, mainly land-use related emissions from food production.

Disclosure: Quite comprehensive but could improve level of detail. Committed to improve reporting and disclosure of scope 3 emissions – crude estimates are provided in 2022 annual report. Limited breakdown of scope 1 and 2 emissions.



2 Setting emission reduction targets

	Transparency	Integrity
	Moderate	Low

Headline target or pledge

Net-zero emissions in global activities by 2050.

- **Coverage of emission sources**
  (in headline pledge)

  Headline pledge covers all emission sources (scope 1, 2 and 3). — High | High

- **Reduction of own emissions**
  (for pledge year, compared to full value chain in 2019)

  ? by 2050 — No emission reduction target alongside the headline pledge. — Low | Low

- **Interim emission reductions**
  (estimated compared to full value chain in 2019)

  2025: -29% scope 1 and 2 (2018 baseline), use offsets unknown — High | ?

  ~22% by 2030 *(estimate)* — 2030: -50% scope 1 and 2 (2018 baseline), no use of offsets; -15% scope 3 (2018 baseline), use of offsets unknown

  2040: Net zero carbon scope 1 and 2, use of offsets unknown.

3 Reducing own emissions		Transparency	Integrity
		Low	Very low
Emission reduction measures	Comprehensive emission reduction measures presented for scope 1 and 2 emissions. Relevance of scope 3 is mentioned and an emission reduction plan is expected to be published Nov '22. Currently, only a few emissions reduction measures for scope 3 (95% of emissions); scope 3 emissions have increased significantly over the last years.	Moderate	Low
Renewable electricity procurement	Very limited amount of information in consumer-facing reporting.	Low	?

4 Climate contributions and offsetting claims		Transparency	Integrity
		Low	Low
Responsibility for unabated emissions	Offsetting claims with limited detail.	Low	Low
Climate contributions	*No climate contributions identified.*	N/A	Low
Offsetting claims today	*Climate neutral products (coffee and dairy). No details provided in public reporting.*	Low	?
Offsetting plans for the future	Explicit statement that no offsets will be used towards the 2030 target; no information on whether and to what extent offsets will be used towards the 2050 target.	Moderate	Moderate

Ratings

Overall: 5-point scale. Average of sections 1-4.
Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.
Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from Ahold Delhaize (2022b, 2022a) and Albert Heijn (2021)

Ahold Delhaize

Koninklijke Ahold Delhaize N.V., the company behind the Netherlands' largest supermarket Albert Heijn, has a net-zero target for 2050, covering all of its global activities. Ahold Delhaize has published an extensive reduction strategy for scope 1 and 2 emissions and reports emissions with moderate transparency, but does not sufficiently address scope 3 emissions, which account for approximately 95% of its GHG footprint. Ahold Delhaize commits to only an estimated 22% emission reductions across the value chain by 2030, compared to estimated 2019 levels. Ahold Delhaize's claims regarding climate neutral products are contentious and potentially misleading.

Ahold Delhaize does not specify what share of its net-zero 2050 target will be achieved with emission reduction measures and what share will be met with contentious neutralisation practices. Ahold Delhaize's net-zero target does not include an emission reduction target. It therefore remains unclear what share of emissions will be abated by 2050, and what share of the net-zero target will be realised with contentious neutralisation measures. The company aims for reductions of 50% of scope 1 and 2 emissions and 15% of scope 3 emissions by 2030 under its interim targets, compared to 2018 levels. Ahold Delhaize states that the scope 1 and 2 target will be met without offsetting but gives no information regarding use of offsets for the scope 3 target (Ahold Delhaize, 2022b, p. 19). The targets translate to emission reductions of roughly 22% across the value chain by 2030 compared to 2019 levels. It remains unclear how Ahold Delhaize will address the remaining 78% of its footprint; either through reducing emissions further or offsetting (Ahold Delhaize, 2022a, pp. 58, 263).

Ahold Delhaize's climate plan focuses on a small share of emissions, scope 1 and 2; ambitious targets for scope 3 are lacking. As scope 3 accounts for roughly 95% of its emissions footprint (Ahold Delhaize, 2022a, p. 59), the company's emission reduction measures are not comprehensive without clear plans for scope 3 emissions. The company acknowledges the need for a more comprehensive scope 3 reduction plan but has a reduction target of only 15% by 2030 (Ahold Delhaize, 2022b, p. 6). This undermines the credibility of its net zero pledge for 2050. The company says that it is still in the process of determining the baseline of scope 3 emissions and that it will present a scope 3 emission reduction plan by November 2022 (Ahold Delhaize, 2022a, p. 60, 2022b, p. 6). In its most recent climate documentation, Ahold Delhaize has already increased its focus on scope 3 emissions (Ahold Delhaize, 2022b, pp. 6–8). The company says it wants to engage more with suppliers, increase the number of low-carbon products and reduce food waste (Ahold Delhaize, 2022b, pp. 6–8). However, ambitious, quantifiable, Paris-aligned targets are still lacking for these actions.

Ahold Delhaize's climate neutrality claims for its products, including dairy and coffee, are contentious and potentially misleading. The company claims that the emissions related to dairy production are compensated by carbon storage in grazing land (Albert Heijn, 2021, p. 31; Ahold Delhaize, 2022a). While carbon storage in grazing lands is a good practice and enhancing it will benefit the climate, claiming this leads to climate neutral dairy products is misleading and inaccurate. The permanence of the carbon storage in grazing lands cannot be guaranteed – with events such as a change in management practices or extreme weather the carbon is likely to be re-released into the atmosphere within years or decades (see Section 4.2.1 in the methodology, Annex I). In particular in the Netherlands, some grazing lands cause emissions, as methane is released when the groundwater levels are kept artificially low for the cattle in peat lands (Raad voor de leefomgeving en infrastructuur, 2020). Moreover, grazing lands are not an endless sink:

over time, the saturation level is reached, and no additional carbon can be stored, putting a physical limit to the production of climate neutral dairy (see Section 4.2.1 in the methodology, Annex I).

In addition to climate neutral dairy, Albert Heijn, one of Ahold Delhaize's brands, sells coffee branded as climate neutral. Albert Heijn states that the climate impact of Perla coffee is reduced as much as possible and that residual emissions are compensated with CO_2 credits from forestry and renewable energy projects (Albert Heijn, 2021, p. 27). However, neither of these project types are suitable for making a neutralisation claim. One of the major issues related to forestry-based offsetting is the limited permanence: due to events such as forest fires, it cannot be guaranteed that the forest will permanently store the carbon (see Section 4.2.1 in the methodology, Annex I). Renewable energy projects usually do not represent the high-hanging fruit of mitigation potential and the purchase of offset credits from these projects may not lead to additional impact (see Section 4.2.1 in the methodology, Annex I).

Ahold Delhaize's reporting on emissions and renewable electricity consumption limits the facilitation of a thorough understanding of recent trends. Ahold Delhaize wants to achieve 100% renewable electricity consumption (Ahold Delhaize, 2022a, p. 60) and describes the use of PPAs and RECs to claim zero emissions of electricity (Ahold Delhaize, 2022b, p. 10). The company also uses a market-based approach to show a decreasing trend in emissions (Ahold Delhaize, 2022a, p. 58), but the renewable energy constructs do not justify the claim that scope 2 emissions are really zero (see Section 3.2.1 in the methodology, Annex I). By using the location-based method, which reflects the electricity that is actually consumed by Ahold Delhaize, reductions in 2021 equal 3.3%, compared to 2020 (Ahold Delhaize, 2022a, p. 262). Overall, the level of detail of Ahold Delhaize's reporting does not facilitate a thorough understanding of emission trends. The company claims that its emissions are decreasing, but sufficient underlying data is not provided to validate this trend, and historical emissions data is often not comparable.

Box 1: Integrity assessment for Ahold Delhaize's emission reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

Net-zero emissions in global activities by 2050.

Headline pledge: Low integrity

Emissions reduction component alongside headline pledge

? by 2050

No deep emission reduction target presented alongside the 2050 net zero pledge.

Is the emission reduction component equivalent to at least 90% below 2019 levels? *(if the headline pledge is a net-zero or carbon neutrality target)*	Ahold Delhaize does not commit to a deep emission reduction target alongside its net zero pledge, leaving the door open for contentious neutralisation measures to achieve this target.
Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?	The company neither explains why it considers its 2050 net zero target aligned with the Paris Agreement's temperature limit of 1.5°C nor specifies to which degree the target relies on offsetting and carbon dioxide removal to meet its target.

Box 1 (cont.): Integrity assessment for Ahold Delhaize's emission reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

Ahold Delhaize commits to the following two interim targets:

- By 2025: -29% scope 1 and 2 (2018 baseline), use offsets unknown.
- By 2030: -50% scope 1 and 2 (2018 baseline), no use of offsets; -15% scope 3 (2018 baseline), use of offsets unknown.
- By 2040: Net zero carbon scope 1 and 2, use of offsets unknown.

Interim targets: Unable to evaluate

Emissions reductions by 2030 below 2019 across entire value chain

~22% by 2030 *(estimate)*

Ahold Delhaize does not provide comprehensive emissions data for 2019 (especially for scope 3 emissions) to verifiably calculate the emissions reduction impact by 2030 below a 2019 baseline across the entire value chain. If we assume the scope 3 emissions for 2019 to be an average between 2018 and 2020 levels, Ahold Delhaize's target translates to emission reductions of around 22% by 2030 below a 2019 baseline across the entire value chain.

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO_2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%). The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO_2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

Ahold Delhaize's interim targets, equivalent to an estimated 22% reduction by 2030 below a 2019 baseline across the entire value chain, fall short from global efforts required to limit global warming in line with 1.5°C.

Sector-level benchmarks

Existing literature provides no specific milestones for the retail industry, which makes an independent analysis of Paris Agreement aligned climate action in the sector generally difficult. This gap in existing literature allows no conclusive assessment of sector-specific decarbonisation efforts in line with the Paris Agreement's 1.5°C temperature goal.

Ahold Delhaize—together with the entire retail industry—needs to put further emphasis on determining sector-specific decarbonisation milestones in line with the Paris Agreement in a transparent, scientific and verifiable process.

Do the interim targets align with the long-term vision?

Ahold Delhaize provides no explanation of why its 2030 interim targets are aligned with its long-term pledge of 2050 net zero emissions.

Has the first interim target been set within maximum 5 years in the future?

Ahold Delhaize commits to an early interim target by 2025 covering scope 1 and 2 emissions falling within a five-year time horizon.

AkzoNobel

Chemical industry

AkzoNobel—headquartered in the Netherlands—is a multinational chemical company specialising in paints and performance coatings. **The company commits to 50% emissions reduction by 2030 below a 2018 baseline across scope 1, scope 2 and selected major scope 3 emissions categories as its headline target.** In 2017, AkzoNobel also announced its vision to become a 'carbon-neutral company' by 2050.

Revenue	Emissions	Pledge
EUR 9.6 billion (2021)	14.7 $MtCO_2e$ (2021)	50% emissions reduction by 2030 below a 2018 baseline across scope 1, scope 2 and selected major scope 3 emissions categories

Transparency	Integrity
Moderate	Moderate

1 Tracking and disclosure of emissions

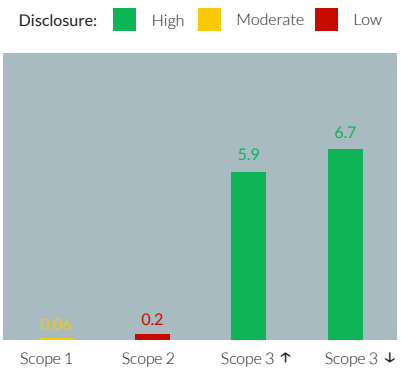
Transparency & Integrity: Reasonable

- **Tracking and disclosure**
  14.7 $MtCO_2e$ (2021)

  Subsidiaries covered

Major emission sources: Scope 3 downstream (52%), purchased goods and services (scope 3 upstream, 44%).

Disclosure: Full time series disclosed for scope 1 and scope 2 emissions (since 2017) and a detailed breakdown of scope 3 emissions (since 2018). Reporting boundaries explained alongside annual reporting. No explanation on whether scope 2 emissions calculated using a market-based or location-based accounting approach (only one estimate provided), and no detailed breakdown of scope 1 emissions.



2 Setting emission reduction targets

	Transparency	Integrity
	Reasonable	Moderate

Headline target or pledge

50% emissions reduction by 2030 below a 2018 baseline across scope 1, scope 2 and selected major scope 3 emissions categories, contributing to the vision to become carbon neutral by 2050.

- **Coverage of emission sources**
  (in long-term target)

  Carbon neutrality pledge covers scope 1, scope 2, and some major scope 3 emissions from purchased goods and services, application and use of products, and products' end-of-life treatment.

  High | Moderate

- **Reduction of own emissions**
  (for long-term target year, compared to full value chain in 2019)

  ? by 2050

  No emissions reduction target communicated alongside the carbon neutrality pledge.

  Low | Low

- **Interim emission reductions**
  (estimated compared to full value chain in 2019)

  <46% by 2030

  Absolute reduction targets for 2025 and 2030:
  - 25% emissions reduction by 2025 below 2018 across all emission scopes (labelled as an "interim ambition").
  - 50% emissions reduction by 2030 below 2018 across scope 1, scope 2 and selected major scope 3 emission categories (headline target).

  High | Moderate

3 Reducing own emissions		Transparency	Integrity
		Low	Low
Emission reduction measures	Numerous reduction measures and projects mentioned, but limited detail provided on their status, extent, and impact to reduce scope 1 and scope 3 emissions.	Low	?
Renewable electricity procurement	General focus on installation of solar photovoltaic on own facilities and renewable procurement constructs using certificates of origin. Further information disclosure would benefit independent evaluation.	Moderate	Moderate

4 Climate contributions and offsetting claims		Transparency	Integrity
		Low	Low
Responsibility for unabated emissions	No information identified on how the company takes responsibility for unabated emissions.	Low	Low
Climate contributions	*No climate contributions identified.*	N/A	Low
Offsetting claims today	*No offsetting claims today identified.*	N/A	N/A
Offsetting plans for the future	2030 headline target assumed to not rely on offsetting given previous company communication. No disclosure on whether future carbon neutrality pledge for 2050 relies on offsetting.	Moderate	Moderate

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from AkzoNobel (2020a, 2020b, 2021a, 2022a, 2022b, 2022c, 2022d, 2022e), Cleantech Solar (2021) and SBTi (2022).

AkzoNobel

AkzoNobel is a multinational chemical company specialising in paints and performance coatings with major emissions from the processing, the use, and the end-of-life treatment of sold products (total 52% of reported 2021 emissions) and purchased goods and services (44%). The company commits to reduce emissions across its value chain by about 45% by 2030. This headline pledge is an important milestone to AkzoNobel's long-term vision to become 'carbon neutral' by 2050. The lack of information on what the 2050 vision implies in terms of real emission reductions, and how AkzoNobel intends to get there in terms of specific measures, hinders an assessment of the company's climate ambition on the longer term.

AkzoNobel discloses a full time series of emission estimates across all emission scopes, including detailed breakdowns of upstream and downstream scope 3 emissions. The company focuses its scope 3 emissions disclosure on four major categories (AkzoNobel, 2022a, 2022e), namely purchased goods and services (scope 3 upstream) and processing of sold products, use of sold products, and end-of-life treatment of sold products (scope 3 downstream). The company further reports on all other minor upstream and downstream categories on its webpage (AkzoNobel, 2022d), but excludes them from its annual sustainability reports given minor overall size (AkzoNobel, 2022e). All disclosed scope 3 emissions for 2021 represent 98% of total currently reported emissions across the entire value chain in 2021. The company could further enhance the transparency of its emissions disclosure by specifying whether it calculates its scope 2 emissions using a market-based or location-based accounting approach and by providing more detailed breakdown of scope 1 emission sources.

AkzoNobel commits to a substantial absolute emissions reduction target of 50% by 2030 below 2018 levels as its headline target, equivalent to maximum of 46% by 2030 below 2019 levels. The interim target covers scope 1, scope 2, and some major scope 3 emissions from purchased goods and services, application and use of products, and end-of-life treatment (AkzoNobel, 2022b). AkzoNobel could further expand its headline target coverage to all other remaining scope 3 categories, even if minor in size. We evaluate the company's interim target included in the 2021 Annual Report to have 'moderate integrity' (see Box 2 for an integrity assessment). AkzoNobel can enhance its public communication around any new interim target releases in the future. In February 2022, AkzoNobel's communicated an intended reduction of 50% by 2030 below 2020 levels instead of 2018 levels (AkzoNobel, 2022c), while the Science Based Target initiative's (SBTi) webpage as of June 2022 still refers to AkzoNobel's target of a 42% reduction by 2030 below 2020 instead of the 50% by 2030 below 2018 specified in AkzoNobel's 2021 Annual Report (AkzoNobel, 2021b; SBTi, 2022). AkzoNobel also refers to a so-called interim ambition of 25% emission reductions by 2030 below 2018 in its 2021 Annual Report (AkzoNobel, 2022a, p. 41), but does not clarify whether this is an official interim target.

AkzoNobel provides no information on the intended role of offsets for unabated emissions either today or in the future to meet its targets. High uncertainty remains on whether the carbon neutrality target for 2050 relies on offsetting claims, and if so, to what extent. We assume that AkzoNobel rules out offsets to meet its interim target given it has previously communicated this in 2020 (AkzoNobel, 2020b). We could not find evidence

that AkzoNobel takes responsibility for most of its unabated emissions today, either through offsetting or climate contributions towards mitigation beyond the company's value chain.

Although AkzoNobel mentions numerous emissions reduction measures and projects, detailed information is lacking, especially for scope 3 emissions which represented 98% of all emissions in 2021. AkzoNobel specifies a range of measures and initiatives to reduce emissions, among others 500 emissions reductions projects worldwide, without explicit details on scope, timeline, and estimated emission reduction potential (AkzoNobel, 2021c, pp. 39–41, 2022a, pp. 40–41, 2022b). AkzoNobel introduced an internal carbon price to assess large investment decision around 2015 (AkzoNobel, 2021c, p. 39, 2022a, pp. 44; 47, 2022b). We cannot identify any communication by AkzoNobel that provides further details on its internal carbon price levels and its specific internal functioning, such as whether it leads to real internal costs, how it is integrated into decision-making and how widespread this is, and to what extent the company expects the carbon price to lead to a reduction of emissions over time. AkzoNobel operates a sustainability programme for suppliers and informed key suppliers contributing to its upstream scope 3 emissions about its emission reduction targets (AkzoNobel, 2021c, p. 44, 2022a, p. 45; van der Velde, 2022), but provides no information whether and how these programmes put a distinct focus on emissions reductions. Given the limited information identified on the range of proposed measures, it remains unclear how exactly AkzoNobel intents to meet its interim targets for 2030 and its energy consumption reduction target of 30% by 2030 below 2018 levels (AkzoNobel, 2021c, p. 31, 2022a, p. 41, 2022b).

The company discloses limited information on the procurement constructs for renewable energy and electricity. AkzoNobel intends to procure 100% renewable electricity in Europe in 2022 and globally across all operations by 2030 (AkzoNobel, 2021c, p. 41, 2022a, p. 41, 2022b). As of 2021, 44 business sites fully operate with renewable electricity, up from 34 in 2020 (AkzoNobel, 2022a, p. 41, 2022b). While the company has equipped 23 of these 44 business sites with solar panels—representing a high-quality renewable electricity procurement option—it remains unclear to what extent on-site renewable generation capacities supply those sites' demand (AkzoNobel, 2020a, 2021a; Cleantech Solar, 2021). For example, on-site generation capacity will only provide around 15% of overall energy consumption of its Barcelona plant as of 2021 (AkzoNobel, 2020a). AkzoNobel clarifies that all remaining electricity procurement will rely on certificates of origin but does not provide any further information on specific procurement constructs. Certificates of origins are unlikely to incentivise the development of new renewable capacity, and their use does not justify claiming a reduction in scope 2 emissions (see Section 3.2.1 in the methodology, Annex I).

Box 2: Integrity assessment for AkzoNobel's emissions reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Long-term pledge

Carbon neutral company by 2050.

Long-term pledge: Low integrity

Emissions reduction component alongside long-term pledge

? by 2050

No deep emissions reduction target presented alongside the carbon neutrality target.

Is the emission reduction component equivalent to at least 90% below 2019 levels? *(if the headline pledge is a net-zero or carbon neutrality target)*	AkzoNobel specifies no deep emissions reduction target alongside their carbon neutrality commitment, leaving the door open for contentious neutralisation measures to achieve this target.
Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?	AkzoNobel does not explain why it considers the 2050 carbon neutrality target aligned with the Paris Agreement's temperature limit of 1.5°C.

Box 2 (cont.): Integrity assessment for AkzoNobel's emissions reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Headline and interim targets

AkzoNobel sets the following absolute reduction targets for 2025 and 2030:

- 25% emissions reduction by 2025 below 2018 across scope 1, scope 2 and selected major scope 3 emission categories (labelled as an "interim ambition" in the 2021 Annual Report, unclear whether it constitutes an official target).
- 50% emissions reduction by 2030 below 2018 across scope 1, scope 2 and selected major scope 3 emission categories (headline target).

Interim targets: Moderate integrity

Emissions reductions by 2030 below 2019 across entire value chain

<46% by 2030

AkzoNobel's headline target of 50% emissions reduction by 2030 below 2018 emission levels across scope 1, scope 2, and selected major scope 3 emissions categories translates into a maximum 46% emissions reduction by 2030 below 2019 emission levels across the entire value chain.

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO_2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%). The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO_2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

AkzoNobel's interim target for 2030, representing a maximum 46% reduction below a 2019 baseline across the entire value chain, aligns with global efforts to limit the global temperature to below 1.5°C.

Sector-level benchmarks

Existing literature provides few specific milestones for the chemical industry, which makes an independent analysis of Paris Agreement aligned climate action in the sector difficult. (CAT, 2020; Boehm et al., 2021; IEA, 2021; SBTi, 2021c; UNFCCC, 2021) This gap in existing literature allows no conclusive assessment of sector-specific decarbonisation efforts in line with the Paris Agreement's 1.5°C temperature. AkzoNobel—together with the entire chemical industry—needs to put further emphasis on determining sector-specific decarbonisation milestones in line with the Paris Agreement in a transparent, scientific and verifiable process.

Do the interim targets align with the long-term vision?

AkzoNobel provides no detailed explanation of why it considers its 2030 headline target aligned with its long-term vision of carbon neutrality by 2050.

Has the first interim target been set within maximum 5 years in the future?

AkzoNobel commits to an earlier interim target by 2025 (referred to as 'interim ambition') within a five-year time horizon that require immediate action.

BAM Group

Construction

Royal BAM Group N.V. is a construction company, with its main operations in the Netherlands, Belgium, the United Kingdom and Germany. **The company focuses its climate strategy and headline messaging on short- to medium-term emission reduction targets.**

Revenue	Emissions	Pledge
EUR 7.3 billion (2021)	7.9 $MtCO_2e$ (2020)	80% scope 1 & 2 emission intensity reduction by 2026; 50% scope 3 emission reduction by 2030.

Transparency	Integrity
Moderate	Moderate

1 Tracking and disclosure of emissions

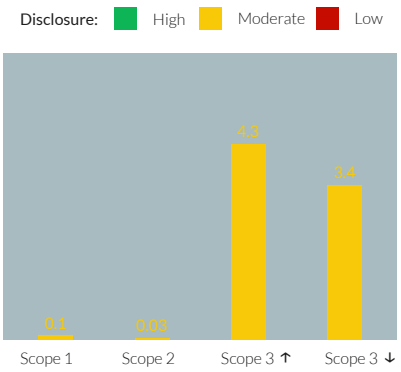
Transparency & Integrity: Moderate

- **Tracking and disclosure**
  7.9 MtCO2e (2020)

  Subsidiaries covered

Major emission sources: 98% from upstream and downstream scope 3 emissions.

Disclosure: Public-facing documentation includes detailed disclosure of several emission sources, including four historical data points, but no breakdown into standard emission scopes and not explicit about market-based or location-based reporting of scope 2 emissions. Limited public disclosure of scope 3 emissions (lion's share of emissions footprint); a high-level estimate is provided in most recent climate plan, no breakdown and limited transparency. BAM published its 2021 CDP disclosure on its website.



2 Setting emission reduction targets

	Transparency	Integrity
Headline target or pledge	**Reduce emissions intensity of scope 1 and 2 by 50% by 2023 and 80% by 2026 below 2015 levels. Reduce absolute scope 3 emissions by 50% by 2030, below 2019 levels.** Contributing to the vision to become a net zero company in the long term.	
Coverage of emission sources *(in long-term target)*	Long-term vision remains unclear. Coverage and target year of long-term vision are not made explicit in main, public-facing documentation. 2030 targets are the headline pledge.	Low / ?
Reduction of own emissions *(for long-term target year, compared to full value chain in 2019)*	? No clear long-term vision is set out.	Low / Low
Interim emission reductions *(estimated compared to full value chain in 2019)*	<49% by 2030 (estimate) ■ By 2023, reduce emissions intensity of scope 1 and 2 (emissions over EUR revenue) by 50%, (vs. 2015). ■ By 2026, reduce emissions intensity of scope 1 and 2 by 80% (vs. 2015). ■ By 2030, reduce absolute scope 3 emissions by 50% (vs. 2019).	High / Moderate

3 Reducing own emissions		Transparency	Integrity
		Low	Very low
Emission reduction measures	The company provides a list of relevant emission reduction measures covering all emission scopes, but the very limited level of detail does not facilitate an understanding of how significant those plans are.	Low	?
Renewable electricity procurement	Some information on renewable electricity procurement provided in public CDP disclosure. BAM's electricity consumption in the Netherlands is based on RECs from Dutch wind power.	Moderate	Low

4 Climate contributions and offsetting claims		Transparency	Integrity
		Moderate	Moderate
Responsibility for unabated emissions	Climate contributions without neutralisation claim.	Moderate	Moderate
Climate contributions	*In 2019, BAM planted 150 thousand trees, without making an emission neutralisation claims. No other ongoing contributions identified.*	Moderate	Moderate
Offsetting claims today	*No offsetting claims today identified.*	N/A	N/A
Offsetting plans for the future	BAM indicates that it currently does not consider offset credits as a means of reducing emissions in the present but does not make explicit commitments regarding the role of offsets for future targets.	Moderate	Moderate

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High | Reasonable | Moderate | Low | Very low

High | Reasonable | Moderate | Low | Very low

High | Moderate | Low

N/A Not applicable | ? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from BAM Groep (2020, 2021, 2022d, 2022a, 2022e, 2022b, 2022c).

BAM Group

Royal BAM Group N.V. is a major construction company, mainly operating in the Netherlands, Belgium, Germany, and the United Kingdom. The company has prominent interim targets up to 2030, including intensity targets for scope 1 and 2 and an absolute emission reduction target for scope 3. Its long-term ambition remains unclear, as the company uses various terms and is not clear about the scope coverage and target year.

BAM has significantly strengthened its 2030 target ambition recently, but more information on these targets would be required to assess their sufficiency. In its 2022 Climate Plan, BAM announced that it had increased its 2030 target for scope 3 emission reductions from 20% to 50%, compared to 2019 levels. This target comes in addition to BAM's existing emissions intensity targets to reduce its scope 1 and 2 emissions over revenue by 50% by 2023, and 80% by 2026, compared to 2015 levels (BAM Groep, 2022d). Given that scope 3 emissions account for more than 98% of BAM Group's disclosed footprint, BAM's new scope 3 target is a significant improvement. However more information would be needed to understand whether this entails ambitious action against all relevant emission sources: the company does not explain which scope 3 emissions it intends to reduce towards 2030, for example rather upstream scope 3 emissions from purchased good such as concrete or downstream scope 3 emissions from finalised buildings during their use phase. In this context, for example, it remains unclear whether BAM's current emission reduction ambition reaches beyond the European Commission's proposal for a mandatory zero-emission buildings (ZEB) standard for all new buildings from 2030 onwards (European Commission, 2021).

BAM's long-term climate ambition remains unclear, while the company currently focuses on its short- and medium-term climate strategy. BAM has mentioned a long-term ambition in several different documents, but the wording and framing varies from 'net-zero company' (BAM Groep, 2022d), 'climate neutral operations' (BAM Groep, 2021, p. 213) to 'net zero carbon' (BAM Groep, 2022a, p. 68). It is therefore not clear what BAM's exact long-term pledge and target year are, and which emissions the long-term pledge covers. In its 2022 Climate Plan, BAM describes its ambition to be a net-zero company, but says that its current focus lies on achieving short- and medium-term targets (BAM Groep, 2022d). It is good practice for companies to focus on developing a comprehensive climate strategy for the short- and medium-term, rather than using long-term pledges to potentially delay action. Nevertheless, it is not transparent for BAM to communicate a long-term ambition to be a net-zero company without providing clarity on what that target means.

Greater clarity on scope 3 emission reduction measures could significantly improve BAM's climate strategy. BAM's scope 3 emissions account for roughly 98% of its emissions footprint, mainly resulting from the production of building materials (such as steel and concrete) and the use of the constructed buildings (energy use in buildings). The company has recently increased its focus on scope 3 emission sources; it identifies a number of relevant measures and is signatory of several initiatives that aim for lower emissions in the construction sector such as AsfaltNu and het Betonakkoord (BAM Groep, 2022e). The very limited level of detail on these potential measures makes it impossible to understand their significance or sufficiency. Given the high importance of these emission sources for BAM, greater clarity on the measures planned to reduce emissions from scope 3 emission sources is required to improve transparency and to understand the integrity of the company's strategy.

BAM pursues some innovative approaches for decreasing scope 1 and 2 emissions, but the use of hydrotreated vegetable oil is contentious. BAM describes several measures that the company is taking at construction sites to decrease (local) emissions such as the electrification of machinery (BAM Groep, 2020, 2022b). However, in its annual reporting, it prominently presents hydrotreated vegetable oil (HVO) as a substitute for its dependence on diesel fuel at construction sites. Although BAM only uses certified HVO, which does not contain palm oil, the biofuel may still be related competition over land for food production, water use, impacts on ecosystems and land use change (Clarke et al., 2022, p. 39). Biofuel use is further restricted by the limited availability of biomass resources in Europe and abroad, which could be used in other sectors (Material Economics, 2021, pp. 8–11).

BAM's GHG emission reporting is improving but still lacks transparency. BAM has made significant improvements to its emission reporting, by improving the coverage of its scope 3 emissions since 2017. Although the BAM's 2021 CDP disclosure is available on its website, the company does not provide its emissions reporting according to standard emission scopes in public-facing reporting, making it difficult to assess what the emission sources are and to compare with other companies in the sector.

Box 3: Integrity assessment for the BAM Group's emissions reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Long-term pledge

BAM has a long-term ambition to become a net zero company (target year undefined) and commits to having climate-neutral operations by 2050.

Long-term pledge: Low integrity

Emissions reduction component alongside long-term pledge

? by 2050

No deep emission reduction target presented alongside either the net zero company pledge or the carbon neutral operations pledge.

Is the emission reduction component equivalent to at least 90% below 2019 levels? (if the headline pledge is a net-zero or carbon neutrality target)

BAM does not provide any specific emissions reduction target for 2050 alongside its pledges to become a net zero company (target year undefined) and to have carbon neutral operations by 2050, leaving the door open for contentious neutralisation measures to achieve this target. It also remains clear if the pledges cover all scope 3 emissions.

Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?

BAM does not explain why it considers its long-term aligned with the Paris Agreement's temperature limit of 1.5°C.

Box 3 (cont.): Integrity assessment for the BAM Group's emissions reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Headline and interim targets

The BAM Group commits to the following interim targets:

- By 2023, reduce emissions intensity of scope 1 and 2 (emissions over EUR revenue) by 50%, (vs. 2015).
- By 2026, reduce emissions intensity of scope 1 and 2 by 80% (vs. 2015).
- By 2030, reduce absolute scope 3 emissions by 50% (vs. 2019).

Interim targets: Moderate integrity

Emissions reductions by 2030 below 2019 across entire value chain

<49% by 2030 *(estimate)*

The BAM Group's absolute emission reduction target for scope 3 is equivalent to an approximately 49% reduction by 2030 below 2019 levels across the entire value chain. We cannot quantify the emissions intensity targets for scope 1 and 2 emissions, but these targets will have limited impact on the estimated emission reduction commitment due to the small share of scope 1 and 2 in BAM's total GHG emissions footprint.

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO_2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%). The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO_2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

Interim targets: Moderate integrity

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature? (cont.)

BAM's interim scope 3 absolute emission reduction target for 2030, equivalent to a reduction of around 49% by 2030 below a 2019 baseline across the entire value chain, likely aligns with global efforts to limit global warming below 1.5°C. The company states that its scope 3 target can be "subject to changes in reporting scope and applied methodology" over time (BAM Groep, 2022c, p. 6). The company currently sets no absolute emission reduction targets for scope 1 and 2 emissions.

Sector-level benchmarks

Existing literature provides few specific milestones for the construction sector to decarbonise in line with 1.5°C trajectories, which presents a limitation for the assessment of Paris Agreement aligned climate action of single construction companies (Boehm et al., 2021; IEA, 2021; UNFCCC, 2021; CAT, 2022). At the global level, existing milestones identify the need to make all new buildings finalised by 2030 or thereafter to emit (net) zero carbon during their use phase (IEA, 2021; UNFCCC, 2021). For the BAM Group and its operations in the European Union, this milestone becomes particularly important as the European Commission proposes to make it mandatory for all new buildings in the European Union to become zero-emission buildings (ZEB) from 2030 onwards (European Commission, 2021). In addition, such new buildings should have at least 40% less embodied CO_2 compared to current practice (UNFCCC, 2021), for example by switching to zero-emission steel or reducing the total amount of cement being in the construction phase.

We cannot evaluate the BAM Group's interim targets against these benchmarks given limited available information. The company does not explain which scope 3 emissions it intends to reduce towards 2030, for example rather upstream scope emissions from purchased good such as concrete or downstream scope 3 emissions from finalised buildings during their use phase. In this context, it remains unclear whether BAM's current emissions reduction ambition reaches beyond legal requirements from the EU's zero-emission buildings standard.

Do the interim targets align with the long-term vision?

The company provides no explanation of why it considers its 2030 interim target aligned with its vision to become a net zero company (target year undefined) and achieving climate-neutral operations by 2050.

Has the first interim target been set within maximum 5 years in the future?

BAM commits to earlier interim targets within a five-year time horizon (i.e., 2023 and 2026).

Boskalis

Dredging offshore energy, towage and salvage

Royal Boskalis Westminster N.V. (Boskalis) is a Dutch company specialised in dredging, including port construction and maintenance, land reclamation and coastal defence. Boskalis also offers maritime services and services to the offshore energy sector. **The company is committed to become climate neutral across its global operations by 2050.**

Revenue	Emissions	Pledge
EUR 3 billion (2021)	1.1 $MtCO_2e$ (2021, scope 1 and 2)	Climate neutral operations by 2050

Transparency	Integrity
Low	Very low

1 Tracking and disclosure of emissions

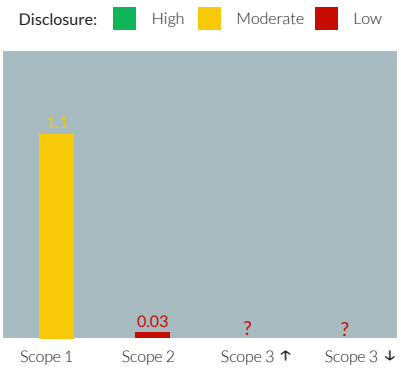
Transparency & Integrity: Low

- **Tracking and disclosure**
  1.1 $MtCO_2e$ (2021)

  Subsidiaries covered

Major emission sources: Emissions from the maritime fleet (98% of scope 1 and 2 emissions).

Disclosure: Incomplete, with Boskalis reporting on CO_2 emissions from the following three categories: 'dredging & inland infra', 'offshore energy' and 'offices'. No further breakdown provided, no disclosure of other relevant GHGs and climate forcers. Market-based accounting for scope 2 emissions. No reporting on scope 3 emissions.



2 Setting emission reduction targets

	Transparency	Integrity
Headline target or pledge: Climate neutral operations by 2050.		
Coverage of emission sources *(in long-term target)*: Scope 1 and 2 covered; scope 3 not. Unclear whether only carbon emissions or all GHGs covered.	Low	Low
Reduction of own emissions *(for pledge year, compared to full value chain in 2019)*: ? by 2050 — No reduction target alongside the climate neutrality pledge presented.	Low	Low
Interim emission reductions *(estimated compared to full value chain in 2019)*: ? by 2030 — No interim emissions reduction targets presented. Boskalis aims to have climate neutral onshore construction projects in the Netherlands by 2030, but unclear what share of Boskalis' GHG footprint this target covers.	Low	Low

3 Reducing own emissions

		Transparency	Integrity
		Moderate	Very low
Emission reduction measures	Various measures to reduce emissions from vessels, including the development of dashboards, use of biofuels and installation of power packs. No information on the reduction of scope 3 emission and indirect emissions from fossil fuel infrastructure.	Moderate	Low
Renewable electricity procurement	Solar PV on Dutch offices accounts for 15% of Boskalis' electricity consumption in the Netherlands; RECs from Dutch biomass projects to neutralise scope 2 emissions (NTA 8080 certificates) No information on RE for offices in other countries.	Moderate	Low

4 Climate contributions and offsetting claims

		Transparency	Integrity
		Very low	Very low
Responsibility for unabated emissions	No information identified on how the company takes responsibility for unabated emissions.	Low	Low
Climate contributions	*No climate contributions identified.*	N/A	Low
Offsetting claims today	*No offsetting claims today identified.*	N/A	N/A
Offsetting plans for the future	Boskalis considers options for offsetting emissions, but does not currently provide any further details.	Low	?

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from Boskalis (2021, 2022b, 2022a).

Boskalis

Boskalis is one of the world's largest companies in the dredging, offshore energy and towage and salvage sectors. Ninety-eight per cent of Boskalis' reported emissions stem from the company's fleet but not disclosed scope 3 emissions may also be substantial. The company committed to become climate neutral across its operations by 2050. This target may leave out a large share of Boskalis GHG footprint and its ambition level may be compromised by contentious renewable energy certificates and offsetting practices.

Boskalis net-zero target covers scope 1 and 2 emissions only; however, the company's downstream scope 3 emissions may be significant as Boskalis contributes to fossil fuel infrastructure development. Boskalis reports on emissions in the following three categories: "dredging & inland infra", "offshore energy" and "offices". The first two categories cover emissions from Boskalis' fleet. In 2021, aggregated emissions amounted to 1.1 $MtCO_2e$, with emissions from the fleet accounting for 98% and offices for 2% (Boskalis, 2022b, pp. 53–54). Boskalis does not report on its scope 3 emissions, which may be significant and include, for example, the upstream production of vessel fuels used. Indirect emissions from the transport of oil and gas through infrastructure installed by Boskalis are likely substantial. While the GHG Protocol does not require companies to report on indirect emissions from product use, not disclosing these emissions may divert the attention away from the fact that Boskalis is part of fossil fuel infrastructure development, which runs counter to the Paris Agreement temperature goals.

The ambition level of Boskalis net-zero pledge remains unclear, due to uncertainty about what share of its GHG footprint is covered, potential reliance on offsetting and contentious renewable energy procurement constructs. Boskalis committed to climate neutral operations by 2050; this target covers scope 1 and 2 and explicitly excludes scope 3 (Boskalis, 2022b, p. 15). As Boskalis does not transparently report on its complete GHG footprint, it remains unclear what share of emissions are covered by this climate neutral target. The pledge's ambition level may be further undermined by the reliance on contentious renewable energy certificates and offset credits. Boskalis offsets emissions from purchased electricity with Dutch Biomass NTA 8080 certifications but provides no further details (Boskalis, 2022b, p. 52). These certifications are used to demonstrate that biomass used for energy generation meets certain sustainability criteria (Better Biomass, 2022). The use of such certifications may simply divert more carbon intensive electricity to other consumers on the grid and have no impact on additional renewable electricity capacity (see Section 3.2.1 in the methodology, Annex I). Finally, Boskalis states to "actively investigate[s] sustainable options for offsetting emissions" (Boskalis, 2022a, 2022b, p. 51) , which suggests that the company plans to offset an undefined amount of emissions to achieve its climate neutrality pledge. Boskalis further provides that it investigates the possibilities of sequestration carbon in marine ecosystems (so-called blue carbon) and use this to neutralise their own emissions or offer "carbon-balancing options" for their clients (Boskalis, 2022b, p. 65). Due to uncertainty about the permanence of removing and storing carbon in marine ecosystems, blue carbon is unsuitable for neutralising corporate actors' GHG footprints (see Section 4.2.1 in the methodology, Annex I).

Boskalis does not specify whether it considers the use of carbon offset credits from other project types, nor does it commit to restricting the use of offsets to credits that meet certain environmental integrity criteria and to which a corresponding adjustment is applied (see

Section 4.2.1 in the methodology, Annex I). Further, Boskalis does not confirm whether it will offset emissions to meet its climate neutrality target only in the target year 2050, or also for other years.

Boskalis pursues a range of emissions abatement measures, but more information is needed to appreciate their potential mitigation impact. The dredging company provides that it pursues "emissions-reducing technology, work methods and behaviours to optimise operational fuel efficiency", including for instance the installation of dashboards on ships to increase awareness on fuel consumption and the use of battery packs on ships to reduce fuel use (Boskalis, 2022a, 2022b, pp. 51–56). Further, Boskalis uses biofuels and invests in the research and development of alternative fuels for its fleet, such as hydrogen, methanol, ethanol and ammonia (Boskalis, 2022a, pp. 56–57). Alternative fuels could substantially reduce Boskalis' scope 1 emissions, but more information is needed to determine their likely impact. Further, Boskalis installs solar PV and rolls out EV infrastructure at its offices and warehouses but the scale at which remains unclear (Boskalis, 2022b, p. 52). Finally, Boskalis states that it works together with partners in the shipping industry "to develop the expertise and technology necessary for the sector to reach climate neutrality" (Boskalis, 2022b, p. 55), including projects investigating the feasibility of methanol and ammonia as maritime fuels; and another project exploring the use of hydrogen in dredging (Boskalis, 2022b, p. 57).

Box 4: Integrity assessment for Boskalis's emissions reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

Climate neutral operations by 2050.

Long-term pledge: Low integrity

Emissions reduction component alongside headline pledge

? by 2050

No deep emissions reduction target presented alongside the climate neutrality pledge.

Is the emission reduction component equivalent to at least 90% below 2019 levels? *(if the headline pledge is a net-zero or carbon neutrality target)*	Boskalis does not provide any specific emissions reduction target for 2050 alongside its climate neutrality pledge, leaving the door open for contentious neutralisation measures to achieve this target. Further, the target excludes scope 3 emissions, which may be substantial.
Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?	Boskalis does not explain why it considers the 2050 climate neutrality target aligned with the Paris Agreement's temperature limit of 1.5°C.

Box 4 (cont.): Integrity assessment for Boskalis's emissions reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

No interim emission reduction targets presented. Boskalis aims to have climate neutral onshore construction projects in the Netherlands by 2030, but unclear what share of Boskalis' GHG footprint this target covers.

Interim targets: Low integrity

Emissions reductions by 2030 below 2019 across entire value chain

? by 2030 No interim targets identified.

We rate this corporate practice of 'low integrity' as Boskalis neglects the urgent need for immediate and accountable climate action by all actors to limit global warming below 1.5°C as emphasised in the latest IPCC's 6th Assessment Report of 2022 (IPCC, 2022).

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?	Not assessed as no target identified.
Do the interim targets align with the long-term vision?	Not assessed as no target identified.
Has the first interim target been set within maximum 5 years in the future?	Not assessed as no target identified.

DSM

Nutrition, health, and materials industry

Royal DSM N.V.—headquartered in the Netherlands—is a multinational chemical company specialising in nutrition, health, and materials. **In 2019, DSM pledged to reach net-zero GHG emissions across its operations and value chains by 2050.**

Revenue	Emissions	Pledge	Transparency	Integrity
EUR 9.2 billion (2021)	13.4 $MtCO_2e$ (2021)	Net zero GHG emissions across operations and value chains by 2050	Reasonable	Moderate

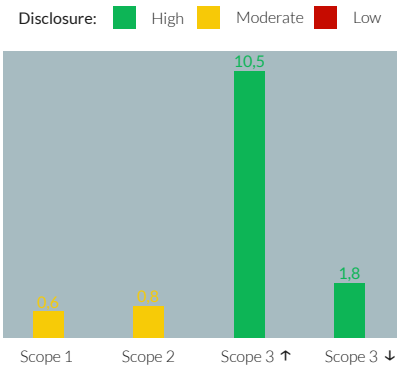
1 Tracking and disclosure of emissions

Transparency & Integrity: Reasonable

- **Tracking and disclosure**
  13.4 $MtCO_2e$ (2021)
  Subsidiaries covered

Major emission sources: Purchased goods and services (scope 3 upstream, 77%), end-of-life treatment of sold products (scope 3 downstream, 9%).

Disclosure: Disclosure of scope 1, scope 2, and selected scope 3 emissions. Publicly available CDP Disclosure for 2021 provides detailed breakdown of scope 3 emissions across upstream and downstream categories. Such a breakdown is not publicly available for previous years. Market-based and location-based scope 2 emissions displayed in CDP Disclosure but only presented jointly with scope 1 emissions in annual sustainability report.



2 Setting emission reduction targets

	Transparency	Integrity
	Moderate	Moderate

Headline target or pledge

Net-zero GHG emissions across operations and value chains by 2050.

- **Coverage of emission sources**
  (in headline pledge)

Net-zero emission target explicitly covers the full value chain. — High | High

- **Reduction of own emissions**
  (for pledge year, compared to full value chain in 2019)

>90% by 2050 (2016 baseline)

- DSM commits to a reduction of at least 90% by 2050 below a 2016 baseline (same baseline as for 2030 interim targets). DSM currently does not disclose scope 3 emissions for 2016.

Moderate | Moderate

- **Interim emission reductions**
  (estimated compared to full value chain in 2019)

4% by 2030

Two interim targets for 2030 announced:

- 50% absolute reduction of scope 1 and scope 2 emissions by 2030 below 2016
- 28% intensity reduction of scope 3 emissions per ton of product produced by 2030 below 2016 levels (no disclosure of scope 3 emissions for 2016)

Moderate | Low

3 Reducing own emissions		Transparency	Integrity
		Moderate	Moderate
Emission reduction measures	Emission reduction measures target reductions across all emission scopes, but further information required on their estimated emission reduction impacts and timeline for implementation to evaluate sufficiency to meet targets.	Moderate	Moderate
Renewable electricity procurement	Several forthcoming PPAs concluded across different geographies in recent years. Further efforts required to reach 100% procurement of renewables by 2030 or earlier.	Moderate	Moderate

4 Climate contributions and offsetting claims		Transparency	Integrity
		Reasonable	Moderate
Responsibility for unabated emissions	Climate contributions without neutralisation claim.	Moderate	Moderate
Climate contributions	*Since 2022, DSM plans to assume responsibility for their unabated emissions through the provision of climate contributions for beyond value chain mitigation, without claiming neutralisation of emissions. Full details regarding volume of finance and projects supported remain undisclosed at present.*	Moderate	Moderate
Offsetting claims today	*No offsetting claims today identified*	N/A	N/A
Offsetting plans for the future	DSM will not rely on offset credits towards its 2030 targets. The company intends to use technical options for carbon dioxide removals with permanent storage to neutralise a maximum of 10% of their residual emissions towards its 2050 net zero target.	High	Moderate

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from DSM (2020, 2021a, 2021b, 2021c, 2022a, 2022d, 2022e, 2022g, 2022b).

DSM

Royal DSM is a multinational chemical company specialising in nutrition, health, and materials with major emissions from purchased goods and services (77% of 2021 emissions) and end-of-life treatment of sold products (8%). The company implements a wide range of emission reduction measures across all emission scopes. DSM also recently committed to rule out offsetting to meet its interim and long-term emissions reduction targets. Instead, the company aims for impact contributions beyond its value chain without claiming neutralisation of its own emissions. While the company has not yet disclosed further details on the financial volume and project supported in the future, DSM's approach would constitute good practice in taking responsibility for own emissions and ramping up financial support for climate action while not relying on contentious offsetting claims. DSM can further improve and enhance its interim targets' mitigation ambition, especially for scope 3 emissions. The current scope 3 intensity target remains non-quantifiable in terms of absolute emission reductions and covers only selected scope 3 emissions categories.

DSM commits to absolute emission reductions of 50% for scope 1 and scope 2 emissions by 2030 below 2016 levels, but only pledges emissions intensity reductions for selected scope 3 emissions. Total scope 3 emissions account for about 90% of the company's GHG footprint. An independent analysis of the scope 3 intensity reduction target of 28% per ton of product produced below 2016 levels remains impossible as gains from emissions intensity improvements may coincide with larger production volumes and resulting higher total emissions. An absolute scope 3 emissions reduction target for 2030 would improve clarity on DSM's expected emissions trajectory to reach net-zero emissions by 2050. The interim scope 3 emissions targets also only covers selected scope 3 emissions (DSM, 2022f, p. 38), namely purchased goods and services, upstream transportation and distribution, waste generated in operations. For these reasons, we evaluate the company's interim targets of 'low integrity' (see Box 5 for a detailed integrity assessment).

DSM discloses a detailed breakdown of its scope 3 emissions for the first time in its 2021 CDP Disclosure (DSM, 2022f). DSM's annual sustainability reports for 2020 and 2021 only present these emissions in an aggregated manner and do not separate by all scope 3 upstream and downstream accounting categories (DSM, 2021d, pp. 73–74, 2022g, pp. 73–74). Similarly, these public-facing reports only present scope 1 and scope 2 emissions in an aggregated manner, providing further options to increase transparency in future reporting.

DSM commits to emissions reductions of at least 90% across its entire value chain alongside its net zero pledge by 2050 (DSM, 2022c). For the remaining residual emissions of maximum 10%, the company intends to rely on carbon dioxide removals to achieve net zero by meeting "highest standards" on permanence and other social and environmental criteria (DSM, 2022g, p. 67, 2022c) These criteria—if well-defined and strictly implemented—represent key safeguards for the future use of CDR credits. DSM does not provide any further specific details on these criteria at present.

In a recently released position paper, DSM entirely rules out the use of offsetting while instead committing to the concept of "highest impact contributions outside its value chain" (DSM, 2022c). This way, the company intends to

fund climate mitigation and nature-based solution projects outside its value chain without claiming to neutralise its own emissions across the entire value chain. This concept, also referred to as a climate contribution claim, could lead to transparent, constructive, and ambitious outcomes to take responsibilities for present emissions and ramp up financial support for climate action worldwide (see Chapter 4.1 in our methodology). DSM has not yet disclosed further details regarding volume of finance and projects supported at present.

DSM introduced a range of reduction measures across all emissions scopes, but more information on the scale and projected emission reduction measures is needed to understand their abatement potential over time to meet its 2030 interim targets. The company implements energy efficiency measures and works to increase its share of renewable energy consumption to reduce scope 1 and 2 emissions (DSM, 2022f). DSM also provides several specific examples of reduction measures, among others, the replacement of chillers for building cooling and the introduction of novel membrane filtration system (DSM, 2021d, pp. 71–72, 2022g, p. 70). As for scope 3 emissions, DSM directly engages suppliers through the supplier engagement programme CO2REDUCE (DSM, 2021d, p. 72, 2022d, 2022g, pp. 73–74, 2022f). Under this programme, DSM works with suppliers to track emissions and develop a plan for emission reductions. DSM also shares its experiences in realising scope 3 emission reductions in peer group platforms to support others and, for example, intends to develop several products to reduce emissions from poultry and dairy production (DSM, 2021d, p. 72, 2022a, 2022e). While these efforts seem comprehensive in trying to tackle all emission scopes, it remains difficult to evaluate whether these remain sufficient to meet the company's targets in the future.

DSM uses an internal shadow carbon price of EUR 100/tCO2e for the evaluation of key investment projects and for internal management reporting (DSM, 2022d, 2022g, p. 44, 2022b). The price level of EUR 100/tCO2e represent best practice and is higher than what the High-Level Commission on Carbon Prices recommended in 2018 (High-Level Commission on Carbon Prices, 2017). The company is also a member of the Carbon Pricing Leadership Coalition (CPLC) (DSM, 2022g, p. 44). The internal carbon price does not lead to real cost for the company in their day-to-day operations and could further be applied consistently across all investment decisions. Complementary to the internal shadow carbon price, DSM operates annual GHG reduction programs including GHG reduction investment budgets to fund emission reduction projects for operations within its value chain (DSM, 2022f, pp. 17–18). DSM also set up a so-called 'EUR 1 billion Revolving Credit Facility' in 2018 together with its banking partners linking the company's interest payments to its GHG emission reductions (Dijkstra, 2019; DSM, 2022g, pp. 248–249, 2022b). The company provides no further details on the facility's specific functioning, the magnitude of interest payment reductions, and its overall expected impact.

While DSM can improve the transparency on its renewable energy procurement, we consider the finalisation of new higher-quality power purchase agreements (PPAs) at a large-scale as a positive development. In 2021, DSM used PPAs in combination with pre-production guarantees of origin (GOs) and renewable energy certificates (RECs) for new PPAs to supply its European and U.S. American facilities with 100% renewable electricity (DSM, 2022g, p. 71). The use of pre-production certificates implies that DSM claims renewable electricity production and associated emission reductions that will only occur in the future. This is not transparent and creates a high risk of double counting renewable energy and emission reductions.

Considering the latest PPA signings in the US, China and in Europe (DSM, 2020, 2021b, 2021c, 2021a, 2022g, pp. 71–72), DSM makes progress towards meeting its target of purchasing 75% of its global electricity needs from renewable sources by 2030 and to reach 100% at the earliest possibility date. DSM also operates and owns biomass installations to generate heat and works working on sustainability criteria for purchased biomass-based fuels and heat (DSM, 2021d, p. 72, 2022g, pp. 71–72).

Box 5: Integrity assessment for DSM's emission reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

Net-zero GHG emissions across operations and value chains by 2050.

Headline pledge: Moderate integrity

Emissions reduction component alongside headline pledge

>90% by 2050 *(2016 baseline)*

DSM commits to a reduction of at least 90% by 2050 below a 2016 baseline (same baseline assumed as for 2030 interim targets). We cannot recalculate this reduction below 2019 emissions levels as DSM discloses no publicly available scope 3 emissions for its 2016 baseline at present.

Is the emission reduction component equivalent to at least 90% below 2019 levels? (if the headline pledge is a net-zero or carbon neutrality target)	**DSM commits to a reduction of at least 90% by 2050 below a 2016 baseline.** DSM states its intention to rely on carbon dioxide removals to become net zero meeting "highest standards" on permanence and other social and environmental criteria (DSM, 2022g, p. 67, 2022c).
Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?	**DSM does not explain why exactly it considers the 2050 net-zero target aligned with the Paris Agreement's temperature limit of 1.5°C.** DSM states that the company informs its long-term emissions reduction ambitions by "latest science as presented in the IPCC Special Report 'Global Warming of 1.5°C' by setting a long-term pathway to reach net-zero GHG emissions across our operations and value chains by 2050."(DSM, 2022g) However, the company does not further elaborate whether and how its long-term target aligns with emission reductions required for its particular business sector.

Box 5 (cont.): Integrity assessment for DSM's emission reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

Two interim targets for 2030 announced:

- 50% absolute reduction of scope 1 and scope 2 emissions by 2030 below 2016.
- 28% intensity reduction of selected scope 3 emissions (purchased goods and services, upstream transportation and distribution, waste generated in operations) per ton of product produced by 2030 below 2016 levels.

Interim targets: Low integrity

Emissions reductions by 2030 below 2019 across entire value chain

4% by 2030

DSM's absolute interim emissions reduction target for scope 1 and scope 2 is equivalent to 4% emissions reductions by 2030 below 2019 levels across the entire value chain. We cannot independently quantify DSM's interim intensity target for scope 3 emissions.

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%). The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

DSM's interim targets, equivalent to a 4% reduction by 2030 below a 2019 baseline across the entire value chain, fall short from global efforts to limit global warming below 1.5°C.

Sector-level benchmarks

We are unable to compare DSM's interim targets to sectoral 1.5°C-aligned benchmarks as existing literature provides few specific milestones for the nutrition, health, and materials industry.(CAT, 2020; Boehm et al., 2021; IEA, 2021; SBTi, 2021c; UNFCCC, 2021) This gap in existing literature allows no conclusive assessment of sector-specific decarbonisation efforts in line with the Paris Agreement's 1.5°C temperature. DSM—together with the entire nutrition, health, and materials industry—needs to put further emphasis on determining sector-specific decarbonisation milestones in line with the Paris Agreement in a transparent, scientific and verifiable process.

Do the interim targets align with the long-term vision?

DSM provides no explanation of why it considers its 2030 interim targets aligned with its long-term vision of net-zero GHG emissions across operations and value chains by 2050.

Has the first interim target been set within maximum 5 years in the future?

DSM does not commit to earlier interim targets within a five-year time horizon that require immediate action.

FrieslandCampina

Food & beverages (dairy)

Royal FrieslandCampina N.V. (FrieslandCampina) is an entity owned by Zuivelcoöperatie FrieslandCampina U.A., which is a cooperation of dairy farmers in the Netherlands, Belgium and Germany. The company pledges to achieve **net climate neutrality by 2050.**

Revenue	Emissions	Pledge	Transparency	Integrity
EUR 11.5bn (2021)	26 $MtCO_2e$ (2019, scopes 1, 2 and 3)	Net climate-neutrality by 2050	Moderate	Low

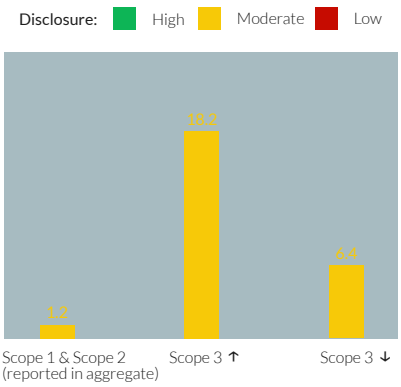
1 Tracking and disclosure of emissions

Transparency & Integrity: Moderate

- **Tracking and disclosure**
  26 $MtCO_2e$ (2019)
  Subsidiaries covered

Major emission sources: Livestock emissions from dairy farms (48%), downstream scope 3 (25%), purchased goods and services (24%).

Disclosure: FrieslandCampina reports on all significant emission sources, but with limited granularity, and limited information on past emission trends. Scope 3 emissions reporting recently improved, but still limited detail.



2 Setting emission reduction targets

		Transparency	Integrity
Headline target or pledge	**Net climate neutrality by 2050.**		
Coverage of emission sources *(in headline pledge)*	Most recent climate plan states that target covers all emissions (s1, s2 and s3).	High	High
Reduction of own emissions *(for pledge year, compared to full value chain in 2019)*	? by 2050 — Reduce fossil CO_2 from scope 1 and 2; no absolute emission reduction commitment communicated alongside the net climate neutrality target.	Low	Low
Interim emission reductions *(estimated compared to full value chain in 2019)*	By 2026, compared to 2015 (compared to 2019): ▪ Reduce scope 1 and 2 by 49% (-57%). By 2030, compared to 2015 (compared to 2019): ▪ Reduce scope 1 and 2 by 63% (-69%). ~25% by 2030 *(estimate)* ▪ Reduce scope 3 member dairy farms by 33% (-25%). ▪ Reduce some other scope 3 sources by 43% (-42%). Most of FrieslandCampina's downstream emissions are not currently covered by a target.	High	?

3 Reducing own emissions

	Transparency	Integrity
	Reasonable	Low
Emission reduction measures	Moderate	Low
Climate plan includes detailed reduction plans until 2030 for emissions covered by interim targets. Measures after 2030 remain unclear. For the emission sources that do not have a target yet, FrieslandCampina does not present reduction measures either.		
Renewable electricity procurement	High	Moderate
Renewable energy is generated at the dairy farms through wind, biogas and solar. The volume of generated energy is tracked on a separate website. FrieslandCampina claims the generated energy through PPAs and through RECs (GOs) with the member farms. In 2021, 50% of FrieslandCampina's energy demand came from RECs with member farms, the remaining half from 3rd party generation (aiming for 100% from member farms by 2025).		

4 Climate contributions and offsetting claims

	Transparency	Integrity
	Low	Very low
Responsibility for unabated emissions	Low	Low
Offsetting claims with limited detail.		
Climate contributions	N/A	Low
No climate contributions identified.		
Offsetting claims today	Low	?
Sales of climate-neutral powder base for infant nutrition. Information about verification process is provided, but not about the specific offsetting projects or the share of offset emissions.		
Offsetting plans for the future	Moderate	Low
2030 scope 1 and 2 targets do not depend on offsetting; for scope 3, CDR including carbon sequestration in soils is mentioned as one of the possible measures, but the company does not specify to what extent. By 2050, FrieslandCampina wants to achieve net climate neutrality, by neutralising emissions, mainly with soil sequestration.		

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from FrieslandCampina (2022b, 2022a).

FrieslandCampina

Royal FrieslandCampina N.V. is owned by a cooperation of dairy farmers, with its main share of operations in the Netherlands, but also farming activities in Belgium and Germany. The largest share of emissions are from livestock at the member dairy farms (~50%). FrieslandCampina and its member farms pursue several measures that are in line with the company's transparent interim targets. The company has a net climate-neutrality target for 2050, but this pledge is unsubstantiated without a deep reduction target for emissions across the value chain. FrieslandCampina's plan to rely on carbon storage in grasslands to claim neutrality is highly contentious, as the extent of carbon sequestration is limited, and the permanence of that sequestration is unlikely. Reduced dairy consumption and a shift to plant-based diets are seen as indispensable for reaching the 1.5°C global temperature target, but FrieslandCampina is not considering decreasing livestock volumes.

FrieslandCampina does not have an emission reduction target as part of its 2050 net climate neutrality pledge. FrieslandCampina intends to achieve net climate neutrality by 2050 (FrieslandCampina, 2022a, p. 48, 2022b, p. 9), but does not have an emission reduction target alongside this headline pledge. Techniques and practices to bring emissions in the dairy sector to zero do not currently exist, so FrieslandCampina plan to use neutralisation measures to achieve their climate neutrality target (FrieslandCampina, 2022b, p. 11). Although the company aims for zero fossil-based CO_2 of scope 1 and 2 and wants to minimise other remaining emissions, it does not provide information on volume, timing, or other relevant details of the neutralisation measures needed for residual emissions. FrieslandCampina states that it prefers reducing and compensating emissions in its own value chain, mainly with carbon sequestration in soils (see below).

Climate neutral dairy products based on carbon sequestration in soils may be misleading. To realise its 2050 net climate neutrality target, FrieslandCampina considers using carbon dioxide removals including CO_2-sequestration in soils to compensate for unabated, non-fossil emissions, such as methane emissions from dairy cattle and manure management (FrieslandCampina, 2022b, p. 11). However, issues related to permanence and availability mean that soil sequestration is not a credible equivalent to reducing emissions (see Section 4.2.1 in the methodology, Annex I). Moreover, the physical potential for carbon sequestration in grass lands is limited. Today, FrieslandCampina already markets powder base for infant nutrition as 'climate neutral'. The company discloses some information about the process for how the label is achieved, but not which offsetting projects were used and what share of emissions are offset (FrieslandCampina, 2022a, p. 38, 2022c).

FrieslandCampina's emissions reduction roadmap until 2030 is transparent and may be associated with reasonable integrity, but substantial uncertainties for the period after 2030 remain. By 2030, the company aims to reduce scope 1 and 2 emissions by 63%, emissions from member dairy farms by 33% and about half of its other scope 3 emissions by 43%, compared to 2015 levels (FrieslandCampina, 2022b, p. 10). These targets translate to a reduction of 25% across the value chain by 2030, compared to 2019. In its most recent climate plan, FrieslandCampina provides more detail on its planned emission reduction measures to realise these interim targets. Scope 1 and 2 emission reductions are presented with a high level of detail and a timeframe

(FrieslandCampina, 2022b, p. 20), but these scopes only accounted for 3% of FrieslandCampina's emissions in 2020 (FrieslandCampina, 2022b, p. 10). For emissions occurring at the member dairy farms, representing 48% of its 2020 carbon footprint, FrieslandCampina presents a reduction strategy that could reduce emissions to a level of 9 MtCO2e in 2030 - compared to a level of 12.3 MtCO2e in 2020 (FrieslandCampina, 2022b, pp. 23–24). However, these measures are presented as possibilities, without clear implementation commitments (FrieslandCampina, 2022b, p. 24).

We could not identify an emission reduction pathway for the period after 2030; nor did we identify a commitment to reduce dairy production. Reduced dairy consumption and a shift to plant-based diets are seen as indispensable for reaching the 1.5°C global temperature target (Hedenus, Wirsenius and Johansson, 2014; Babiker et al., 2022). Although the company has introduced a selection of plant-based alternatives to its product portfolio, FrieslandCampina's CEO stated in 2022 that the company is not planning to decrease livestock volumes (Persson and Smit, 2022). With its interim targets translating to a reduction of only 25% of the full value chain emissions by 2030, and with no plans to reduce the volume of livestock, large uncertainties remain regarding any additional emission reductions for the period after 2030.

Box 6: Integrity assessment for the FrieslandCampina's emissions reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

Net climate-neutrality by 2050.

Headline pledge: Low integrity

Emission reduction component alongside headline pledge

? by 2050

No deep emissions reduction target presented alongside the net climate neutrality pledge.

Is the emission reduction component equivalent to at least 90% below 2019 levels? *(if the headline pledge is a net-zero or carbon neutrality target)*

FrieslandCampina does not commit to a reduction target alongside its net climate neutrality pledge, leaving the door open for contentious neutralisation measures to achieve this target. While the company states that it will compensate residual emissions through carbon sequestration, it neither provides details on the total volume nor the neutralisation methods it would use.

Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?

The company does not explain why it considers the 2050 carbon neutrality target aligned with the Paris Agreement's temperature limit of 1.5°C.

Box 6 (cont.): Integrity assessment for the FrieslandCampina's emissions reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

FrieslandCampina commits to the following interim emission reduction targets.

By 2026, compared to 2015 (compared to 2019):

- Reduce scope 1 and 2 by 49% (-57%).

By 2030, compared to 2015 (compared to 2019):

- Reduce scope 1 and 2 by 63% (-69%).
- Reduce scope 3 emissions of member dairy farms by 33% (-25%).
- Reduce selection of other scope 3 emission categories by 43% (-42%).

Interim targets: Unable to evaluate

Emissions reductions by 2030 below 2019 across entire value chain

~25% by 2030 (estimate)

Considering all three interim targets for 2030, FrieslandCampina commits to reduce its emissions by around 25% below 2019 levels across the entire value chain.

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%). The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

The company's interim targets, equivalent to a reduction of around 25% by 2030 below a 2019 baseline across their value chain, fall short of global mitigation efforts required to limit global warming below 1.5°C. Most of FrieslandCampina's downstream emissions are not currently covered by the existing interim targets.

Sector-level benchmarks

Existing literature provides a few specific milestones for the dairy sector to decarbonise in line with 1.5°C trajectories (Boehm et al., 2021; UNFCCC, 2021). For example, global emissions from enteric fermentation (17% by 2030 below 2017 levels), manure management (21% by 2030 below 2017 levels), and manure on pasture (13% by 2030 below 2017 levels) need to be drastically reduced globally (Boehm et al., 2021), especially in regions with lower population growth and food demand growth. **We cannot evaluate FrieslandCampina to these benchmarks given limited available information.**

Do the interim targets align with the long-term vision?

FrieslandCampina provides no explanation of why it considers its 2030 interim targets aligned with its vision of net climate neutrality by 2050.

Has the first interim target been set within maximum 5 years in the future?

FrieslandCampina commits to interim targets within a five-year time horizon (i.e., 2026) that require immediate action.

KLM

Aviation

Royal Dutch KLM merged with Air France in 2004, but both airlines continue to operate under their own name. **The Air France-KLM Group committed to net-zero CO_2 emissions by 2050**; KLM set own reduction targets for 2030.

Revenue	Emissions	Pledge	Transparency	Integrity
EUR 6,1 billion (2021)	8.9 $MtCO_2$* (2021) *Excludes the non-CO_2 climate impact of flights	Net-zero CO_2 emissions by 2050	Moderate	Low

1 Tracking and disclosure of emissions

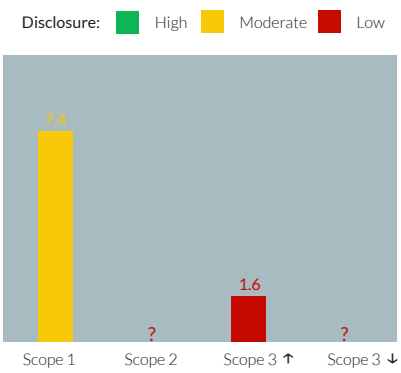
Transparency & Integrity: Low

- **Tracking and disclosure**
  8.9 MtCO2 (2021)

  Subsidiaries covered

Major emission sources: Scope 1 emissions (i.e. burning conventional aviation fuel during flight operations) account for about 80% of reported emissions.

Disclosure: Scope 1 and selected scope 3 CO_2 emissions are disclosed, as well as market-based scope 2 emissions. Non-CO_2 climate forcers acknowledged but not disclosed.



2 Setting emission reduction targets

	Transparency	Integrity
	Low	Very low
Headline target or pledge	**Net-zero CO_2 emission.**	
Coverage of emission sources *(in headline pledge)*	Target coverage unclear.	Low / Low
Reduction of own emissions *(for pledge year, compared to full value chain in 2019)*	? by 2050 — No separate emissions reduction commitment communicated alongside the net-zero pledge.	Low / Low
Interim emission reductions *(estimated compared to full value chain in 2019)*	~10% by 2030 (estimate) — ▪ Scope 1 and upstream scope 3 CO_2 emissions: absolute reduction of 12% and an intensity reduction of 30% by 2030 below 2019 levels. ▪ 10% of fuel uplifted worldwide must be SAF by 2030. ▪ Carbon-neutral ground operations by 2030.	High / Low

3 Reducing own emissions		Transparency	Integrity
		Moderate	Very low
Emission reduction measures	Fleet modernisation, operational measures, investments in sustainable aviation fuels. Lobby efforts against climate regulations and for airport expansion.	Moderate	Low
Renewable electricity procurement	Use of RECs to cover 100% of electricity consumption, but no further information identified.	Low	Low

4 Climate contributions and offsetting claims		Transparency	Integrity
		Moderate	Low
Responsibility for unabated emissions	Offsetting claims with contentious impact and coverage.	Moderate	Low
Climate contributions	*No climate contributions identified.*	N/A	Low
Offsetting claims today	*KLM offers its customers the opportunity to offset their CO_2 emissions from flying. The impact of forestry projects is contentious and-non-CO_2 climate forcers are not covered.*	Moderate	Low
Offsetting plans for the future	The 2030 reduction targets are to be achieved without offsetting. Unclear whether and to what extent KLM intends to rely on offsetting for its 2050 target.	Moderate	Moderate

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from KLM (KLM, 2022a, 2022b).

KLM

Royal Dutch KLM committed to reduce the carbon intensity of scope 1 and upstream scope 3 CO_2 emissions by 30% by 2030, compared to 2019 levels. The airline also committed to reduce those emission sources by an absolute 12% in the same period. We estimate this translates to a reduction in CO_2 emissions of 10% across the full value chain. KLM, as part of the holding group AirFrance-KLM, committed to net-zero CO_2 emissions by 2050 but is still in the process of developing a pathway on how to get there. Approximately 80% of the airline's reported emissions result from burning conventional aviation fuel during flight operations – these are covered by the 2030 and 2050 targets. However, KLM's climate targets and emissions disclosure exclude aviation's non-CO_2 global warming impacts, which are estimated to account for two-thirds of the sector's net radiative forcing impact.

KLM is taking a proactive approach in scaling up the production and use of sustainable aviation fuels, but this is undermined by their active lobbying for expansion of Dutch airports and against climate regulations for the aviation sector.

KLM excludes about 50% of scope 3 emissions in its emissions disclosure and while the airline acknowledges the estimated impact of non-CO_2 emissions from flying, it does not include those in its emissions disclosure. In its Climate Action Plan, KLM reports on scope 1, market-based scope 2, and upstream scope 3 emissions for the years 2019, 2020 and 2021 (KLM, 2022b, p. 12). Due to travel restrictions associated with the COVID-19 pandemic, KLM's emissions decreased from 14.6 $MtCO_2$ in 2019 to 9 MtCO2 in 2021 (AirFrance-KLM, 2021, p. 202-203, AirFrance-KLM, 2022, p. 218-219, KLM, 2022b, p. 12). The largest share of the airline's emissions come from the burning of conventional aviation fuel during flight operations (scope 1), at around 80% of reported emissions (AirFrance-KLM, 2022b, p. 218-219, KLM, 2022b, p. 12). Emissions from upstream fuel production (scope 3) accounted for 18% of total reported emissions in 2020 (Air France-KLM, 2022, p. 219). KLM states that emissions from the upstream phase of kerosene production represent half of total scope 3 emissions (AirFrance-KLM, 2021, p. 190, KLM, 2022b, p. 11), but does not report on the other half of scope 3 emissions. These include, for instance, the production of airplanes.

KLM does not disclose the non-CO_2 impact of its operations, although the airline acknowledges that these are estimated to account for two-thirds of the aviation sector's total climate impact (KLM, 2022b, p. 27). It is important for airlines to include estimates in their emissions disclosure. This serves not only as an important signal to customers, investors, and other actors in the aviation sector that tools must be developed to measure those impacts.

KLM's reduction target for 2030 equals an estimated reduction of 10% in CO2 emissions across its value chain between 2019 and 2030. KLM committed to reduce CO_2 intensity of scope 1 and upstream scope 3 emissions by 30% by 2030, compared to 2019 (KLM, 2022b, p. 13). This equals a 12% absolute reduction in those emissions, assuming an annual compound growth rate of 1.95% (KLM, 2022b, p. 17). KLM committed to this absolute reduction target too, thereby putting a cap on its potential increase in activities. KLM excludes scope 2

emissions from its 2030 targets, as they account for a minor share of their emissions, as well as downstream scope 3 emissions (KLM, 2022b, p. 13); Excluding these two emission scopes, the airline's reduction target equals a reduction in CO_2 emissions of about 10% across its value chain between 2019 and 2030.

The IEA Net Zero Roadmap of 2021 shows that reaching global net-zero emissions requires aviation emissions to decrease by 28% in the same period (IEA, 2021, p. 199). SBTi's forthcoming 1.5°C guidance for the aviation sector will be based on this latter report, so we consider it very likely that the SBTi's 1.5°C benchmarks will be more stringent than its 2°C benchmarks (SBTi, 2021b). Other studies also find that aviation needs to decarbonise at a faster pace than by 10% between 2019 and 2030. The CAT's fair share pathway shows that the aviation sector as a whole needs to reduce CO_2 emissions by 54% between 2019 and 2030 to make a fair contribution to global emission reductions (CAT, 2022).

In addition, KLM's interim targets do not cover non-CO_2 impacts from flights, which are estimated to account for two-thirds of aviation's net radiative forcing (Lee et al., 2021, p. 14; Patt et al., 2022, p. 82). Targets for aviation that do not cover non-CO_2 emissions and impacts are therefore likely not aligned with the Paris Agreement temperature objective.

KLM recently announced their commitment to net-zero CO_2 emissions by 2050 but crucial details determining the real ambition of that targets are unavailable. In 2021, KLM – together with various other airlines - pledged to reach net zero CO_2 by 2050 under the IATA umbrella (KLM, 2022a, p. 29). The holding Air France-KLM reiterated this target in its most recent Universal Registration Document (Air France-KLM, 2022, p. 204) KLM also supports Destination 2050, which is the European aviation sector's plan to reach net-zero carbon emissions by 2050 (NLR and SEO Amsterdam Economics, 2021). In February 2022, A4E – the industry group representing KLM – signed the Toulouse Declaration, thereby reaffirming the European aviation's sector commitment to net zero by 2050 (ACI Europe et al., 2022; Ministry of Transport of France, 2022).

Details about KLM's net-zero pledge are not yet available; the airline is currently exploring the SBTI's net-zero pathway (KLM, 2022b, p. 15-16). Key issues to clarify include: whether and to what extent KLM plans to make real reductions to their emissions or otherwise to rely on offsetting to claim the neutralisation of emissions and whether non-CO_2 emissions are covered by the target. These two details in particular will determine the true ambition level of KLM's net-zero pledge.

Although KLM focuses on a range of decarbonisation measures, its reduction efforts are seriously undermined by active lobbying against climate regulation in the aviation sector. Analysis found that Air France-KLM actively lobbies against European and Dutch climate regulation for aviation, such as taxes on flight tickets and kerosene (InfluenceMap, 2021, pp. 16–17). KLM has also lobbied for the expansion of Amsterdam Schiphol Airport and the development of Lelystad Airport (KLM, 2021b, pp. 42–43, 46–47, 52, 55–56, 84). This runs counter to the airline's plans for sustainable aviation fuels (see below), operational measures and energy efficiency improvements. In its Climate Action Plan, KLM states that it will modernise its fleet by phasing out older, less energy-efficient aircraft and replacing them with more efficient ones. KLM also invests in the design of a Flying-V airplane, which may lead to substantial fuel consumption reductions compared to existing aircraft. Further, the airline investigates a number of operational measures to reduce fuel consumption, including reducing weight on-board, speed adjustments and optimisation of flight routes (KLM, 2022b, p. 18-20).

KLM invests in the development and scaling up of sustainable aviation fuels (SAFs), but their reduction potential is uncertain. SAFs are considered a critical component of decarbonisation trajectories for the aviation sector (Boehm et al., 2021, p. 114; Jaramillo et al., 2022, p. 60). KLM has used blended biofuels since 2011 and made the first passenger flight using blended kerosene and synthetic SAF in February 2021 (KLM, 2022d). The airline commits to uplifting 10% of SAF by 2030 (KLM, 2022d). KLM engages with various organisations

and coalitions to develop and produce SAFs (KLM, 2022a, p. 30, KLM, 2022b, p. 20). For instance, KLM partnered with the start-up company Synkero, which develops a synthetic kerosene facility in the port of Amsterdam that will annually produce 500,000 tonne SAF, or 1% of the kerosene uplifted at Schiphol Airport in 2019 (Synkero, 2021). Synkero makes a synthetic aviation fuel from CO_2, hydrogen and renewable energy (Synkero, 2021). Further, KLM committed to purchase 75,000 tonnes of SAF from a plant that is scheduled to be operational around 2025/2026 (KLM, 2022b, p. 20).

Despite these efforts, SAFs make up less than 1% of KLM's total fuel consumption (KLM, 2022d). They also compromise a tiny fraction of global aviation fuel supply (<0.1%) (Boehm et al., 2021, p. 114). Analysis by the International Council on Clean Transportation found that the maximum potential SAF production in the EU will likely cover just 5.5% of jet fuel demand in 2030 – without taking into account economic and political constraints (O'Malley, Pavlenko and Searle, 2021, p. 14).

The potential of bio-based SAFs is constrained by associated land use change emissions and competing food, water resources and biodiversity interests (Jaramillo et al., 2022, pp. 60–61). For example, the high indirect land use emissions associated with the production of SAFs from virgin vegetable oils undermine any GHG savings from those fuels compared to standard jet fuel (Pavlenko and Searle, 2021, p. 15). Further, scaling up the use of SAFs made from cooking oil or other waste oils will likely lead to an increase of emissions in those sectors that currently use those waste oils (Pavlenko and Searle, 2021, p. 15). Synthetic SAFs require less water and land resources than bio-based fuels and have a larger abatement potential, but are still in the early development stage (Jaramillo et al., 2022, p. 61). Also, the production of synthetic SAFs requires large amounts of renewable energy that is currently not available. As other sectors' decarbonisation plans depend on renewable electricity too, there will likely be competing demand for existing and additional renewable electricity production.

KLM's "compensation" programme has the potential to mislead customers. Under its CO_2ZERO programme, KLM offers its customers the option for "CO_2 neutral" and "responsible" flights by paying a premium on top of their ticket price that will be used to "offset" CO_2 emissions associated with their flight. KLM purchases carbon offset credits from a reforestation project in Panama to compensate CO_2 emissions from flights (KLM, 2022c). According to the airline, it offset 71 ktCO_2 this way in 2021 (KLM, 2022a, p. 31). However, nature-based solutions are not a credible equivalent to emission reductions, due to their scarce availability and low degree of permanence (see Section 4.2.1 in the methodology). Forestry projects in particular are at high risk of non-permanence (Jeffery et al., 2020). The promise that customers fly "responsibly" and "work towards a sustainable future" (KLM, 2021b) is inaccurate and misleading, as KLM's CO_2ZERO programme does not account for the non-CO_2 climate impacts of aviation, which are estimated to account for two-third of the sector's net radiative forcing impact (Lee et al., 2021, p. 14). In April 2022, the Dutch advertising watchdog ruled that KLM's "CO_2 zero" ad is misleading, as the carbon offset credits from the Panamanian project do not fully neutralise the airline's CO_2 emissions (RCC, 2022).

Box 7: Integrity assessment for KLM's emission reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

Net-zero CO_2 by 2050.

Headline pledge: Low integrity

Emissions reduction component alongside headline pledge

? by 2050

No deep emissions reduction target presented alongside the net zero CO_2 pledge.

Is the emission reduction component equivalent to at least 90% below 2019 levels? *(if the headline pledge is a net-zero or carbon neutrality target)*

KLM does not commit to a deep emission reduction target alongside its net zero CO_2 pledge, leaving the door open for contentious neutralisation measures to achieve this target.

Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?

The company neither explains why it considers the 2050 net zero CO_2 target aligned with the Paris Agreement's temperature limit of 1.5°C nor specifies to which degree the target relies on offsetting and carbon dioxide removal to meet its target. The IEA's Net Zero by 2050 report shows that CO_2 emissions from aviation should decrease by 80% between 2019 and 2050 (IEA, 2021, p. 199). The CAT's fair share pathway shows that the global aviation sector as a whole needs to reduce CO_2 emissions by around 90% between 2019 and 2050 to be in line with global 1.5°C aligned scenarios and reach zero CO_2 emissions shortly after 2060 (CAT, 2022). Further, the ICCT found that cumulative emissions from international aviation will break the sector's 1.5°C carbon budget even under scenarios that assume widespread investments in reduction technologies and a peak in fossil jet fuel by 2025. The ICCT's most ambitious scenario shows a reduction of 94% in the aviation sector's CO_2 emissions between 2019 and 2050 and is compatible with a 1.75°C target (Graver et al., 2022).

Box 7 (cont.): Integrity assessment for KLM's emission reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

- Scope 1 and upstream scope 3 CO2 emissions: absolute reduction of 12% and an intensity reduction of 30% by 2030 below 2019 levels;
- 10% of fuel uplifted worldwide must be SAF by 2030;
- Carbon-neutral ground operations by 2030.

Interim targets: Low integrity

Emissions reductions by 2030 below 2019 across entire value chain

~10% by 2030 *(estimate)*

KLM interim target for 2030 likely equals a reduction in CO_2 emissions of about 10% across all emission scopes in the period 2019 to 2030. KLM does not report on location-based scope 2 emissions; but considering Air France's disclosure of their scope 2 emissions, we expect those to be minor and not strongly influence the ambition level of the interim target. The target excludes non-CO_2 climate impacts from aviation, which account for an estimated two-thirds of the sector's net radiative forcing.

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO_2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%).

Interim targets: Low integrity

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature? (cont.)

The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO_2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

KLM does not meet these global benchmarks, but operates in a particularly hard-to-abate sector.

Sector-level benchmarks

KLM's interim targets are not aligned with specific milestones for airlines and the aviation sector to decarbonise in line with 1.5°C trajectories. KLM commits to reduce its carbon intensity from 87 gCO_2 per passenger kilometre (ppkm) to 62.5 gCO_2 ppkm (or 625 gCO_2 per Revenue Ton Kilometre (RTK)) (KLM, 2022b, p. 16) This commitment is not in line with the Transition Pathway Initiative (TPI) 1.5°C benchmark, which provides that airlines should reduce their carbon intensity to 616 gCO_2/RTK by 2030 (Dietz, Byrne and Sheer, 2021, p. 14). The TPI also explicitly states that its benchmarks "would almost certainly be tighter" if the non-CO_2 impacts of aviation were taken into account (Dietz, Byrne and Sheer, 2021, p. 14). The TPI provides only intensity-based metrics without an option to evaluate absolute emission reduction targets. KLM based its 2030 intensity target on SBTi guidance and has submitted this target to the SBTi for review. SBTi currently only provides guidance on how to set targets that are compatible with a well below 2°C trajectory; its guidance and benchmarks for 1.5°C compatible targets is under development (SBTi, 2021b). Like the TPI, SBTi exclusively focus on jet fuel emissions, excludes non-CO_2 emissions, and provides intensity-based metrics without an option to evaluate absolute emission reduction targets (SBTi, 2021b). The SBTi's well below 2°C guidance is based on the IEA's Energy Technology Perspectives (ETP) report, which provides that CO_2 emissions from aviation decrease by 6% in the period 2019-2030 (IEA, 2020). The 1.5°C guidance will be based on the IEA's Net Zero by 2050 report, which shows much deeper reductions and sees aviation's CO_2 emissions decline by 28% by 2030 (IEA, 2021, p. 199).

KLM's absolute reduction commitment of a 12% reduction of scope 1 and upstream scope 3 emissions misses sector-wide absolute emission reduction benchmarks. The IEA's Net Zero by 2050 report provides that CO_2 emissions from aviation should decrease by 28% between 2019 and 2030 (IEA, 2021, p. 199). The CAT's fair share pathway shows that emissions from international aviation should decrease by 54% in that period to make a fair share contribution to global efforts of limiting global warming to 1.5°C (CAT, 2022).

In addition to their target to reduce scope 1 and upstream scope 3 CO_2 emissions by 12% by 2030, KLM committed to using 10% SAF worldwide by 2030. This meets scientific benchmarks on the uptake of SAF for global aviation sector, which range between 10-15% by 2030 and 80-100% by 2050, conditional on high sustainability criteria and an overall demand reduction for air travel through policy regulation (Boehm et al., 2021; IEA, 2021; UNFCCC, 2021).

Do the interim targets align with the long-term vision?

KLM provides no explanation of why it considers its 2030 interim target aligned with its long-term vision of net zero CO_2 emissions by 2050.

Has the first interim target been set within maximum 5 years in the future?

KLM does not commit to earlier interim targets within a five-year time horizon that require immediate action.

LyondellBasell Industries

Chemical industry

LyondellBasell Industries Holdings B.V.—headquartered in the Netherlands—is a multinational chemical company specialising in the production of plastics, chemicals, fuels, and technologies. **In 2021, the company committed to achieve net-zero greenhouse gas (GHG) emissions from global operations by 2050.**

Revenue	Emissions	Pledge
USD 47.2 billion (2021)	89.9 $MtCO_2e$ (2020)	Net zero greenhouse gas (GHG) emissions by 2050

Transparency	Integrity
Low	Very low

1 Tracking and disclosure of emissions

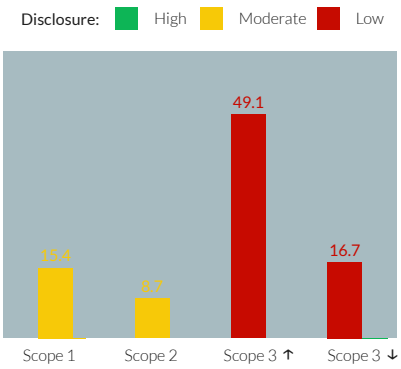
Transparency & Integrity: Low

- **Tracking and disclosure**
  89.9 $MtCO_2e$ (2020)

  Subsidiaries covered

Major emission sources: Purchased goods and services such as raw materials for plastics production (upstream scope 3, 49%), other downstream scope 3 emissions such as the end-of-life treatment of sold products (19%).

Disclosure: Non-transparent and potentially misleading due to inconclusive presentation across public documents. Several minor scope 1 sources not disclosed (e.g., small office facilities and motor vehicle fuels). Only market-based accounting approach for scope 2 emissions presented in annual sustainability report, location-based exclusively in CDP 2021 disclosure. Scope 3 emissions only provided in separate CDP disclosures, for which only the CDP 2020 disclosure is publicly available.



2 Setting emission reduction targets

Transparency	Integrity
Moderate	Very low

Headline target or pledge

Net-zero greenhouse gas (GHG) emissions by 2050.

- **Coverage of emission sources**
  (in headline pledge)

  The net-zero target covers scope 1 and scope 2 emissions, but explicitly excludes all scope 3 emissions.

  High | Low

- **Reduction of own emissions**
  (for pledge year, compared to full value chain in 2019)

  ? by 2050 — No emissions reduction target is communicated alongside the net zero target.

  Low | Low

- **Interim emission reductions**
  (estimated compared to full value chain in 2019)

  8% by 2030 (2020 baseline) — 30% absolute reduction of scope 1 and scope 2 emissions by 2030 below 2020.

  High | Low

3 Reducing own emissions		Transparency	Integrity
		Low	Very low
Emission reduction measures	Several emissions reduction measures announced for scope 1, including production-site specific implementation timeline and joint reduction impact. Other measures for 2030 currently under discussion. No measures identified to address scope 3 emissions.	Moderate	Low
Renewable electricity procurement	Limited information provided on existing procurement constructs and uncertainty on ongoing planning as part of the global renewable energy strategy.	Low	Low

4 Climate contributions and offsetting claims		Transparency	Integrity
		Low	Very low
Responsibility for unabated emissions	Offsetting claims with contentious impact and coverage.	Moderate	Low
Climate contributions	*No climate contributions identified.*	N/A	Low
Offsetting claims today	*Small amount of offsets purchased from several CDM projects in 2020 focusing on wind and hydro electricity production (<0.03% of all 2020 emissions).*	Moderate	Low
Offsetting plans for the future	No disclosure on whether future targets rely on offsetting. Indication that scope 2 CO_2 emissions might be offset to achieve the renewables target of at least 50% by 2030.	Moderate	?

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from LyondellBasell Industries (2020, 2021a, 2022a, 2022b, 2022c) and Seba (2022b).

LyondellBasell Industries

LyondellBasell Industries is a multinational chemical company specialising in in the production of plastics, chemicals, and fuels with major emissions from purchased goods and services (49% of 2020 emissions), other downstream scope 3 emissions such as the end-of-life treatment of sold products (19%), and direct scope 1 emissions (17%). The company pledges net-zero emissions for only its operations by 2050 (scope 1 and scope 2) and claims to have updated its 2030 interim targets towards this vision without providing further details on how these are aligned. The lack of information on what the 2030 and 2050 targets imply in terms of real emission reductions, and how LyondellBasell Industries intends to get there, hinders an assessment of the company's climate ambition.

LyondellBasell Industries started to publicly disclose most of its emission sources as of 2021, but their public presentation remains non-transparent and inconclusive. Scope 3 emissions have only been publicly disclosed for a first time in 2021 for the reporting year of 2020 without any time series to the past made publicly available (LyondellBasell Industries, 2021a, pp. 14–18). Previous annual sustainability reports or other company communications did not make any mention of scope 3 emissions at all (LyondellBasell Industries, 2020, 2021b, 2022b, 2022c), although non-publicly available CDP disclosures include scope 3 estimates for previous years. The sustainability report of 2021 for the first time discusses scope 3 emissions in general terms but still reports only scope 1 and scope 2 under the 'Total emissions category' (LyondellBasell Industries, 2022a, pp. 25; 67). This presentation remains inconclusive to external readers. LyondellBasell Industries' disclosure of downstream scope 3 in its 2020 CDP Disclosure does not include processing of sold products due to a lack of available data. However, this may be a relevant emissions source. The scope 1 emissions disclosure excludes several minor emissions sources such as emissions from small office facilities and motor vehicle fuels used by the company (LyondellBasell Industries, 2021a, p. 14).

The interim target of a 30% reduction below 2020 levels by 2030 covers only emissions from own operations and entirely leaves out scope 3 emissions, which are the company's largest emissions source. In 2020, scope 3 emissions amounted to 73% of all the company's emissions (LyondellBasell Industries, 2021a, pp. 13–18). Compared to total emissions in 2020 including scope 3, the existing interim target for 2030 only implies a reduction of 8% by 2030 across full value chain GHG emissions. No comparison can be made to 2019 emissions due to a lack of publicly available data. For these reasons, we evaluate the company's interim targets of 'low integrity' (see Box 8 for a detailed integrity assessment).

The company recently enhanced its communication around announced emissions reduction measures, for example by providing more granular information on implementation timelines and expected impacts. LyondellBasell Industries lists several action areas to reduce its operational emissions, such as enhanced energy management and low emission steam, process electrification and furnace upgrades, carbon capture and storage, flare minimization, and the use of lower-emitting fuels (LyondellBasell Industries, 2020, pp. 21; 26, 2021a, p. 11, 2022b, 2022c, 2022a, pp. 24–26; 67). In 2022, the company released information on the implementation timeline of several emissions reduction projects across its European and U.S. American production sites for olefins, intermediates and derivatives (LyondellBasell Industries, 2022a, p. 67). LyondellBasell expects these projects to achieve half of the emission reductions required to meet

its 2030 interim target. The other half shall be achieved by renewable electricity procurement and other GHG emission reduction measures not yet identified (LyondellBasell Industries, 2022a, p. 26). We could not identify any measures targeting the company's scope 3 emissions apart from a supplier and customer engagement initiative, which reaches less 0.1% of all suppliers (LyondellBasell Industries, 2021a, pp. 38–39). The potential outcomes of the initiative remain unclear.

In April 2022, LyondellBasell announced to exit its refining business (LyondellBasell Industries, 2021c). It remains unclear at present whether LyondellBasell Industries intends to shut down or to sell its Houston-based refinery, which accounted for 16% of all scope 1 emissions in 2020 (LyondellBasell Industries, 2021a; Seba, 2022b, 2022a). While selling its Houston refinery would reduce LyondellBasell Industries' GHG footprint, passing on carbon-intensive infrastructure to other companies may simply lead to a displacement of emissions. Phasing out carbon-intensive infrastructure only has a meaningful decarbonisation impact if those assets are permanently closed, rather than sold to other companies.

LyondellBasell Industries provides no information on the intended role of offsets for unabated emissions in the future to meet its targets. For future emissions, there remains high uncertainty on whether the 2050 net-zero target and the 2030 interim target rely on offsetting, and if so, to what extent. LyondellBasell Industries reports purchasing a small amount of carbon offset credits (<0.03% as a share of 2020 emissions) but it remains unclear which of the company's emissions it intends to offset (LyondellBasell Industries, 2021a, p. 36). We could not find evidence that the company takes any further responsibility for most of its unabated emissions today, either through offsetting or climate contributions towards mitigation beyond the company's value chain.

LyondellBasell Industries introduced an internal shadow carbon price of EUR 25/ tCO2e in 2020 but a larger rollout throughout the company apparently remains work in progress (LyondellBasell Industries, 2021a, pp. 11; 37). In 2021, the company reported to have used the internal shadow carbon price for project investment decisions in the European Union but it has not been used to assess potential investments in low-carbon technologies nor to evaluate operational efficiencies (LyondellBasell Industries, 2021a, pp. 11; 37). The internal carbon price does not lead to real costs for the company in their day-to-day operations and could further be applied consistently across all investment decisions.

It remains uncertain how LyondellBasell Industries intends to meet its target to achieve a minimum 50% of electricity procured from renewable sources by 2030 given the limited information provided and lack of progress identified (LyondellBasell Industries, 2022b, p. 27, 2022a). The company previously indicated that it intends to achieve the target either through actual reductions or offsetting (LyondellBasell Industries, 2021b). The company further announced the launch of a global renewable energy strategy but has not made it publicly available (LyondellBasell Industries, 2021b). For 2020 LyondellBasell Industries listed only two existing power purchase agreements (PPAs) to procure renewable electricity for 2020, covering less than 0.0001% of total electricity consumption in 2020 (LyondellBasell Industries, 2021a, p. 30). We could not identify such specific publicly available information for 2021. Additional PPAs are being planned for Europe and North America with no further details provided on timeline, scope, and specific procurement construct types (LyondellBasell Industries, 2021b, 2022a, p. 27). LyondellBasell Industries further mentions to be in the process of building a solar PV plant of 7 MW generation capacity in its Tarragona plant in Spain, and its overall intention to build further on-site generation capacity for other production sites (LyondellBasell Industries, 2022c). For its steam supply at the Wesseling production plant in Germany, LyondellBasell Industries aims to phase-out coal usage by 2023 and instead purchasing high-pressure steam generated from fossil gas. (LyondellBasell Industries, 2021b, 2022a, p. 28).

Box 8: Integrity assessment for LyondellBasell Industries' emission reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

Net-zero greenhouse gas (GHG) emissions by 2050.

Headline pledge: Low integrity

Emissions reduction component alongside headline pledge

? by 2050

No deep emission reduction target presented alongside the net zero pledge.

Is the emission reduction component equivalent to at least 90% below 2019 levels? (if the headline pledge is a net-zero or carbon neutrality target)	**LyondellBasell Industries does not commit to a deep emissions reduction target alongside its net zero target, leaving the door open for contentious neutralisation measures to achieve this target.** The company's net zero target also excludes scope 3 emissions, which account for the main share of LyondellBasell's GHG footprint.
Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?	LyondellBasell does not explain why it considers the 2050 net zero target aligned with the Paris Agreement's temperature limit of 1.5°C.

Box 8 (cont.): Integrity assessment for LyondellBasell Industries' emission reduction targets (see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

Interim targets for 2030 announced:

- 30% absolute reduction of scope 1 and scope 2 emissions by 2030 below 2020.

Interim targets: Low integrity

Emissions reductions by 2030 below 2019 across entire value chain

8% by 2030 (2020 baseline)

LyondellBasell Industries discloses no publicly available scope 3 emissions data for 2019. For this reason, we cannot independently quantify the company's interim target compared to entire value chain emissions in 2019. Compared to a 2020 baseline, absolute emissions reductions equal to 8% by 2030 across all emission scopes. Since scope 1 and scope 2 emissions remained stable from 2019 to 2020, we consider it likely that LyondellBasell's scope 3 emissions have not significantly decreased between 2019 and 2020.

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%). The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

LyondellBasell's interim target, equivalent to an 8% emissions reduction by 2030 below a 2020 baseline across the entire value chain, falls way short from global efforts required to limit global warming to 1.5°C. The company discloses no publicly available scope 3 emissions for 2019 to independently quantify the emissions reductions compared to a 2019 baseline.

Sector-level benchmarks

We are unable to compare LyondellBasell's interim target to sectoral 1.5°C-aligned benchmarks as existing literature provides few specific milestones for the chemical industry (CAT, 2020; Boehm et al., 2021; IEA, 2021; SBTi, 2021c; UNFCCC, 2021). This gap in existing literature allows no conclusive assessment of sector-specific decarbonisation efforts in line with the Paris Agreement's 1.5°C temperature limit. LyondellBasell Industries—together with the entire chemical industry—needs to put further emphasis on determining sector-specific decarbonisation milestones in line with the Paris Agreement in a transparent, scientific and verifiable process.

Do the interim targets align with the long-term vision?

LyondellBasell provides no explanation of why it considers its 2030 interim target aligned with its long-term vision of net-zero greenhouse gas (GHG) emissions by 2050.

Has the first interim target been set within maximum 5 years in the future?

LyondellBasell does not commits to earlier interim targets within a five-year time horizon that require immediate action.

Schiphol Group

Aviation

The Royal Schiphol Group owns and operates Amsterdam Airport Schiphol, Lelystad Airport and Rotterdam The Hague Airport, and has equity shares in airports in Eindhoven, New York City, Brisbane, and Hobart. The Group committed to **energy-positive Dutch airports and net-zero-carbon aviation by 2050.**

Revenue	Emissions	Pledge
EUR 0.82 bn (2021)	~14.9 MtCO2e* (2021) *Excludes the non-CO_2 climate impact of flights	Energy-positive airports and net-zero-carbon aviation by 2050

Transparency	Integrity
Moderate	Low

1 Tracking and disclosure of emissions

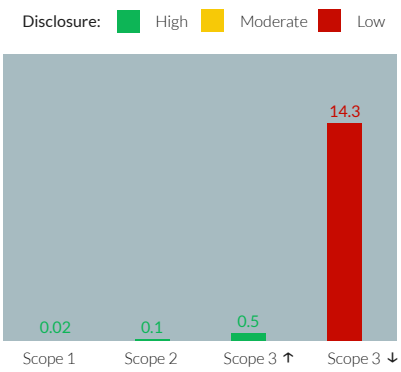
Transparency & Integrity: Low

- **Tracking and disclosure**
  ~14.9 $MtCO_2e$ (2021, incl. kerosene emissions from outbound flights, excl. non-CO_2 climate impact)

  Subsidiaries included in the disclosure.

Major emission sources: CO_2 emissions from jet fuel combustion account for 94% of the reported CO_2 footprint.

Disclosure: Incomplete. Kerosene emissions from incoming flights are not reported. Non-CO_2 climate forcers acknowledged but not disclosed. Scope 2 emissions are reported using both the location- and market-based accounting methods; the higher value is considered as part of emission aggregates.



2 Setting emission reduction targets

	Transparency	Integrity
	Moderate	Low

Headline target or pledge

Energy-positive airports and net-zero-carbon aviation by 2050.

- **Coverage of emission sources**
  (in headline pledge)

  The energy-positive airports target covers scope 1, 2 and selected scope 3 emissions. Unclear whether the net-zero carbon aviation target covers emissions from outgoing and incoming flights. Non-CO_2 impacts are not included.

  Moderate | Low

- **Reduction of own emissions**
  (for pledge year, compared to full value chain in 2019)

  45-90% by 2050 *(estimate does not include non-CO_2 impacts)*

  Scope 1 and 2 emissions to be eliminated; emissions from Dutch aviation (mostly from kerosene consumption) to be reduced by at least 90%, but unclear whether this commitment applies to outgoing and incoming flights.

  Moderate | ?

- **Interim emission reductions**
  (estimated compared to full value chain in 2019)

  5-10% by 2030 *(estimate does not include non-CO_2 impacts)*

  Reduction of 96% in scope 1, scope 2, and selected scope 3 emissions. Reduction of ~10% in Dutch aviation emissions, but unclear whether this includes outgoing and incoming flights.

  Moderate | Low

3 Reducing own emissions

Transparency: Reasonable | Integrity: Low

		Transparency	Integrity
Emission reduction measures	Various measures to reduce scope 1 and 2 emissions, including efficiency improvements and electrifying ground operations. The Schiphol Group subsidises and invests in SAF production but does not provide details on more fundamental flight demand management actions, and it lobbies for further airport expansions.	Moderate	Low
Renewable electricity procurement	Dutch wind electricity through long-term PPAs with guarantees of origin; developing on-site solar PV installations; green gas as a transition and back-up energy source.	High	High

4 Climate contributions and offsetting claims

Transparency: Moderate | Integrity: Low

		Transparency	Integrity
Responsibility for unabated emissions	Offsetting claims with contentious impact and coverage.	Moderate	Low
Climate contributions	*No climate contributions identified.*	N/A	Low
Offsetting claims today	*The Schiphol Group procures offset credits for scope 1, employee commuting, and business travel emissions. Details on volume and project types are disclosed; credits are from renewable energy projects.*	Moderate	Low
Offsetting plans for the future	No offsets to achieve the energy positive target. The company plans to use carbon removal credits by 2050 for the aviation sector's hard-to-abate emissions (<10% of its carbon footprint, unclear whether this commitment applies to incoming flights too); details on future projects or removal technologies are not specified.	Moderate	?

Ratings

Overall: 5-point scale. Average of sections 1-4.
Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.
Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High | Reasonable | Moderate | Low | Very low
High | Reasonable | Moderate | Low | Very low
High | Moderate | Low
Moderate | Very low
N/A Not applicable | ? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from the Royal Schiphol Group (2022b, 2022a) and Lee et al. (2021).

Schiphol Group

The Royal Schiphol Group commits to operating energy-positive airports by 2050 and aims for a net-zero carbon aviation sector by the same year. The Schiphol Group has not set targets for the reduction of non-CO_2 climate forcers from aviation, which account for an estimated two-thirds of the sector's climate impact. Although the company invests in sustainable aviation fuels (SAFs) to reduce jet fuel emissions, which account for about 97% of the Schiphol Group's CO_2 footprint, the company's plans for airport expansion weaken these reduction efforts.

The Schiphol Group does not include kerosene emissions from inbound flights in its GHG disclosure or account for non-CO_2 climate forcers. Emissions from kerosene from outgoing flights account for the vast majority of the Group's reported CO_2 footprint. In its updated strategy document *Sustaining your world*, the Group discloses emissions across its value chain (Royal Schiphol Group, 2022b, pp. 53–54). The disclosure includes a breakdown for sources of scope 1 and 3 emissions, including 7.1 $MtCO_2e$ from kerosene tanked in the Netherlands (94% of reported emissions). However, the company does not report on kerosene emissions from inbound flights; if those emissions are included, kerosene emissions amount to an estimated 97% of the Group's CO_2 footprint. The Schiphol Group also does not provide an estimate for the climate impact of non-CO_2 climate forcers, like contrail cirrus. These non-CO_2 climate forcers are estimated to account for two-thirds of aviation's net radiative forcing impact (Lee et al., 2021, p. 14; Patt et al., 2022, p. 82). The company acknowledges this fact but mentions that uncertainties remain regarding the estimation and mitigation of these non-CO_2 impacts (Royal Schiphol Group, 2022b, pp. 35, 53). As a result of the COVID-19 pandemic, international aviation emissions plummeted in 2020 and 2021 (CAT, 2022; ICAO, 2022)The Schiphol Group's emissions footprint over those years is substantially lower than in 2019, when CO_2 emissions amounted to 24.7 $MtCO_2e$, including kerosene emissions from incoming and outgoing flights (Royal Schiphol Group, 2022b, pp. 53–54). Recent months have seen an increase in demand for air traffic: in May 2022, air transport movements (passengers and cargo) were only 15% below May 2019 levels (Royal Schiphol Group, 2022c). As the aviation sector recovers from the impact of the COVID-19 pandemic, both CO_2 emissions and non-CO_2 impacts from flying are expected to increase substantially compared to 2020 (CAT, 2022).

The Schiphol Group aims to have energy-positive Dutch operations; it focuses on renewable electricity procurement options that are likely to result in additional capacity but may not justify a zero emissions claim. The Schiphol Group plans to operate zero-emission airports by 2030 and energy-positive airports by 2050, which means it wants to bring its scope 1 and 2 emissions to zero ("emission free") and generate surplus electricity that can be used by others (Schiphol, 2020a; Royal Schiphol Group, 2022b, p. 18). The company currently procures 100% renewable electricity from Dutch wind parks for its airports in the Netherlands through long-term PPAs with guarantees of origin, and it is expanding its on-site solar PV electricity generation (Royal Schiphol Group, 2022a, p. 37, 2022b, p. 22). While PPAs are among the more impactful renewable energy procurement options, the causal relationship between a company signing a PPA and truly additional capacity is hard to prove (see Section 3.2.1 in the methodology, Annex I). PPAs do therefore not justify a "zero electricity emissions" claim.

The Schiphol Group currently procures 17% green gas and plans to phase out the use of natural gas by 2030, although gas may be

needed as a back-up measure on "a few cold days each year" (Royal Schiphol Group, 2022a, p. 37, 2022b, p. 19).

The Schiphol Group will address scope 3 emissions from kerosene through its goal of having a net-zero-carbon aviation sector by 2050 (Royal Schiphol Group, 2022a, p. 40, 2022b, pp. 52, 27). The Group sees Schiphol Airport leading the development of a "responsible and sustainable aviation sector" (Royal Schiphol Group, 2022a, p. 18). The company supports Destination 2050, which is the European aviation sector's plan to reach net-zero carbon emissions by 2050 (NLR and SEO Amsterdam Economics, 2021). In February 2022, the Group signed the Toulouse Declaration, thereby reaffirming the European aviation sector's commitment to net-zero by 2050 (ACI Europe, 2022; Ministry of Transport of France, 2022). However, neither Schiphol's goal of a carbon-neutral aviation sector, nor Destination 2050 and the Toulouse Declaration cover the non-CO_2 effects from the aviation sector, thereby excluding an estimated two-thirds of aviation's net radiative forcing impact (Lee et al., 2021, p. 14; Patt et al., 2022, p. 82). Furthermore, it is unclear whether the net-zero-carbon target includes jet fuel emissions from incoming flights, as the Schiphol Group does not include those emissions in its GHG disclosure.

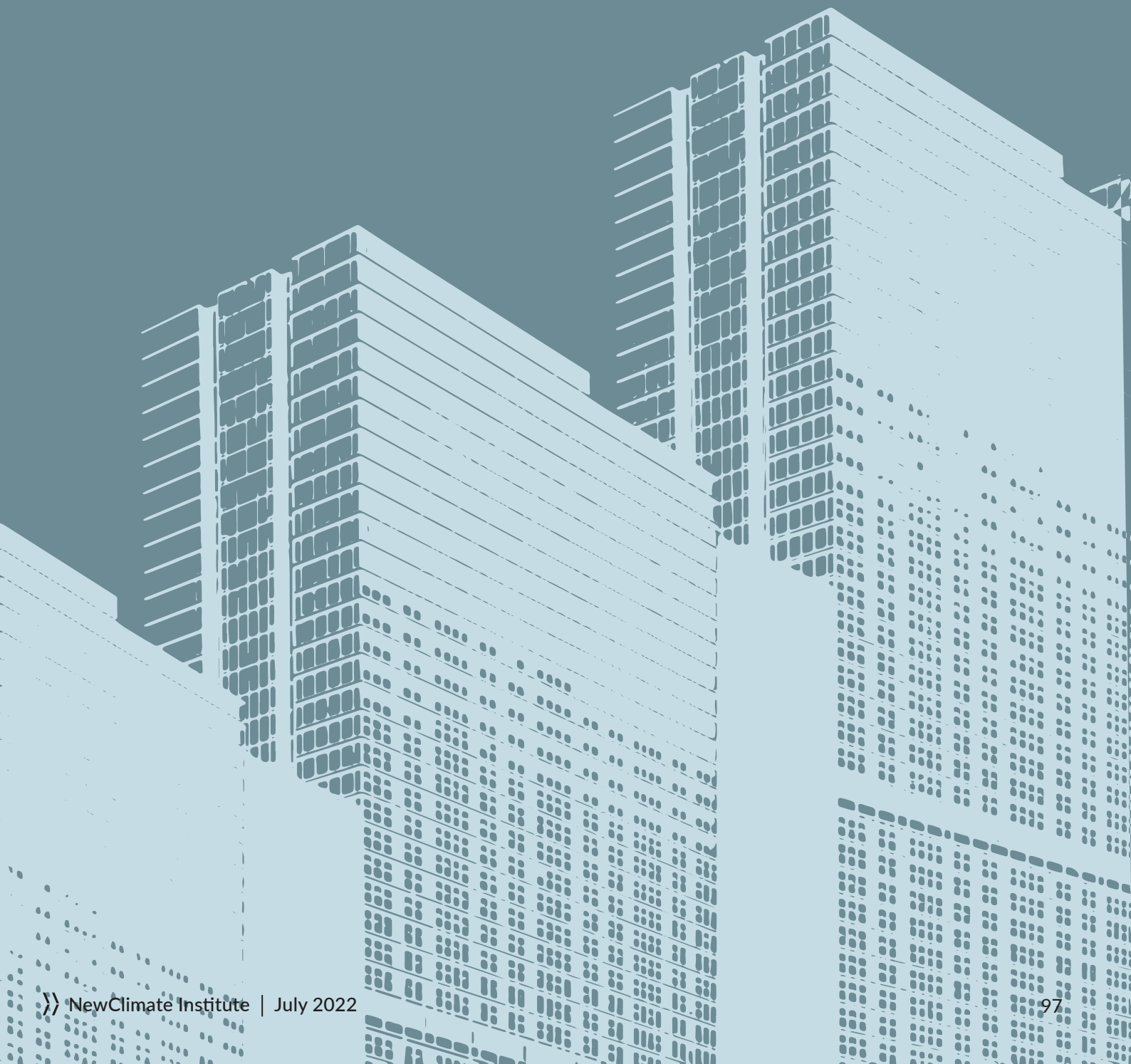
The Schiphol Group aims for a 14% SAF blend-in by 2030, for which it engages with other actors in the aviation sector to promote SAF adoption (Royal Schiphol Group, 2022a, p. 41, 2022b, p. 10; Schiphol, 2022). As the scope for CO_2 reductions through improved aircraft technologies and operations is limited, sustainable aviation fuels (SAFs) are considered a critical component of decarbonisation trajectories for the aviation sector (Boehm et al., 2021, p. 114; Jaramillo et al., 2022, p. 60). The term SAF is used to describe a wide range of alternative fuels, including biofuels and synthetic fuels, which have various climate and other environmental impacts (Pavlenko and Searle, 2021). The mitigation potential of bio-based SAFs is constrained by associated land-use-change emissions and conflicts with food, water resources, and biodiversity interests (Jaramillo et al., 2022, pp. 60–61). Synthetic electricity-based SAFs, on the other hand, require less water and land resources and have a large abatement potential, but are still in the early development stage (Jaramillo et al., 2022, p. 61). Also, the production of synthetic SAFs requires large amounts of renewable energy that is currently not available. As other sectors' decarbonisation plans depend on renewable electricity too, there will likely be competing demand for existing and additional renewable electricity production.

To reduce the aviation sector's carbon emissions, the Schiphol Group targets a 14% SAF blend-in by 2030. The Group reserved EUR 15 million to subsidise the use of SAF by airlines taking off from Schiphol Airport (Royal Schiphol Group, 2022a, p. 41). In December 2020, it announced that fuel supplier Neste secured a minority stake in Aircraft Fuel Supply N.V., which owns and operates Schiphol's fuel storage (Schiphol, 2020b). As a result, Neste can supply aircraft fueling at Schiphol with biobased SAF that is blended with standard jet fuel (Schiphol, 2020b). By 2023, Neste expects to produce 1.5 million tonnes of SAF in several facilities around the world (Schiphol, 2020b). An analysis by the International Council on Clean Transportation found that the maximum potential SAF production in the EU will likely cover just 5.5% of jet fuel demand in 2030—without taking into account economic and political constraints (O'Malley, Pavlenko and Searle, 2021, p. 14).

The Schiphol Group claims to promote air-to-rail travel substitution and lobbies for the establishment of the Single European Sky; however, it is pursuing further airport expansions, which harms the prospects of meaningful emission reductions across the aviation sector. Demand management, including improved air traffic, reduced travel, and the modal shift from air- to rail-based travel, is a key component of decarbonising the aviation sector (CAT, 2022). The Schiphol Group claims to promote the air-to-rail modal shift for short-haul flights with measures such as improving check-in procedures for train passengers arriving at and leaving from the airports, advocating for a future expansion of Amsterdam Schiphol's train station, and participating in partnerships that promote rail-based travel (Royal Schiphol Group, 2022b, p.

33; Schiphol, 2022). Furthermore, it "actively promote[s]" the Single European Sky initiative (Royal Schiphol Group, 2022b, p. 33), a project by the European Commission that would unify the European air space for planes to make less detours, thus achieving emission reductions (Schiphol, 2022). At the same time, the Schiphol Group has heavily invested in the development of Lelystad Airport in recent years, (Schohaus, 2020). Continued expansion of air travel is not aligned with a 1.5°C warming trajectory (Graver et al., 2022).

The Schiphol Group claims to be carbon neutral in its operations since 2018, but the carbon offset credits it procures to make this claim likely have limited climate impact. The Group offsets scope 1 emissions from its Dutch airports and scope 3 emissions from business trips and employee commuting (Royal Schiphol Group, 2022b, p. 23). The company gives details on the volume of credits procured and from what projects. For Eindhoven Airport, the Group sourced offset credits from biogas projects in Tanzania, Uganda, and the Netherlands; for all other Dutch airports, credits from solar power projects in India (Royal Schiphol Group, 2022b, p. 62). The climate impact of these projects is questionable, and therefore the Group's carbon neutrality claim for its operations is potentially misleading. In the context of the Paris Agreement, which requires all countries to set ambitious emission reduction targets, the additionality of solar power and biogas projects is contentious, as they are likely accessible to host countries and should therefore be part of countries' own GHG abatement efforts (see Section 4.2.1 in the methodology, Annex I). The 2050 net-zero-carbon target for the aviation sector will depend on carbon removal offsets for hard-to-abate emissions; the Group estimates these will account for less than 10% of its reported footprint but does not specify the kinds of projects to be pursued (Royal Schiphol Group, 2022b, p. 53).



Box 9: Integrity assessment of the Schiphol Group's emissions reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

Energy-positive airports and net-zero-carbon aviation sector by 2050.

Interim targets: Unable to evaluate

Emissions reduction component alongside headline pledge

45-90% by 2050 *(estimate does not include non-CO_2 impacts)*

The Schiphol Group plans to eliminate scopes 1 and 2, business travel, and airside ground operations emissions under its energy-positive target and to produce surplus renewable electricity by 2050. The company aims for at least 90% emissions reductions in the aviation sector by 2050. It is unclear whether this target includes emissions from incoming flights; it does not cover the non-CO_2 impacts of aviation.

Is the emission reduction component equivalent to at least 90% below 2019 levels? *(if the headline pledge is a net-zero or carbon neutrality target)*

The Schiphol Group commits to reducing at least 90% of carbon emissions by 2050 alongside the target of a net-zero-carbon aviation sector by 2050. Considering that jet fuel emissions from incoming flights may not be covered by this target, the Group's commitment implies a reduction between 45% and 90% across its full carbon footprint including emissions from incoming flights. The Group does not provide an estimate for the reduction of non-CO_2 climate impacts.

Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?

The Schiphol Group does not explain why exactly it considers its 2050 targets aligned with the Paris Agreement's temperature limit of 1.5°C considering all CO_2 and non-CO_2 climate impacts. Publicly available information does not make clear whether Schiphol's commitment to reduce CO_2 emissions from international aviation by at least 90% applies to both outgoing and incoming flights. If the target covers both, it is in line with sectoral benchmarks for the aviation sector.

The IEA's Net Zero by 2050 report shows that CO_2 emissions from aviation should decrease by 80% between 2019 and 2050 (IEA, 2021, p. 199). The CAT's fair share pathway shows that the global aviation sector as a whole needs to reduce CO_2 emissions by around 90% between 2019 and 2050 to be in line with global 1.5°C aligned scenarios and reach zero CO_2 emissions shortly after 2060 (CAT, 2022). Further, the ICCT found that cumulative emissions from international aviation will break the sector's 1.5°C carbon budget even under scenarios that assume widespread investments in reduction technologies and a peak in fossil jet fuel by 2025. The ICCT's most ambitious scenario shows a reduction of 94% in the aviation sector's CO_2 emissions between 2019 and 2050 and is compatible with a 1.75°C target (Graver et al., 2022).

Box 9 (cont.): Integrity assessment of the Schiphol Group's emissions reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

The Schiphol Group commits to the following interim emissions reduction targets:

- A reduction of 96% in scope 1, scope 2, and scope 3 emissions from airside ground operations and business travel by 2030, compared to 2019 levels.
- A reduction of ~10% of the aviation sector carbon emissions by 2030, compared to 2019 levels.

Interim targets: Low integrity

Emissions reductions by 2030 below 2019 across entire value chain

5-10% by 2030 *(estimate does not include non-CO_2 impacts)*

We estimate the Schiphol Group's interim targets translate into 5-10% carbon emissions reductions by 2030 below 2019 levels across the entire value chain by assuming that emissions from burnt kerosene from inbound flights (not reported by the company) are roughly the same as those from outbound flights. We do not consider the non-CO_2 impacts of aviation in this estimate.

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO_2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%). The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO_2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

The Schiphol Group does not meet these global benchmarks, but operates in a particularly hard-to-abate sector.

Sector-level benchmarks

The Schiphol Group's interim target of a maximum 10% reduction in aviation carbon emissions is not aligned with specific milestones for the aviation sector to decarbonise in line with 1.5°C trajectories. The IEA's Net Zero by 2050 report provides that CO_2 emissions from aviation should decrease by 28% between 2019 and 2030 (IEA, 2021, p. 199). The CAT's fair share pathway shows that emissions from international aviation should decrease by 54% in that period to make a fair share contribution to global efforts of limiting global warming to 1.5°C (CAT, 2022).

As part of its target to reduce aviation CO_2 emissions by 10% by 2030, compared to 2019 levels, the Schiphol Group committed to use 14% SAF by 2030. This meets benchmarks on the uptake of SAF for global aviation sector, which range between 10-15% by 2030 and 80-100% by 2050, conditional on high sustainability criteria and an overall demand reduction for air travel through policy regulation (Boehm et al., 2021; IEA, 2021; UNFCCC, 2021).

Do the interim targets align with the long-term vision?

The Schiphol Group transparently explains why it considers its 2030 interim targets aligned with its long-term vision of energy-positive airports and net-zero-carbon aviation sector by 2050.

Has the first interim target been set within maximum 5 years in the future?

The Schiphol Group does not commit to interim targets within a five-year time horizon that require immediate action.

Stellantis

Transport

Stellantis is an automotive company headquartered in Amsterdam. Formed in 2021 through the merger of Fiat Chrysler Automobiles and the PSA Group, the company owns 14 vehicle brands, including Fiat, Peugeot, and Citroën. **Stellantis committed to being carbon net zero by 2038.**

Revenue	Emissions	Pledge	Transparency	Integrity
EUR 149.4 bn (2021)	139 $MtCO_2e$ (2021), indirect non-European emissions not disclosed	Carbon net zero by 2038	Moderate	Moderate

1 Tracking and disclosure of emissions

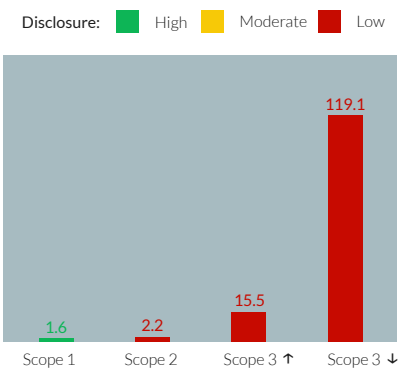
Transparency & Integrity: Low

- **Tracking and disclosure**
  139 $MtCO_2e$ (2021, scope 3 non-European emissions not disclosed)

  Indirect emissions are only reported for Europe.

Major emission sources: Use phase of sold vehicles (85% in 2021, downstream scope 3), purchased goods and services (11% in 2021, upstream scope 3).

Disclosure: Incomplete, as scope 3 emissions are only disclosed in relative terms and limited to Europe. Scope 1 and 2 emissions reported in absolute terms and for various regions, but no breakdown of specific sources. For scope 2 emissions, only the market-based estimate is provided.



2 Setting emission reduction targets

		Transparency	Integrity
Headline target or pledge	Carbon net zero by 2038.		
Coverage of emission sources *(in headline pledge)*	All scopes and subsidiaries are included in the net zero target.	High	High
Reduction of own emissions *(for pledge year, compared to full value chain in 2021)*	>90% by 2038 (2021 baseline) Stellantis will offset less than 10% of emissions, implying it will achieve deep emissions reductions of at least 90% by 2038, compared to 2021.	Moderate	Moderate
Interim emission reductions *(estimated compared to full value chain in 2021)*	To reduce full value chain emissions by 50% by 2030, compared to 2021. Underlying targets for specific emission scopes: ▪ To reduce absolute scope 1 and 2 emissions by 50% by 2025 and by 75% by 2030. ▪ To reduce scope 3 emission intensity by 50% by 2030. ▪ To sell 100% BEVs for passenger cars in Europe and 50% BEVs for passenger cars and light-duty trucks in the US by 2030. ▪ To reduce the emission intensity of purchased parts per EV by 40% by 2030. 50% by 2030 (2021 baseline)	High	Moderate

3 Reducing own emissions		Transparency	Integrity
		Moderate	Moderate
Emission reduction measures	Relevant measures aimed at reducing emissions in vehicle production and use phase, but unclear whether sufficient to align with a 1.5°C decarbonisation pathway.	Moderate	Moderate
Renewable electricity procurement	Renewable electricity accounted for just 18% of the company's power consumption in 2021 and originated from on-site installations and PPAs; aim to increase this share to 50% by 2025 and 100% by 2030.	Moderate	Moderate

4 Climate contributions and offsetting claims		Transparency	Integrity
		Moderate	Low
Responsibility for unabated emissions	Offsetting claims and contributions in Latin America with uncertain impact.	Moderate	Low
Climate contributions	*Since 2014, Stellantis has planted and donated more than 100 thousand seedlings in Brazil. It is unclear whether this funding is used to claim the neutralisation of emissions.*	Low	?
Offsetting claims today	*Stellantis claims to have neutralised operational emissions from South American plants with CDM credits for renewable energy and forestry, among others.*	Moderate	Low
Offsetting plans for the future	Up to 9% of baseline emissions may be compensated with carbon dioxide removals and other offsetting solutions to achieve net-zero carbon emissions by 2038. No clarity on criteria for projects or credits.	Moderate	?

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from Stellantis (2022a).

Stellantis

Most of Stellantis' emissions originate in the use phase of its vehicles. The company wants to reach carbon net zero in 2038; this target will be realised by offsetting less than 10% of current CO_2 emissions. Stellantis set interim targets for 2025 and 2030; its climate strategy has a focus on vehicle electrification, although it falls short of 1.5°C-aligned sectoral pathways.

Stellantis' aims to be carbon net zero by 2038, offsetting up to 9% of unabated emissions. In 2021, the company set the goal to be carbon net zero by 2038, including a commitment to reduce at least 90% of its own emissions compared to 2021 (Stellantis, 2022a, pp. 39–40).

As an interim target, Stellantis committed to reduce emissions by 50% by 2030, compared with 2021 (Stellantis, 2022a, pp. 37–39). The company will achieve this target based on other targets set for different emission sources: vehicle production, the vehicle use phase, and its supply chain (Stellantis, 2022a, pp. 34, 37–39). For vehicle production emissions (scopes 1 and 2), the company will reduce them by 75% by 2030, relative to 2021. For emissions from the vehicles' use phase (downstream scope 3), the company aims to sell 100% battery electric vehicles (BEVs) for passenger cars in Europe and 50% BEVs for passenger cars and light-duty trucks in the US by 2030; overall, for scope 3 the company expects a 50% emission intensity reduction by 2030, compared with 2021. For supply chain emissions (upstream scope 3), the company aims to reduce the emission intensity per electric vehicle (EV) part by 40% by 2030. Although Stellantis' 50% emission reduction target by 2030 covers its full value chain, the company only set absolute emission reduction targets for scopes 1 and 2; it does not disclose the absolute emission reductions that it expects from the emission intensity reductions in the downstream and upstream scope 3.

Stellantis' vehicle production emissions (scopes 1 and 2) represent 1% of the company's GHG emissions in Europe (Stellantis, 2022a, p. 41). The company aims to reduce its global scope 1 and 2 emissions by 50% in 2025 and by 75% in 2030, compared to 2021 (Stellantis, 2022a, pp. 38–39).

The company is implementing efficiency measures such as reorganising space use and grouping activities geographically, installing heating and cooling management systems, installing lightning retrofits, among other common-practice measures (Stellantis, 2022a, pp. 70, 75–76). Currently, Stellantis procures renewable electricity through green electricity contracts (PPAs) and produces electricity with on-site solar PV installations (Stellantis, 2022a, p. 72). Renewable and other decarbonised electricity accounted for 18% and 27% of the company's electricity consumption in 2021, respectively (Stellantis, 2022a, p. 73). Although the current renewable power supply is very low, the company intends to increase its decarbonised and renewable electricity consumption to 50% in 2025 and 100% in 2030 (Stellantis, 2022a, p. 38). Stellanktis could provide more details on its current supply constructs and its plans to guarantee high-quality renewable electricity procurement in the future.

Most of Stellantis' emissions occur during the use phase of its vehicles (85%). The company aims to sell only BEVs for passenger cars in Europe and 50% BEVs for passenger cars and light-duty trucks in the US by 2030 (Stellantis, 2022a, p. 37); this latter target, however, is not aligned with a 1.5°C sectoral pathway. In its Corporate Responsibility Report published in February 2022, Stellantis set core targets for the electrification of its vehicle fleet in the EU and the US. In the EU, the company expects to sell only BEVs in the personal car category by 2030, transitioning from 8% BEVs and 5% plug-in hybrids (PHEVs) in 2021 (Stellantis, 2022a, p. 37). In the US, the company currently sells 3.4% BEVs and PHEVs in the passenger car and light-duty truck categories; the aim is to sell 14%

BEVs and 23% PHEVs by 2025, 50% BEVs by 2030, and 100% BEVs by 2038 (Stellantis, 2022a, p. 37). Whereas Stellantis' target for the EU market is in line with 1.5°C sectoral pathways, its targets for the US markets are not. By 2030, 75-95% of all light-duty vehicles (LDVs) sold globally should be electric; in the US and the EU, EVs should account for 95-100% of all LDV sales (CAT, 2020, p. 27).

Stellantis also published its strategic blueprint Dare Forward 2030 in March 2022 (Stellantis, 2022b, pp. 41–44), which includes sale shares for low-emission vehicles (LEVs) in other key markets not included in its 2021 Corporate Responsibility Report. These targets likely miss 1.5°C sectoral benchmarks for Brazil, India and China (CAT, 2020, p. 28). The targeted sale shares are:

- > 25% share of LEVs in the Middle East and Africa regions.
- ~ 20% share of LEVs in Brazil (compared to 45-95% for all light-duty vehicle sales being electric by 2030 in 1.5°C aligned scenarios).
- ~ 50% share of BEVs in India and the Asia Pacific region (compared to 80-95% for all LDV sales being electric by 2030 in 1.5°C-aligned scenarios, including 2-and 3-wheelers).
- 60% share of passenger car BEVs in China (compared to 95-100% for all LDV sales being electric by 2030 in 1.5°C aligned scenarios, including 2-and 3-wheelers).

Stellantis did not sign the clean-vehicle pledge at COP 26 in November 2021, in which 11 competing automakers from several countries, including the US and Germany, committed to exclusively produce EVs by 2035, or earlier, to support limiting global warming to 1.5°C (United Kingdom et. al, 2021).

To support the electrification of its vehicle fleet, Stellantis is deploying vehicle charging solutions, like private charging devices, charging subscriptions, and a public fast charging network that will have 36,000 fast chargers by 2030 first in Italy, then in Europe and North America (Stellantis, 2022a, pp. 63–64). The company is also investigating measures to reduce emissions in the use phase, such as e-fuel produced with hydrogen energy (Stellantis, 2022a, p. 55), improved aerodynamic design (Stellantis, 2022a, p. 66), and hydrogen-based fuel cells for vehicle propulsion (Stellantis, 2022a, p. 55); the latter, however, would require much greater amounts of renewable power production than BEVs (Transport & Environment, 2018). Stellantis considers biofuels a key measure for emission reductions of its non-electric fleet; especially in Brazil, the company has deployed bioethanol-compatible vehicles (Stellantis, 2022a, p. 55) and is considering to launch an electric-bioethanol hybrid vehicle model in 2025 (Alerigi Jr., 2022). However, biofuel production at scale is very likely to affect other environmental and social interests, such as food production, biodiversity, and forest protection, and it could be incompatible with net-zero emissions (Clarke et al., 2022, p. 42). It is important that research into biofuels does not delay the phaseout of combustion-engine vehicles.

Stellantis uses offset credits but provides no details on the conditions of its offsetting policy. Stellantis' 2038 carbon net zero pledge includes a share of carbon offsetting of less than 10% of baseline emissions (Stellantis, 2022a, p. 39), but the company does not disclose what type of offset credits it plans to procure and whether corresponding adjustments would be applied (see Section 4.2.1 in the methodology, Annex I). Stellantis claims that 55% of its plants in South America have neutralised their scope 1 and scope 2 emissions in 2021, including the assembly plant in Goiana, Brazil (Stellantis, 2022a, p. 22). Stellantis has sourced offset credits from projects that are likely to present some of the lower quality credits available on the voluntary carbon markets and which may not lead to additional climate impact (see Section 4.2.1 in the methodology, Annex I). Projects from which Stellantis sources credits include energy generation from landfill waste, reforestation, and recovering environmentally degraded areas (Stellantis, 2022a, p. 73).

Box 10: Integrity assessment of Stellantis' emissions reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

Carbon net zero by 2038.

Headline pledge: Moderate integrity

Emissions reduction component alongside headline pledge

>90% by 2038

Stellantis will offset less than 10% of its emissions, implying it will achieve deep emissions reductions of at least 90% by 2038, compared to 2021.

Is the emission reduction component equivalent to at least 90% below 2019 levels? (if the headline pledge is a net-zero or carbon neutrality target)

Stellantis commits to an emissions reduction target of at least 90% by 2038 below 2021 levels across the entire value chain alongside its carbon net-zero pledge. An emission reduction target as part of a substantive net-zero pledge should generally reduce absolute emissions by at least 90% compared to a 2019 base year.

Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?

Stellantis' 2038 targets alongside its carbon net-zero pledge partially meet 1.5°C Paris Agreement-aligned milestones for automobile manufactures. In terms of 1.5°C compatibility for downstream scope 3 emissions from sold products, the automobile industry should reach zero emissions latest by 2035–2040 globally (CAT, 2020; Boehm et al., 2021; IEA, 2021; UNFCCC, 2021). Stellantis does not explicitly commit to this specific benchmark for its entire vehicle fleet sold globally by 2040, only for certain markets for electric vehicles such as the EU by 2030 and the US by 2038. In this context, Stellantis also announced its intention to "refine emission reduction trajectories aligned with 1.5°C scenario per region" throughout 2022 (Stellantis, 2022a, p. 37). Stellantis further commits to 100% renewable electricity from 2030 onward. This target—if realised with high-quality procurement constructs—would meet a cross-sectoral benchmark for corporates (SBTi, 2021c).

Box 10 (cont.): Integrity assessment of Stellantis' emissions reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

Overarching interim emissions reduction target of 50% by 2030 across the entire value chain, compared to 2021 levels. The overarching interim target is supported by the following targets, all with a 2021 baseline:

- To reduce absolute scope 1 and 2 emissions by 50% by 2025 and by 75% by 2030.
- To reduce scope 3 emission intensity by 50% by 2030.
- To sell 100% BEVs for passenger cars in Europe and 50% BEVs for passenger cars and light-duty trucks in the US by 2030.
- To reduce the emission intensity of purchased parts per EV by 40% by 2030.

Moderate integrity

Emissions reductions by 2030 below 2021 across entire value chain

50% by 2030

Stellantis commits to a 50% emission reduction target across the full value chain by 2030, compared to 2021.

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO_2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%).

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature? (cont.)

The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO_2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

Stellantis' interim targets for 2030, which have a 2021 baseline, might come close to align with emission reduction efforts required at the global level to limit global warming to 1.5°C.

Sector-level benchmarks

Stellantis' range of 2030 interim targets partially meet 1.5°C Paris Agreement-aligned milestones for automobile manufacturers' downstream scope 3 emissions identified in existing literature (SBTi, 2018b, 2018a; CAT, 2020; Dietz et al., 2020; Boehm et al., 2021; IEA, 2021; UNFCCC, 2021). 75–95% of all light duty vehicles (LDVs) sales should be electric—that is, have zero tailpipe emissions—by 2030 globally. 95–100% of LDV sales should be electric in Stellantis' main markets (CAT, 2020, p. 27), such as the European Union and the US, and reach 100% by 2035 in all leading markets (IEA, 2021; UNFCCC, 2021). The company only partially meets these benchmarks by 2030, as it aims to sell 100% EVs in the EU but only 50% in the US. On the latter market, Stellantis aims to reach 100% by 2038.

Apart from the core targets for the EU and US markets, the company has not committed to any phaseout dates for internal combustion engines for other sales market or other vehicle categories, such as light commercial vehicles. In March 2022, Stellantis for the first time presented aspirational EV sale shares by 2030 in the Middle East and Africa regions, in Brazil, in India and the Asia Pacific region, and in China, as part of its strategic blueprint Dare Forward 2030 (Stellantis, 2022b). These indicative targets likely miss 1.5°C sectoral benchmarks for Brazil, India and China (CAT, 2020, p. 28). The targeted sale shares are:

- >25% share of LEVs in the Middle East and Africa regions.
- ~20% share of LEVs in Brazil (compared to 45-95% for all LDV sales being electric by 2030 in 1.5°C-aligned scenarios).
- ~50% share of BEVs in India and the Asia Pacific region (compared to 80-95% for all LDV sales being electric by 2030 in 1.5°C-aligned scenarios, including 2- and 3-wheelers).
- 60% of share of passenger car BEVs in China (compared to 95-100% for all LDV sales being electric by 2030 in 1.5°C-aligned scenarios, including 2- and 3-wheelers).

Stellantis claims that its 2030 interim targets align with the "Paris Climate Agreement and 1.5°C scenario", referring to the SBTi's guidance for the transport sector (Stellantis, 2022a, p. 39). Important to note, however, the SBTi currently provides benchmarks for downstream scope 3 emissions from the use of sold products as part of their interpretation of a well below 2°C scenario as of June 2022 (SBTi, 2018b, 2018a), but does not provide these for a 1.5°C scenario. Neither TPI nor SBTi have evaluated Stellantis' targets for their downstream scope 3 emissions to date.

Do the interim targets align with the long-term vision?

Stellantis transparently explains why it considers its interim targets aligned with its long-term vision of carbon net zero emissions by 2038.

Has the first interim target been set within maximum 5 years in the future?

Stellantis sets a range of emissions reduction targets within a five-year timeframe that require immediate action.

Vion Food Group

Food

Vion Food Group N.V. is a meat-processing company, mainly producing pork. Vion has one shareholder, the agricultural and horticultural association Zuidelijke Land- en Tuinbouworganisatie. **Vion pledges to achieve net zero emissions by 2050.**

Revenue	Emissions	Pledge
EUR 4.6bn (2021)	Across the value chain: 13.18 $MtCO_2e$ (2021) In the Netherlands: 0.06 $MtCO_2e$ in 2021* *Excludes scope 3	Net-zero emissions across the value chain by 2045

Transparency	Integrity
Very low	Very low

1 Tracking and disclosure of emissions

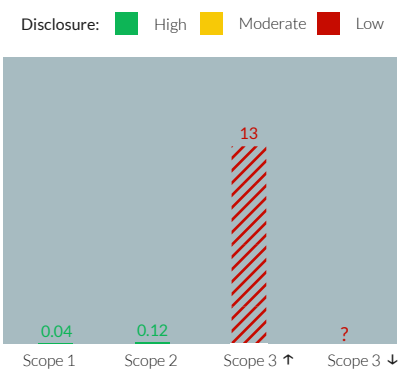
Transparency & Integrity: Very low

- **Tracking and disclosure**
  0.18 $MtCO_2e$ (2021)

  Subsidiaries covered

Major emission sources: 66% of reported emissions are from energy use (scope 2), mainly related to cooling and transport. Absolute scope 3 emissions (mainly related to livestock) are not reported; Vion gives a breakdown in shares. Independent analysis estimated that Vion's scope 3 were up to 13 $MtCO_2e$ in 2018 (99% of GHG footprint).

Disclosure: Detailed disclosure of scope 1 and 2 emissions, breakdown by country and detailed reporting of energy use. No reporting on absolute scope 3 emissions. Reported emissions are in a different order of magnitude than in previous reporting; no explanation what caused this.



2 Setting emission reduction targets

	Transparency	Integrity
	Very low	Very low

Headline target or pledge

Net-zero emissions by across the supply chain by 2045 (ultimately 2050).

- **Coverage of emission sources**
  (in headline pledge)

  Net zero target covers supply chain, implying that all emissions are covered, but exact scope 3 coverage is undefined.

  Low | ?

- **Reduction of own emissions**
  (for pledge year, compared to full value chain in 2021)

  ? by 2045

  Unclear what share of emissions will be reduced and what share will be compensated. Chart on scope 3 emissions shows net emission reductions.

  Low | Low

- **Interim emission reductions**
  (estimated compared to full value chain in 2021)

  ? by 2030

  Vion commits to the following interim targets, all below a 2021 baseline:
  - Scope 1: 55% reduction by 2030.
  - Scope 2: 80% reduction by 2025, 100% reduction by 2030.
  - Scope 3: net 45% reduction by 2030.

  Due to lack of reporting on scope 3 and use of neutralisation and emission reduction measures interchangeably, the impact across the value chain cannot be estimated.

  Moderate | Low

3 Reducing own emissions		Transparency	Integrity
		Low	Very low
Emission reduction measures	Several measures presented for scope 1 and 2 emissions. Some high-level description of scope 3 emission reduction measures.	Moderate	Low
Renewable electricity procurement	Currently very low share of renewable electricity. No clear explanation on what constructs will be used to achieve scope 2 emission reduction pathway.	Low	Low

4 Climate contributions and offsetting claims		Transparency	Integrity
		Very low	Very low
Responsibility for unabated emissions	No information identified on how the company takes responsibility for unabated emissions.	Low	Low
Climate contributions	*No climate contributions identified.*	N/A	Low
Offsetting claims today	*No offsetting claims today identified.*	N/A	N/A
Offsetting plans for the future	Scope 3 emission reductions are "net" reductions, but no details on offsetting approaches provided.	Low	?

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from Vion (2022a, 2022b).

Vion Food Group

Vion Food Group is an international food company with production sites in the Netherlands, Germany and Belgium. The company mainly processes pork and beef meat. Vion aims to have net zero emissions across the value chain by 2045. It remains unclear to what extent Vion plans to reduce or offset emissions; the company uses neutralisation measures and reduction measures in the same context. Vion does not report on scope 3 emissions, which are estimated to account for about 99% the company's GHG footprint. Vion does not commit to reducing its production of meat, making it highly unlikely that its estimated emissions footprint of 13.8 $MtCO_2e$ will be reduced substantially.

Vion does not report on approximately 99% of its GHG emissions. Vion's upstream emissions are estimated to be significant, because of the high emissions from livestock. Its climate strategy therefore has an unbalanced focus on scope 1 and 2 emissions. It is estimated that Vion's total footprint is at least 13.8 $MtCO_2e$ (Sharma, 2021); Vion currently reports only 1% of this volume. The company also says that only 20% of the slaughtered beef's emissions footprint is attributable to Vion, as the beef originates from the dairy sector; but does not explain this reasoning further (Vion, 2022a, p. 89). These upstream emissions are a shared responsibility with the dairy sector, and it is potentially misleading to not report them in the emissions disclosure.

Vion has a net-zero emissions target but is not clear if and how it wants to use neutralisation measures, such as carbon offset credits, to achieve it. Reliance on neutralisation measures would undermine the credibility of Vion's target. Vion's emission reduction pathway for scope 1 and 2 emissions suggest that the company wants to reduce those to real zero by 2045. However, its scope 3 emission reduction pathway shows net emission reductions. It remains unclear what share of this "net" will be met with real emission reductions and what share with contentious climate neutralisation measures (Vion, 2022a, pp. 43–44). In the absence of clarification on Vion's net-zero target, its true ambition level remains unclear.

Vion's interim targets are ambiguous and potentially rely on contentious neutralisation measures. In its Carbon Footprint Strategy, Vion outlines three interim targets, all compared to a 2021 baseline:

- To reduce scope 1 emissions by at least 55% by 2030;
- To reduce scope 2 emissions by at least 80% by 2025;
- To reduce scope 3 emissions by at least 45% by 2030.

Vion refers to its 2021 CSR report for further information on the targets (Vion, 2022b, p. 1). This CSR report includes graphs showing the reduction trajectories for scope 1, scope 2 and scope 3 emissions. While the graphs for scopes 1 and 2 coincide with the reduction targets for those emission scopes, the graph for scope 3 shows net reductions (Vion, 2022a, pp. 42–43). For this reason, we interpret Vion's interim target for scope 3 to be a net reduction target that may depend on the use of contentious neutralisation methods.

Vion does not explicitly consider reducing the meat production by, for example, a commitment to significantly increase its production of meat alternatives. Although the company has recently started producing plant-based meat alternatives (Vion, 2022a, p. 36), Vion does not commit to reducing its meat production or increase its focus on the production of meat alternatives. Rather, Vion defends the emissions profile of meat as a sustainable option, encouraging continued

consumption. This is in contrast with the most recent IPCC's Sixth Assessment Report that emphasises that global meat consumption needs to decrease to limit global warming (Babiker et al., 2022).

The share of renewable energy in Vion's energy consumption is remarkably low compared to regional averages, which raises concerns about the feasibility of its 2025 renewable target. Vion commits to reduce its scope 2 emissions, mainly from energy-use, 80% by 2025 (Vion, 2022a, p. 43). The current share of renewable electricity in the company's electricity mix remains remarkably low. In the Netherlands, only 0.05% of Vion's consumed electricity is from renewable sources, compared to 26% of renewable electricity generation as the country's weighted average (Vion, 2022a, p. 43).

Box 11: Integrity assessment for Vion's emissions reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

Net-zero emissions by across the supply chain by 2045.

Headline pledge: Low integrity

Emissions reduction component alongside headline pledge

? by 2045

No deep emission reduction target is presented alongside the net zero pledge. Charts presented by the company suggest real zero, but this is not made explicit.

Is the emission reduction component equivalent to at least 90% below 2019 levels? *(if the headline pledge is a net-zero or carbon neutrality target)*	Vion does not commit to a deep emission reduction target alongside its net zero pledge by 2045, leaving the door open for contentious neutralisation measures to achieve this target. It is also not clear if all scope 3 emissions are included in the target.
Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?	Vion further does not explain why it considers the 2045 net zero target aligned with the Paris Agreement's temperature limit of 1.5°C.

Box 11 (cont.): Integrity assessment for Vion's emissions reduction targets targets

(see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

Vion commits to the following interim targets, all below a 2021 baseline:

- Scope 1: 55% reduction by 2030.
- Scope 2: 80% reduction by 2025, 100% reduction by 2030.
- Scope 3: net 45% reduction by 2030.

Interim targets: Low integrity

Emissions reductions by 2030 below 2019 across entire value chain

? by 2030

We are unable to quantify the interim targets' impact across the value chain due to a lack of reporting on scope 3 emissions and the interchangeable use of neutralisation and emission reduction measures.

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO_2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%). The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO_2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

We cannot evaluate Vion's interim targets in light of these global efforts required to limit global warming below 1.5°C, given that Vion does not publicly disclose its scope 3 emissions and the high uncertainty about the use of offsets to achieve the interim targets for this emission scope.

Sector-level benchmarks

Existing literature provides a few specific milestones for the meat production and processing sector to decarbonise in line with 1.5°C trajectories (Boehm et al., 2021; UNFCCC, 2021). Ruminant meat consumption in the Americas, Europe, and Oceania ought to decrease by around 15% between 2018 and 2030 in terms of daily consumption per capita (Boehm et al., 2021). The IPCC's Sixth Assessment Report further stresses both the importance of low emission footprints of diets that are high in plant protein and low in meat and dairy, and the emission reduction potential of emerging food technologies such as alternatives to animal-based food products (AR6-TS, p. 89). **We cannot evaluate Vion Food Group against these benchmarks given the limited available information.**

Do the interim targets align with the long-term vision?

Vion provides no explanation of why it considers its 2030 targets to be aligned with its long-term vision of net-zero emissions across the supply chain by 2045.

Has the first interim target been set within maximum 5 years in the future?

Vion only commits to an earlier interim target within a five-year time horizon (i.e., 2026) for scope 2 emissions only, but not for scope 1 and 3 emissions.

Vitol

Energy

Vitol is a Dutch energy and commodity trading company headquartered in the Netherlands and Switzerland and operating globally. It focuses on energy distribution, including the trade, transport, storage, refinement, exploration, and production of commodities such as oil and gas. As part of its business strategy, the company is investing in renewable energy projects, developing hydrogen generation capacity, and selling offsetting solutions. **Vitol does not communicate a specific pledge for the reduction of greenhouse gas emissions.**

Revenue	Emissions	Pledge	Transparency	Integrity
EUR 254.0 bn (2021)	15.1 $MtCO_2e$ (2021)	None identified	Very low	Very low

1 Tracking and disclosure of emissions

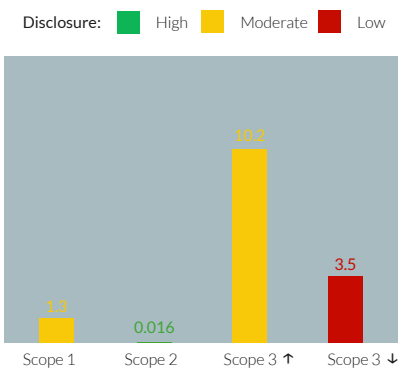
Transparency & Integrity: Low

- **Tracking and disclosure**
  15.1 $MtCO_2e$ (2021)

  Subsidiaries covered

Major emission sources: Shipping of commodities in third-party vessels (upstream scope 3, 68%), followed by emissions from investees (downstream scope 3, 23%).

Disclosure: Disclosure of emission estimates in most relevant scopes since 2022; some upstream scope categories are not reported. Scope 1 emissions reporting excludes black carbon emissions. Reported downstream emissions do not include use-phase emissions from commodity trade to wholesale markets, which are especially relevant for Vitol's business model.



2 Setting emission reduction targets

		Transparency	Integrity
Headline target or pledge	No headline target identified.		
Coverage of emission sources *(in headline pledge)*	Vitol sets no emissions reduction targets as part of its climate change mitigation strategy.	Low	Low
Reduction of own emissions *(for pledge year, compared to full value chain in 2019)*	X No long-term emissions reduction target identified.	Low	Low
Interim emission reductions *(estimated compared to full value chain in 2019)*	X No interim emissions reduction targets identified.	Low	Low

3 Reducing own emissions		Transparency	Integrity
		Very low	Very low
Emission reduction measures	Most emission reduction measures are not described in detail and do not include their expected emission reductions. The measures focus mostly on reducing emissions from company-owned shipping vessels and investees. Vitol will invest in crude oil past 2030; the company has not set dates to phase out fossil fuel trade and infrastructure. The company presents its trading of carbon offsets as a decarbonisation effort, although offsetting can be a hindrance to corporate climate ambition.	Low	Low
Renewable electricity procurement	Increasing investments in renewable energy production, but no information on renewable electricity consumed.	Low	?

4 Climate contributions and offsetting claims		Transparency	Integrity
		Very low	Very low
Responsibility for unabated emissions	No information identified on how the company takes responsibility for unabated emissions.	Low	Low
Climate contributions	*No climate contributions identified.*	N/A	Low
Offsetting claims today	*Vitol develops its own carbon reduction and removal projects with a focus on Africa and aims to expand its carbon offset business, but it does not make emission neutralisation claims for its own business.*	N/A	N/A
Offsetting plans for the future	Vitol is an active offset project developer but has not expressed an intention to neutralise the emissions of its own business in the future.	Low	?

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from Vitol (2022).

Vitol

Vitol specialises in the trade and distribution of crude oil, but also trades natural gas and electricity, and participates in oil exploration and refinement. The company has not set emission reduction targets. Vitol's reported emission reduction measures include the trading of carbon offsets, although this could negatively impact the climate ambition of other corporates. The company has plans for continued investments in fossil-fuel-related infrastructure past 2030; its continued role serving the fossil fuel supply industry is misaligned with the Paris Agreement objectives.

Vitol has not made any climate-related pledges and has not set interim targets to drive emission reductions. Vitol's climate strategy is the Vitol Energy Transition Initiative (VETI), developed in 2020 (Vitol, 2022, p. 34). The strategy is still under development, and the company plans to set absolute or intensity targets in 2022 (Vitol, 2022, p. 31).

Vitol claims to have presented a complete emissions disclosure for the first time in 2022, which shows that most of its emissions originate from commodity shipping; however, the company does not disclose use-phase emissions from commodity trade with non-end users, which are especially relevant for Vitol's business model. For its second environmental, social, and corporate governance (ESG) report, the company presented a disclosure of emissions that mostly follows the GHG Protocol Corporate Standard (Vitol, 2022, pp. 31, 54–55). In 2021, emissions in scope 1 (shipping emissions from company-owned vessels) accounted for 9% of the company's reported carbon footprint and increased by 21% since 2018. Scope 2 emissions accounted for 0.1% and stayed largely the same since 2018. Vitol first estimated all its material scope 3 emission categories in 2021, so it is not possible to determine a scope 3 emissions trend (Vitol, 2022, p. 37). In 2021, scope 3 emissions accounted for 91% of the company's reported emissions: 23% are downstream emissions, mainly stemming from Vitol's investments, and 68% are upstream emissions mainly from transport of oil and other commodities in third-party vessels (Vitol, 2022, pp. 52–55). Vitol claims to present all material scope 3 emission categories (Vitol, 2022, p. 37) but does not include emissions from commodity sales to the wholesale market, thereby concealing the large emissions footprint from the fossil fuel supply chain that Vitol serves. It would be more transparent for Vitol to report on these emissions, since fossil fuel trade forms the basis for the company's business model, and the combustion of those fossil fuels is the main source of concern regarding the company's contribution to climate change.

Vitol's emissions from investments represented 23% of its reported scope in 2021 (Vitol, 2022, pp. 54–55); the company does not disclose measures in detail nor disclose their expected emission reduction impact. In 2021, Vitol provided investees with means to measure their emissions and report them back; the company reports that it engages with investees through board participation and discussions about their climate strategy (Vitol, 2022, pp. 35–36). Vitol's strategy to reduce investment emissions appears vague. The extent to which this engagement by Vitol can be effective at reducing emissions remains to be seen; although the company's investment emissions decreased 1.5% from 2020 to 2021, they were still 11% higher than in 2019 (Vitol, 2022, pp. 54–55).

Shipping emissions represented 71% of Vitol's reported emissions in 2021 (Vitol, 2022, pp. 54–55); the company does not appear to have short-term plans to meaningfully address these emissions. Vitol's shipping emissions

totalled 9.8 $MtCO_2e$ in 2021, of which 10% were included in scope 1 (Vitol-owned vessels) and 90% in scope 3 (third-party vessels) (Vitol, 2022, p. 36). Vitol does not report on black carbon emissions from its vessels. For its own fleet, Vitol outlines emission reduction measures that include using biofuels, improving battery technology, improving sail technology, and R&D of alternative fuels like e-methanol and hydrogen (Vitol, 2022, p. 41). Vitol highlights that in 2021 it achieved certifications for its vessels' energy performance and that it surpasses the International Maritime Organisation's minimum emission reduction requirements (Vitol, 2022, pp. 36, 41). Vitol's measures are focused primarily on long-term technological innovations to lower vessel emissions; although a few measures are being implemented in the short term, such as engine power limitations (Vitol, 2022, p. 36). However, the impact of these measures remains unclear, as scope 1 shipping emissions have increased by 27% since 2019 (Vitol, 2022, pp. 54–55). Furthermore, the measures outlined only target 10% of Vitol's shipping emissions, since the company does not disclose measures to reduce emissions from third-party vessels.

Vitol will keep investing in fossil fuels past 2030 (Vitol, 2022, p. 42), which makes it unaligned with a 1.5°C decarbonisation trajectory. The company is increasing its investments in less carbon-intensive assets, such as wind and solar PV installations; it currently has 1.2 GW of operational or approved renewable generation capacity (Vitol, 2022, p. 44). It aims to increase its participation in the gas and biofuel markets, which it considers transitional energy sources (Vitol, 2022, p. 42). For the longer term, Vitol is investigating the deployment of hydrogen, carbon capture and storage, and vehicle electrification solutions (Vitol, 2022, p. 44). Despite the growing interest in sustainable investments, Vitol will continue to invest in crude oil past 2030 (Vitol, 2022, p. 42) and has not set phaseout dates for fossil fuel trade. Reducing global emissions to net zero by 2050 requires that no new investments in fossil fuel projects are made as of 2021 (IEA, 2021). Instead, financial support for scaling up clean energy technologies and CCS is needed (IEA, 2021). Vitol's investment plans on future oil projects are misaligned with these findings.

Vitol develops offset projects and trades offset credits; the company presents this as a pillar of its emission reduction strategy, although the practice of offsetting can also negatively impact other corporates' climate ambitions. Vitol aims to expand the business branch related to "environmental products", the term the company uses for carbon offset credits; since 2019, traded volumes have more than doubled to a total of 126 $MtCO_2e$ (Vitol, 2022, p. 46). Vitol participates in the design and implementation of these projects, which are certified by other standards (Vitol, 2022, p. 47). The company offers its customers options to offset emissions associated with the production and transportation of traded commodities, and aims to expand processes that can be offset (Vitol, 2022, p. 47). Although the company is developing its own carbon removal and reduction projects in Africa, it does not appear to claim the neutralisation of its own emissions (Vitol, 2022, p. 47).

Box 12: Integrity assessment of Vitol's emission reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

No headline target identified.

Headline pledge: Low integrity

Emissions reduction component alongside headline pledge

X No long-term emissions reduction target identified.

Vitol neither commits to a headline climate pledge nor any other long-term emissions reduction target as part of its climate change mitigation strategy. We rate this as having low integrity because the absence of any longer-term target neglects the need for deep emission reductions towards mid-century to keep a reasonable chance to achieve the Paris Agreement objectives (IPCC, 2022).

Is the emission reduction component equivalent to at least 90% below 2019 levels? *(if the headline pledge is a net-zero or carbon neutrality target)*	Not assessed as no target identified.
Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?	Not assessed as no target identified.

Box 12 (cont.): Integrity assessment of Vitol's emission reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

No interim emissions reduction targets identified.

Interim targets: Low integrity

Emissions reductions by 2030 below 2019 across entire value chain

X No interim emissions reduction targets identified.

Vitol sets no interim emissions reduction target for the short or medium term. We rate this corporate practice as 'low integrity' as Vitol neglects the urgent need for immediate and accountable climate action by all actors to limit global warming below 1.5°C as emphasised in the IPCC's Sixth Assessment Report of 2022 (IPCC, 2022).

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?	Not assessed as no target identified.
Do the interim targets align with the long-term vision?	Not assessed as no target identified.
Has the first interim target been set within maximum 5 years in the future?	Not assessed as no target identified.

Vopak

Storage and handling

Royal Vopak N.V.—headquartered in the Netherlands—is a multinational chemical company specialising in the storage and handling of, among other products, chemicals, oil, fossil gas, liquefied natural gas (LNG) and biofuels. **In 2020, the company committed to become carbon neutral across its scope 1 and scope 2 emissions by 2050.**

Revenue	Emissions	Pledge
EUR 1.3 billion (2021)	0.67 $MtCO_2e$ (2021) for scope 1, scope 2, and selected upstream scope 3 emissions	Carbon neutral by 2050

Transparency	Integrity
Low	Very low

1 Tracking and disclosure of emissions

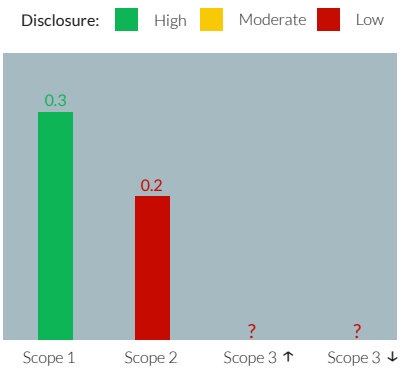
Transparency & Integrity: Low

- **Tracking and disclosure**
  0.67 $MtCO_2e$ (2021)

  Subsidiaries covered

Major emission sources: Direct emissions (scope 1 not differentiated, 52%), energy-related emissions (scope 2, 34%), purchased goods and services (upstream scope 3, 9%).

Disclosure: Comprehensive reporting on scope 1 and scope 2 emissions, although it is unclear whether scope 2 emissions have been estimated using a market-based or location-based accounting method. Inadequate scope 3 emissions disclosure, with only few selected upstream scope 3 emissions indicatively reported.



2 Setting emission reduction targets

	Transparency	Integrity
	Moderate	Very low

Headline target or pledge

Carbon neutral by 2050.

Coverage of emission sources *(in headline pledge)*	The carbon neutrality target covers scope 1 and scope 2 emissions, but explicitly excludes all scope 3 emissions.	High	Low
Reduction of own emissions *(for pledge year, compared to full value chain in 2021)*	? by 2050 — No emissions reduction target is communicated alongside the carbon neutrality target.	Low	Low
Interim emission reductions *(estimated compared to full value chain in 2021)*	<1% by 2030 *(estimate)* — 30% absolute reduction of scope 1 and scope 2 emissions by 2030 below 2021 levels.	High	Low

3 Reducing own emissions		Transparency	Integrity
		Low	Very low
Emission reduction measures	Limited information on a range of measures and the company's strategic portfolio shift. Unclear whether sufficient to meet targets.	Moderate	?
Renewable electricity procurement	Vopak commenced operations of a 25 MW solar PV park close to the Eemshaven port in 2021, from which it purchases RECs. No further disclosure of other renewable electricity procurement constructs.	Low	?

4 Climate contributions and offsetting claims		Transparency	Integrity
		Very low	Very low
Responsibility for unabated emissions	No information identified on how the company takes responsibility for unabated emissions.	Low	Low
Climate contributions	*No climate contributions identified.*	N/A	Low
Offsetting claims today	*No offsetting claims today identified*	N/A	N/A
Offsetting plans for the future	Vopak reserves the right to temporarily use offsets as a last resort to meet its emission reduction targets. It neither explains how it defines a 'temporary' use nor communicates any specific conditions on the type of offset credits or a total maximum amount purchased in the future.	Low	?

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from Royal Vopak (2021b, 2021c, 2022), Hoekstra (2021) and Spence (2021).

Vopak

Vopak provides storage services for a range of products such as chemicals, oil, fossil gas and liquefied natural gas (LNG). The company commits to become carbon neutral by 2050 for its own operations (scope 1 and scope 2) supplemented by a 2030 interim target covering the same emission sources. The lack of information on what the 2030 and 2050 targets imply in terms of real emission reductions across the entire value chain, and how Vopak intends to get there given its ongoing focus on conventional fossil fuel infrastructure such as LNG terminals as one key business area, hinders an assessment of the company's climate ambition.

Vopak lacks proper disclosure of upstream and downstream scope 3 emissions, suggesting they do not take responsibility for indirect use phase emissions from its stored and handled products such as fossil fuels. In 2021, the company indicatively reported on only a few selected upstream scope 3 emissions and stated its intention to expand its scope 3 disclosure in the future (Royal Vopak, 2022, p. 102). Vopak's business model of storing and handling commodities like oil and fossil gas remains an integral part of the high-emitting oil, fossil gas, and chemical industries' value chain. While the 2011 Scope 3 Standard of the GHG Protocol may not require companies to report on indirect emissions from product use, especially in the context of commodity handling and storing, not disclosing these scope 3 emissions diverts the attention away from Vopak's essential role in providing fossil fuels and chemicals to end customers. For this reason, we consider Vopak's practice to not disclose any scope 3 emissions for its stored and handled commodities an untransparent practice. Scope 1 and scope 2 emissions are generally disclosed comprehensively and cover all subsidiaries (Royal Vopak, 2022, pp. 100–102). Detailed explanations of the disclosing boundaries, a split of all operational emissions by greenhouse gases (CO_2, CH_4, N_2O), and prominent references to the range of methodologies applied, contribute to the overall disclosure transparency. However, the company does not explain whether it applies a market-based or location-based accounting approach to estimate its scope 2 emissions.

Vopak's interim absolute reduction target of 30% below 2021 levels covers only emissions from own operations (scope 1 and scope 2) (Royal Vopak, 2022, pp. 84; 99). We cannot compare this target in terms of its emission reduction impact across the entire value chain in 2019 given the lack of emissions disclosure (see paragraph above). The company sets no interim target for scope 3 emissions and provides no indications on how it intends to reduce any of its scope 3 emissions currently disclosed, for example by procuring low-carbon steel in the future or increase its waste recycling rate. For these reasons, we evaluate the company's interim targets of 'low integrity' (see Box 13 for a detailed integrity assessment).

Vopak explicitly reserves the right to temporarily use offset credits to meet its future emission reduction targets as a last resort (Royal Vopak, 2022, p. 99). The company neither specifies what it means by using offsets as a "temporary solution" nor communicates any specific conditions or limits on the potential future use, for example a total maximum amount or conditions on the type of credits to be purchased if it would fail to meet its targets. At the same time, Vopak also does not make any specific statement to what extend it aims to reduce own emissions to become carbon neutral by 2050 across its own operations (scope 1 and scope 2), thus leaving the door open for potential future offsetting. Offsetting is generally not a credible equivalent to reducing own emissions and—if used at all—should be reserved for few exceptions meeting very strict conditions (see Section 4.2.1 in the methodology, Annex I).

The company presents a range of energy efficiency and other pilot measures, but due to a lack of information on their scale, timeline and projected emission reduction it is difficult to understand those measures' abatement potential. The presented measures comprise, among others, a pilot applying solar foil in the Dutch terminal in Vlaardingen, a programme for insulating storage tanks, and installation of industrial LED lighting (Royal Vopak, 2022, pp. 101; 108). The company remains vague on the measures' implementation status, scope, and emissions reduction impact. Given the limited information provided, it remains unclear how Vopak intents to meet its targets for 2030.

A strategic portfolio shift implemented by Vopak since 2014 led to a stronger focus on storing and handling liquefied natural gas (LNG), hydrogen produced from renewables (green) and fossil gas (grey), ammonia, CO_2, flow batteries, and sustainable feedstocks. Vopak has decommissioned more than ten oil terminals since 2014 and added more than ten new (industrial) terminals suitable for the abovementioned gases and chemicals (Royal Vopak, 2022, p. 54). The company also recently announced investments to expand its business activities towards contributing to larger-scale flow batteries together with battery start-up Elestor, and the expanded storage of feedstock to produce renewable diesel and sustainable aviation fuel (SAF) together with Shell (Royal Vopak, 2021c; Spence, 2021). Given these recent infrastructure investment announcements in LNG, hydrogen, and feedstock terminals, it remains to been seen whether Vopak's storage and handling infrastructure in the future will be used for materials and services that support zero- and low-carbon carbon industrial activities or rather become part of a carbon intensive infrastructure lock-in.

Vopak makes the highly contentious claim that the use of fossil gas presents an option to achieve the Paris Agreement goals when emphasising its intention to use more renewable energy sources for operating its rapidly expanding line of business to store and handle liquefied natural gas (LNG) (Royal Vopak, 2022, p. 101). Vopak's operational emissions related to LNG have increased in recent years given the higher energy requirements for its storage and handling (Hoekstra, 2021, p. 23; Royal Vopak, 2022, p. 101). The company claims that the increased use of LNG "contributes to the climate goals, for instance in countries where LNG replaces coal for power generation" (Royal Vopak, 2022, p. 101) and "power-emission alternative to diesel and fuel oil in the transport sector" (Hoekstra, 2021, p. 23). However, recent analyses emphasise the need to drastically reduce the exploration and use of fossil gas to meet the Paris Agreement objectives as the entire value chain faces high 1.5°C incompatibility, lock-in- and transition risks (IEA, 2021; Marquardt and Kachi, 2021). This is especially relevant for demand sectors such as transport or energy supply, for which zero emission alternatives are readily available today.

Apart from its equity share in the solar PV park close to the port of Eemshaven, Vopak provides no detailed information on its renewable electricity procurement. The Vopak Solar Park Eemshaven owned by Vopak, Groningen Seaports and Whitehelm Capital with an installed solar PV capacity of 25 MW became fully operational in 2021 (Royal Vopak, 2021a, pp. 3; 5, 2021b, 2022, p. 101). The consortium sells the renewable energy certificates (RECs) to local companies within Groningen Seaports and Vopak itself (Royal Vopak, 2022, p. 101). While Vopak claims that all its Dutch subsidiaries procure 100% renewable electricity, the company provides no further information on the underlying procurement constructs. Similarly, the company provides no further information on the renewable procurement constructs outside of the Netherlands. For 2021, the company reports a 56% share of renewable energy in total energy use throughout global operations (Royal Vopak, 2022, p. 107).

Box 13: Integrity assessment for Vopak's emissions reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

Carbon neutral by 2050.

Headline pledge: Low integrity

Emissions reduction component alongside headline pledge

? by 2050

No deep emissions reduction target presented alongside the carbon neutrality pledge.

Is the emission reduction component equivalent to at least 90% below 2019 levels? (if the headline pledge is a net-zero or carbon neutrality target)	**Vopak does not commit to a deep emissions reduction target alongside its carbon neutrality commitment, leaving the door open for contentious neutralisation measures to achieve this target.** The company's carbon neutrality pledge also excludes scope 3 emissions entirely, which account for a large share of Vopak's GHG footprint.
Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?	Vopak does not explain why it considers the 2050 carbon neutrality target aligned with the Paris Agreement's temperature limit of 1.5°C.

Box 13 (cont.): Integrity assessment for Vopak's emissions reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

Interim targets for 2030 announced:

- 30% absolute reduction of scope 1 and scope 2 emissions by 2030 below 2021 levels.

Interim targets: Low integrity

Emissions reductions by 2030 below 2019 across entire value chain

<1% by 2030 *(estimate)*

Vopak's interim target equals a reduction of just around 1% across scope 1 and scope 2 emissions from 2019 levels. Given that Vopak disclose few scope 3 emission sources for 2021 and none for 2019, we are unable to calculate exactly what their interim target means in terms of reduction across the value chain but very likely less than 1% across the entire value chain.

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO_2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%). The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO_2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

Vopak's interim target, equivalent to less than 1% emissions reduction by 2030 below a 2019 baseline across the entire value chain, falls way short from global efforts required to limit global warming to 1.5°C.

Sector-level benchmarks

Existing literature provides no specific milestones for the storage, logistics, and handling industry, which makes an independent analysis of Paris Agreement aligned climate action in the sector difficult. This gap in existing literature allows no conclusive assessment of sector-specific decarbonisation efforts in line with the Paris Agreement's 1.5°C temperature. Vopak, together with the entire storage, logistics, and handling industry, needs to put further emphasis on determining sector-specific decarbonisation milestones in line with the Paris Agreement in a transparent, scientific and verifiable process

In this context, Vopak must consider specific milestones for the oil and gas sector to decarbonise given the important role of the company's business activity in the sector's value chain. At the global level, for example, the UNFCCC (2021) identifies a required 40% reduction of oil and gas production by 2030 below 2019. The IEA (IEA, 2021) has further specified that no new oil and gas fields should be approved for development from 2021 onwards to be in line with a global energy sectors pathway compatible with 1.5°C temperature limit. These milestones to phase out global oil and gas production become relevant for Vopak's core business activities of storing and handling oil and fossil gas in the future. For example, the storage and handling of LNG faces very high incompatibility risks with a global 1.5°C temperature limit and risks a fossil fuel infrastructure lock-in and transition risks (Marquardt and Kachi, 2021).

Do the interim targets align with the long-term vision?

Vopak provides no explanation of why it considers its 2030 interim target aligned with its long-term vision of carbon neutrality by 2050.

Has the first interim target been set within maximum 5 years in the future?

Vopak does not commits to interim targets within a five-year time horizon that require immediate action.

3

3.2 Subsidiaries in the Netherlands

Company case studies

bp Europe SE – bp Nederland

Oil and gas

bp Europe SE – bp Nederland is a subsidiary of the UK-based bp PLC, which is one of the world's largest oil companies. bp PLC pledged to have **net-zero emissions across operations, production and sales by 2050 or sooner**. bp Nederland is covered by this target.

Revenue	Emissions	Pledge
bp PLC: EUR 156 bn (USD 164 bn) (2021) bp Nederland: no data identified	bp PLC: 1.2 $GtCO_2e$ in 2021 bp Nederland: 2 $MtCO_2e$ (2019) (Rotterdam refinery, scope 1)	Net zero by 2050 or sooner

Transparency	Integrity
Low	Very low

1 Tracking and disclosure of emissions

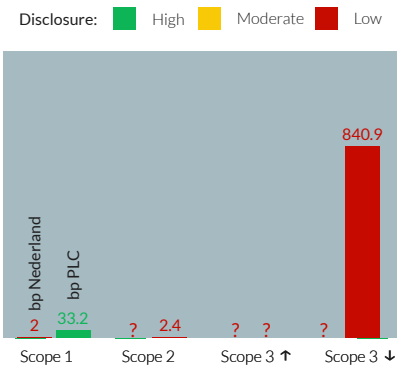
Transparency & Integrity: Very low

- **Tracking and disclosure**
  1.2 $MtCO_2e$ (2021)

  Subsidiaries covered

Major emission sources: Combustion of sold fuels (73% of reported emissions).

Disclosure: Untransparent reporting of scope 3 emissions, no breakdown of the various upstream and downstream sources included. Independent analysis suggests the oil major does not disclose all of its emissions.



2 Setting emission reduction targets

Transparency	Integrity
Low	Very low

Headline target or pledge

bp Nederland is covered by bp PLC target of net zero across operations, production and sales by 2050 or sooner.

		Transparency	Integrity
Coverage of emission sources *(in headline pledge)*	Net zero operations covers scope 1 and 2; net-zero production covers upstream scope 3 emissions; unclear what emission sources are covered by 'net-zero sales'.	Low	?
Reduction of own emissions *(for pledge year, compared to full value chain in 2019)*	? by 2050 — No emissions reduction target alongside the net-zero pledge presented.	Low	Low
Interim emission reductions *(estimated compared to full value chain in 2021)*	Targets for 2025, with a 2019 baseline: ▪ To reduce scope 1 and 2 by 20%; ▪ To reduce upstream scope 3 by 20%; ▪ To reduce emissions intensity of sold energy products by 5%. And aims for 2030, with a 2019 baseline: Dutch subsidiary level ? by 2030 ▪ To reduce scope 1 and 2 by 50%; ▪ To reduce upstream scope 3 by 35-40%; Group level ? by 2030 ▪ To reduce emissions intensity of sold energy products by 15-20%.	High	Low

3 Reducing own emissions		Transparency	Integrity
		Very low	Very low
Emission reduction measures	Limited and generic information on emission reduction measures. Scale of implementation and emission reduction potential remain unclear. No phase out plans for fossil fuels.	Low	Low
Renewable electricity procurement	Renewable electricity accounted for 2.7% of bp PLC's energy consumption in 2020. No strategy presented for renewable electricity consumption in the future. No information disclosed on bp Nederland's RE procurement.	Low	?

4 Climate contributions and offsetting claims		Transparency	Integrity
		Low	Very low
Responsibility for unabated emissions	Offsetting approaches with contentious impact.	Moderate	Low
Climate contributions	*No climate contributions identified.*	N/A	Low
Offsetting claims today	*bp PLC offers customers carbon neutral products. Credits sourced from projects where the impact is highly contentious.*	Moderate	Low
Offsetting plans for the future	Intentions for 2030 are unclear; while bp PLC states it does not plan to use offsets to achieve its 2030 targets, the company also plans to bundle carbon credits with energy it sells and account for those credits. bp PLC does not rule out to use offsets for its 2050 net-zero pledge.	Low	?

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from bp PLC (2021, 2022c, 2022d), Deijl (no date), DCMR (2021) and Liauw et al. (2022b).

bp Europe SE – bp Nederland

bp Nederland is a subsidiary of bp PLC, which is based in the United Kingdom, and part of bp Europe SE with its headquarters in Hamburg (bp, 2022a). bp Nederland's focus lies on the refinery and marketing of fuels and lubricants. bp's refinery in Rotterdam (bpRR) is one of the largest refineries in western Europe, handling 19 million tonnes of petroleum annually (bp, 2022f). bp Nederland is included in bp PLC's pledge to have net-zero emissions by 2050 or sooner. This target is undermined by the absence of a deep emission reduction targets alongside the net-zero pledge and very limited information on pursued emission reduction measures. bp's plans to reduce emissions from its Rotterdam refinery lack detail.

bp PLC's disclosure of product use emissions is untransparent and possibly excludes large shares of its emissions footprint. bp PLC reports on the "aggregate lifecycle emissions associated with marketing sales of energy products", which were 876.5 $MtCO_2e$ in 2021(bp, 2022c, p. 3). We understand this to implicitly include bp's scope 1 and 2 emissions and emissions from the combustion of sold products. However, as bp PLC provides no breakdown of its various emission sources, it remains unclear what emission sources the company reports and does not report on.

Analysis by Global Climate Insights found that bp's actual emissions from sold products may be more than twice as high as reported emissions (Liauw et al., 2022b, p. 8). The researchers included estimated emissions for traded sales for oil and gas and crude oil sales in their calculations and found that bp's emissions from sold products in 2019 were around 2430 $MtCO_2e$, compared to the 991-993[3] $MtCO_2e$ disclosed by bp (Liauw et al., 2022b, p. 8).

Neither the holding company bp PLC nor the subsidiary bp Nederland report on GHG emissions of the Dutch subsidiary. According to the Netherlands' emissions authority, scope 1 emissions from the Rotterdam refinery were 2 Mt CO_2e in 2020 (NEA, 2021).

bp PLC's net-zero sales target is an intensity target, allowing the oil major to show good progress towards it without necessarily reducing emissions. At the holding level, bp PLC set three interlinked net-zero targets for 2050 (bp, 2022d, p. 40):

- Net-zero operations, which covers scope 1 and 2;
- Net-zero production, which covers upstream scope 3; and
- Net-zero sales of marketed energy products, which covers production, distribution, and end use emissions.

Whereas the first two targets aim to reduce absolute scope 1, 2 and upstream scope 3 emissions to net zero, the third one is an intensity target. This means that bp PLC can show progress towards this target by expanding its low-carbon business activities, while continuing business as usual with its fossil fuel activities. As long as the increase in sales of low-carbon fuels outweighs the increase in sales of fossil fuels, bp PLC's carbon intensity will drop. Indeed, the oil major does not list a reduction in fossil fuel production as one of the measures to reduce the carbon intensity of marketed energy products by 15-20% by 2030 (bp, 2022d, pp. 16–19). Rather, the company focuses on growing bioenergy, renewable and hydrogen sales (bp, 2022d, pp. 16–19). For

3 bp PLC made a slight adjustment to its "aggregate lifecycle emissions associated with marketing sales of energy products" over 2019 its ESG Data over 2021. In that document, bp PLC reported that "aggregate lifecycle emissions associated with marketing sales of energy products" were 993 MtCO2e in 2019, compared to the 991 $MtCO_2e$ previously disclosed.

instance, bp recently announced two bids for the development of offshore wind leases in the Netherlands (bp PLC, 2022a) and acquired a 40% stake in one of the world's largest hydrogen projects (bp PLC, 2022b). However, investments in low- and zero-carbon assets are not sufficient to place bp PLC on a 1.5°C compatible pathway if the company continues to exploit fossil fuels.

Further, bp PLC's net zero sales target excludes emissions from its chemical activities and crude oil sales (bp, 2022d, pp. 38–39).

It is unclear whether and to what extent bp PLC plans to rely on carbon offsetting to reach its net-zero target by 2050 or earlier. bp PLC considers including products associated with land carbon projects in its net zero sales target (bp, 2022d, p. 16). While bp PLC provides no further information on these land carbon projects, we interpret this to mean that the company may sell carbon dioxide removals and include those in its carbon intensity calculations.

While bp PLC explicitly states that it will not use offset credits to meet its 2030 targets, the company will continue to offer carbon offset credits to its customers when purchasing bp's fossil fuels (bp, 2022d, p. 18). In 2020, bp PLC offset 1.9 $MtCO_2e$ on behalf of its customers (bp, 2021, pp. 97–103) with credits sourced from projects that may have limited additional mitigation impact. These include a solar power project in India; biogas projects in China, India and Indonesia; energy efficiency projects in Illinois, USA; and a forest protection project in Zambia (bp, 2021, pp. 97–103). In the Paris-context, where all countries are to set ambitious emission reduction targets and global emissions expected to move to net-zero, using carbon offsets from such low-hanging fruit projects is not a credible equivalent to emission reductions (see Section 4.2.1 in the methodology, Annex I). bp PLC could provide more transparency on its target ambition by defining a clear emission reduction target alongside its net-zero pledge for 2050 or earlier.

We have not identified interim reduction targets for bp Nederland's GHG footprint. The holding company's interim targets for 2025 and 2030 lack the necessary ambition to place the company on a Paris Agreement compatible emissions trajectory. At the holding level, bp PLC committed to reduce emissions across the value chain by 5% by 2025 and aims to reduce those emissions by 15-20% by 2030, with 2019 as the baseline for both targets (bp, 2022d, p. 10). These interim targets fall well short of the emission reductions that are needed by 2030 at the global level. According to the IPCC's Sixth Assessment Report, global GHG emissions must reduce by 43% between 2019 and 2030, with CO_2 emissions decreasing by 48% in that period (IPCC, 2022, p. 22). Further, the IPCC's Sixth Assessment report stresses the need for deep emission reductions in the short term towards 2025 (Riahi et al., 2022, p. 69).

Although various studies stress the need for ending fossil fuel exploitation, bp PLC continues to explore new oil and gas fields. According to the International Energy Agency (IEA), in order to achieve global net-zero emissions by 2050, there should be no investments in new oil and gas fields from 2021 onwards but rather substantial investments in clean energy technologies and CCS (IEA, 2021). The IPCC Sixth Assessment report found that the existing and planned fossil fuel infrastructure will emit more GHG than is compatible with limiting global warming to 1.5°C, unless assets are retired early, or their use scaled down (Dhakal et al., 2022, pp. 69–72). Despite this, bp PLC has not committed to end, or even reduce, its fossil fuel exploitation. The company stated it would not explore in new countries (bp PLC, 2020, p. 1) but continues to explore for new oil and gas fields in countries where it is already active. In 2021, bp made three new oil and gas discoveries in the US, Russia and the Azerbaijan-Georgia-Turkey region (bp, 2022e, p. 17).

In a presentation for investors, bp PLC's chief financial officer said that the company plans to achieve its target of reducing emissions from upstream oil and gas production by 35-40% by 2030 by divesting of oil and gas basins (bp, 2022b, pp. 9–10). Passing oil and gas basins on to other companies simply leads to a displacement rather than a real reduction in emissions. It does not contribute to the Paris Agreement temperature goals.

bp PLC and bp Nederland are planning to green fossil fuel production in their Rotterdam refinery, which likely leads to high carbon

lock-in and which does not address the real problem: emissions from fossil fuel combustion by end users. In February 2022, bp Nederland and the Hydrogen Chemistry Company (HyCC) signed an agreement for the development of a 250 MW green hydrogen plant in the Port area of Rotterdam (HyCC, 2022). The companies expect to make a final investment decision in 2023 (HyCC, 2022). The green hydrogen plant is to replace the grey hydrogen that bp currently produces in its refinery and could, according to HyCC and bp, reduce operational emissions by 350 ktCO_2e per year (HyCC, 2022). This equals only 16% of the operational emissions from the Rotterdam Refinery in 2019, so additional measures are needed. More importantly, the investment in green hydrogen production is likely to lead to a lock-in of fossil fuel production in the Rotterdam refinery. Limiting global warming to 1.5°C requires the phase out of fossil fuels, not merely improvements in the energy intensity of their production.

bp PLC expect that the application of carbon capture, utilisation, and storage (CCUS), and biofuels will be other important measures in reducing emissions from their Rotterdam refinery (DCMR, 2021; Esso Nederland, 2022); however, most CCUS technologies and biofuels are not Paris compatible (de Kleijne et al., 2022). In an interview, a communication manager of bp Nederland's Rotterdam refinery stated that bp Nederland expects CCUS and biofuels to play an important role in the company's efforts to decrease the refinery's emissions (Deijl, no date). Carbon Capture and Storage (CCS) is the process where carbon is captured and stored for thousands of years, whereas Carbon Capture and Utilisation (CCU) refers to the process where carbon is captured from one process and reused for another – potentially leading to the CO_2 being emitted into the atmosphere afterwards (Bashmakov et al., 2022, p. 35). CCU is therefore not considered a removal technology (Babiker et al., 2022, p. 36). Recent academic research found that most CCU technologies are expensive, require a lot of energy and have limited mitigation benefits. The only CCU technologies that are likely Paris compatible in 2030 and 2050 are construction materials based on carbonation of steel slag (i.e. adding CO_2 to slag, which is a by-product of steel), using fossil flue-gases directly or using CO_2 from biogenic source (de Kleijne et al., 2022, p. 179).

Although CCS plays an important role in 1.5°C pathways, the technology cannot replace deep reductions in the use of fossil fuels (Bashmakov et al., 2022, p. 36). Energy supply sectors can feasibly be decarbonised; the limited and uncertain potential of carbon dioxide removals is needed to neutralise emissions from harder-to-abate sectors.

bp Nederland does not specify what kind of biofuels it intends to use. Bioenergy production at scale is very likely to conflict with other environmental and societal interests, including food production, biodiversity protection and forest protection (Clarke et al., 2022, p. 42). Further, there are large uncertainties on the life-cycle emission impacts from bioenergy; biofuels could be incompatible with net zero emissions (Clarke et al., 2022, p. 42). For these reasons, biofuels are unlikely suitable emission reduction measure.

Box 14: Integrity assessment for bp Nederland's emission reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

bp Nederland is covered by bp PLC target of net zero across operations, production, and sales by 2050 or sooner

Headline pledge: Low integrity

Emissions reduction component alongside headline pledge

? by 2050

No deep emissions reduction target presented alongside the carbon neutrality pledge.

Is the emission reduction component equivalent to at least 90% below 2019 levels? (if the headline pledge is a net-zero or carbon neutrality target)

bp PLC's net-zero sales target is an intensity target. The company does not specify what share of this target will be achieved through reductions within their value chain and what share through offsetting and carbon dioxide removals. Although the 'net-zero' pathway in bp Energy Outlook 2022 shows that global carbon emissions need to be reduced by 95% by 2050 below 2019 levels (bp, 2022d, p. 7), bp PLC does not provide whether it intends to reduce its own emissions at the same rate.

As bp PLC's net-zero sales target is an intensity target, the oil major can make progress towards it by increasing the relative importance of low-carbon energy products in their product mix. As such, it allows for the continuation or even expansion of bp PLC's fossil fuel business activities. The net-zero sales target excludes netted oil and gas transaction volumes, which accounted for an estimated 45% of gross oil and gas volumes in recent years (Liauw et al., 2022a, p. 4). The target also excludes crude oil and bp PLC's chemical products.

Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?

Companies in the oil and gas sector—including bp PLC and its Dutch subsidiary bp Nederland—would need to effectively reduce emissions by around 100% by 2050. While the UNFCCC (2021) generally identifies the need for the entire oil and gas sector to be net-zero by 2050 across all emissions scopes, global economy-wide pathways in the IPCC's Sixth Assessment Report require an economy-wide net GHG reduction of 84% across all emissions scopes (73–98% interquartile range) compared to a 2019 baseline (IPCC, 2022). The Transition Pathway Initiative (TPI) identifies a global emissions intensity of 6 gCO_2e/MJ in 2050 for oil and gas sector companies as compatible with their definition of a 1.5 Degree scenario covering scope 1, scope 2, and use of sold product under downstream scope 3 (Dietz, Gardiner, Hastreiter, et al., 2021). This milestone represents a 90% reduction compared to 63 gCO_2e/MJ globally in 2019. While bp commits to bring its carbon intensity to net-zero by 2050 or sooner, the company does not explain what the "net" in this target implies. bp does not commit to an absolute emissions intensity reduction by 2050, nor to an absolute emissions reduction across its value chain by that year.

Box 14 (cont.): Integrity assessment for bp Nederland's emission reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

bp Nederland is covered by the following interim targets by bp PLC:

Targets for 2025, with a 2019 baseline:

- To reduce scope 1 and 2 by 20%;
- To reduce upstream scope 3 by 20%;
- To reduce emissions intensity of sold energy products by 5%.

And aims for 2030, with a 2019 baseline:

- To reduce scope 1 and 2 by 50%;
- To reduce upstream scope 3 by 35-40%;
- To reduce emissions intensity of sold energy products by 15-20%.

Interim targets: Low integrity

Emissions reductions by 2030 below 2019 across entire value chain (cont.)

Dutch subsidiary level
?
by 2030
Group level
?
by 2030

bp PLC commits to absolute reduction targets for scope 1 and 2 (50% reduction by 2030 below 2019 levels) and upstream scope 3 (35-40% reduction by 2030 below 2019 levels). This equals a reduction of 37-41% across those emission scopes. **We are unable to calculate what these targets mean in terms of reduction across their entire value chain given bp PLC does not disclose their downstream scope 3 emissions.**

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO_2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%). The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO_2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

bp PLC interim targets for 2030, entirely excluding all downstream scope 3 emissions, fall short to align with emissions reductions required at the global-level to limit global warming below 1.5°C.

Sector-level benchmarks

The ambition level of bp's interim targets at the group level misses specific 1.5°C Paris Agreement aligned milestones identified in existing literature for the oil and gas industry. At the group level, bp commits to reduce its so-called 'emission intensity of marketed energy products' targets for 2025 by 5% compared to 2019 and by 15-20% by 2030. This translates into roughly 75 gCO_2e/MJ by 2025 and 63-67 gCO_2e/MJ (bp, 2022d, p. 18). These interim intensity targets clearly miss existing milestones identified by the Transition Pathway Initiative under both their definition of a 1.5 Degree scenario (52 gCO_2e/MJ by 2025 and 41 gCO_2e/MJ by 2030) nor their definition of a Below 2 Scenario (56 gCO_2e/MJ by 2025 and 50 gCO_2e/MJ by 2030) (TPI, 2022). For reasons of transparency and comparability, oil and gas producers should set absolute emissions reduction interim targets across all emissions scopes (scope 1, scope 2, and scope 3). At the global level, the UNFCCC (2021) identifies a required 40% reduction of oil and gas production by 2030 below 2019. The IEA (IEA, 2021) has further specified that no new oil and gas fields should be approved for development from 2021 onwards to be in line with a global energy sectors pathway compatible with 1.5°C temperature limit.

Do the interim targets align with the long-term vision?

bp PLC explanation of why it considers its 2030 interim targets aligned with its long-term vision of net-zero emissions intensity across operations, production, and sales by 2050 or sooner remains incomplete.

Has the first interim target been set within maximum 5 years in the future?

At the group level, bp PLC communicates earlier emissions reduction targets within a five-year time horizon for 2025 and 2030.

Dow Benelux

Chemicals

Dow Benelux is the Dutch-based subsidiary of The Dow Chemical Company, a multinational chemical company incorporated in the United States. Dow Benelux operates eight facilities in Belgium and the Netherlands. In 2020, The Dow Chemical Company set the target to achieve **carbon neutrality by 2050**. To contribute to this goal, Dow Benelux is focusing on reducing operational emissions at its Terneuzen industrial park, which is The Dow Chemical Company's largest European manufacturing location and second largest in the world.

Revenue	Emissions	Pledge
The Dow Chemical Company: EUR 50.9 bn (2021) Dow Benelux: no data identified	The Dow Chemical Company: 104 $MtCO_2e$ (2020) Dow Benelux: ~4.1 $MtCO_2e$ (scope 1 in the Netherlands, 2020)	Dow Benelux is covered by The Down Chemical Company's target of **carbon neutrality by 2050**

Transparency	Integrity
Moderate	Low

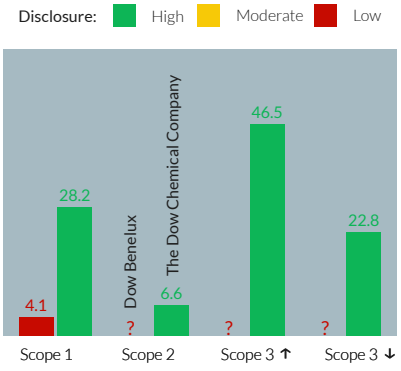
1 Tracking and disclosure of emissions

Transparency & Integrity: Moderate

- **Tracking and disclosure**
  Dow Benelux: ~4.1 $MtCO_2e$ in the Netherlands (2020) (selected scope 1).
  The Dow Chemical Company: 104 $MtCO_2e$ in 2020
  Subsidiaries covered

Major emission sources: Most of The Dow Chemical Company's emissions stem from purchased goods and services (upstream scope 3, 42%), followed by manufacturing of chemicals (scope 1, 28%).

Summary of disclosure: Dow Benelux does not report on scope 2 and 3 emissions; scope 1 emissions are reported only under the EU ETS. The Dow Chemical Company comprehensively discloses all emission sources.



2 Setting emission reduction targets

	Transparency	Integrity
	Moderate	Low

Headline target or pledge

Dow Benelux is covered by The Dow Chemical Company's target of carbon neutrality by 2050.

Coverage of emission sources *(in headline pledge)*	All GHG emission scopes are included in the carbon neutrality target.	High	High
Reduction of own emissions *(for pledge year, compared to full value chain in 2021)*	? by 2050 The Dow Chemical Company does not commit to deep reductions alongside its carbon neutrality pledge. Dow Benelux commits to eliminating 95% of operational emissions from its Terneuzen industrial park by 2050; this does not cover scope 3 or other facilities.	Low	Low
Interim emission reductions *(estimated compared to full value chain in 2021)*	Dutch subsidiary level ? by 2030 43% reduction of operational emissions at Terneuzen site between 2021 and 2030. No targets for Dow Benelux's other locations or scope 3 emissions.	Moderate	Low
	Group level ~4% by 2030 The Dow Chemical Company: net emission reductions of 5 $MtCO_2e$ by 2030 below 2019 levels; Dow Benelux is covered by this interim target.		

3 Reducing own emissions		Transparency	Integrity
		Moderate	Very low
Emission reduction measures	To reduce emissions at its Terneuzen facility, Dow Benelux plans (1) the construction of a hydrogen plant to convert by-products (CH_4) from core production processes to hydrogen and CO_2; (2) DACCS at its the ethylene oxide plant; and (3) replacing fuel in the production process. An investment decision on those plans is still pending. No details on measures taken at other facilities or for scope 3 emissions.	Moderate	Low
Renewable electricity procurement	Dow Benelux provides no information on renewable electricity procurement. The holding company currently procures 50% of its electricity from on-site installations and PPAs.	Moderate	?

4 Climate contributions and offsetting claims		Transparency	Integrity
		Very low	Very low
Responsibility for unabated emissions	No information identified on how the company takes responsibility for unabated emissions	Low	Low
Climate contributions	*No climate contributions identified*	N/A	Low
Offsetting claims today	*No offsetting claims today identified*	N/A	N/A
Offsetting plans for the future	No disclosure on whether future targets depend on offsetting.	Low	?

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from The Dow Chemical Company (2021, 2022), Dow Benelux (2021), and NEA (2021).

Dow Benelux

Dow Benelux is covered by The Dow Chemical Company's target of carbon neutrality by 2050. Dow Benelux will transform its production processes at Terneuzen to reduce 95% of scope 1 and 2 emissions by that year. It does not disclose emission reduction measures for its other locations in the Netherlands or Belgium. Scope 3 emissions account for 67% of The Dow Chemical Company's carbon footprint; however, neither the parent company nor the subsidiary set absolute emission reduction targets for scope 3 or offer a detailed strategy to tackle these emissions.

Dow Benelux is focusing its emission reduction strategy on its industrial park facility in Terneuzen; the company does not disclose plans for its other locations. Dow Benelux has eight production facilities in Belgium and the Netherlands (Dow Benelux, 2020b). The subsidiary's emissions from Dutch installations that fall under the EU ETS amounted to 4.1 $MtCO_2e$ in 2020 (NEA, 2021). Dow Benelux's Terneuzen industrial park has 17 factories and 3,550 employees, making it The Dow Chemical Company's largest production facility in Europe and the second largest in the world. The industrial park also functions as an R&D centre, a hub location for Dow Benelux, and a central point for Dow services in Europe, the Middle East, Africa, and India (Dow Benelux, 2020a). Dow Benelux established a plan to reduce scope 1 and 2 emissions at Terneuzen by 95% by 2050, compared with 2021 (Dow Benelux, 2021; Dow, 2022). This target excludes scope 3 emissions and does not cover other facilities in Belgium and the Netherlands.

Dow Benelux's reduction strategy contributes to The Dow Chemical Company's commitment to carbon-neutral operations by 2050. This target from the parent company covers scope 3 emissions, which accounted for 68% of its carbon footprint in 2020 (Dow, 2021, pp. 180–181).

A preliminary investment decision on the implementation of Dow Benelux's plans for the Terneuzen industrial facility is expected in 2022 (Dow Benelux, 2021). The plan outlines reduction measures in three phases. By 2026, Dow Benelux plans to have constructed a hydrogen plant to convert by-products (methane) from core production processes to hydrogen and CO_2. Initially, the CO_2 will be captured and stored until alternative technologies are available. Dow Benelux would look for ways to use, rather than store, the CO_2 (Dow Benelux, 2021). However, this may not represent an emission reduction measure, as used carbon could be released back to the atmosphere during its use (Bashmakov et al., 2022, p. 35). Once constructed, the hydrogen plant could reduce emissions by 1.4 $MtCO_2e$ (Dow Benelux, 2021). During the second phase of its plan, Dow Benelux plans to capture CO_2 from its ethylene oxide plant and replace some gas turbines with electrical motor drives, which would lead to reductions of another 0.3 $MtCO_2e$ (Dow Benelux, 2021). The plan's third phase depends on technologies to replace fuel usage in the production process. The Dow Chemical Company is investigating technologies to electrify ethylene steam crackers, which could bring emissions to near zero, provided a clean electricity source is used (Dow Benelux, 2021; Dow, 2022).

Dow Benelux provides limited information on measures to reduce scope 3 emissions. The Dow Chemical Company collaborates with suppliers and logistics partners to reduce scope 3 emissions and will likely decrease supply chain emissions by adapting to a circular economy; however, details on its strategy are scant. In its ESG report, The Dow Chemical Company refers

to various measures aimed at decreasing scope 3 emissions, including collaborating with suppliers to trace and account for carbon in the supply chain and optimising transportation (Dow, 2021, pp. 66, 79). We could not identify detailed information on these measures, including on expected emission reductions. Considering that scope 3 emissions account for most of The Dow Chemical Company's carbon footprint—45% are upstream scope 3 and 22% are downstream scope 3 emissions—both Dow Benelux and The Dow Chemical Company should provide a credible strategy to curb these emissions. This could include, for instance, setting an absolute scope 3 emission reduction target and phasing out carbon-intensive products.

The Dow Chemical Company claims to source 50% of its energy from renewable sources; we were unable to identify whether and to what extent Dow Benelux procures renewable energy. The Dow Chemical Company has access to 800 MW installed renewable electricity capacity through PPAs and on-site installations, although not all of this potential is used by Dow (Dow, 2021, p. 63). Of consumed renewable electricity, 96% comes from wind or hydropower installations (Dow, 2021, p. 182). We have not identified details on whether Dow Benelux uses renewable energy and, if so, what procurement models it pursues.

Neither The Dow Chemical Company nor Dow Benelux provide information whether they plan to use neutralisation measures to achieve carbon neutrality. Dow Benelux's Multi Generation Plan foresees a reduction of 95% in operational emissions at the Terneuzen facility, suggesting the subsidiary may rely on neutralisation measures for only 5% of the plant's scope 1 and 2 emissions in 2021 (Dow Benelux, 2021). At the holding-company level, The Dow Chemical Company provides no information on whether and to what extent its carbon neutrality pledge relies on neutralisation methods, such as offsetting.

Box 15: Integrity assessment of Dow's emission reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

Dow Benelux is covered by The Dow Chemical Company's target of carbon neutrality by 2050

Headline pledge: Low integrity

Emissions reduction component alongside headline pledge

? by 2050

The Dow Chemical Company does not commit to deep emissions reductions alongside its carbon neutrality pledge. Dow Benelux commits to eliminating 95% of operational emissions from its Terneuzen industrial park by 2050, but this does not cover scope 3. Dow Benelux has not set targets for other facilities.

Is the emission reduction component equivalent to at least 90% below 2019 levels? *(if the headline pledge is a net-zero or carbon neutrality target)*

Neither Dow Benelux nor The Dow Chemical Company commit to a deep emission reduction target alongside their carbon neutrality commitment, leaving the door open for contentious neutralisation measures to achieve this target.

We are unable to evaluate the integrity of Dow Benelux's commitment to bring operational carbon emissions (scopes 1 and 2) from its Terneuzen facility to net zero by 2050. The subsidiary commits to reducing those emissions by 95% compared to 2021 levels. It is unclear to what level of emissions reductions across Dow Benelux's full value chain this target translates. Dow Benelux has not committed to deep emission reductions from its seven other facilities in Belgium and the Netherlands nor scope 3 emissions.

Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?

Neither Dow Benelux nor The Dow Chemical Company explain why they consider the 2050 carbon neutrality target aligned with the Paris Agreement's temperature limit of 1.5°C.

Box 15 (cont.): Integrity assessment of Dow's emission reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

Operational emissions (scope 1 and 2) from Dow Benelux's Terneuzen site are expected to decrease by 35% by 2026 and by 43% by 2030, compared to 2021. Dow Benelux commits to no target for any of its other locations in the Netherlands and Belgium.

The Dow Chemical Company commits to reducing scope 1 and 2 carbon emissions by net 5 $MtCO_2$ by 2030 below 2019 emissions. Dow Benelux's activities are covered by this interim target.

Interim targets: Low integrity

Emissions reductions by 2030 below 2019 across entire value chain

Dutch subsidiary level
? by 2030
Group level
<4% by 2030

Dow Benelux does not provide comprehensive emissions data to calculate the emissions reduction impact by 2030 below a 2019 baseline across its entire value chain. At the parent-company level, The Dow Chemical Company only commits to a net <4% emission reduction by 2030 below 2019 levels across the entire value chain.

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO_2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%).

Interim targets: Low integrity

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature? (cont.)

The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO_2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

We are unable to evaluate the integrity of Dow Benelux's interim target to reduce emissions from its Terneuzen facility by 1.7 $MtCO_2e$ by 2030, compared to a 2021 baseline, in the context of global efforts required to limit global warming below 1.5°C. Dow Benelux states that its interim target equals a reduction of operational emissions (scope 1 and 2) of around 42% of the Terneuzen facility's current emissions (Dow Benelux, 2022). In the absence of targets for all other Dutch and Belgian production sites and no coverage of scope 3 emissions, Dow Benelux is likely not aligned with global efforts to keep global efforts to limit global warming below 1.5°C.

We evaluate The Dow Chemical Company's interim reduction target to have 'low integrity'. The holding company commits to reducing carbon emissions by net 5 $MtCO_2$ by 2030, compared to 2019. The baseline for this intended emissions reduction covers scope 1 and 2 emissions (Dow, 2021, p. 34), which implies that the target only covers these emission scopes. The interim target equals an emissions reduction of around 4% or less by 2030 below 2019 across the entire value chain. The Dow Chemical Company also does not specify what share of its interim target will be achieved using neutralisation measures, such as offsetting and carbon dioxide removals.

Sector-level benchmarks

Existing literature provides few specific 1.5°C-compatible milestones for the chemical industry (CAT, 2020; Boehm et al., 2021; IEA, 2021; SBTi, 2021c; UNFCCC, 2021). This gap in existing literature allows no conclusive assessment of sector-specific decarbonisation efforts in line with the Paris Agreement's 1.5°C temperature limit.

The Dow Chemical Company—together with the entire chemical industry—needs to put further emphasis on determining sector-specific decarbonisation milestones in line with the Paris Agreement in a transparent, scientific and verifiable process.

Do the interim targets align with the long-term vision?

Neither Dow Benelux nor The Dow Chemical Company provide any explanation of why they consider their 2030 interim targets aligned with their long-term vision of carbon neutrality by 2050.

Has the first interim target been set within maximum 5 years in the future?

Dow Benelux commits to an interim target by 2026 within a five-year time horizon that requires immediate action.

ExxonMobil Benelux

Oil and gas

ExxonMobil Benelux is a subsidiary of Texas-based ExxonMobil Corporation, which is one of the world's largest oil companies. In 2022, **ExxonMobil Corporation committed to reduce its scope 1 and 2 emissions from operated assets to net zero by 2050.** ExxonMobil's Benelux's activities are included in this target. **The subsidiary committed to reduce scope 1 and 2 emissions from its Rotterdam facilities to net zero by 2050.**

Revenue	Emissions	Pledge
ExxonMobil Corporation: EUR 22 bn (USD 23 bn) in 2021 ExxonMobil Benelux: no data identified	ExxonMobil Corporation: 651 $MtCO_2e$ (2020) ExxonMobil Benelux: 0.18 $MtCO_2e$ (2020) (three chemical facilities in Rotterdam, scope 1), no further data identified	ExxonMobil Corporation: Net-zero emissions from operated assets by 2050 ExxonMobil Benelux: net-zero scope 1 and 2 emissions from Rotterdam facilities by 2050

Transparency	Integrity
Low	Very low

1 Tracking and disclosure of emissions

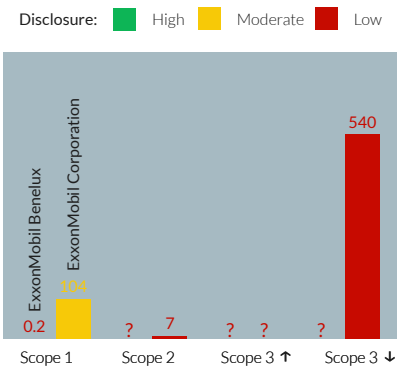
Transparency & Integrity: Low

- **Tracking and disclosure**
  651 $MtCO_2e$ (2020)

  Unclear whether subsidiaries are covered

Major emission sources: No disclosure of ExxonMobil Benelux's emissions. Emissions from product use likely account for over 80% of ExxonMobil Corporation's emissions, but these are not transparently disclosed.

Disclosure: Incomplete and untransparent. No disclosure at the subsidiary level. ExxonMobil Corporation reports on scope 1 and 2 emissions but does not provide a breakdown of emission sources and subsidiaries' emissions. Incomprehensive reporting on scope 3 emissions.



2 Setting emission reduction targets

	Transparency	Integrity
	Moderate	Very low

Headline target or pledge

ExxonMobil Benelux is covered by ExxonMobil Corporation's target of net-zero scope 1 and 2 emissions by 2050.

Coverage of emission sources *(in headline pledge)*	Scope 1 and scope 2 included, while all scope 3 emissions are excluded.	High	Low
Reduction of own emissions *(for pledge year, compared to full value chain in 2019)*	? by 2050 — No specific emissions reduction target mentioned alongside the net-zero pledge.	Low	Low
Interim emission reductions *(estimated compared to full value chain in 2021)*	ExxonMobil Benelux is covered by ExxonMobil Corporation's 2030 targets (compared to 2016): Dutch subsidiary level ? by 2030 ▪ A 20-30% reduction in corporate-wide scope 1 and scope 2 intensity and an absolute reduction of 20%). Group level ? by 2030 ▪ A 40-50% reduction in upstream greenhouse gas intensity and an absolute reduction of ~30%).	High	Low

3 Reducing own emissions		Transparency	Integrity
		Very low	Very low
Emission reduction measures	Carbon capture and storage (CCS), with projects planned in Rotterdam and Antwerp. ExxonMobil Benelux further considers large-scale green hydrogen production for the refinery and factories in Rotterdam. Additiona details not available.	Low	Low
Renewable electricity procurement	No details at the subsidiary level. At the holding level, ExxonMobil Corporation mentions electricity procurement from low-carbon PPAs, but no further information disclosed.	Low	?

4 Climate contributions and offsetting claims		Transparency	Integrity
		Very low	Very low
Responsibility for unabated emissions	No information identified on how the company takes responsibility for unabated emissions.	Low	Low
Climate contributions	*No climate contributions identified*	N/A	Low
Offsetting claims today	*No offsetting claims today identified*	N/A	N/A
Offsetting plans for the future	Unclear whether and to what extent ExxonMobil Corporation will use offsets to meet its interim and net-zero targets. Offsets are listed as a possible abatement measure to reach net-zero emissions from operations in the Permian basin by 2030.	Low	?

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from ExxonMobil (2019, 2021, 2022d, 2022b), ExxonMobil Benelux (2022), Esso Nederland (2022) and the Netherlands Emissions Authority (NEA) (2021).

ExxonMobil Benelux

ExxonMobil Benelux merged Esso Belgium, Esso Netherlands and Esso Luxemburg. The company operates refineries in Rotterdam and Antwerp; various factories around the ports of Rotterdam and Antwerp, including for the production of polyethylene and blending of lubricant oil; and fuel depots in all three Benelux countries. ExxonMobil Benelux holds a 50% share in the Nederlandse Aardolie Maatschappij (NAM), which exploits oil and gas fields in the Netherlands (NAM, 2021, p. 19). The subsidiary committed to net-zero scope 1 and 2 emissions from its Rotterdam refineries by 2050 (Esso Nederland, 2022; ExxonMobil Benelux, 2022). Investments on those refineries may lead to a lock-in of fossil fuel production infrastructure and does not address emissions that occur when end users combust fossil fuels.

ExxonMobil Benelux is also covered by ExxonMobil Corporation's commitment to achieve net-zero GHG emissions from operated assets by 2050. This target does not cover scope 3 emissions, which likely account for over 90% ExxonMobil Corporation's GHG footprint.

ExxonMobil Benelux does not disclose their emissions. At the holding level, ExxonMobil Corporation's disclosure of scope 3 emissions is incomplete and displayed in a non-accessible way. ExxonMobil Corporation reported on scope 3 emissions in 2020, but has not yet reported on those emissions over 2021 (ExxonMobil, 2022a, p. 48). The oil major's disclosure of scope 3 emissions may have large gaps as it excludes third party sales (ExxonMobil, 2022a, p. 48). ExxonMobil Corporation report that emissions from product use account for 540Mt CO_2e to 650 MtCO2e in 2020, depending on the accounting approach (ExxonMobil, 2022a, p. 48).

The net-zero pledges of both ExxonMobil Corporation and ExxonMobil Benelux exclude emissions from fossil fuel combustion, which account for the lion's share of the companies' GHG footprint. ExxonMobil Benelux is committed to reduce scope 1 and 2 emissions from its Rotterdam facilities to net zero by 2050 (Esso Nederland, 2022; ExxonMobil Benelux, 2022). The subsidiary is also covered by ExxonMobil Corporation's commitment to reduce GHG emissions from operated assets (scopes 1 and 2) to net zero by 2050. Neither of these targets include scope 3 emissions, even though the emissions that occur during the use phase of fossil fuels are by far the most important emission source for fossil fuel producers. ExxonMobil Corporation's net-zero pledge covers just 20% of the company's reported emissions (ExxonMobil, 2022a, 2022c) and likely a much smaller share of ExxonMobil Corporation's entire GHG footprint.

The role of offsetting in ExxonMobil Benelux's net-zero strategy remains unclear, further undermining the credibility of its net-zero commitment. Whereas ExxonMobil Benelux provide no details on the role for offsetting in their climate strategy, ExxonMobil Corporation list offsetting as a potential measure to achieve net-zero emissions from operations in its Permian basin, but otherwise provide no further information (ExxonMobil, 2022a, p. 8). This raises questions about the ambition level of the company's net-zero pledge, which is already severely weakened by the exclusion of scope 3 emissions. Offsetting is not a credible substitute for emission reductions in sectors that can feasibly decarbonise in the decades to come (see Section 4.2.1 in the methodology, Annex I).

Although various studies stress the need for ending fossil fuel exploitation, ExxonMobil Corporation does not commit to the phase out of fossil fuels. According to the International Energy Agency (IEA), in order to achieve global net-zero emissions by 2050, there should be no investments in new oil and gas fields from 2021 onwards but rather substantial investments in clean energy technologies and CCS (IEA, 2021). The IPCC Sixth Assessment report found that the existing and planned fossil fuel infrastructure will emit more GHG than is compatible with limiting global warming to 1.5°C, unless assets are retired early, or their use scaled down (Dhakal et al., 2022, pp. 69–72). Despite this, ExxonMobil Corporation have not committed to end, or even reduce, its fossil fuel exploitation. On the contrary, in their 2021 Energy & Carbon Summary, the oil major suggested that its activities do not influence energy demand and global GHG emission levels. The company stated that: "With respect to energy supply, production reductions by individual companies would have no impact on demand or consumption of energy, and would simply result in production shifting from one producer to another." (ExxonMobil, 2021, p. 45). However, corporate actors play a key role in mitigation of global warming through supply-side interaction with changing consumer preferences and behaviours; investments in low-carbon alternatives and net-zero commitments for their own GHG footprint (Creutzig et al., 2022, p. 84). The IPCC's Sixth Assessment Report found that in modelled pathways that lead to global net-zero emissions, the energy supply sector reach net zero CO_2 before the economy as a whole (Riahi et al., 2022, p. 54). This highlights the crucial role that energy suppliers such as ExxonMobil Corporation are to play in limiting global warming to 1.5°C.

ExxonMobil Corporation's company-wide emission reduction plans for the period until 2030 are not aligned with the Paris Agreement, nor with the company's headline pledge. ExxonMobil Corporation expects that their emission reduction plans will result in a 20-30% reduction in the emission intensity of scopes 1 and 2 (ExxonMobil, 2022a, p. 4). According to the oil major, this corresponds to an absolute reduction of scope 1 and 2 emissions of 20% (ExxonMobil, 2022a, p. 4).

This ambition level falls well short of the IPCC's finding that global CO_2 emissions must decline by 48% between 2019 and 2030 to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). This also requires fossil fuel use to decline substantially by 2030 (Clarke et al., 2022, p. 117).

In Belgium and the Netherlands, ExxonMobil Benelux explores CCS as a potential abatement measure, but does not disclose the expected impact of these projects. Together with other companies, ExxonMobil Benelux is exploring the potential for CCS in the port areas of Antwerp and Rotterdam (ExxonMobil, 2019, 2022d). In December 2021, ExxonMobil Benelux, Shell, Air Liquide and Air Products signed contracts with Porthos for the transport and storage of their captured CO_2 (Port of Rotterdam, 2021), and the final decision for the Antwerp@C project is expected at the end of 2022 (ExxonMobil, 2022d). We could not identify what share of its emissions ExxonMobil Benelux plans to abate with the use of CCS. Although CCS plays an important role in 1.5°C pathways, the technology cannot replace deep reductions in the use of fossil fuels (Bashmakov et al., 2022, p. 36). Energy supply sectors can feasibly be decarbonised; the limited and uncertain potential of carbon dioxide removals is needed to neutralise emissions from harder-to-abate sectors.

It remains unclear what other abatement measures ExxonMobil Benelux plans for its Belgian and Dutch installations.

Box 16: Integrity assessment for ExxonMobil Benelux's emission reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

ExxonMobil Benelux is covered by ExxonMobil Corporation's target of net-zero scope 1 and 2 emissions by 2050

Headline pledge: Low integrity

Emissions reduction component alongside headline pledge

? by 2050

No deep emissions reduction target presented alongside the net zero pledge.

Is the emission reduction component equivalent to at least 90% below 2019 levels? (if the headline pledge is a net-zero or carbon neutrality target)

Neither ExxonMobil Benelux nor the ExxonMobil Corporation specify a deep emissions reduction target alongside their net zero commitment, leaving the door open for contentious neutralisation measures to achieve this target.

ExxonMobil Corporation's and ExxonMobil Benelux's net-zero pledge also excludes scope 3 emissions. These account for over 80% of reported emissions (ExxonMobil, 2022a, pp. 47–48) and likely over 90% of emissions if emissions from product use are taken into account.

Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?

Companies in the oil and gas sector would need to effectively reduce emissions by around 100% by 2050. While the UNFCCC (2021) generally identifies the entire oil and gas sector to be net zero by 2050 across all emissions scopes, global economy-wide pathways require an economy-wide net CO_2 reduction of 61–109% (interquartile range) compared to a 2019 baseline (IPCC, 2022). The Transition Pathway (TPI) Initiative identifies a global emissions intensity of 6 gCO_2e/MJ in 2050 for oil and gas sector companies as compatible with their definition of a 1.5 Degree scenario covering scope 1, scope 2, and use of sold product under downstream scope 3 (Dietz, Gardiner, Hastreiter, et al., 2021). This milestone represents a 90% reduction compared to 63 gCO_2e/MJ globally in 2019. The assessment of the TPI of 05 August 2021 does not yet evaluate ExxonMobil's 2050 net zero target (TPI, 2022), but the company's narrow focus on scope 1 and scope 2 emissions makes it very likely not aligned with the TPI's definitions of a 1.5 Degree Scenario or a Below 2 Scenario.

Box 16 (cont.): Integrity assessment for ExxonMobil Benelux's emission reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

ExxonMobil Benelux is covered by ExxonMobil Corporation's reduction plans, which the company expects will lead to the following reductions by 2030, compared to a 2016 baseline:

- A 20-30% reduction in corporate-wide scope 1 and scope 2 intensity and an absolute reduction of 20%);
- A 40-50% reduction in upstream greenhouse gas intensity and an absolute reduction of 30%);
- A 70% reduction in corporate-wide methane intensity; and
- A 60-70% reduction in corporate-wide flaring intensity.

Low integrity

Emissions reductions by 2030 below 2019 across entire value chain

Dutch subsidiary level ? by 2030

Group level ? by 2030

ExxonMobil Benelux is covered by ExxonMobil Corporation's interim targets for 2030. ExxonMobil Corporation does not provide comprehensive and detailed emissions data to calculate the emissions reduction impact by 2030 below a 2019 baseline across the entire value chain.

Interim targets: Low integrity

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature? (cont.)

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO_2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%). The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO_2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

In their 2022 Progress Report, ExxonMobil Corporation claims that its 2030 plans are aligned with a "well below 2°C" scenario, using a figure depicting 1.5°C and 2°C pathways, and ExxonMobil Corporation's 2030 plan (ExxonMobil, 2022a, p. 7). The figure misleadingly suggests that emission reductions in both a "well below 2°C" and "1.5°C" scenario follow a linear trajectory between 2019 and 2050/2070. However, the deepest emission reductions must be realised within the next decade towards 2030 (IPCC, 2022). **ExxonMobil Corporation's plan is shown to lead to a reduction of less than 25% across scope 1 and 2 emissions in that period; and sets no reduction target for scope 3 emissions (ExxonMobil, 2022a, p. 7).**

Sector-level benchmarks

The ambition level of ExxonMobil Corporation's interim targets at the group level likely misses specific 1.5°C Paris Agreement aligned milestones identified in existing literature for the oil and gas industry. The Transition Pathway Initiative (TPI) identifies milestones considering scope 1, scope 2, and use of sold product under downstream scope 3 under both their definition of a 1.5 Degree Scenario (41 gCO_2e/MJ by 2030, representing a reduction of 35% below 2019 intensity levels) and their definition of a Below 2 Scenario (50 gCO_2e/MJ by 2030, representing a reduction of 20% below 2019 intensity levels) (TPI, 2022). ExxonMobil Corporation's interim intensity targets for between 2016 and 2030 very likely miss these milestones due to the exclusion of all downstream scope 3 emissions. For reasons of transparency and comparability, oil and gas producers should generally set absolute emission reduction interim targets across all emissions scopes (scope 1, scope 2, and scope 3).

At the global level, the UNFCCC (2021) identifies a required 40% reduction of oil and gas production by 2030 below 2019. The IEA (2021) has further specified that no new oil and gas fields should be approved for development from 2021 onwards to be in line with a global energy sectors pathway compatible with 1.5°C temperature limit. ExxonMobil Corporation's ongoing explorations for new oil and fossil gas fields in combination with a lack of fossil fuel phase out commitment stand in contrast to the IEA's and UNFCCC's benchmarks, although ExxonMobil Corporation extensively discusses to the IEA's Net Zero by 2050 report in its 2022 Progress Report (ExxonMobil, 2022a, pp. 29–38).

Do the interim targets align with the long-term vision?

ExxonMobil Corporation provides an inadequate explanation of why it considers its 2030 interim targets aligned with its long-term vision of net-zero scope 1 and 2 emissions by 2050 (see paragraphs on global benchmarks for further explanation).

Has the first interim target been set within maximum 5 years in the future?

ExxonMobil Corporation does not commit to any earlier interim targets within a five-year time horizon (e.g., 2025) that require immediate action.

RWE Generation NL & RWE Renewables Benelux

Energy utility

The RWE AG is a multinational energy company based in Germany which produces and trades electricity worldwide. In the Netherlands, RWE AG has two subsidiaries: RWE Renewables Benelux, which develops and operates wind and solar parks, and RWE Generation NL, which produces electricity from gas, coal, and biomass. These subsidiaries are included in **RWE's AG commitment to climate neutrality by 2040.**

Revenue	Emissions	Pledge
RWE AG: EUR 24.5 bn (2021)	RWE AG: 113 $MtCO_2e$ (2021)	Climate neutral by 2040
RWE's Dutch subsidiaries: no data identified	RWE's Dutch subsidiaries: 8.0 Mt (scope 1, 2021)	

Transparency	Integrity
Low	Low

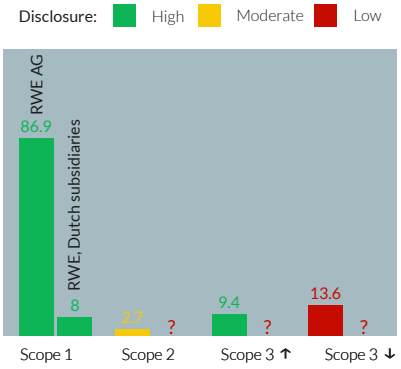
1 Tracking and disclosure of emissions

Transparency & Integrity: Moderate

- **Tracking and disclosure**
  RWE's Dutch subsidiaries: 8.0 $MtCO_2e$ (2021) (scope 1)
  RWE AG: 113 $MtCO_2e$ (2021)
  Subsidiaries included

Major emission sources: Only emissions from fuel combustion (scope 1) are reported for the Dutch subsidiaries. At the holding-company level, RWE AG's main emission sources in 2021 were fuel combustion for electricity generation (scope 1, 77%) and the use of gas and coal by end customers (scope 3, 12%).

Disclosure: RWE AG's emissions reporting since 2019 is granular. Trading transactions without delivery to the end consumer are not included and could significantly increase the downstream scope 3 emissions estimate. For scope 2 emissions, only a location-based estimate is provided.



2 Setting emission reduction targets

	Transparency	Integrity
	Moderate	Low

Headline target or pledge

RWE's Dutch subsidiaries are covered by RWE AG's target of climate neutrality by 2040.

- **Coverage of emission sources** *(in headline pledge)*
  All emissions scopes and relevant GHGs covered.
  Transparency: High — Integrity: High

- **Reduction of own emissions** *(for pledge year, compared to full value chain in 2021)*
  ? by 2040
  No deep reduction target across the entire value chain alongside the climate neutrality pledge. RWE AG plans to reduce scope 1 emissions by 100% by 2040, compared to 2012.
  Transparency: Low — Integrity: Low

- **Interim emission reductions** *(estimated compared to full value chain in 2021)*
  RWE AG set interim emission reduction targets, which also apply to its Dutch subsidiaries:
  Dutch subsidiary level ? by 2030
  - 75% reduction in scope 1 CO_2 emissions between 2012 and 2030.
  - 50% reduction in scope 1 and 2 emissions/ kWh between 2019 and 2030.

  Group level ? by 2030
  - 30% reduction in scope 3 emissions between 2019 and 2030.

  Transparency: Moderate — Integrity: Low

3 Reducing own emissions		Transparency	Integrity
		Low	Very low
Emission reduction measures	Repurposing coal plants for biomass; no commitment to phase out gas. Scaling up solar, wind, and hydrogen projects.	Moderate	Low
Renewable electricity procurement	No information provided on the nature of electricity procured from third party generators for reselling to RWE customers and for company operations.	Low	?

4 Climate contributions and offsetting claims		Transparency	Integrity
		Very low	Very low
Responsibility for unabated emissions	No information identified on how the company takes responsibility for unabated emissions.	Low	Low
Climate contributions	*No climate contributions identified.*	N/A	Low
Offsetting claims today	*No offsetting claims today identified.*	N/A	N/A
Offsetting plans for the future	No information identified. Neither RWE AG nor its Dutch subsidiaries specify how much they intend to rely on neutralisation measures to reach climate neutrality.	Low	?

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from RWE (RWE, 2021b, 2022d, 2022a, 2022e) and RWE Generation (2022).

RWE Generation NL and RWE Renewables Benelux

RWE AG committed to carbon neutrality by 2040, including reducing scope 1 emissions to absolute zero by that year. The company's Dutch subsidiaries are included in these targets. It is not clear whether and to what extent the RWE AG and its subsidiaries will rely on neutralisation measures such as offsetting to bring their scope 2 and 3 emissions to net zero. Moreover, the lack of a deep scope 3 emission reduction target could allow for an increase of emissions from electricity and commodity trading with the wholesale market—even while the company claims emission reductions in scope 1.

RWE AG and its Dutch subsidiaries commit to climate neutrality by 2040, including bringing scope 1 emissions to real zero. The German energy utility pledged climate neutrality across its full value chain by 2040 (RWE, 2022e). RWE AG plans to reduce scope 1 emissions to absolute zero; these accounted for about 75% of its GHG footprint in 2021 (RWE, 2021c, p. 15). However, neither the holding nor its Dutch subsidiaries (RWE Generation NL and RWE Renewables Benelux) specify whether and to what extent they intend to rely on neutralisation measures to bring scope 2 and 3 emissions to net zero. By refraining from setting deep reduction targets for scope 3 emissions, RWE AG leaves the door open to procuring and reselling third-party, fossil-fuel generated electricity, which could significantly increase scope 3 emissions.

At the group-level, RWE AG sets interim emission reduction targets for all emissions scopes towards 2030, but those likely do not meet sectoral 1.5°C benchmarks. In its non-financial report, RWE AG sets the interim target of halving the emissions intensity of scope 1 and 2 emissions by 2030, from a 2019 baseline, while committing to reducing absolute scope 3 emissions by 30% by 2030, from a 2019 baseline (RWE, 2022d, p. 13). The energy utility's intensity target for scopes 1 and 2 translates to a reduction from 0.59 tCO_2/MWh in 2019 to 0.295 tCO_2/MWh by 2030 (RWE, 2021c, p. 17). This falls far short of the average carbon intensity of 0.046 that the Transition Pathway Initiative (TPI) showed would be required in the European Union by 2030 under a 1.5°C scenario (Dietz, Gardiner, Jahn, et al., 2021, p. 9). In its CDP disclosure and website, RWE AG also includes a target of 75% scope 1 CO_2 emission reductions by 2030, compared to 2012 (RWE, 2021c; RWE Generation, 2022), but this target is not mentioned in the non-financial report. Box 17 provides more details on our integrity assessment of RWE AG's interim reduction targets.

As a result of legislation prohibiting the use of coal in electricity generation in the Netherlands, RWE AG has to decommission its coal-fired power generation by 2029 (Dutch Government, 2019; RWE, 2021d, p. 55). The company's plans to convert its coal-fired power plants to 100% biomass-fired ones may have adverse sustainability impacts. RWE AG's installed capacity in the Netherlands consists of hard coal (45%), biomass (34%), gas (17%), onshore wind (2%), run-of-river (0.5%), and solar PV (0.3%) (RWE, 2022c). RWE Generation NL plans to convert the Amer coal power plants in Geertruidenberg and its plant in the Eemshaven to biomass-based power production (RWE, 2021d, p. 55, 2021a). The Amer plant currently operates on 80% biomass, while the Eemshaven plant operates on 15% biomass (RWE, 2022h).

While bioenergy is potentially a valuable resource for sectors with limited alternatives to fossil fuels, such as aviation and shipping, its potential for decarbonising the energy sector is

limited due to competition with land for food production, water use, impacts on ecosystems and land use changes (Clarke et al., 2022, p. 39). The suitability of biomass in Dutch power plants is further restricted by the limited availability of biomass resources in Europe and abroad, which could be used in other sectors (Material Economics, 202 1, pp. 8–11). Currently, the Netherlands imports most of its biomass for energy generation from the Baltic States and the US (Natuur & Milieu, 2021, pp. 6–7), which leads to additional energy use and emissions (Clarke et al., 2022, p. 40).

RWE states that it adheres to sustainability standards in the procurement of biomass from the wood and paper industry (i.e., wood trimmings, rotten trees, and sawdust that are transformed into wood pellets) (RWE, 2022b). While the Dutch standards for biomass themselves are strict on paper, there are concerns about whether they are consistently adhered to. A 2021 study by SOMO identified cases of problematic logging in Estonian forests with possible links to Dutch imports (van der Wal, 2021). Another report found that the majority of wood pellets used in the Netherlands originates from the Baltic states and the US, but due to a lack of transparency, it is impossible to link Dutch power plants and the region of origin of the biomass(Natuur & Milieu, 2021, pp. 6–7). According to the report it is not clear whether the biomass combusted in Dutch power plants meets the Dutch Government's sustainability criteria for biomass (Natuur & Milieu, 2021, pp. 9–10).

RWE AG does not commit to phasing out gas and plans for new gas-fired plants (RWE, 2022f, p. 24). RWE AG does not commit to phasing out or repurposing all of its gas-fired installations. The company's existing gas-fired plants in the Netherlands have a joint capacity of 774 MW (RWE, 2022i). In Biblis (Hessen, Germany), RWE AG is currently developing a gas-fired power plant with a capacity of 300 MW, which is scheduled to commence operations in Autumn 2022 (RWE, 2022e). Natural gas is not an energy supply option that is in the long term consistent with 1.5°C-compatible pathways (Marquardt and Kachi, 2021, p. 18). The IPCC's Sixth Assessment Report underlined that gas is associated with high-emission lock-in and creates significant risks for limiting global warming to 1.5°C (Clarke et al., 2022, p. 114).

RWE Renewables Benelux currently invests in renewable energy projects in the Netherlands, including hydrogen-based electricity production. In October 2021, RWE Renewables Benelux had seven wind farms and two solar farms in the Netherlands, with a total capacity of 301 MW; and had five wind and two solar projects under construction or development, for a total of 150 MW (RWE Renewables, 2021a; RWE, 2022i). The new projects include technological innovations such as building wind turbines on a sea dam and building floating solar PV farms close to the Amer power plant (RWE Renewables, 2021b, 2021a). Hydrogen is also part of RWE's strategy, with various projects planned in the Netherlands (RWE, 2022g). The NortH2 project will build a green renewables-based hydrogen production centre for north-western Europe, connecting offshore wind farms, electrolysers in the Eemshaven, gas storage facilities and pipelines, and aiming for 4 GW of generation capacity by 2030 (RWE, 2020a, 2020c). The FUREC project aims to advance circular economy concepts by building a waste-to-hydrogen plant in Limburg, which will replace natural gas consumption (RWE, 2020b). During the second quarter of 2022, feasibility studies will begin for the H2opZee project, a collaboration with Neptune Energy that aims to demonstrate the capacity to produce green hydrogen from offshore wind in the Dutch North Sea, which could provide up to 12 GW of electricity capacity (RWE Renewables, 2022). Although these business ventures into wind, solar PV, and hydrogen-based electricity production are a positive case for renewable technologies, they do not represent deep decarbonisation measures if RWE continues to rely on fossil fuels in parallel.

Box 17: Integrity assessment of RWE's emission reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

RWE's Dutch subsidiaries are covered by RWE AG's target of climate neutrality by 2040

Headline pledge: Low integrity

Emissions reduction component alongside headline pledge

? by 2040

No deep emission reduction target across the entire value chain is presented alongside the carbon neutrality pledge. While RWE AG plans to reduce scope 1 emissions by 100% by 2040 below a 2012 baseline, the company neither commits to any absolute emissions reduction targets for scope 2 and scope 3 emissions by 2040 nor discloses any scope 3 emissions from gas and electricity sales to the wholesale market. For this reason, we cannot estimate the targeted emissions reductions across the

Is the emission reduction component equivalent to at least 90% below 2019 levels? *(if the headline pledge is a net-zero or carbon neutrality target)*

RWE AG and its Dutch subsidiaries do provide a deep reduction target for scope 1 emissions of 100% reduction by 2040 below 2012, but not for scope 2 and 3 emissions (RWE, 2021c, p. 15). This leaves the door open for increasing their procurement of third-party fossil-fuel generated electricity and reselling it on the wholesale energy market, which could substantially increase scope 3 emissions.

Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?

Existing literature identifies a 1.5°C Paris Agreement-compatible carbon intensity for energy utilities and the global electricity systems of below zero (i.e., negative) emissions for 2050 and reaching close to zero emissions by around 2040 (CAT, 2020; SBTi, 2020, 2021e, 2021c, 2021a; Boehm et al., 2021; Dietz, Gardiner, Jahn, et al., 2021; UNFCCC, 2021). For developed countries, the full decarbonisation of electricity systems must even be achieved earlier, by around 2035.

As an energy utility, RWE would need to reduce operational scope 1 and scope 2 emissions by 100% by around 2035 in the European Union. For this reason, RWE would require a zero emissions target or even negative emissions target for 2035, instead of a 'climate neutrality' target by 2040 with an unspecified volume of unabated emissions.

Box 17 (cont.): Integrity assessment of RWE's emission reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

RWE AG set interim emissions reduction targets, which also apply to the Dutch subsidiaries:

- 75% absolute reduction in scope 1 by 2030, compared to 2012.
- 50% intensity reduction in scope 1 and 2 emissions per kWh by 2030, compared to 2019.
- 30% absolute reduction in scope 3 emissions by 2030, compared to 2019.

Interim targets: Low integrity

Emissions reductions by 2030 below 2019 across entire value chain

Dutch subsidiary level ? by 2030

Group level ? by 2030

We cannot estimate the targeted emissions reductions across the whole value chain by 2040 given the lack of disclosure for scope 3 emissions from gas and electricity sales to the wholesale market.

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO_2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%). The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO_2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

RWE likely falls short of these emissions reduction efforts required globally to limit warming to 1.5°C given it neither sets an absolute emissions reduction target for scope 2 emissions by 2030 nor includes any scope 3 emissions from gas and electricity sales to the wholesale market in its scope 3 target coverage.

Sector-level benchmarks

The ambition level of RWE AG's interim targets for 2030 likely misses specific 1.5°C Paris Agreement-aligned milestones for energy utilities identified in existing literature. The IEA specifies that no new unabated coal plants should be approved for development from 2021 onwards and all unabated coal plants need to be phased out by 2030 in advanced economies to be in line with a global energy sector pathway compatible with the 1.5°C temperature limit (IEA, 2021). While RWE AG will repurpose its coal-fired power plants in the Netherlands by 2030 (RWE, 2021d, p. 55), it plans to continue operating several coal plants in Germany, such as the Niederaussem coal power plant, until 2038 (Global Energy Monitor, 2022). RWE AG's interim targets very likely miss existing milestones identified by the Transition Pathway Initiative (TPI) for European energy utilities' operational emissions under both the Initiative's definition of a 1.5 Degree Scenario (0.046 tCO_2e/MWh in 2030, reduction of 82% of emission intensity below 2019) nor its definition of a Below 2 Degree Scenario (0.063 tCO_2e/MWh in 2030, reduction of 81% of emission intensity below 2019) (Dietz, Gardiner, Jahn, et al., 2021; TPI, 2022).

Do the interim targets align with the long-term vision?

RWE provides no explanation of why it considers its 2030 interim targets aligned with its long-term vision of carbon neutrality operations by 2040.

Has the first interim target been set within maximum 5 years in the future?

RWE does not commit to earlier interim targets within a five-year time horizon that require immediate action.

Tata Steel Netherlands

Steel production

Tata Steel Netherlands (TSN) is part of Tata Steel Europe (TSE) and the India-headquartered steel producer Tata Steel Ltd. TSN's production site in IJmuiden has a long steel-making history. It is the biggest emitter in the Netherlands and accounts for 8% of Dutch emissions recorded by the Dutch emissions authority. As part of Tata Steel Europe, **TSN is committed to CO_2-neutral steelmaking by 2050.**

Revenue	Emissions	Pledge
TSE: EUR 6.8 bn (2021) TSN: 658 m (2021)	TSE: 19.8 $MtCO_2e$ (2020) (scope 1, 2 & 3) TSN: 12.3 $MtCO_2e$ (2019) (scope 1, 2 & 3)	CO_2-neutral steelmaking by 2050

Transparency	Integrity
Moderate	Moderate

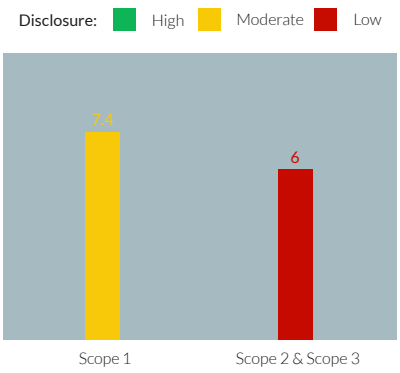
1 Tracking and disclosure of emissions

Transparency & Integrity: Low

- **Tracking and disclosure**
  TSN: 12.3 $MtCO_2e$ (2019)

Major emission sources: Emissions from steel-making processes (scope 1) account for almost half of reported emissions. The remaining half are from scope 2 and some scope 3 emissions, but no breakdown is provided.

Disclosure: Limited detail in disclosure of emissions. No breakdown publicly disclosed; only high-level emission values available.



2 Setting emission reduction targets

	Transparency	Integrity
	Moderate	Moderate

Headline target or pledge

TSN is covered by TSE's target of **CO_2-neutral steelmaking by 2050.**

		Transparency	Integrity
Coverage of emission sources *(in headline pledge)*	TSN is not explicit about the scope coverage. Based on the technology roadmap and the term 'steelmaking', we interpret that the target covers scope 1 and 2 emissions and does not cover upstream and downstream scope 3 emissions.	Low	?
Reduction of own emissions *(for pledge year, compared to full value chain in 2019)*	? by 2050 — 100% reduction in CO_2 emissions across scopes 1 and 2; but unclear whether the target applies to (parts of) scope 3.	Moderate	Moderate
Interim emission reductions *(estimated compared to full value chain in 2019)*	? by 2030 — Reduce scope 1 and 2 by 30% by 2030 (2019 baseline). The conversion of one major steelworks facility to hydrogen-based DRI technology by 2030 may be aligned with benchmarks for Paris-aligned steelmaking in the EU, but this depends on TSN's unclear commitment to source green hydrogen. TSN does not have targets for scope 3.	High	Moderate

3 Reducing own emissions		Transparency: Moderate	Integrity: Moderate
Emission reduction measures	In September 2021, TSN committed to hydrogen-based steelmaking. In April 2022, TSN presented its path to hydrogen-based steelmaking with more detail. Scope 3 emissions are not covered.	High	Moderate
Renewable electricity procurement	TSN does not publicly disclose RE procurement constructs.	Low	?

4 Climate contributions and offsetting claims		Transparency: Moderate	Integrity: Moderate
Responsibility for unabated emissions	No information identified on how the company takes responsibility for unabated emissions.	Low	Low
Climate contributions	*No climate contributions identified.*	N/A	Low
Offsetting claims today	*No offsetting claims today identified.*	N/A	N/A
Offsetting plans for the future	TSN aims for a 100% reduction in scope 1 and 2 emissions if hydrogen is used; unclear whether offsets will be used in other scenarios.	High	High

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from TSN (2022), Tata Steel (2021) and Berger (2021).

Tata Steel Netherlands

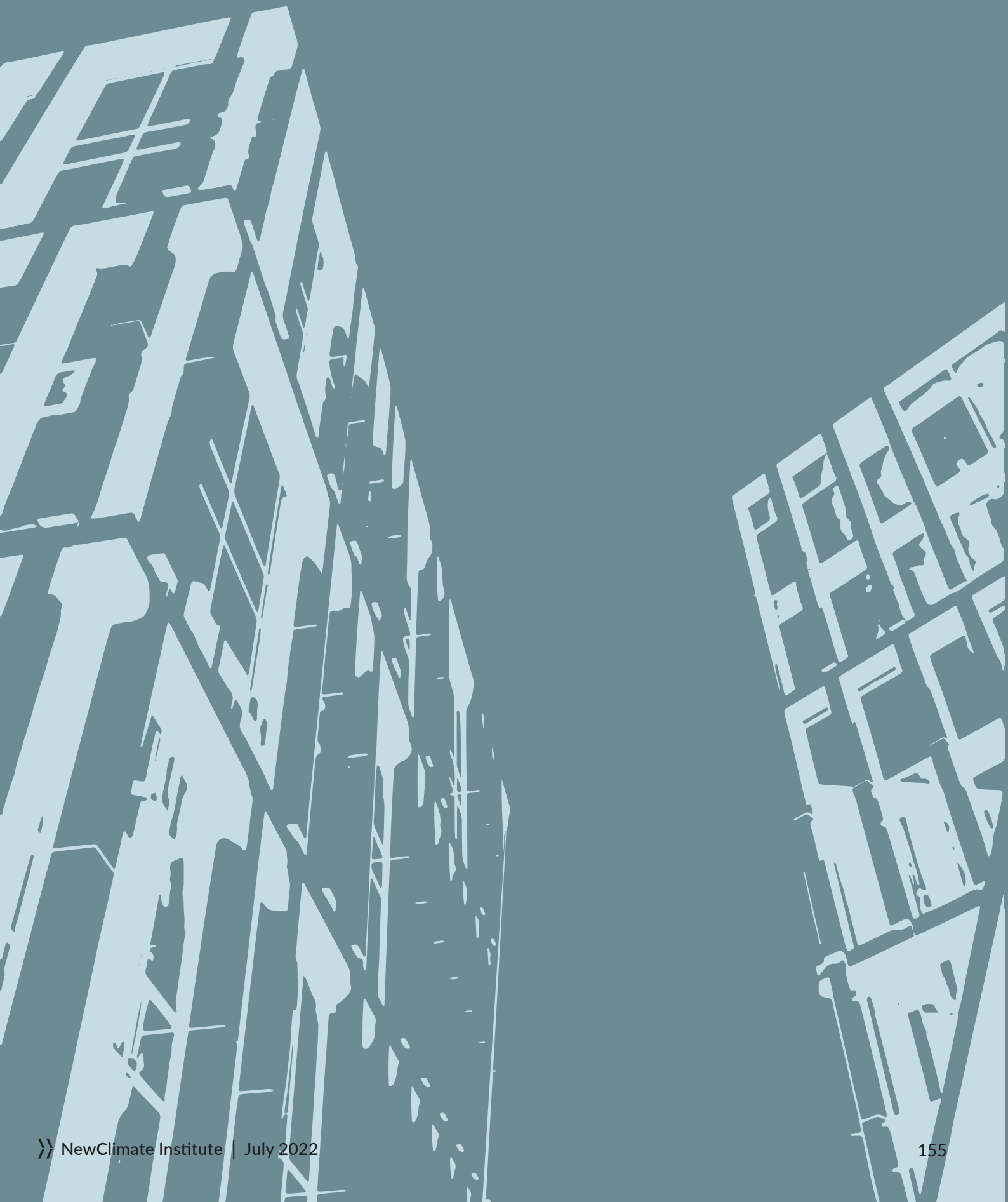
Tata Steel Netherlands (TSN) is a major steel producer with its site in IJmuiden, North Holland. It is the biggest emitter recorded by the Dutch emissions authority, accounting for 8% of annual emissions in the Netherlands (reported emissions: scope 1, 2 and some scope 3). Major emissions are from the steel-making process, scope 1 accounting for roughly half of reported emissions. The other half is from scope 2 and some scope 3 emissions, but TSN does not provide a more detailed breakdown of these emissions in public-facing reporting. As part of Tata Steel Europe, TSN is committed to CO_2-neutral steelmaking by 2050. TSN's technology roadmap shows that the company is committed to hydrogen-based steelmaking but does not rule out the use of natural gas.

TSN commits to hydrogen-based, CO_2-neutral steelmaking by 2050, but does not provide a timeline for the phaseout of natural gas. A 2021 feasibility study commissioned by the Dutch trade union and TSN described the opportunities for climate-neutral pathways, focused on hydrogen-based steelmaking using direct reduced iron (DRI) technology (Roland Berger, 2021, p. 3). In April 2022, TSN committed more explicitly to this roadmap and provided a corresponding timeline (TSN, 2022, p. 12). Although both documents also present several uncertainties (e.g., around technology readiness, cost barriers and availability of hydrogen) (Roland Berger, 2021, p. 3; TSN, 2022, pp. 14–15), hydrogen-based steelmaking is seen as one of the best prospects for low-carbon technology in the steel industry. A potential limitation of this plan is the uncertain availability of green hydrogen. TSN plans to use natural gas as a transition fuel, if hydrogen is still unavailable (TSN, 2022, pp. 10–11). The company does not give a timeline for the complete phaseout of natural gas, acknowledging the uncertainties around the availability of hydrogen. TSN describes the hydrogen route as the preferred option, and calls on government support to realise it, but the company could also take a more proactive stance on producing green hydrogen or pursuing partnerships to this effect.

TSN proactively identifies challenges towards its target realisation. The company presents major challenges in its roadmap document, ranging from enough qualified personnel, and getting its permits in a timely manner, to availability of hydrogen and the technical feasibility. TSN lobbies for, for example, more renewable energy capacity in the Netherlands and subsidies for initial investments (TSN, 2022, pp. 14–15). By outlining these challenges and uncertainties, TSN transparently highlights the urgent policy and societal transition needs.

TSN's public reporting of emissions lacks granularity. In its consumer-facing reporting on activities in the Netherlands, emissions are only presented in aggregate. The exact emission sources remain unclear; only scope 1 emissions are presented separately (Tata Steel, 2021, p. 18). It is crucial to report on all emissions to generate a thorough understanding of a company's value chain emissions.

TSN does not address upstream or downstream scope 3 emissions in its climate strategy. In line with the lack of granularity in emissions reporting of scope 2 and 3, TSN does not have emission reduction targets for its scope 3 emissions. Although hydrogen-based steelmaking by 2050 may be an ambitious commitment for scope 1 and 2 emissions, it is crucial that TSN considers ways to reduce emissions from the entire value chain in order to transform the sector's emissions footprint as a whole. The company has substantial control over its upstream emissions, such as purchased goods and services and can influence downstream emissions, such as use of sold products, though to a lesser extent.



Box 18: Integrity assessment for Tata Steel Netherlands' emission reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

TSN is covered by TSE's target of CO_2-neutral steelmaking by 2050.

Headline pledge:Moderate integrity

Emissions reduction component alongside headline pledge

? by 2050

TSN aims for CO_2-neutral (scope 1 and 2) steelmaking but excludes all scope 3 emissions. We cannot quantify a percentage reduction across the full value chain below a 2019 baseline due to incomplete emissions disclosure.

Is the emission reduction component equivalent to at least 90% below 2019 levels? *(if the headline pledge is a net-zero or carbon neutrality target)*

TSN aims for CO_2-neutral (scope 1 and 2) steelmaking, representing a 100% reduction for these emissions scopes, mainly aiming to use hydrogen, which is considered *good practice* for the steel industry. The use of natural gas is not explicitly excluded, but green hydrogen is explicitly preferred, if available. The target excludes all scope 3 emissions.

Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?

Existing literature defines several benchmarks for steel producers (covering both scope 1 and scope 2) and global steel production aligned with the Paris Agreement's 1.5°C temperature limit. The carbon intensity of global steel production must reach around zero to 0.13 tCO_2e/tonne steel by 2050 globally (CAT, 2020a; Boehm et al., 2021; SBTi, 2021c, 2021a), representing a reduction in intensity of around 90% compared to 2015 or 2020 levels. For the European Union, the remaining emissions intensity by 2050 should be even lower ranging between zero and 0.08 tCO_2e/tonne (CAT, 2020). Identified benchmarks in the literature also imply all steel facilities in operation by 2050 to be low-carbon (Boehm et al., 2021), and the share of electricity in total final energy demand to range between 50–55% (CAT, 2020; Boehm et al., 2021). **If TSN realises its green hydrogen-based steel-making route towards 2050, the company will likely meet these sectoral benchmarks for 2050.**

Box 18 (cont.): Integrity assessment for Tata Steel Netherlands' emission reduction targets (see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

TSN has a scope 1 and 2 emissions reduction target of 30% by 2030, compared to 2019 levels. The interim target excludes scope 3 emissions.

Headline pledge:Moderate integrity

Emissions reductions by 2030 below 2019 across entire value chain

? by 2030

We cannot quantify a percentage reduction across the full value chain below a 2019 baseline due to incomplete emissions disclosure.

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO_2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%). The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO_2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

TSN likely does not meet these global benchmarks, but operates in a particularly hard-to-abate sector.

Sector-level benchmarks

While TSN's interim reduction commitment falls below this global benchmark, it likely is aligned with sectoral benchmarks. Existing literature defines several 2030 benchmarks for steel producers (covering both scope 1 and scope 2) and global steel production aligned with the Paris Agreement's 1.5°C temperature limit. The carbon intensity of global steel production must reach around 1.34–1.35 tCO_2e/tonne steel by 2030 globally (CAT, 2020; Boehm et al., 2021; SBTi, 2021c, 2021a), representing a reduction in production intensity of around 25-30% compared to 2015 levels. For the European Union, the emissions intensity from steel production by 2030 should be even lower ranging between 0.68–0.70 tCO_2e/tonne (CAT, 2020). Identified benchmarks in the literature also imply that 10 to 20 low-carbon steel facilities become operational by 2030 worldwide (Boehm et al., 2021; UNFCCC, 2021), and the share of electricity in total final energy demand represents 35% (CAT, 2020; Boehm et al., 2021). **TSN's conversion of one major steelworks facility to hydrogen-powered direct reduced iron (DRI) technology by 2030 may be aligned with benchmarks for Paris-aligned steelmaking in the EU, but this is dependent on the company's unclear commitment to source green hydrogen. TSN plans to use natural gas as a transition fuel if hydrogen remains unavailable, but the company could also take a more proactive stance on producing green hydrogen or pursuing partnerships to this effect.**

Do the interim targets align with the long-term vision?

TSN provides a roadmap that explains its step-by-step implementation of its long-term vision of carbon neutral steel production by 2050.

Has the first interim target been set within maximum 5 years in the future?

TSN does not commit to any earlier interim targets within a five-year time horizon.

Unilever Nederland[4]

Consumer goods

Unilever Nederland N.V. is a Dutch subsidiary of the UK-based, multinational consumer goods company Unilever PLC, that produces a wide array of products, including food, home care, and personal care. **In 2020, Unilever PLC committed the multinational company including all subsidiaries to achieve company-wide net zero emissions by 2039 by implementing its Climate Transition Action Plan.**

Revenue	Emissions	Pledge
Unilever PLC: EUR 24.8 bn (2021)	Unilever PLC: 32 $MtCO_2e$ (2021)	Net zero by 2039
No data identified for Unilever Nederland	Unilver Nederland: 0.02 $MtCO_2e$ (scopes 1 and 2, 2020)	

Transparency	Integrity
Moderate	Low

1 Tracking and disclosure of emissions

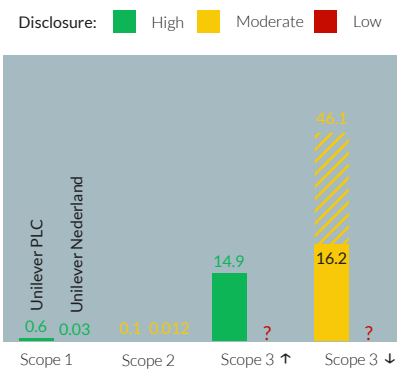
Transparency & Integrity: Moderate

- **Tracking and disclosure**
  Unilever PLC: 32 $MtCO_2e$ (2021)

  Total was calculated considering that 65% of the reported downstream scope 3 emissions correspond to the indirect use phase.

Major emission sources: Unilever PLC only reports on emissions from fuel combustion and energy consumption (scopes 1 and 2, respectively) from its Dutch subsidiary. Unilever PLC's main emission sources in 2021 were in the use and disposal of its products (downstream scope 3, 51%) and raw materials and packaging (upstream scope 3, 47%).

Disclosure: At the holding-company level, emissions reporting since 2015 is granular. Reported footprint may be distorted by over-reporting of scope 3 emission sources that fall outside the company's mandatory reporting scope; the company claims that 65% of product emissions fall within the indirect use phase.



2 Setting emission reduction targets

	Transparency	Integrity
	Moderate	Low

Headline target or pledge

Unilever Nederland N.V. is covered by the Unilever PLC pledge: Net zero by 2039.

- **Coverage of emission sources**
  (in headline pledge)

  Unilever PLC includes all mandatorily reported emission scopes in the target. — High / High

- **Reduction of own emissions**
  (for pledge year, compared to full value chain in 2019)

  ? by 2039 — The company does not specify what portion of its 2039 target will be achieved through reduction of its own emissions. — Low / Low

- **Interim emission reductions**
  (estimated compared to full value chain in 2019)

  Unilever Nederland N.V. is covered by Unilever PLC's company-wide interim targets: — High / Low

  Dutch subsidiary level: ? by 2030
  - Absolute emission reduction targets for scopes 1 and 2: 70% by 2025 and 100% by 2030 (2015 baseline).

  Group level: ~4% by 2030 *(estimate)*
  - Intensity target for all scopes: 50% by 2030 (2010 baseline).

4 *When reporting on Unilever PLC, the parent company, we used sections from the Corporate Climate Responsibility Monitor 2022 (Day et al., 2022), where relevant and up to date.*

3 Reducing own emissions		Transparency: Reasonable	Integrity: Moderate
Emission reduction measures	Few Dutch-specific emission reduction measures identified. These include measures for lower-emissions transportation of refrigerated products and research into lower-emission food products. Unilever PLC describes measures for all emission scopes. Unilever PLC's new supplier engagement programme could have a significant impact, but details are limited. Impacts of zero-deforestation commitments are unclear. Detailed measures for scope 1 and 2 emission sources.	Moderate	?
Renewable electricity procurement	Unilever Nederland operates on 100% renewable electricity, which is mostly sourced through high-quality PPAs.	High	High

4 Climate contributions and offsetting claims		Transparency: Very low	Integrity: Very low
Responsibility for unabated emissions	Offsetting approaches with apparent inconsistencies.	Low	Low
Climate contributions	*No climate contributions identified*	N/A	Low
Offsetting claims today	*Unilever Nederland's climate strategy refers to Unilever PLC's Climate Transition Action Plan. Unilever PLC distances itself from offsetting but supports its individual brands to claim carbon neutrality.*	Low	Low
Offsetting plans for the future	Unilever Nederland's climate strategy refers to Unilever PLC's Climate Transition Action Plan. Unilever PLC's net-zero 2039 target depends on nature-based carbon removals.	Low	Low

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from Unilever (Unilever Nederland, 2020; Unilever, 2021a, 2021b, 2021c, 2022b, 2022a; Unilever Hive, 2021)

Unilever Nederland

Unilever Nederland is covered by the climate targets and strategy of its parent company, Unilever PLC, with limited publication of specific plans for the Netherlands. Unilever PLC is a producer of consumer goods. Its largest emission sources are from procuring ingredients and packaging. Unilever PLC's 2039 net-zero target is not substantiated with specific emission reduction targets for its major emission sources. The company's over-reporting of indirect use-phase emissions could distract from action to reduce its upstream scope 3 emissions. Unilever PLC distances itself from the practice of offsetting in some communication materials but plans to offset its emissions to reach its future net-zero target, and it already supports individual brands to claim carbon neutrality today.

Unilever PLC set a net-zero target by 2039 that covers all emission scopes but does not have specific emission reduction targets covering its upstream and downstream emissions. In its climate strategy, Unilever Nederland refers to the plan set out by Unilever PLC, the holding company (Unilever Nederland, 2020). The headline pledge is to achieve net zero emissions by 2039, covering all emission scopes (Unilever, 2021a, p. 13). For this target, Unilever PLC has not clarified what share it intends to achieve by reducing its own emissions and what share will be offset (Unilever, 2021a, p. 13). The company sets clear interim targets to reduce its scope 1 and 2 emissions: a 70% reduction by 2025 and a 100% reduction by 2030, based on a 2015 baseline (Unilever, 2021a, p. 7). By 2021, the company had already achieved a 64% reduction in scope 1 and 2 emissions compared to 2015 (Unilever, 2022b), and so it appears on track to achieve its 70% target by 2025. Unilever Nederland's scope 1 and 2 emissions reduced by 19% from 2019 to 2020 (Unilever, 2020, 2021b).

Unilever PLC also pledged to halve its emissions intensity per consumer use throughout the whole value chain by 2030, compared to levels in 2010 (Unilever, 2021a, p. 7). We could not identify public emissions data from 2010, and so are unable to evaluate the progress on this target. This target also includes indirect scope 3 use-phase emissions, such as the energy use from washing machines operated with Unilever washing detergent, with the argument that its detergent can be used at lower temperatures and therefore saves electricity (Unilever, 2021a, p. 8). Although driving down emissions in the indirect use phase is commendable, reporting these emissions is not mandatory according to the GHG Protocol Corporate Standard (GHG Protocol, 2013a). Their inclusion in the intensity target could lead observers to wrongly believe that the company is achieving reductions in the company's other emission sources. Given that 65% of the reported downstream scope 3 emissions of Unilever's products is made up of emissions in the indirect use phase (Unilever, 2021a, p. 8), the company could claim to have achieved major improvements in its emission intensity due to the actions taken by other actors to decarbonise the electricity grid and improve the energy efficiency of appliances. To address scope 3 emissions more credibly, Unilever PLC should set separate targets for the normal scope 3 emission categories as defined by the GHG Protocol. For an integrity assessment of Unilever Nederland's targets, see Box 19.

Unilever PLC outlines a wide array of policies to reduce emissions; measures laid out for the Netherlands include product transportation and research and development initiatives. Little information is provided on emission reduction measures that focus on the Netherlands specifically. They include the use

of lower-emission trucks for the transportation of refrigerated products (Unilever, 2021c) and research and development of lower-emission food products in the Foods Innovation Centre on Wageningen campus (Unilever Hive, 2021). In its Climate Transition Action Plan, Unilever PLC provides information on the emission reduction measures that it is implementing for all its emission scopes (Unilever, 2021a, pp. 16–29). For many emission sources, it details the emission reductions it expects to achieve in the future. Measures include improving energy efficiency, procurement of renewable energy, criteria for supplier selection, research and development of less emission-intensive products, reducing the use of plastic, reducing the emissions intensity of logistics vehicles (Unilever, 2021a, pp. 16–29), and a commitment to decarbonise shipping under the Cargo Owners for Zero Emission Vessels initiative (coZEV, 2021). Unilever PLC's absolute emissions have reduced on average 2% a year since 2018, while emission intensity has decreased by 3% on a yearly average (Unilever, 2022b). These findings indicate that the company's existing emission reduction measures have not yet had a sufficient impact to put the company on a deep decarbonisation pathway.

Unilever PLC's Climate Promise and Climate Support programmes aim to address scope 3 emissions through encouraging suppliers to decarbonise. The Climate Promise programme, launched in 2021, "invites" suppliers to commit to halving their emissions by 2030 and to disclose their GHG emission data (Unilever, 2022a). It remains to be seen whether the programme provides sufficient incentive for significant participation. Unilever PLC could advance on this positive programme by requiring climate-related disclosure and defining emissions-related criteria that its suppliers need to meet. Unilever PLC's Climate Support programme targets a subset of 300 suppliers to work with more proactively on their own climate strategies (Unilever, 2022a).

Unilever Nederland sourced 100% renewable electricity in 2020, mostly from higher-quality supply constructs. Unilever PLC provides transparent data on its renewable energy procurement at global (Unilever, 2022b) and country-specific levels (Unilever, 2021b). Unilever Nederland consumed 27,317 MWh of 100% renewable electricity in 2020 (Unilever, 2021b, p. 94). It comprised wind power through PPAs with "a grid-connected generator with energy attribute certificates" (93%) and hydropower through unbundled energy attribute certificates (7%) (Unilever, 2021b). Procuring most electricity through PPAs with energy attribute certificates is one of the higher quality procurement options available and avoids the risk of double counting. However, the additionality of PPAs is uncertain and depends on various factors. Therefore, it is most transparent for Unilever to report on location-based scope 2 emissions and continue efforts in improving energy efficiency (see Section 1 of methodology, Annex I).

Unilever PLC's position on offsetting is unclear and inconsistent. While Unilever PLC distances itself from the practice of offsetting (Unilever, 2021a, pp. 11–12), it also proactively supports its own brands to make use of offsets towards their carbon neutral and climate positive claims, mainly through the EUR 1 billion "Nature and Climate Fund", also mentioned in Unilever Nederland's website (Unilever Nederland, 2020; Unilever, 2021a, pp. 11–13). Unilever PLC plans to use offsets to achieve its 2039 net-zero target (Unilever, 2021a, p. 13).

Box 19: Integrity assessment of Unilever Nederland's emission reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

Unilever Nederland N.V. is covered by the Unilever PLC pledge of net zero by 2039

Headline pledge: Low integrity

Emissions reduction component alongside headline pledge

? by 2039

No deep emissions reduction target presented alongside the net zero pledge

Is the emission reduction component equivalent to at least 90% below 2019 levels? *(if the headline pledge is a net-zero or carbon neutrality target)*	Neither the subsidiary nor the holding company specify a deep emissions reduction target alongside their net zero commitment by 2039, leaving the door open for contentious neutralisation measures to achieve this target.
Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?	The company neither explains why it considers the 2039 net zero target aligned with the Paris Agreement's temperature limit of 1.5°C nor specifies to which degree the target relies on offsetting and carbon dioxide removal to meet its target.

Box 19 (cont.): Integrity assessment of Unilever Nederland's emission reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

Unilever Nederland N.V. is covered by Unilever PLC's company-wide interim targets:

- Absolute emissions reduction targets for scopes 1 and 2: 70% by 2025 and 100% by 2030 (2015 baseline).
- Intensity target for all scopes: 50% emission intensity by 2030 (2010 baseline). It includes indirect use-phase emissions and may not require any reductions from the mandatory scope.

Interim targets: Low integrity

Emissions reductions by 2030 below 2019 across entire value chain

Dutch subsidiary level
?
by 2030
Group level
~4%
by 2030
(estimate)

We estimate Unilever PLC's emission reductions across the entire value chain by 2030 considering the 100% emission reduction target for scopes 1 and 2. For this purpose, we do not include indirect use-phase scope 3 emissions as they fall outside of the company's normal scope and inflate its emissions inventory. We cannot quantify Unilever PLC's intensity target as it does not commit the company to any absolute emissions reductions by 2030.

We cannot quantify the emission reductions expected at the subsidiary level because of lack of emissions data for the baseline year.

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO_2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%). The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO_2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

At the group-level, Unilever PLC's interim targets, equivalent to a 4% emissions reduction by 2030 below a 2019 baseline across the entire value chain, fall way short from required global efforts to limit global warming to 1.5°C. We cannot estimate the emissions reduction across the entire value chain for Unilever Nederland N.V. due to a lack of scope 3 emissions disclosure at the subsidiary level.

Sector-level benchmarks

Existing literature provides no specific milestones for the consumer goods industry, which makes an independent analysis of Paris Agreement-aligned climate action in the sector difficult. This gap in existing literature allows no conclusive assessment of sector-specific decarbonisation efforts in line with the Paris Agreement's 1.5°C temperature limit.

Unilever—together with the entire consumer goods industry—needs to put further emphasis on determining sector-specific decarbonisation milestones in line with the Paris Agreement in a transparent, scientific and verifiable process.

Do the interim targets align with the long-term vision?

Unilever Nederland N.V. and Unilever PLC provide no explanation of why they consider their interim targets aligned with their long-term vision to achieve net zero across all scopes by 2039.

Has the first interim target been set within maximum 5 years in the future?

Unilever Nederland N.V. and Unilever PLC commit to an earlier interim target by 2025 falling within a five-year time horizon, although the target only covers scopes 1 and 2.

Uniper Benelux

Energy utility

Energy company Uniper Benelux N.V., headquartered in Rotterdam, is a subsidiary of the German Uniper SE. Uniper Benelux operates fossil fuel power plants in The Hague, Leiden, Rotterdam, and the Maasvlakte (near Rotterdam) (Uniper, 2021b). Its Energy Hub on the Maasvlakte produces up to 7% of the total electricity demand in the Netherlands (Uniper, 2021d). **Uniper SE committed to carbon neutral operations in Europe by 2035; this target covers Uniper Benelux.**

Revenue	Emissions	Pledge	Transparency	Integrity
Uniper SE: EUR 164 bn (2021) Uniper Benelux: no data identified	Uniper SE: EUR 164 bn (2021) Uniper Benelux: no data identified	Carbon-neutral operations in Europe by 2035	Moderate	Low

1 Tracking and disclosure of emissions

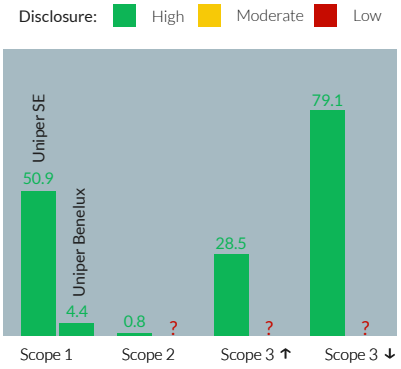
Transparency & Integrity: Reasonable

- **Tracking and disclosure**
  Uniper Benelux: 4 $MtCO_2e$ (2021) (scope 1)
  Uniper SE: 158.5 $MtCO_2e$ (2021)

  Subsidiaries covered

Major emission sources: Uniper Benelux reports on its scope 1 emissions only. At the holding-company level, emissions from the use of fuel by end users and resellers (downstream scope 3) and direct emissions from fossil fuel combustion (scope 1) are the main emission sources, at 32% and 18%, respectively.

Disclosure: At the holding-company level, Uniper SE's major emission sources are transparently disclosed, including a breakdown of scope 1 emissions by country and a breakdown of scope 3 emissions. Reported emissions from product use include emissions from end users and resellers.



2 Setting emission reduction targets

		Transparency	Integrity
Headline target or pledge	**Uniper Benelux is covered by Uniper SE's target of carbon-neutral operations in Europe by 2035.**		
Coverage of emission sources *(in headline pledge)*	Scope 1 and 2 emissions covered, but not scope 3; target covers CO_2 emissions only.	High	Low
Reduction of own emissions *(for pledge year, compared to full value chain in 2019)*	~31% by 2035 (compared to 2021) Uniper SE commits to 35% absolute reductions in scope 3 emissions by 2035, compared to 2021. Combined with the 2030 target for scopes 1 and 2 (below), this entails a commitment to reduce Uniper SE's full value chain emissions by an estimated 31%, compared to 2021.	Low	Low
Interim emission reductions *(estimated compared to full value chain in 2019)*	Dutch subsidiary level ? by 2030 Group level ? by 2030 Uniper SE commits to 50% reductions of European scope 1 and 2 emissions by 2030, compared to 2019. It is unclear what share of the scope 3 2035 target might be achieved by 2030.	High	Low

3 Reducing own emissions		Transparency	Integrity
		Low	Low
Emission reduction measures	Measures pursued by Uniper Benelux include transitioning power production from coal to biomass and hydrogen. Uniper SE considers natural gas as a bridge energy source; the company will keep producing electricity from gas while it investigates ways of decarbonising it. It also expects gas to remain an important focus of its commodity trading business.	Moderate	Low
Renewable electricity procurement	Uniper Benelux provides no details on RE procurement. Uniper SE is investing in wind and solar PV power generation and signed various PPAs in Norway, Sweden, Spain, and the US to increase the share of RE in its wholesale energy portfolio.	Low	?

4 Climate contributions and offsetting claims		Transparency	Integrity
		Very low	Very low
Responsibility for unabated emissions	No information identified on how the company takes responsibility for unabated emissions.	Low	Low
Climate contributions	*No climate contributions identified*	N/A	Low
Offsetting claims today	*No offsetting claims today identified*	N/A	N/A
Offsetting plans for the future	Unclear whether Uniper Benelux or Uniper SE plan to use carbon offset credits for their future targets.	Low	Low

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High	Reasonable	Moderate	Low	Very low
High	Reasonable	Moderate	Low	Very low
High		Moderate		Low
		N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from Uniper (2021b, 2021d, 2022a, 2022d).

Uniper Benelux

Uniper Benelux's scope 1 emissions accounted for 2% of the Netherlands' national GHG emissions inventory in 2020 (CBS, 2021). The company is covered by Uniper SE's target of carbon-neutral European operations (scopes 1 and 2) by 2035; it is unclear how it will use divesting and offsetting to achieve this target. As Uniper Benelux is legally mandated to close its coal power plant on the Maasvlakte, the company plans to switch to biomass and green hydrogen for electricity production. Uniper Benelux has not set out a phaseout plan for gas-fired power production; the continuation of power production from fossil fuels over the medium- or long-term in the European Union is misaligned with the objectives of the Paris Agreement.

Uniper Benelux is covered by Uniper SE's commitment to carbon-neutral operations by 2035, but it is not clear whether this target covers other GHGs and what share of this target will be achieved through real emission reductions (Uniper, 2021d). Uniper SE and Uniper Benelux committed to carbon neutral operations in Europe by 2035; this target covers CO_2 but excludes other GHGs, such as methane (Uniper, 2022c). Considering that Uniper Benelux operates three gas-fired power installations in the Netherlands (Uniper, 2022b), the exclusion of methane emissions weakens the 2035 target.

Uniper Benelux does not specify whether and to what extent it plans to rely on offsetting to bring its scope 1 and 2 CO_2 emissions to net zero by 2035. Whereas Uniper SE provided that it considers divestments and offsetting to realise carbon neutrality for its European operations by 2035 in its 2021 Annual Report (Uniper, 2022a, p. 108), it makes no reference to those measures in its 2021 Sustainability Report (Uniper, 2022d). This might be a signal that Uniper SE is reconsidering its decarbonisation strategy, but an explicit statement on the reliance on offset credits is needed to understand the true ambition level of the company's carbon neutrality target.

Uniper SE pledged to reduce its European scope 1 and 2 emissions by 50% by 2030, relative to 2019, and to reduce company-wide scope 3 emissions by 35% by 2035, relative to 2021 (Uniper, 2022d, p. 17). While Uniper Benelux's emissions are included in both these targets, it could be that the holding Uniper SE decarbonises its activities in the Netherlands at a faster or slower pace than in other European countries. We are unable to estimate the targeted emission reductions across the full value chain in the Netherlands due to the lack of publicly available data on Uniper SE's scope 2 and 3 emissions in Europe (see Box 20 for an integrity assessment).

Neither Uniper SE nor Uniper Benelux present a clear phaseout plan for natural gas; the use of this fossil fuel for electricity generation over the medium- or long-term in the European Union is inconsistent with the goals of the Paris Agreement. As the Dutch Government plans the phaseout of natural gas before 2050, Uniper Benelux will need to find alternatives for its gas power plants in The Hague, Leiden, Rotterdam, and the Maasvlakte (Uniper, 2021d, 2021b). In a letter shared with Milieudefensie, Uniper Benelux states that it needs policy decisions on the types of gas-fired power plants that will be allowed in the future and on the types of hydrogen that are seen as sustainable (Uniper Benelux, 2022). Currently, the company plans for natural gas to remain a key focus of its commodity trading and power production business and is looking into ways of reducing gas-related emissions, especially fugitive emissions (Uniper, 2022d, p. 18). Uniper SE still has to decide on a strategy to decarbonise its European gas turbine fleet; the options include hydrogen combustion in the gas

installations, biofuel combustion, and carbon capture, utilisation and storage (CCUS) (Uniper, 2022d, p. 23). Natural gas is not an energy supply option that is in the long term consistent with 1.5°C-compatible pathways (Marquardt and Kachi, 2021, p. 18). The IPCC's Sixth Assessment Report underlined that gas is associated with high-emission lock-in and creates significant risks for limiting global warming to 1.5°C (Clarke et al., 2022, p. 114).

Uniper Benelux considers various alternatives to coal combustion, most notably hydrogen (Uniper, 2022d, p. 25). The Law prohibiting coal in electricity production implies that Uniper Benelux will have to close its MPP3 coal plant by 2029 at the latest (Dutch Government, 2019). This plant has a capacity of 1,100 MW and can generate up to 7% of the Netherlands' electricity demand (Uniper, 2021d). Uniper Benelux is considering alternative sources of energy production, most notably green hydrogen from offshore wind energy (Uniper, 2021e). In 2021, Uniper Benelux and the Port of Rotterdam Authority signed a memorandum of understanding with the aim of developing production facilities for green hydrogen on the Maasvlakte (Uniper, 2021a, 2022d, p. 26). The production capacity of the hydrogen plant would initially be 100 MW and later be scaled up to 500 MW (Uniper, 2022d, p. 26), covering 45% of the MPP3's current capacity.

Uniper Benelux's MPP3 power plant co-fires biomass; the company claims this is a climate-neutral energy source. A study looking into the profitability of converting the MPP3 power plant into a biomass plant by 2030 found that this would not be a profitable investment decision for Uniper (Perner and van der Poel, 2019, p. 4). However, the company combusts a substantial amount of biomass in its MPP3 power plant and uses subsidies from the Dutch Government to this end; it is likely that Uniper Benelux will not procure biomass beyond 2027, as government subsidies are phased out and the use of biomass becomes less profitable for the company (Verbeek, 2021). In 2020, the MPP3 plant combusted 552 kt of biomass, of which 477 kt were wood pellets; biomass accounted for more than a third of the total fuel combusted in that year (Uniper, 2021c, p. 63). The holding company Uniper SE states that this biomass is climate neutral but does not disclose details on the origin and sustainability of the biomass it combusted (Uniper, 2022d, p. 21). While the Dutch standards for biomass are strict, there are concerns about whether they are consistently adhered to. A 2021 study by SOMO identified cases of problematic logging in Estonian forests with possible links to Dutch imports (van der Wal, 2021). Another report found that the majority of wood pellets used in the Netherlands originates from the Baltic states and the US, but due to a lack of transparency, it is impossible to link Dutch power plants and region of origin of the biomass (Natuur & Milieu, 2021, pp. 6–7). According to the report it is not clear whether the biomass combusted in Dutch power plants meets the Dutch Government's sustainability criteria for biomass (Natuur & Milieu, 2021, pp. 9–10).

Box 20: Integrity assessment of Uniper Benelux's emission reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

Uniper Benelux is covered by Uniper SE's target of carbon-neutral operations in Europe by 2035

Headline pledge: Low integrity

Emissions reduction component alongside headline pledge

~31% by 2030 (compared to 2021)

No deep emissions reduction target for the full value chain presented alongside the carbon neutrality pledge. Uniper SE sets a 35% scope 3 emission reduction target by 2035, compared to 2021. We estimate that this target and the target for European scope 1 and 2 emissions (see below) translate to an emissions reduction across the value chain of 31% by 2035, compared to 2021.

Is the emission reduction component equivalent to at least 90% below 2019 levels? *(if the headline pledge is a net-zero or carbon neutrality target)*

Neither Uniper Benelux nor Uniper SE specify a deep emissions reduction target for the full value chain alongside their carbon neutrality commitment, leaving the door open for contentious neutralisation measures to achieve this target.

Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?

Existing literature identifies a 1.5°C Paris Agreement compatible carbon intensity for energy utilities and the global electricity systems of below zero (i.e., negative) emissions for 2050 and reaching close to zero emissions already by around 2040 (CAT, 2020; SBTi, 2020, 2021e, 2021c, 2021a; Boehm et al., 2021; Dietz, Gardiner, Jahn, et al., 2021; UNFCCC, 2021). For developed countries, the full decarbonisation of electricity systems must even be achieved earlier by around 2035. As an energy utility, Uniper would need to reduce operational scope 1 and scope 2 emissions by 100% around 2040 globally, and by around 2035 in the European Union.

For this reason, Uniper SE or Uniper Benelux would require a zero emissions target or even negative emissions target for 2035, instead of a 'carbon neutrality' target with an unspecified volume of unabated emissions.

Box 20 (cont.): Integrity assessment of Uniper Benelux's emission reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

Uniper Benelux is covered by the following interim target by Uniper SE:

Absolute emission reductions of 50% by 2030 below 2019 levels across European scope 1 and scope 2 emissions.

Interim targets: Low integrity

Emissions reductions by 2030 below 2019 across entire value chain

Dutch subsidiary level ? by 2030

Uniper Benelux does not provide comprehensive and granular emissions data to verifiable calculate the emissions reduction impact by 2030 below a 2019 baseline across the entire value chain.

Group level ? by 2030

For Uniper SE, the 50% scope 1 and 2 emission reduction target was included in the headline pledge target estimate (see above).

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO_2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%). The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO_2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

Uniper SE's interim target for 2030 likely falls short of emission reductions required at the global level to limit global warming in line with 1.5°C given it entirely excludes scope 3 emissions.

Sector-level benchmarks

The ambition level of Uniper SE's interim target for 2030 and 2035 likely misses specific 1.5°C Paris Agreement-aligned milestones for energy utilities identified in existing literature. The IEA specifies that no new unabated coal plants should be approved for development from 2021 onwards and all unabated coal plants need to be phased out in advanced economies to be in line with a global energy sector pathway compatible with the 1.5°C temperature limit (IEA, 2021). Uniper Benelux meets these benchmarks given its obligation to close its coal-fired power plants by 2029 under Dutch law (Uniper, 2021d, p. 25). However, the German coal plant 'Datteln 4' commenced operations in 2020 with an intended operation phase until 2038. Uniper's interim targets at the group level also likely miss existing operational emission reduction milestones identified by the Transition Pathway Initiative (TPI) for European energy utilities under both their definition of a 1.5 Degree Scenario (0.046 tCO_2e/MWh in 2030, reduction of 82% of emission intensity below 2019) and their definition of a Below 2 Scenario (0.063 tCO_2e/MWh in 2030, reduction of 81% of emission intensity below 2019) (Dietz, Gardiner, Jahn, et al., 2021; TPI, 2022).

Do the interim targets align with the long-term vision?

Uniper SE provides no explanation of why it considers its 2030 interim target aligned with its vision of 2035 carbon neutral operations in Europe.

Has the first interim target been set within maximum 5 years in the future?

Neither Uniper Benelux nor Uniper SE commit to interim targets within a five-year time horizon that require immediate action.

Yara Sluiskil

Chemicals

Yara Sluiskil is the Dutch subsidiary of Norway-based fertiliser producer Yara International. The holding company committed to **climate neutrality by 2050**. Yara Sluiskil is included in this target.

Revenue	Emissions	Pledge
Yara International: EUR 14 bn (2021) Yara Sluiskil: no data identified	Yara International 75.1 $MtCO_2e$ (2021) Yara Sluiskil: 13.2 $MtCO_2e$ (2020) (estimate)	Yara Sluiskil is included in Yara International's target of climate neutrality by 2050

Transparency	Integrity
Low	Low

1 Tracking and disclosure of emissions

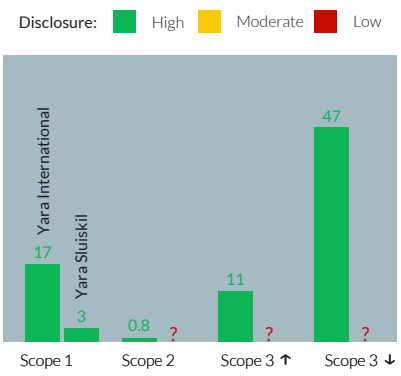
Transparency & Integrity: Moderate

- **Tracking and disclosure**
  Yara International: 75.1 $MtCO_2e$ (2021)

  Subsidiaries covered

Major emission sources: Use of sold products (N_2O emissions of fertiliser) (~62%), production of fertiliser (scope 1 (~22%)).

Disclosure: Sufficient level of detail in reporting by Yara International, no reporting on emissions by Yara Sluiskil. Yara International provides a breakdown of scope 1, 2 and various scope 3 sources, including four historical data points.



2 Setting emission reduction targets

	Transparency	Integrity
	Very low	Very low

Headline target or pledge

Yara Sluiskil is included in Yara International's target of **climate neutrality by 2050.**

- **Coverage of emission sources**
  (in headline pledge)

  Unclear what emission scopes Yara International's 2050 target covers.

  Low | ?

- **Reduction of own emissions**
  (for pledge year, compared to full value chain in 2020)

  ~23% by 2050 (estimate, compared to a 2020 baseline)

  Yara Sluiskil aims for zero scope 1 emissions by 2050, which we estimate to mean a 23% reduction of full value chain emissions compared to 2019. We identify no commitment to reduce or limit growth of emissions from scope 3.

  Low | Low

- **Interim emission reductions**
  (estimated compared to full value chain in 2020)

  ~2-9% by 2030 (estimate, compared to a 2020 baseline)

  Yara Sluiskil's target to reduce emissions by 85-90% by 2030 compared to 1990 relates only to scope 1 emissions and is partly dependent on low-quality CC(U)S in place of emission reductions. Insufficient information available to assess.

  Low | Low

3 Reducing own emissions

		Transparency	Integrity
		Moderate	Very low
Emission reduction measures	Several detailed emission reduction measures presented for scope 1, including emission reduction potentials. Limited information on scope 2 and upstream scope 3 emission reduction measures. No plans disclosed for downstream scope 3 emissions.	Moderate	Low
Renewable electricity procurement	Renewable electricity procured with GO certificates.	Moderate	Low

4 Climate contributions and offsetting claims

		Transparency	Integrity
		Low	Very low
Responsibility for unabated emissions	No information identified on how the company takes responsibility for unabated emissions.	Low	Low
Climate contributions	*No climate contributions identified*	N/A	Low
Offsetting claims today	*No offsetting claims today identified*	N/A	N/A
Offsetting plans for the future	Yara Sluiskil plans to claim the neutralisation of their emissions in the future through carbon capture and utilisation through e.g. carbonation of drinks, and underground storage of captured carbon.	Moderate	Low

Ratings

Overall: 5-point scale. Average of sections 1-4.

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High | Reasonable | Moderate | Low | Very low

High | Reasonable | Moderate | Low | Very low

High | Moderate | Low

N/A Not applicable | ? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from Yara International and Yara Sluiskil. (Yara, 2020, 2022b, 2022a).

Yara Sluiskil

Yara Sluiskil is a Dutch subsidiary of the Norway-based fertiliser producer Yara International. Yara Sluiskil's direct scope 1 emissions accounted for approximately 4% of national GHG emissions in the Netherlands in 2021. Yara Sluiskil's climate strategy mainly focuses on these scope 1 emissions, and with a partial reliance on contentious CC(U)S measures in place of emission reductions. Yara Sluiskil does not report on scope 3 emissions, although this is likely the most significant source of emissions for a company producing synthetic fertiliser; Yara International estimates that scope 3 emissions account for roughly 77% of the holding company's GHG emissions footprint. Without scope 3 emission reduction plans, the company's climate strategy is not comprehensive.

Yara Sluiskil's main focus is on scope 1 emissions; by not addressing scope 3 emissions in its climate strategy, the company neglects the most important source of its emissions footprint. Yara Sluiskil describes its intention to achieve zero scope 1 emissions by 2050 (Yara, 2020, p. 4). However, this target is loosely formulated and would translate to reduction of only ~23% across Yara Sluiskil's value chain emissions by 2050, compared to 2019 (Yara, 2020, p. 4, 2022b, p. 110). The application of synthetic nitrogen based fertiliser to arable land leads to nitrous oxide (N_2O) emissions, accounting for approximately 2.4% of global GHG emissions (Menegat, Ledo and Tirado, 2021). Yara International reports on the downstream scope 3 emissions related to the use of sold products, estimating these to be 62% of its 2021 emissions footprint; while it estimates full scope 3 emissions to account for 77% of its GHG footprint (Yara, 2022c, p. 110). Yara Sluiskil does not report on its scope 3 emissions, nor does it have a clear strategy to reduce these. Without major innovations to drastically reduce the emissions from the use of fertiliser, it is not credible for a fertiliser producer to claim that it is on a path to climate neutrality. We did not find evidence showing that Yara Sluiskil plans to significantly innovate to reduce emissions from product use. Rather, the company highlights its growing importance in the global food system.

Yara Sluiskil plans to pursue a hydrogen route that could decrease its scope 1 emissions, but this alone will not significantly reduce the company's GHG emission footprint by 2030. By 2030, Yara Sluiskil plans to reduce scope 1 emissions by 85-90%, by increasing its use of contentious CC(U)S (see below), as well as by switching to hydrogen-based fertiliser production (Yara, 2020, pp. 4–5, 2022a, pp. 15–16). Currently, Yara Sluiskil uses natural gas in the production process. A switch to green hydrogen could help to decrease scope 1 emissions, although the company does not set out a strategy for the production of supply of green hydrogen, which could be a complex challenge. Even with this measure, the company's emissions footprint would remain substantial. As the company neglects to set targets on this timeframe for scope 2 and 3 emissions, we estimate that the resulting emission level is equal to a decrease in absolute full value chain emissions of only ~2-9% by 2030 compared to 2019 levels (Yara, 2020, p. 4, 2022b, p. 110).

Contentious CC(U)S measures constitute a major component of Yara Sluiskil's climate strategy. The company illustrates that CC(U)S measures can reduce its scope 1 emissions by just over 2 $MtCO_2e$ (Yara, 2020, p. 4). These measures include, among others, carbonic acid in beverages, CO_2 in greenhouses to produce vegetables, and carbon storage in empty natural gas fields (Yara, 2022b, p. 4). Use of captured

CO_2 in beverages and greenhouses have little to no likelihood of permanence. CO_2 in beverages is re-released into the atmosphere almost immediately by opening bottles and digesting the drink. The plants in greenhouses are not a permanent sink either, as these are sold for consumption, eventually re-releasing CO_2 into the atmosphere. There is a higher likelihood of permanence related to storage in the empty natural gas fields. However, carbon capture with underground storage is associated with very high costs and substantial environmental concerns. Moreover, risks of leaks remain. The potential for underground carbon storage is uncertain. It may be seen as a last resort for emissions that are otherwise impossible to abate and should therefore be treated as a public good, rather than claimed by individual companies (see Section 4.2.1 in the methodology, Annex I). Yara Sluiskil does not provide details as to how it will access and implement highly complicated CCS projects at these gas fields, nor why the company considers it should have priority access to this scarce and uncertain resource.

Box 21: Integrity assessment of Yara Sluiskil's emission reduction targets

(see Section 2.2. in accompanying methodology for further explanations)

Headline pledge

Yara Sluiskil is included in Yara International's target of climate neutrality by 2050.

Headline pledge: Low integrity

Emissions reduction component alongside headline pledge

Yara Sluiskil aims for zero scope 1 emissions by 2050, which we estimate to represent a 23% reduction of full value chain emissions compared to 2020. We identify no commitment to reduce or even limit growth of emissions from scope 2 and 3.

~23%
by 2050
(estimate, compared to a 2020 baseline)

Yara Sluiskil does not report on scope 3 emissions. Yara International discloses its scope 3 emissions footprint, accounting for 77% of its GHG footprint in 2020. We applied the same ratios of scope 2 and scope 3 emissions to derive an estimate of Yara Sluiskil's entire emissions footprint. We assume that the resulting scope 2 and 3 emissions remain constant until 2050, which is a conservative assumption. By comparing the resulting emissions footprint in 2050 to the 2020 footprint, we estimate the emissions reductions to be around 23%. This should be treated as an order of magnitude estimate.

Is the emission reduction component equivalent to at least 90% below 2019 levels? (if the headline pledge is a net-zero or carbon neutrality target)

Neither Yara Sluiskil nor Yara International specify a deep emissions reduction target alongside their climate neutrality commitment, leaving the door open for contentious neutralisation measures to achieve this target. It thus remains unclear to what extent Yara International—and Yara Sluiskil—will reduce emissions across their value chains and what share of baseline emissions will be neutralised through offsetting or carbon dioxide removals. Yara Sluiskil vaguely states its intention target to reduce scope 1 emissions to zero by 2050, which may only represent a reduction of around 23% by 2050 compared to 2019 emissions levels across the entire value chain.

Is the emission reduction component of the headline target in line with 1.5°C compatible trajectories or benchmarks for the sector?

Neither Yara Sluiskil nor Yara International explain how their 2050 climate neutrality target is aligned with the Paris Agreement's temperature limit of 1.5°C. Global economy-wide pathways in the IPCC's Sixth Assessment Report require an economy-wide net GHG reduction of 84% across all emissions scopes (73–98% interquartile range) compared to a 2019 baseline (IPCC, 2022). Yara Sluiskil's target of zero scope 1 emissions by 2050, which represents a reduction of around 23% across the full value chain compared to 2019, is not aligning with these emission reduction efforts required at the global-level to limit global warming in line with 1.5°C.

Box 21 (cont.): Integrity assessment of Yara Sluiskil's emission reduction targets

(see Section 2.3. in accompanying methodology for further explanations)

Interim target(s)

Yara Sluiskil's target to reduce emissions by 85-90% by 2030 compared to 1990 relates only to scope 1 emissions and is partly dependent on low-quality CC(U)S in place of emission reductions.

Interim targets: Low integrity

Emissions reductions by 2030 below 2019 across entire value chain

~2-9%
by 2030
(estimate, compared to a 2020 baseline)

Yara Sluiskil does not report on scope 3 emissions. Yara International discloses its scope 3 emissions footprint, accounting for 77% of its GHG footprint in 2020. We applied the same ratios of scope 2 and scope 3 emissions to derive an estimate of Yara Sluiskil's entire emissions footprint. We assume that the resulting scope 2 and 3 emissions remain constant until 2030, which is a conservative assumption. By comparing the resulting emissions footprint in 2030 to the 2020 footprint, we estimate the emission reductions to be around 2–9% (including or excluding CCUS, which is part of the range). This should be treated as an order of magnitude estimate.

Do the interim targets align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks

The IPCC's Sixth Assessment Report stresses that global CO_2 emissions must reduce by net 48% (36–69%) by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43% (34–60%) and global methane emissions by 34% (21–57%). The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO_2 emissions across all emission scopes by net 45% by 2030 below a 2019 baseline (The Hague District Court, 2021).

Yara Sluiskil's interim scope 1 emissions target, representing a reduction of around 2–9% across the entire value chain in 2020, is not aligned with global efforts required to limit global warming in line with 1.5°C.

Sector-level benchmarks

Existing literature provides no specific milestones for the chemical industry, which makes an independent analysis of Paris Agreement aligned climate action in the sector generally difficult. This gap in existing literature allows no conclusive assessment of sector-specific decarbonisation efforts in line with the Paris Agreement's 1.5°C temperature goal. Yara Sluiskil—together with the chemical industry—needs to put further emphasis on determining sector-specific decarbonisation milestones in line with the Paris Agreement in a transparent, scientific and verifiable process.

Do the interim targets align with the long-term vision?

Yara Sluiskil provides no explanation of why it considers its 2030 interim target aligned with Yara International's long-term vision of climate neutrality by 2050.

Has the first interim target been set within maximum 5 years in the future?

Yara Sluiskil does not commit to any earlier interim targets within a five-year time horizon that require immediate action.

3

3.3 Financial institutions

Company case studies

ABN AMRO

Financial services

ABN Amro Bank N.V. – headquartered in Amsterdam - is the Netherlands' third largest bank. ABN Amro has announced it is actively working on a new climate strategy through which it intends to **align the bank's activities with a 1.5°C global warming target. The bank aspires to be net zero by 2050.**

Operating income	Emissions	Pledge
EUR 7.6 bn (2021)	26.2 $MtCO_2e$ (2021) (financed emissions)	Steer the bank towards a maximum 1.5˚C global warming target, with the intention to become net-zero by 2050

Transparency	Integrity
Moderate	Low

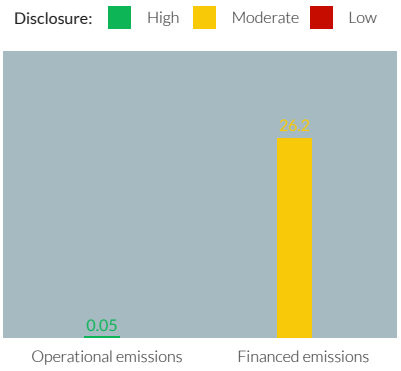
1 Tracking and disclosure of emissions

Transparency & Integrity: Moderate

- **Tracking and disclosure**
  Operational emissions: 0.05 $MtCO_2e$ (2021)
  Financed emissions: 26.2 $MtCO_2e$ in 2021 (borrowers' and investee companies' scope 1 and 2)

Major emission sources: Financed emissions (scope 3, category 15) make up over 99% of reported emissions. Emissions from lending portfolio represent around 75% of financed emissions, client asset emissions represent 25%.

Disclosure: Emissions from lending portfolio and clients' assets disclosed; some financed emissions excluded, but their relevance is unclear.



2 Setting emission reduction targets

	Transparency	Integrity
	Moderate	Low

Headline target or pledge for financed emissions — Alignment with a maximum 1.5°C- scenario and net zero by 2050.

		Transparency	Integrity
Coverage of financed emission sources *(in headline pledge)*	Headline target covers financed emissions from ABN Amro's investment and lending portfolio (scope 3, category 15).	Moderate	High
Reduction of financed emissions *(for pledge year, compared to portfolio emissions in 2019)*	? by 2050 No quantitative reduction target alongside the net-zero pledge.	Low	Low
Interim targets for financed emissions *(for pledge year, compared to portfolio emissions in 2019)*	No overall reduction target, but: 36% share of "sustainable acceleration assets" by 2024: ▪ 45% share of energy-specific corporate lending to renewable energy by 2024 (30% in 2021). ? by 2024 ▪ 40% of corporate lending in shipping portfolio to GHG level A or B (33% in 2021). ▪ Weighted average energy label C in commercial real estate portfolio in 2025; A in 2030.	Moderate	?

Headline target or pledge for emissions from business operation *(excl. financed emissions)* — To reduce emissions from business operations across all scopes by 80% compared to 2015 (79% compared to 2019).

3 Reducing financed and own emissions		Transparency: Moderate	Integrity: Low
Emission reduction measures	**Exclusion policy:** Applies to all financial services, covering project finance for several harmful activities, including all oil and gas production.	High	Moderate
	Engagement policy: Applies to all financial services, but the bank provides limited detail on harmful activities it engages on.	Moderate	Low
Renewable electricity procurement	Limited information provided. Focussing on procurement of renewable energy via Guarantees of Origin.	Low	Low

4 Climate contributions and offsetting claims		Transparency: Very low	Integrity: Very low
Responsibility for unabated emissions	Offsetting approaches with limited information.	Low	Low
Climate contributions	*No climate contributions identified.*	N/A	Low
Offsetting claims today	*Offsets various emission sources, including business travel, mobility, and office and home locations. Very little information provided on the procured carbon credits.*	Low	?
Offsetting plans for the future	No information identified.	Low	Low

Ratings

Overall: 5-point scale. Average of sections 1-4. Weighted average of sections 1-4 (50% for element 3; 17% for elements 1, 2 and 4).	High	Reasonable	Moderate	Low	Very low
Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.	High	Reasonable	Moderate	Low	Very low
Rating criteria: 3-point scale. See methodology document for an explanation per criterion.	High		Moderate		Low
			N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from ABN Amro (ABN AMRO, 2018, 2021c, 2021a, 2021b, 2022a, 2022b, 2022e, 2022d, 2022c).

ABN Amro

ABN Amro is the third largest bank in the Netherlands. Emissions from financial services (i.e. scope 3, category 15) account for over 99% of the bank's GHG footprint. As part of its upcoming climate strategy ABN Amro intends to align its financial services with a maximum 1.5°C global warming target and wants to become net-zero by 2050 (ABN AMRO, 2022b). A comprehensive plan of how it intends to do so in the short and medium term is however not yet clear. ABN Amro incorporates climate considerations by benchmarking business activities on internal Sustainability Acceleration Standards (ABN AMRO, 2022b). The bank also proactively seeks to reduce its financed emissions through exclusion of harmful activities and the engagement of their clients on climate action ambition.

ABN Amro's disclosure of financed emissions (scope 3, category 15) is reasonably comprehensive, although the relevance of non-reported emissions from its lending portfolio remains unclear. The bank provides a breakdown of financed emissions (scope 3, category 15) into lending portfolio emissions and clients' assets emissions. ABN Amro states that reported emissions from its lending portfolio exclude consumer lending, credit facilities for institutions, banks and other financial counterparties, but does not transparently communicate the relative importance of out-of-scope lending (ABN AMRO, 2022b). Previous annual reporting included explicit reporting on out-of-scope emissions. In their 2020 annual report, the bank transparently states that a significant share (35%) of the bank's lending portfolio in terms of exposure at default (EAD) were out-of-scope (ABN AMRO, 2021c). While the bank disaggregates emissions of its lending portfolio on a sectoral level, it does not disclose information on the share of lending specifically provided to the fossil fuel industry (ABN AMRO, 2022b). The bank also does not disaggregate its financed emissions from its lending portfolio by scope (ABN AMRO, 2022b).

In addition to the total emissions of its client asset portfolio, ABN Amro reports its exposure to carbon-intensive and carbon-related client assets (ABN AMRO, 2022b). However, the bank does not transparently state whether these include only scope 1 and 2, or also scope 3 emissions. In previous annual reporting the bank explicitly stated the scope (scope 1 and 2) of reported emissions for its client asset portfolio (ABN AMRO, 2021c).

The bank transparently reports on its own scope 1 and 2 emissions; using the location-based accounting method to report on emissions from energy usage. While key scope 3 emission sources are disclosed, smaller sources may be missing (ABN AMRO, 2022b).

As part of its upcoming climate strategy, ABN Amro intends to ratchet up its climate ambition and intends to steer its financial service provision to align with a maximum of 1.5°C global warming to reach net-zero by 2050 (ABN AMRO, 2022a, 2022b). ABN Amro had previously pledged to align its lending and investment portfolio with a well below 2-degrees scenario (exact coverage unclear), with the intention to support a net-zero economy by 2050 (ABN AMRO, 2021b). The bank acknowledges its responsibility and role in supporting an economy-wide transition, but 1.5°C-aligned targets are not yet available.

Although ABN Amro has various interim targets for "Sustainable Acceleration Assets", these do not represent absolute emissions reduction targets. It is unclear to what extent these targets contribute to aligning the bank's portfolio with global warming of 1.5°C. ABN Amro defines yearly targets for its "Sustainability Acceleration Asset" volume for

all financial services. The bank's "Sustainable Acceleration Standard" is very broadly defined and covers several forms of sustainable finance, but it has no explicit focus on climate objectives. The bank's Sustainability Acceleration Assets include ESG aligned client assets and impact investments, mortgages for energy efficient commercial and residential real estate, and sustainable corporate loans (ABN AMRO, 2022b). By 2024, the bank intends to raise the share of Sustainability Acceleration Assets as part of their total loan books and client asset volume to 36%. This would represent a nine percentage point increase from 2021 levels (ABN AMRO, 2022b).

Specifically, the bank sets renewable energy targets for its energy lending, as well as minimum energy efficiency standards in its real estate lending portfolio, but it is unclear to what extent these targets will provide a substantial contribution to achieving ABN Amro's goal of net zero by 2050 (ABN AMRO, 2021b). The bank's target to increase the proportion of renewable energy in its energy-specific corporate lending portfolio to 45% by 2024 (against 13% in 2018) may be outweighed by continued loans for fossil fuel projects (ABN AMRO, 2021b). For its investment services, the bank has not transparently set specific emissions reduction targets.

ABN Amro applies a sustainability risks policy framework to assess and mitigate environmental risks associated with its business activities (ABN AMRO, 2022b). The policy defines the bank's exclusion and sustainability standards and policies, and sets out the bank's sustainability risk defence mechanism (ABN AMRO, 2022b). ABN Amro states that it actively integrates regulatory and supervisory guidance as provided by the Task Force on Climate-related Financial Disclosures (TCFD) and the European Central Bank (ECB) to align its climate risks management with industry standards (ABN AMRO, 2022b).

ABN Amro intends to reduce emissions from its lending portfolio and investment services via negative screening of some harmful activities, but it is unclear how stringently the bank applies its exclusion list. The bank applies an exclusion list that covers project finance for some harmful activities, including the acquisition or building of thermal coal mines; new coal fired power plants; oil and gas exploration in the Arctic region and associated services; exploration and processing of tar sands and the transportation of tar sand oil. Also on the exclusion list are project finance for deforestation related to large scale agricultural plantations and large-scale ruminant farming (ABN AMRO, 2021a, p. 1). It is not clear how stringently the bank applies its exclusion lists, as it is does not seem to be strictly binding (clients with activities on the exclusion list require approval from the bank's executive board) (ABN AMRO, 2021d). Further, ABN Amro does not fully rule out production and transport of all fossil fuels via its exclusion list (ABN AMRO, 2021a).

In addition to its exclusion list, ABN Amro applies specific requirements for power generation (ABN AMRO, 2018, p. 3) and oil and gas (ABN AMRO, 2022e, p. 3). These requirements define the circumstances under which the bank can finance energy and fossil fuel intensive clients that are not directly covered by the bank's exclusion list. We interpret the recently updated sustainability requirement for oil and gas to exclude all direct finance for oil and gas exploration and production approved after 2021, which would make this requirement more stringent than the exclusion list (ABN AMRO, 2022e, p. 3). However, the bank's power generation policy allows for direct finance for coal-, oil/diesel-, and gas-fired power generation, conditional on governance and environmental requirements (except new coal-fired power plants as per the exclusion list mentioned above) (ABN AMRO, 2018, p. 3).

Although ABN Amro states that it pursues a structured, "high-intensity" engagement strategy covering all financial services (ABN AMRO, 2022d), it provides only moderate levels of detail regarding the thematic scope of engagement efforts. For its lending portfolio, the bank applies a loosely defined focus list approach through which it prioritises engagement needs with high-risk companies (ABN AMRO, 2022d). The bank states that it

engages clients when they are operating in "very sensitive circumstances" with high inherent risk, "when they are material to the bank due to the nature of the relationship", or where clients "operate in sectors (or multiple sectors) with high potential risks" (ABN AMRO, 2022d). The bank also claims to proactively engage and advise corporate loan and mortgage clients on environmental risks and sustainable investment opportunities (ABN AMRO, 2022b). For its investment services, ABN Amro delegates proxy voting on ESG issues for investments in listed companies to a stewardship service provider (ABN AMRO, 2022b), but notes that it also actively participates in direct engagement activities (ABN AMRO, 2022d). The bank may decide to engage with clients on specific topics, but provides limited detail as to when and under what conditions it would start such thematic engagement (ABN AMRO, 2022d). While ABN Amro acknowledges thematic engagement as a "perfect example of accelerating the sustainability shift", it is not clear to what extent the bank actively uses engagement on climate-related issues with its clients. The examples of thematic engagement that it gives relate to the position of migrant workers and recycling standards in the shipping industry (ABN AMRO, 2022d).

While ABN Amro does not provide information on concrete divestment plans, it acknowledges the need for divestment where engagement efforts prove unsuccessful and lists cases from its lending portfolio where they have "exited" the engagement. This includes several energy and climate related cases, although ABN Amro provides no company names (ABN AMRO, 2021c).

In terms of its own business operations, ABN Amro sets separate reduction targets. The bank commits to reduce absolute emissions by 80% below 2015 levels by 2025 across all scopes (around 79% by 2050 below 2019 levels) (ABN AMRO, 2022b). For real estate the bank itself uses (owned and rented), it has committed to ensure that all have an A-rated energy label by 2023 (ABN AMRO, 2022c).

ABN Amro reports that it procures renewable electricity for its operations in Germany and the Netherlands, but provides very limited detail on its procurement constructs (ABN AMRO, 2021b). In the Netherlands, the bank procures Guarantees of Origins (GOs) to cover its gas and electricity use, but provides no further details, including on whether these GOs are bundled with its electricity consumption. The procurement of GOs generally does not send a meaningful signal to incentivise the development of new renewable capacity. Instead, it is likely that the practice displaces more carbon-intensive electricity and gas to other consumers on the grid (see Section 3.2.1 in the methodology, Annex I). ABN Amro gives no information on its renewable energy procurement approach in Germany.

ABN Amro transparently reports the emissions of its direct business operations and claims to offset them through the purchase of carbon credits. The bank reports on emissions from business travel, mobility, office and home locations, off-premise datacentres and Software-as-a-Service. ABN Amro committed to reduce those emissions by 80% by 2025, compared to 2015 (ABN AMRO, 2022b). In 2021, ABN Amro procured credits to offset 46.2 $ktCO_2e$ (ABN AMRO, 2022d). The bank states it purchased VCS-certified carbon credits without further detail that would enable an assessment of their integrity, including on the type of projects, their location, or the vintage of the actual emission reductions.

ABP

Financial services

Stichting Pensioenfonds ABP (ABP) is the Dutch pension fund for government and education sector employees. ABP is the Netherlands' largest pension fund, managing the pensions of about 3 million people. **In 2020, ABP pledged to have a climate neutral investment portfolio by 2050.**

Operating income	Emissions	Pledge	Transparency	Integrity
EUR 550 bn (end of 2021)	21.4 $MtCO_2e$ (2020) (financed emissions)	Climate neutral investment portfolio by 2050	Low	Low

1 Tracking and disclosure of emissions

Transparency & Integrity: Moderate

- **Tracking and disclosure** *21.4 $MtCO_2e$ in 2020 (scope 1 and 2 investee companies)*

Major emission sources: Financed emissions.

Disclosure: Data on scope 1 and 2 emissions from investee companies is transparent and broken down in asset categories. No reporting on investees' scope 3 emissions.

2 Setting emission reduction targets

		Transparency	Integrity
Headline target or pledge for financed emissions	Climate neutral investment portfiolio by 2050.		
Coverage of financed emission sources *(in headline pledge)*	Headline target covers portfolio emissions (scope 3, category 15).	High	High
Reduction of financed emissions *(for pledge year, compared to portfolio emissions in 2019)*	? by 2050 — No quantitative reduction target alongside the climate neutral portfolio pledge.	Low	Low
Interim targets for financed emissions *(for pledge year, compared to portfolio emissions in 2019)*	? by 2025 — To reduce the CO_2 footprint of equity investments by 40% between 2015 and 2025. Also: to invest EUR 15 billion in affordable and clean energy by 2025.	High	?
Headline target or pledge for emissions from business operation *(excl. financed emissions)*	None		

3 Reducing financed and own emissions		Transparency	Integrity
		Low	Very low
Emission reduction measures	**Exclusion and divestment policy:** Announcement to divest from investee companies in the fossil fuel energy sector, but currently excludes illiquid investment and future contracts. Unclear whether the announcement applies to assets managed by third parties.	Low	Low
	Engagement policy: We could not identify a comprehensive overview of ABP's engagement strategy. Unclear whether the pension fund covers all thematic areas and whether they have an escalation strategy in place.	Moderate	Low
Renewable electricity procurement	We were not able to identify information on renewable electricity procurement.	Low	?

4 Climate contributions and offsetting claims		Transparency	Integrity
		Very low	Very low
Responsibility for unabated emissions	No information identified on how the company takes responsibility for unabated emissions.	Low	Low
Climate contributions	*No climate contributions identified.*	N/A	Low
Offsetting claims today	*No offsetting claim identified.*	N/A	N/A
Offsetting plans for the future	No information identified.	Low	?

Ratings

Overall: 5-point scale. Average of sections 1-4. Weighted average of sections 1-4 (50% for element 3; 17% for elements 1, 2 and 4).

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High | Reasonable | Moderate | Low | Very low

High | Reasonable | Moderate | Low | Very low

High | Moderate | Low

N/A Not applicable | ? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from ABP (2021f, 2021e, 2021d, 2021a, 2022c).

ABP

ABP is the Dutch pension fund for public service and education. It is the largest pension fund in the Netherlands, responsible for the pensions of over 3 million people. In October 2021, ABP announced that it would divest from most producers of fossil fuels (oil, gas, and coal) by early 2023, which represented close to 3% of ABP's assets under management. The pension fund has committed to a climate neutral portfolio by 2050, but this target is undermined by the lack of information on ABP's divestment, engagement and exclusion policies. ABP will enhance its climate targets in 2022.

ABP's disclosure of investee emissions is reasonably comprehensive but does not yet cover investee companies' scope 3 emissions. The pension fund reported that scope 1 and 2 emissions of its investee companies amounted to 21 $MtCO_2e$ in 2020 (ABP, 2021f, p. 4). Except for its investments in the real estate sector, ABP does not currently report on investees' scope 3 emissions. The pension fund claims that data on scope 3 emissions is not yet reliable enough and that their inclusion may lead to double counting issues (ABP, 2021f, p. 4). Although ABP states that it will investigate the possibility of reporting on scope 3 in the future (ABP, 2021f, p. 4), the pension fund does not commit to a clear timeline for this. Considering that scope 3 emissions may account for over 90% of investees' GHG footprint, tracking and disclosing data on those sources is a critical first step in reducing them. Investors like ABP can use their influence over investee companies to encourage them to collect data on all relevant emission sources.

ABP's interim targets cover listed equity only, excluding almost two-thirds of all investments. In addition to its commitment to a climate neutral portfolio by 2050, ABP committed to reduce the CO_2 footprint of its listed equity assets by 40% by 2025, compared to 2015 (ABP, 2020c, p. 12, 2021f, p. 6). By the end of 2021, the pension fund had already realised a reduction of 48% (ABP, 2022e, p. 6). However, listed equity represents only about 35% of ABP's investments (ABP, 2021e, p. 143). ABP states it will strengthen its target for listed equity and commit to targets for its investments in corporate bonds, private equity and real estate in 2022 (ABP, 2021e, p. 67, 2022f).

ABP announced it would divest from fossil fuel producers by the first quarter of 2023 at the latest but this excludes illiquid investments and futures contracts for oil and gas. The target may also exclude investments that are managed by third parties. ABP's divestment announcement applies to all producers of fossil fuels that generate more than 1% of their revenue from coal mining, as well as oil or gas extraction (ABP, 2021a). At the end of 2020, ABP held investments in fossil fuel producers' worth EUR 15 billion; about 3% of the pension fund's total investments (ABP, 2021a). ABP holds another EUR 11.6 billion in futures contracts for oil and gas, but these are not covered by their divestment announcement (ABP, 2021a). The announcement also does not apply to illiquid investments. ABP stated that it will prepare a plan for the divestment of its futures contracts and illiquid investments in 2022 (ABP, 2022c). By 2030, ABP will no longer directly invest in coal-fired power plants without CCS in OECD countries (ABP, 2022e, p. 44). ABP could substantially strengthen this target by also committing to end indirect finance for unabated coal power plants in OECD and other countries earlier than by 2030.

It remains unclear whether ABP's decision to divest from fossil fuel producers applies to its investments that are managed by third parties. In 2008, following a change in the regulation of pension funds, ABP established Algemene Pensioen Groep (APG) to outsource

the administration of its pension scheme. APG manages the main share of ABP's investments, as well as the investments of seven other pension funds (APG, 2021, p. 9). At the end of 2020, APG had approximately EUR 570 billion under management, of which 30% was outsourced to external specialists (APG, 2021, p. 12). It is not clear whether ABP's divestment decision applies to investments managed by third parties – either those contracted by APG, or by ABP directly. ABP could increase transparency by stating whether assets managed by third parties are covered by its recent announcement to divest from fossil fuel producers. If it does not cover these third parties then this would further undermine the comprehensiveness of the divestment announcement.

ABP provides some information on its engagement efforts, but it is unclear whether the pension fund engages on all thematic focus areas and whether it has an escalation process in place. In its "Sustainable and Responsible Investment Strategy from 2020", ABP calls engagement an "important part of its inclusion strategy" and claims to be in active conversation with investee companies (ABP, 2020c, p. 6). At the end of 2021, ABP stated that it focuses its engagement efforts on major fossil fuel consumers, especially in the automobile and aviation sectors, and amongst energy utilities (ABP, 2022c, 2022e, p. 42). The pension fund also publishes annual lists of investee companies with which it engaged in the previous year (ABP, 2021d, 2022d). ABP does anecdotally report on its engagement efforts. For instance, the pension fund recently voted against Shell's climate strategy on the basis that Shell's strategy is clearly not aligned with the Paris Agreement temperature goals and because the oil major invests in the expansion of fossil fuel production (ABP, 2022b). In April 2022, ABP announced it will only vote in favour of its investee companies' climate plans at shareholder meetings, if those plans meet a number of conditions. For instance, investee companies must commit to 'net-zero emissions' for all relevant scopes, set medium-term climate targets and conduct strategies that are 'demonstrably aligned' with a 1.5°C target (ABP, 2022a). We did not identify how ABP evaluates the integrity of interim targets and whether investees' climate targets and plans are indeed aligned with a 1.5°C target. Further, ABP published several fact sheets that outline examples of ABP's engagement efforts with investee companies active in, among others, the oil and gas sector (ABP, 2020a, 2020b, 2021b, 2021c).

ABP appears to have no comprehensive exclusion policy for sectors or products that are misaligned with achieving the Paris Agreement temperature objectives. The pension fund excludes tobacco production, as well as weapons prohibited by international treaties, but not other products and sectors (ABP, 2022g). In its Investment Strategy, ABP states that it is "reticent in excluding entire economic sectors" (ABP, 2020c, p. 6). Despite its divestment announcement of October 2021, ABP has not yet placed fossil fuel producers on its exclusion list.

It is unclear whether ABP's exclusion policy applies to assets managed by third parties This is a potential loophole that could undermine its current and future exclusion policies for sectors and products that are misaligned with the Paris temperature objectives.

ABP does not report on emissions from its own business operations, nor present a strategy to reduce them. While ABP's emissions from direct business operations (i.e. scope 1, 2 and scope 3 emissions, other than category 15) are most likely dwarfed by its financed emissions, it could enhance its climate responsibility by tracking and disclosing all relevant emissions, setting reduction targets and presenting a credible plan to achieve them.

Aegon

Financial services

Aegon N.V. is a publicly listed multinational life insurance, pensions, and asset management group headquartered in The Hague. In 2021, the group committed to **transition its general account investment portfolio to net-zero emissions by 2050 (Aegon, 2021c).**

Operating income	Emissions	Pledge	Transparency	Integrity
EUR 1.98 bn (2021)	19.97 $MtCO_2e$ (2021) (financed emissions)	Group-wide net-zero investment portfolio emissions by 2050	Low	Low

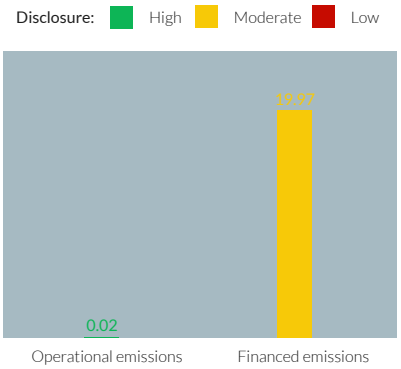
1 Tracking and disclosure of emissions

Transparency & Integrity: Moderate

- **Tracking and disclosure**
  Operational emissions: 0.02 $MtCO_2e$ in 2021
  Financed emissions: 19.97 $MtCO_2e$ in 2021 (scope 1 and 2 borrowers and investee companies)

Major emission sources: Financed emissions (scope 3, category 15) make up over 99% of reported emissions.

Disclosure: Aegon reports on emissions from corporate and sovereign fixed income, but not on other financed emissions. Disclosure on corporate fixed income includes investees' scope 1 and 2 emissions only.



2 Setting emission reduction targets

		Transparency	Integrity
Headline target or pledge for financed emissions	Transition of general account investment portfolio to net-zero emissions by 2050.		
Coverage of financed emission sources *(in headline pledge)*	Headline target explicitly only covers emissions from Aegon's general account investments.	High	Moderate
Reduction of financed emissions *(for pledge year, compared to portfolio emissions in 2019)*	? by 2050 — No quantitative reduction target alongside the net-zero pledge.	Low	Low
Interim targets for financed emissions *(for pledge year, compared to portfolio emissions in 2019)*	? by 2025 — No overall reduction target, but: 25% reduction of the carbon intensity of corporate financed income and listed equity investments by 2025 (relative to 2019), to be followed by additional targets in five-year intervals.	High	?
Headline target or pledge for emissions from business operation *(excl. financed emissions)*	To reduce emissions by 25% by 2025 (versus 2019 levels).		

3 Reducing financed and own emissions		Transparency	Integrity
		Low	Very low
Emission reduction measures	**Exclusion policy:** A non-binding and misleading exclusion policy covering some harmful activities, applicable to its investment assets only.	Low	Low
	Engagement policy: An engagement policy applicable to its publicly listed investment assets but provides limited detail on harmful activities and ESG risks it engages on.	Moderate	Moderate
Renewable electricity procurement	Some information provided. Focussing on procurement of renewable energy via RECs.	Moderate	Low

4 Climate contributions and offsetting claims		Transparency	Integrity
		Low	Very low
Responsibility for unabated emissions	Offsetting approaches with limited information.	Moderate	Low
Climate contributions	*No climate contributions identified.*	N/A	Low
Offsetting claims today	*Offsets various emission sources, including business travel, mobility, and office and home locations. Very little information provided on the procured carbon credits.*	Moderate	Low
Offsetting plans for the future	No information identified.	Low	?

Ratings

Overall: 5-point scale. Average of sections 1-4. Weighted average of sections 1-4 (50% for element 3; 17% for elements 1, 2 and 4).	High	Reasonable	Moderate	Low	Very low
Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.	High	Reasonable	Moderate	Low	Very low
Rating criteria: 3-point scale. See methodology document for an explanation per criterion.	High		Moderate		Low
			N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from ABP (2021f, 2021e, 2021d, 2021a, 2022c).

Aegon

Aegon is a publicly listed insurance company, asset manager, and investor, mostly active in the United States, the Netherlands, and the United Kingdom (Aegon, 2021d, p. 19). Aegon derives revenues and earnings from insurance premiums, investment returns, fees, and commissions. The company's largest emissions source is financial services, which account for over 99% of Aegon's GHG footprint (Aegon, 2021d, p. 421). The Aegon group has committed to transition its general account investment portfolio to net-zero emissions by 2050, and has pledged to reduce the carbon intensity of corporate fixed income and listed equity investments from its general account by 25% by 2025 (de Beaufort and Weidema, 2021, p. 6). Aegon applies a so-called responsible investment framework across its proprietary financial assets, built on four pillars: ESG integration, engagement and voting, exclusion, and reporting (Aegon, 2022d, p. 5).

Aegon's disclosure of financed emissions covers only a share of the company's general account assets. Aegon reports financed emissions (scope 3, category 15), but only for the company's general account, and only for corporate fixed income, equity, and sovereign fixed income (Aegon, 2022b, p. 376). Disclosures of financed emission cover 100% of Aegon's sovereign fixed income assets (18% of general account), but only 72% of the company's corporate fixed income and listed equity portfolio (37% of general account) (Aegon, 2022b, pp. 377–378). Aegon does not report financed emissions relating to its mortgage and lending portfolio in its integrated report (Aegon, 2022b, p. 376), which represent about 30% of the company's general account (Aegon, 2022b, p. 376). Aegon NL, Aegon's primary originator of residential mortgage loans, disclosed Dutch mortgage portfolio emissions for 2020 only (Aegon, 2021e, p. 41). Aegon does not disclose insured emissions, which may, however, not be very material as the company sells mostly life insurance products. Aegon disaggregates financed emissions from its fixed income assets by sector and region (Aegon, 2022b, pp. 377–378). Reported financed emissions do not include investee companies' scope 3 emissions (Aegon, 2022b, pp. 377–378).

Aegon discloses group-wide scope 1 and scope 2 emissions and uses both the location and market-based accounting methods to report on energy-related emissions (Aegon, 2022b, p. 392). The company discloses operational scope 3 emissions for air travel only (Aegon, 2022b, p. 392).

Aegon has committed to transition its general account investment portfolio to net-zero emissions by 2050 (de Beaufort and Weidema, 2021, p. 6). Aegon intends to substantiate its headline pledge via a group-wide interim target to reduce the carbon intensity of corporate fixed income and listed equity investments from its general account by 25% by 2025 (relative to 2019 levels) (de Beaufort and Weidema, 2021, p. 6), but provides no absolute emission reduction targets. Aegon's Dutch business unit has further committed to also include separate account and off-balance sheet assets in its net-zero pledge, while the group's UK branch has extended its net-zero commitment to standard funds for workplace pensions (de Beaufort and Weidema, 2021, p. 7).

Aegon applies a so-called "responsible investment framework" to its general account assets but not necessarily to separate account and insurance-linked assets. The responsible investment framework builds on ESG integration, engagement and voting, negative screening and exclusion, as well as reporting. Individual Aegon business units may apply the framework to assets they manage at their discretion and in line with their own policies (Aegon, 2022d, p. 3).

Aegon intends to exclude companies exposed to controversial activities from its investment universe via negative screening, but its exclusion criteria are largely unambitious and ambiguous. The company defines in-house exclusion criteria for coal production, coal-fired electricity, oil sand production, oil sand transport infrastructure, as well as oil and gas exploration in the Arctic (project and working capital finance) (Aegon, 2022d, p. 7). However, these criteria are largely unambitious and ambiguous. For instance, the group only excludes companies that at the same time "produce more than 20 million tons of thermal coal annually and are actively expanding exploration, mining or refining operations" (Aegon, 2022d, p. 14). There are no criteria related to high-carbon stock land use change, and midstream and downstream gas (Aegon, 2022d, p. 7). The exclusion criteria appear to be applied in an inconsistent manner: Aegon explicitly states that it is not able to exclude companies when they are not featured on the company's exclusion list – even when they do not comply with Aegon's exclusion criteria (Aegon, 2022d, p. 6).

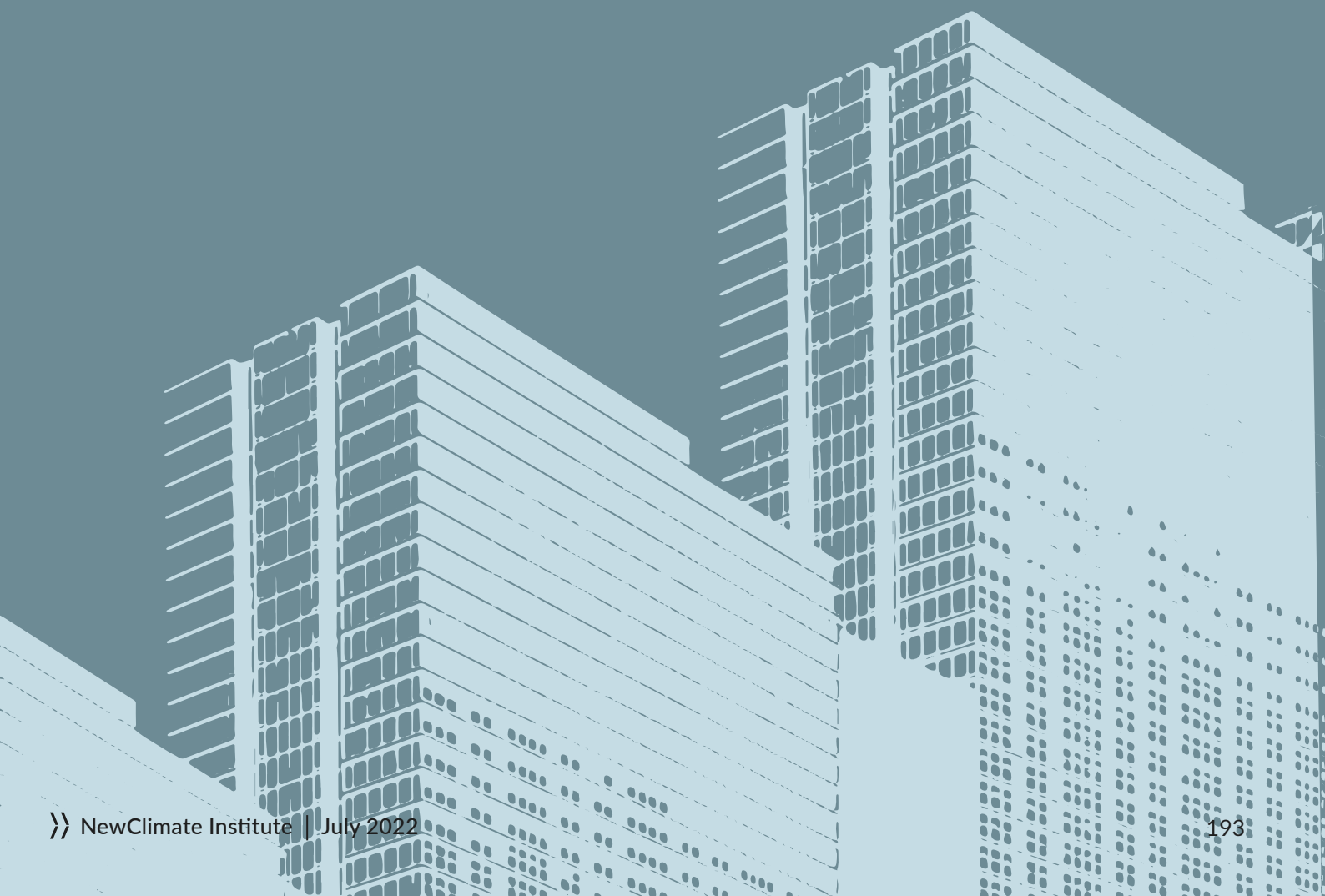
The exclusion list is compiled annually through external research - authors are not disclosed - and does not appear to be very comprehensive. The list includes companies involved in thermal coal and oil sands extraction and transportation (Aegon, 2022d, p. 14). The last publicly available version of the exclusion list (updated March 2022) features 238 companies involved in thermal coal and 40 companies involved in Artic or oil sands production and transportation (Aegon, 2022a); about ten companies fewer than were on the exclusion list published in January 2022 (Aegon, 2022d, p. 14). The company's exclusion list does not feature some of the world's largest coal producers (e.g. BHP) or oil sands extractors (e.g. ConocoPhilips) (Aegon, 2022a). Aegon does not apply its exclusion list to index products and replications (Aegon, 2022a).

Aegon acknowledges the importance of corporate engagement and investor stewardship, and provides moderately detailed information on structured engagement strategies (Aegon, 2021b, 2021a). The group has committed to directly engage with "at least the top 20 most carbon-intensive investee companies" (Aegon, 2022c, p. 2). Aegon Asset Management (AAM), the group's investment unit, claims to actively identify ESG risks, support investee companies to implement sustainability practices, as well as monitor compliance with its ESG standards (Aegon, 2021b, p. 4). As part of a group of institutional investors, Aegon has published a joint statement targeted at oil and gas companies, listing objectives and corresponding actions they expect oil and gas companies to meet before 2024 (Achmea Investment Management et al., 2022). AAM applies a milestone framework to track progress on engagement and impact, but does not further describe its ESG standards, thematic focus areas, nor criteria for the identification of key ESG risks (Aegon, 2021b, p. 5). AAM reports almost 600 engagements with investee companies, about 30% of which relate to environmental themes (Aegon, 2022c, p. 2). As part of its engagement efforts, Aegon exercises its voting rights at the shareholder meetings of all the UK and Dutch companies in which it holds shares, as well as in international companies where the group's shareholding exceeds or is equal to 0.1% (5% threshold for assets managed in central and eastern Europe) (Aegon, 2021a, p. 5). Aegon's corporate governance guidelines provide ill-defined voting action recommendations for resolutions on ESG integration (Aegon, 2021a, p. 13). Where engagement proves unsuccessful, Aegon claims to consider divestment as a means of escalation after a minimum of three years (Aegon, 2021b, p. 6). We could not identify concrete examples of Aegon divesting from companies that have failed to comply with the company's exclusion criteria.

For its own business operations, Aegon claims to source "green tariff electricity" in Europe and purchases renewable energy certificates (RECs) for electricity consumption in the US (Aegon, 2021d, p. 29). The company reports that 79% of business operations' total energy demand is covered by renewables (99% of electricity demand) (Aegon, 2021d, p. 421). Aegon claims that a substantial share of their

electricity procurement in the US and the Netherlands is zero carbon due to the procurement of RECs and "green tariff" energy (Aegon, 2021d, pp. 420–421). We did not identify further information on the RECs, including whether they are bundled. These procurement constructs usually do not send a meaningful signal to the market and may simply displace more carbon intensive electricity to other consumers on the grid (see Section 3.2.1in the methodology, Annex I).

Aegon offsets its emissions from business operations with carbon credits (Aegon, 2021d, p. 30). Aegon intends to reduce emissions from its own business operations by 25% by 2025, compared to 2019 levels. The company claims that its direct business operations have been carbon neutral since 2019 through the purchase of carbon offsets. Aegon procures low-quality carbon offset credits from a deforestation project in Brazil, a household biogas digester project in China and an un-specified project in Turkey, without providing information such as pricing, the kind of credit quality criteria applied, or the vintage of the credits (Aegon, 2021d, p. 30) (see Section 4.2.1 in the methodology, Annex I).



Atradius

Financial services

Atradius is a Dutch credit insurance company headquartered in Amsterdam, providing trade credit insurance, surety bonding and debt collection services in more than 50 countries around the globe. Its branch Atradius Dutch State Business (DSB) N.V. is the official Export Credit Agency of the Dutch government. **Atradius has not made any emissions reduction pledges.**

Operating income	Emissions	Pledge	Transparency	Integrity
EUR 2.19 bn (2021)	Financed emissions: not disclosed	None	Very low	Very low

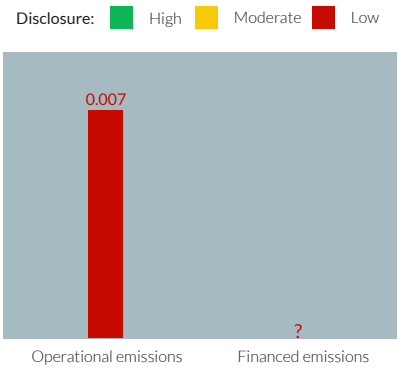
1 Tracking and disclosure of emissions

Transparency & Integrity: Very low

- **Tracking and disclosure** *Operational emissions: 0.007 $MtCO_2e$ (2021)*

Major emission sources: Likely financed emissions, but these are not reported.

Disclosure: Not available.



2 Setting emission reduction targets

		Transparency	Integrity
Headline target or pledge for financed emissions	None		
Coverage of financed emission sources *(in headline pledge)*	N/A	Low	Low
Reduction of financed emissions *(for pledge year, compared to portfolio emissions in 2019)*	? by 2050	Low	Low
Interim targets for financed emissions *(for pledge year, compared to portfolio emissions in 2019)*	? by 2030	Low	Low
Headline target or pledge for emissions from business operation *(excl. financed emissions)*	None		

3 Reducing financed and own emissions		Transparency	Integrity
		Very low	Very low
Emission reduction measures	**Exclusion policy:** Unclear to what extent parent company policies are applicable for Atradius. Sector coverage unclear.	Low	Low
	Engagement policy: Unclear to what extent parent company policies are applicable for Atradius.	Low	Low
Renewable electricity procurement	Limited information provided.	Low	Low

4 Climate contributions and offsetting claims		Transparency	Integrity
		Very low	Very low
Responsibility for unabated emissions	No information identified on how the company takes responsibility for unabated emissions.	Low	Low
Climate contributions	*No climate contributions identified.*	N/A	Low
Offsetting claims today	*No offsetting claim identified.*	N/A	N/A
Offsetting plans for the future	No information identified.	Low	?

Ratings

Overall: 5-point scale. Average of sections 1-4. Weighted average of sections 1-4 (50% for element 3; 17% for elements 1, 2 and 4).	High	Reasonable	Moderate	Low	Very low
Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.	High	Reasonable	Moderate	Low	Very low
Rating criteria: 3-point scale. See methodology document for an explanation per criterion.	High		Moderate		Low
			N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from Atradius (2019, 2021, 2022, no date), Atradius DSB (2020, 2021) and GCO (2021b, 2021a).

Atradius

Atradius is an insurance holding company with specialised subsidiaries focusing on the provision of export guarantees and insurance (Atradius, 2022). Atradius Dutch State Business (DSB), a subsidiary of the Atradius Group, is the official credit insurance agency of the Netherlands. We were unable to identify any emissions reduction targets that Atradius has committed to, neither for its financed nor operational emissions. Atradius reports with limited detail on climate action and sustainability.

Atradius discloses emissions for its own direct business operations from energy use and travel but does not report on financed emissions, which likely account for the vast majority of the company's GHG footprint (Atradius, 2022). Atradius reports that CO_2 emissions from energy and travel amounted to 6.9 tonnes in 2020, down from 13.0 tonnes in 2019 (Atradius, 2022), with the reduction likely influenced by COVID-19 restrictions. The disclosed emissions data excludes some subsidiaries (Atradius, 2022). We expect that financed emissions (scope 3, category 15) account for most of Atradius' GHG footprint. For instance, Atradius' subsidiary Atradius DSB states that 26% of its portfolio volume is fossil fuel-related (Atradius DSB, 2021, p. 31). At the end of 2020, its portfolio had a value of EUR 18.5 billion (Atradius DSB, 2021, p. 31).

Atradius has not committed to emissions reductions for either its portfolio or business operations. As part of Atradius' corporate responsibility strategy, the insurance company has committed to the 10 principles of the UN Global Compact (principle 7, 8, and 9 relate to environmental sustainably) (Atradius, 2019), but otherwise provides no information on emissions reduction targets or climate action ambition. Atradius DSB describes the "greening" of its export credit insurance activities as a key priority, but provides no concrete emissions reduction targets (Atradius DSB, 2021, p. 23).

Atradius provides very little information on concrete measures to reduce the company's direct and financed emissions. Atradius, through its subsidiaries, offers some ESG-linked products, through which the company intends to support green technologies (Atradius, 2022).

However, Atradius does not transparently present concrete policies on sustainability, ESG, climate change, or emissions reduction. In its UN Global Compact progress reporting, Atradius mentions an environmental policy (Atradius, 2019), which, however, we were not able to identify and evaluate. Similarly, we were not able to find Atradius' ESG Sustainability policy, which the insurance company claims to be aligned with Grupo Catalana Occidente's (GCO) ESG Sustainability Plan (GCO is Atradius' majority shareholder) (Atradius, 2022). The Atradius website states that GCO's "Sustainable Investment Policy" and "Code of Conduct" apply to Atradius, but it is not clear to which of GCO's policies the website refers. We could not identify the policy documents that Atradius refers to on GCO's website (Atradius, no date). The Atradius 2020 annual report refers to a Sustainability Master Plan 2020-2023 (Atradius, 2021). However, this plan is no longer mentioned in the latest annual report for 2021. It is unclear what this master plan represents and how it is applied.

In the case that GCO's Responsible Investment Policy is applicable, Atradius would use negative and norms-based screening to account for ESG issues in the analysis and decision-making process of its investment management. The policy lays out exclusion principles but provides no information on excluded economic sectors or applied norms and criteria (GCO, 2021a). Neither GCO, nor Atradius, publish exclusion lists. It is also not clear whether and how exclusion principles are applied across Atradius' different financial services and subsidiaries.

Atradius does not report on engagement efforts in its annual report and other key publications. If GCO's Sustainability Policy is applicable, Atradius intends to foster sustainability-oriented stakeholder involvement (GCO, 2021a). Neither Atradius nor GCO provide further information or detail on engagement, thematic focus, targets, nor outcomes.

Atradius DSB intends to green its insurance activities by means of its "Green Toolbox", which represents favourable insurance conditions for green transactions (Atradius DSB, 2021, p. 24). The company uses a green label taxonomy to assess the climate mitigation and adaptation potential of transactions it insures (Atradius DSB, 2021, p. 26). In 2020, about 50% of Atradius' transaction volume was classified as green (Atradius DSB, 2021, p. 27). However, Atradius DSB seems to award green labels for fossil fuel related transactions, where it judges that they entail emissions reductions (Atradius DSB, 2020, p. 9). In 2021, Atradius DSB launched a new product (Green Cover) through which it intends to promote innovative green technologies (Atradius, 2022).

Atradius claims that it procured 24.6% of its electricity from renewable sources in 2021, which is similar to the share of renewables in the Dutch electricity grid (Atradius, 2022). It is unclear if, or how, it explicitly procures renewable electricity. Atradius also does not report current or intended actions to take responsibility for its emissions, either via climate contributions or offsetting.

ING Group

Financial services

ING Group – headquartered in Amsterdam - is a global financial services company involved in a large variety of sectors. After previous commitments to the Paris Agreement's climate goals, it says it aims **to steer its lending portfolio in line with keeping the rise in global temperatures to a maximum of 1.5°C this century.**

Operating income	Emissions	Pledge
EUR 18.49 bn (2021)	18.49 $MtCO_2e$ (2020) (financed emissions)	To steer its loan book in line with keeping the rise in global temperatures to a maximum of 1.5°C this century

Transparency	Integrity
Reasonable	Low

1 Tracking and disclosure of emissions

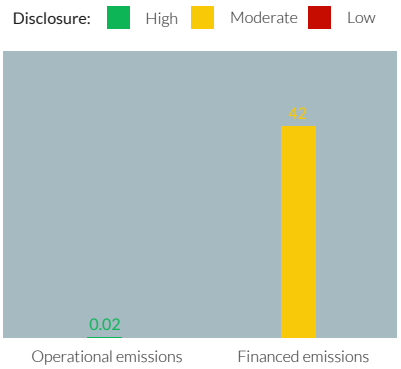
Transparency & Integrity: Moderate

Tracking and disclosure
Operational emissions: 0.025 $MtCO_2e$ (2021)

Financed emissions: 42 $MtCO_2$ estimate of financed emissions (2020) (borrowers' emissions scope 1 and 2)

Major emission sources: Financed emissions (scope 3, category 15) associated with loan book.

Disclosure: 69% of portfolio measured, disclosure of investee companies' scope 1 and 2 emissions (scope 3, category 15).



2 Setting emission reduction targets

	Transparency	Integrity
	Reasonable	Moderate

Headline target or pledge for financed emissions

Overall commitment to 1.5°C and to steer loan portfolio in line with keeping the rise in global temperatures to a maximum of 1.5 degrees.

Coverage of financed emission sources *(in headline pledge)*	Covers emissions from lending portfolio and investments (scope 3 category 15) but not all financial services.	High	Moderate
Reduction of financed emissions *(for pledge year, compared to portfolio emissions in 2019)*	? by 2050 — No absolute overall reduction target alongside the headline pledge, but various exclusion and carbon intensity targets listed.	High	?
Interim targets for financed emissions *(for pledge year, compared to portfolio emissions in 2019)*	No absolute overall interim reduction target, but: ▪ Reduce exposure to coal to close to zero by 2025; ? by 2030 ▪ 12% reduction of upstream oil and gas portfolio by 2025 from 2019 levels; ▪ Further interim targets by sector pending.	High	?

Headline target or pledge for emissions from business operation *(excl. financed emissions)*

Scope 1 & 2 energy related emission reduction commitment by 80% in 2022 from 2014 levels; Target to reduce 2022 emissions from business travel by plane and car by 25% from 2014 levels.

3 Reducing financed and own emissions		Transparency: Reasonable	Integrity: Low
Emission reduction measures	**Exclusion policy:** ING has a relatively extensive exclusion policy, though it is unclear how big loopholes may be in practice.	High	Moderate
	Engagement policy: Relatively detailed engagement policy and cites innovative examples for climate finance mobilisation, but not comprehensive for all relevant emission sectors and potential loopholes.	High	Low
Renewable electricity procurement	Limited information provided. Some cited examples of onsite solar PV investment; remaining renewable energy procurement constructs include RECs and power purchase agreements.	Low	Low

4 Climate contributions and offsetting claims		Transparency: Moderate	Integrity: Very low
Responsibility for unabated emissions	Compensation claim with contentious impact.	Moderate	Low
Climate contributions	*No climate contributions identified.*	N/A	N/A
Offsetting claims today	*ING uses nature-based carbon credits to "compensate" (previously neutralise) continued operations emissions.*	Moderate	Low
Offsetting plans for the future	ING states to consider decreasing its use of offsets as the bank further reduces its GHG footprint.	Moderate	?

Ratings

Overall: 5-point scale. Average of sections 1-4. Weighted average of sections 1-4 (50% for element 3; 17% for elements 1, 2 and 4).	High	Reasonable	Moderate	Low	Very low
Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.	High	Reasonable	Moderate	Low	Very low
Rating criteria: 3-point scale. See methodology document for an explanation per criterion.	High		Moderate		Low
			N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from ING (2021b, 2021a, 2021c, 2022a, 2022c, 2022d, 2022b).

ING Group

ING Group is a global financial services company involved in a large variety of sectors. After previous commitments to the Paris Agreement's climate goals, it has joined the Net Zero Banking Alliance (NZBA) and as such says that it aims to steer its loan book in line with keeping the rise in global temperatures to a maximum of 1.5°C this century. ING is active in a number of climate related financial sector initiatives and an early supporter of approaches such as PACTA. It has developed its own climate approach, labelled "Terra". It is unclear to what extent relatively ambitious direct finance exclusion criteria have built-in loopholes that may enable increases in indirect financial flows for specific high-emissions activities. The scope of financial services it provides goes beyond its loan book, but it is unclear if this is systematically covered by its climate commitments.

ING tracks and discloses some information on financed and other emissions sources but could be more transparent and detailed. For financed emissions (scope 3, category 15), a high-level total estimate of 42 $MtCO_2$ for 2020 is given for its loan book (ING Group, 2021a, p.29), but this is not further broken down by sector, or scope. Further, ING provides high-level emission intensity metrics for nine key "Terra" emitting sectors on an individual sector basis: power generation, fossil fuels, commercial real estate, residential real estate, cement, steel, automotive, aviation, and shipping. Methodologies vary according to sector but include PCAF and PACTA (ING Group, 2021a, pp.121-122). While these are all important and significant emission sectors, it does not include other sectors, such as agriculture, in particular with respect to its methane and land-use implications. ING should further expand its targets to all financial services beyond its loan book, for example to cover other banking services such as underwriting, debt and equity market solutions, and cash management and trade and treasury services. In terms of its direct business operations ING discloses its scope 1 and 2 emissions as well as scope 3 emissions from business travel by plane and car.

ING sets emission intensity targets for key emitting sectors according to its "Terra" approach. ING says these are derived from the IEA Net Zero Scenario. It expects to publish interim targets for Terra sectors in 2022. These interim targets will be important for the ambition of ING's climate strategy. In many cases it is unclear how ING engages with clients that may be active in these sectors even if ING will not provide dedicated finance for specific activities. Further, it is unclear what this means for sectors that are not one of the nine selected key sectors and general financial services provided.

ING excludes a number of climate relevant activities from its portfolio, though there are potential exceptions and loopholes. An important loophole is that ING forgoes Environment and Social Risk (ESR) screening related to various activities if the counterpart company is, among others: a financial institution, a public authority (or owned by one), or a non-profit organisation (ING, 2021, p. 7-8). More detail on excluded counterparties would facilitate understanding of the extent to which finance for 'non-specific' purposes may indirectly be channelled towards excluded purposes.

The exclusion list includes, among others:

- mining, trading, or processing dedicated to thermal coal;
- companies engaged in thermal coal power production;
- new thermal coal power plants (or extending useful life of an existing plant);

- oil and gas exploration and production;
- mining, exploration and upgrading of oil/tar sands including pipeline infrastructure dedicated to exclusive use of transporting oil from oil sands;
- oil/tar sands trading;
- mining, exploration and upgrading of gas in Europe;
- timber from illegal logging operations; deforestation and/or burning down tropical forest;
- removal of primary high conservation value forests;
- new clients engaged in owning; producing, or trading palm oil plantations (ING, 2021b, pp. 11–13, 2022c).

ING claims to have adopted use of the IEA's Net Zero Scenario to inform its investment strategy, which led to a strategy revision to set an absolute reduction target of 12% for its upstream oil and gas portfolio by 2025 from 2019 levels (ING Group, 2021a, p.p 53-55). This notably led to a decision to exclude specific finance for new upstream oil and gas. However, this commitment is seriously weakened by ING's continued finance to "clients active in keeping oil and gas flowing" (ING, 2022c). Research led by Rainforest Action Network found that ING is an important financial service provider to companies involved in upstream oil and gas expansion and that ING was still the 28th largest global finance provider to a number of companies active across the fossil fuel life cycle over the period 2016-2021 (Kirsch et al., 2022). A necessary next step would be to develop guidance for a climate assessment on a counterparty level calling for clients to develop decarbonisation plans and phasing out the provision of financial services to companies where it is likely that finance will be used to support activities that are not in-line with keeping the rise in global temperatures to a maximum of 1.5 degrees.

ING decided to stop financing new coal-fired power plants ahead of the 2015 Paris climate conference, with the exception of an existing commitment to a plant in Indonesia (ING, 2022d). No indication is made of efforts to exit from that Indonesian commitment, a large 1 GW plant named Cirebon 2 (BankTrack, 2021; Bankwijzer, 2021). The bank says that it has greatly reduced lending to individual coal plants since 2015 and that financing in 2020 amounted to EUR 122 million (ING, 2022d). ING Group has a target to reduce its exposure to coal-fired electricity production to close to zero by 2025 (ING Group, 2021, p. 54). The bank says it will no longer finance clients in the utility sector that are over 5% reliant on coal, though it is still willing to finance non-coal energy projects for these clients (ING, 2022d). Such financing, for non-coal energy purposes is however likely to affect a company's overall cost of capital and therefore indirectly support coal. ING should require counterparties to develop rapid coal phase out plans in order to receive any finance even for non-coal activities and develop criteria for the use of gas in energy sector companies.

ING Group intends to make its mortgage portfolio "energy positive" by 2050 meaning that these buildings should produce more energy than they consume (ING Group, 2021a, p. 92). In ING Real Estate Finance, it has a number of tools to aid in the achievement of this goal via lending for energy efficiency, electrification, and renewable energy (ING, 2022d). Animal welfare is addressed in ING's Environmental and Social Risk Framework, but not the methane emissions and deforestation impact of livestock feed elsewhere in the supply chains of clients involved in livestock production (ING, 2021b).

ING highlights its efforts for climate action impact investment. For example, ING states that its renewable power portfolio was valued at EUR 5.74 billion in 2020, and that it is one of the top 10 European banks for investing in renewable energy projects (ING Group, 2021a, pp. 56-57). ING further says that it played a role in raising debt finance for large scale renewables and battery production projects (ING Group, 2021a, p. 57).

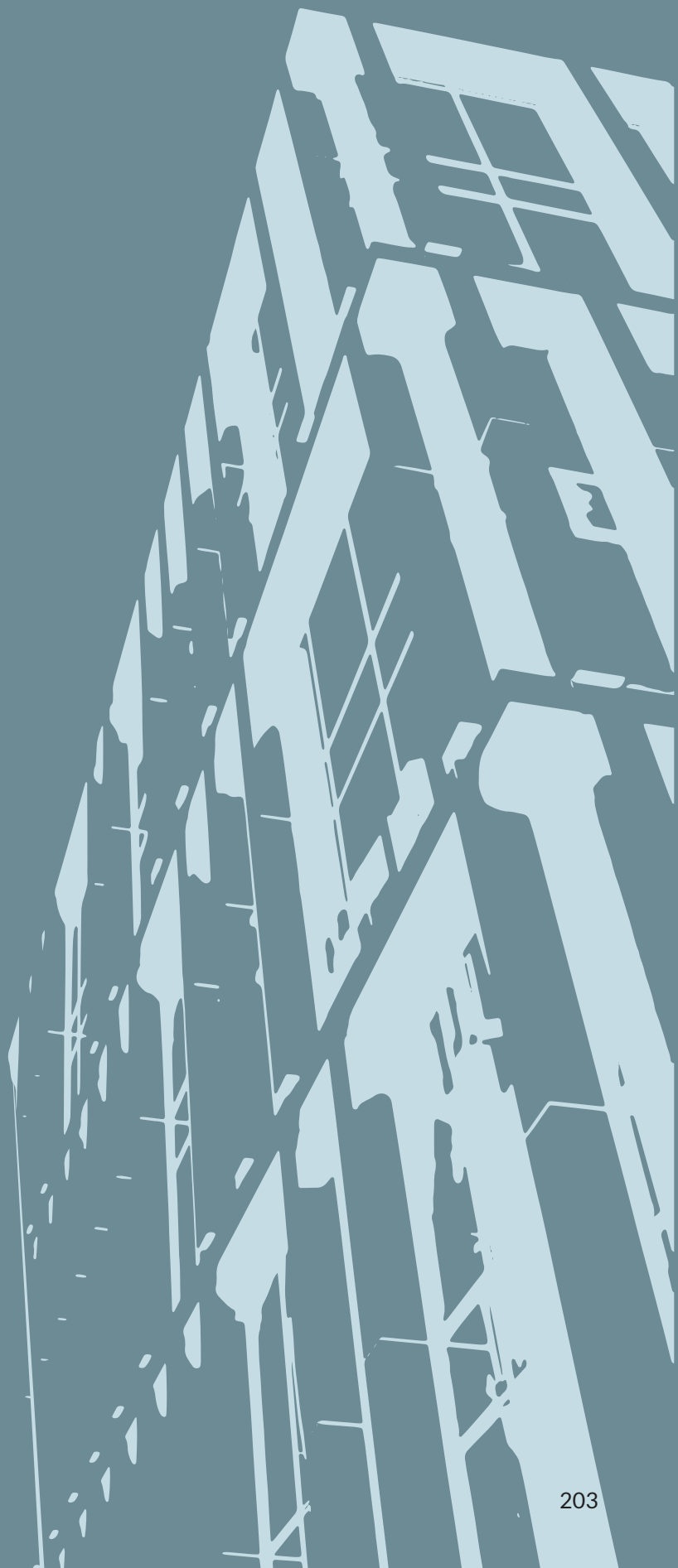
ING mentions it has developed an innovative financing method to make inland shipping in the Netherlands more sustainable through electrification (ING Group, 2021b, pp. 57). Further, ING supports a number of hydrogen pilot projects, which it sees contributing to the energy transition in difficult to decarbonise

sectors. No explicit criteria for the production of hydrogen is listed, such as whether it is solely produced using surplus renewable energy.

In terms of its direct business operations, ING Group commits to reduce scope 1 and 2 emissions from its buildings and data centres by 80% by 2022, and by 90% by 2030 (base year 2014) (ING, 2022d). It further commits to reduce its scope 3 CO_2e emissions from business travel by airplane and car by 25 percent by 2022 (base year 2014), with a 2030 target expected shortly. ING intends to reduce the energy consumption of its own operations by 65 percent by year-end 2030 (ING, 2022d). Further reference is made to reduction of upstream scope 3 emissions through a "sustainable procurement" policy that integrates environmental and social criteria for suppliers and a supply chain sustainability screening process (ING, 2022e).

ING claims to procure 100% renewable electricity for all ING buildings worldwide, where the bank has management control, however some key questions are left open (ING, 2022d). It is not clear what percentage of its office space is in buildings where ING has management control and therefore covered by the headline claim. At least some of ING's energy use is produced with on-site renewable electricity (ING Group, 2021, p 23). ING's energy procurement includes at least some "use of purchase agreements and renewable energy certificates" (ING, 2022a), but it is not clear what kind of renewable power constructs are used for this procurement. ING could reconsider if it has maximised the potential for the production of on-site renewable energy at its facilities, and critically review if its REC purchases have had any impact on actually expanding renewable energy capacity.

ING has recently revised the framing of its offset purchases from claiming to be "carbon neutral" to "compensate" remaining emissions. ING also states to decrease its use of offsets as the bank is further reducing its footprint (ING, 2022b). This is a positive improvement from previous language to "remain carbon neutral by offsetting remaining carbon emissions" for scope 1, 2, and 3 (excluding scope 3, category 15) (ING Group, 2021b, . 432), but the company could go further and be more transparent by framing this as a contribution instead of as compensation. However, given that this offsetting continues to be through the use of carbon credits from a REDD+ Portfolio in Brazil that is verified and validated by the Verified Carbon Standard, or VCS (ING Group, 2021b, p. 432). Issues, in particular related to the additionality, permanence, and leakage of emission reductions from forestry projects, mean that those credits do not represent a credible compensation measure (see Section 4.2.1 in the methodology, Annex I).



NN Group

Financial services

NN Group is an internationally active financial services company headquartered in The Hague. The group is one of the Netherlands' largest insurance companies. NN Group is committed to **supporting the global transition towards net-zero GHG emissions by 2050, in line with efforts to limit global warming to 1.5°C.**

Operating income	Emissions	Pledge	Transparency	Integrity
EUR 2.04 bn (2021)	8.87 $MtCO_2e$ (2020) (financed emissions)	Supporting the global transition towards net-zero GHG emissions by 2050, in line with efforts to limit global warming to 1.5°C	Reasonable	Low

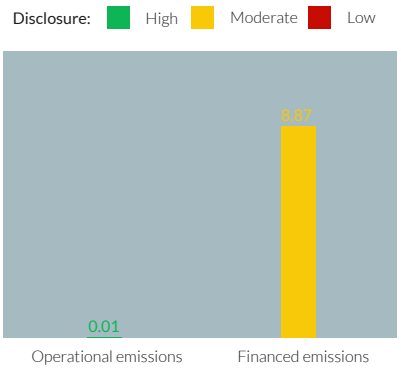
1 Tracking and disclosure of emissions

Transparency & Integrity: Moderate

Tracking and disclosure
Operational emissions: 0.01 $MtCO_2e$ (2021)
Financed emissions: 8.87 $MtCO_2$ estimate of financed emissions (2020) (borrowers' emissions scope 1 and 2)

Major emission sources: Financed emissions (scope 3, category 15) make up over 99% of reported emissions.

Disclosure: Reports on emissions from 80% of the group's total proprietary asset portfolio; reporting on investee companies' scope 1 and 2 emissions, but not its scope 3 emissions.



2 Setting emission reduction targets

		Transparency	Integrity
Headline target or pledge for financed emissions	Net-zero by 2050.		
Coverage of financed emission sources *(in headline pledge)*	Proprietary investment portfolio and underwriting portfolio.	High	High
Reduction of financed emissions *(for pledge year, compared to portfolio emissions in 2019)*	? by 2030 — No quantitative reduction target alongside the net-zero pledge.	Low	Low
Interim targets for financed emissions *(for pledge year, compared to portfolio emissions in 2019)*	? by 2030 — No overall reduction target, but: 45% reduction of GHG emissions from corporate investment portfolio by 2030 (versus 2019).	High	?
Headline target or pledge for emissions from business operation *(excl. financed emissions)*	To reduce GHG emissions from business operations by 70% by 2030 compared to 2019.		

3 Reducing financed and own emissions		Transparency	Integrity
		High	Low
Emission reduction measures	**Exclusion policy:** Covering project and working capital finance exclusion for some harmful activities, applicable to most of its proprietary assets.	High	Low
	Engagement policy: Detailed standard, covering some harmful activities, applicable to most of its proprietary assets.	High	Moderate
Renewable electricity procurement	Reliance on RECs/green tariff, but otherwise limited information provided.	Low	Low

4 Climate contributions and offsetting claims		Transparency	Integrity
		Moderate	Low
Responsibility for unabated emissions	Mix of offsetting and contribution approaches.	Moderate	Moderate
Climate contributions	*Plan to contribute 1% of its operating result (in the form of cash donations and volunteering) towards communities by 2023, but not all of these contributions are climate-relevant.*	Moderate	Moderate
Offsetting claims today	*NN Group claims carbon neutrality of its direct business operations using offsets from forest conservation projects.*	Moderate	Low
Offsetting plans for the future	No information identified.	Low	?

Ratings

Overall: 5-point scale. Average of sections 1-4. Weighted average of sections 1-4 (50% for element 3; 17% for elements 1, 2 and 4).	High	Reasonable	Moderate	Low	Very low
Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.	High	Reasonable	Moderate	Low	Very low
Rating criteria: 3-point scale. See methodology document for an explanation per criterion.	High		Moderate		Low
			N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from NN Group (2019, 2021a, 2021c, 2022a, 2022b, 2022c, 2022d).

NN Group

NN Group is an internationally active financial services company headquartered in The Hague. The group is the parent company of Nationale-Nederlanden, one of the Netherlands' largest asset managers and insurance companies. NN Group has completed the sale of NN Investment Partners, the asset management subsidiary of NN Group with EUR 301 million assets under management (AuM), to Goldman Sachs in the first half of 2022. NN Group has committed to supporting "the global transition towards net-zero GHG emissions by 2050, in line with efforts to limit global warming to 1.5°C" (NN Group, 2022a).

NN Group discloses group-wide scope 1, scope 2, as well as scope 3 (operational and financed emissions) with moderate levels of detail (NN Group, 2022c). Reported financed emissions (scope 3, category 15) cover EUR 161 billion of assets under management, representing 80% of the group's total proprietary asset portfolio, but are only expressed as emission intensities (NN Group, 2022c). Reported emissions include general account assets of the group's insurance entities (NN Group, 2022c), but do not cover insured emissions (i.e. the GHG footprint of policy holders for which the group provides cover). Insured emissions may be less climate material for NN Group's life insurance segments but may well be substantial for non-life insurance products. The group also does not report on emissions linked to separate account assets, which represent a minor share of NN Group's portfolio (NN Group, 2022c). Further, NN Group does not report financed emissions linked to some asset classes, such as derivatives, asset-backed securities, non-corporate loans, and private equity (NN Group, 2022c).

Reported financed emissions are disaggregated by asset class (NN Group, 2022c) but not by sector. For corporate investments, mortgages, and real estate, reported emissions account for scope 1 and scope 2 only (NN Group, 2022c), but not scope 3. NN Group has so far not phased in scope 3 emission reporting for corporate investments but plans to do so once data becomes available (NN Group, 2022b). In the case of government bonds, reported financed emissions also additionally account for scope 3 emissions within the country (NN Group, 2022c).

NN Group has committed to supporting "the global transition towards net-zero greenhouse gas (GHG) emissions by 2050, in line with efforts to limit global warming to 1.5°C" (NN Group, 2022a). The group aims to transition its "proprietary investment portfolio" to net-zero by 2050 (NN Group, 2022c), has committed to transition its underwriting portfolio to net-zero by 2050 (NN Group, 2022c), and is expecting to mitigate direct emissions from business operations to net-zero by 2040 (NN Group, 2022c). NN Group claims that its reduction targets for the corporate investment portfolio are supported by, among other things, "a portfolio coverage target of 45% by 2025, meaning that by that time at least 45% of the AuM are invested in assets in material sectors classified as 'achieving net zero', 'net zero aligned', or 'aligning' (at year-end 2021: 29%)". NN Group, however, does not transparently provide further information on respective classifications (NN Group, 2022c). NN Group had not set targets for non-proprietary assets managed through its asset manager NN Investment Partners, which the group continues to closely collaborate with even following its sale. However, the group claims that the acquisition by Goldman Sachs will not affect NN Investment Partner's "approach and ambition around environment, social and governance (ESG)" (NN Group, 2022c, p. 28).

NN Group provides moderate levels of detail on interim targets for some financial services and asset classes, but does not set interim emission reduction targets for its insurance and banking activities (NN Group, 2022c). The group intends to reduce scope 1 and scope 2 emissions from listed equity and corporate fixed income investments by 25% by 2025 and 45% by 2030, relative to 2019 levels (NN Group, 2022c). By 2030, NN Group has a target to invest an additional EUR 6 billion in climate solutions (green bonds, renewable infrastructure, and energy efficient real estate). Also by 2030, NN Group intends to reduce investments in companies exposed to coal mining and coal-fired power generation to "close-to-zero" (NN Group, 2022c).

NN Group aspires to a net-zero portfolio and has defined interim targets for its non-listed real estate portfolio. The group aims to have all its directly managed real estate assets aligned with a 1.5°C pathway and GRESB[5]-certified by 2030 (NN Group, 2022c). By 2030, NN Group aims to have at least 75% of its real estate funds (based on gross annual value) committed to net-zero GHG emissions (scope 1 and 2) by 2040. The group aims for net-zero GHG emissions for the remainder by 2050 at the latest (NN Group, 2022c).

NN Group intends to cut its emissions from direct operations (own buildings, company lease cars, as well as business travel) by 35% by 2025 and by 70% by 2030, compared to 2019 levels (NN Group, 2022c). The group expects to reach net-zero GHG emissions from business operations by 2040 (NN Group, 2022c). However, the group also claims that its direct business operations have been carbon neutral since 2007 by offsetting emissions through the use of carbon credits (NN Group, 2022c).

NN Group applies group-wide, norms-based responsible investment restrictions (managed through a restricted list / exclusion list), which do not, however, apply to all financial services and business lines in the same way (NN Group, 2021c). The exclusion list covers the group's proprietary assets which the group has direct control over (except from index derivatives, and with limitations for ETFs index funds), but does not apply to non-discretionary assets such as hedge funds and private equity funds (NN Group, 2021c). The group's exclusion lists also applies to client assets managed through mutual funds (NN Group, 2021c). For client assets in third-party mutual funds or ETFs the group intends to limit the maximum cumulative weighting for companies reflected in the index, but currently only applies this exclusion to companies involved in specific types of controversial weapons, i.e. not with reference to fossil fuel exposure (NN Group, 2021c). Where NN Group has no direct control over assets, it ensures to communicate its policies and restrictions to responsible investment managers, refers to its restrictions in management agreements, and monitors investments and compliance (NN Group, 2021c, p. 8).

NN Group restricts investment in companies that derive more than 20% of revenues from coal mining or oil sands extraction (and to some extent oil sand transportation) (NN Group, 2022a). The group places companies that do not comply with its exclusion criteria on its exclusion list (NN Group, 2021a) provided that it considers engagement not feasible or where engagement over a three-year period has proven unsuccessful (NN Group, 2021c, p. 6). The public version of the exclusion list (non-exhaustive) currently features 37 companies active in coal mining and 16 companies exposed to oil sands production or active in the construction of controversial pipelines (NN Group, 2021a). Overall, the group's exclusion criteria are not ambitious enough, failing to cover, for example, all new fossil gas production and companies linked to deforestation (see Section 3.3.1 in the methodology, Annex I).

In 2019, NN Group announced group-wide exclusion, engagement, and divestment intentions for coal mining and power generation (NN Group, 2019). The statement explicitly says that coal restrictions will be applied consistently - also for the group's insurance underwriting activities - and that by 2030 new insurance covers will be provided only to clients that have "5% or lower exposure to coal-related activities" (NN Group, 2019). The coal statement is not aligned with more ambitious revenue exclusion

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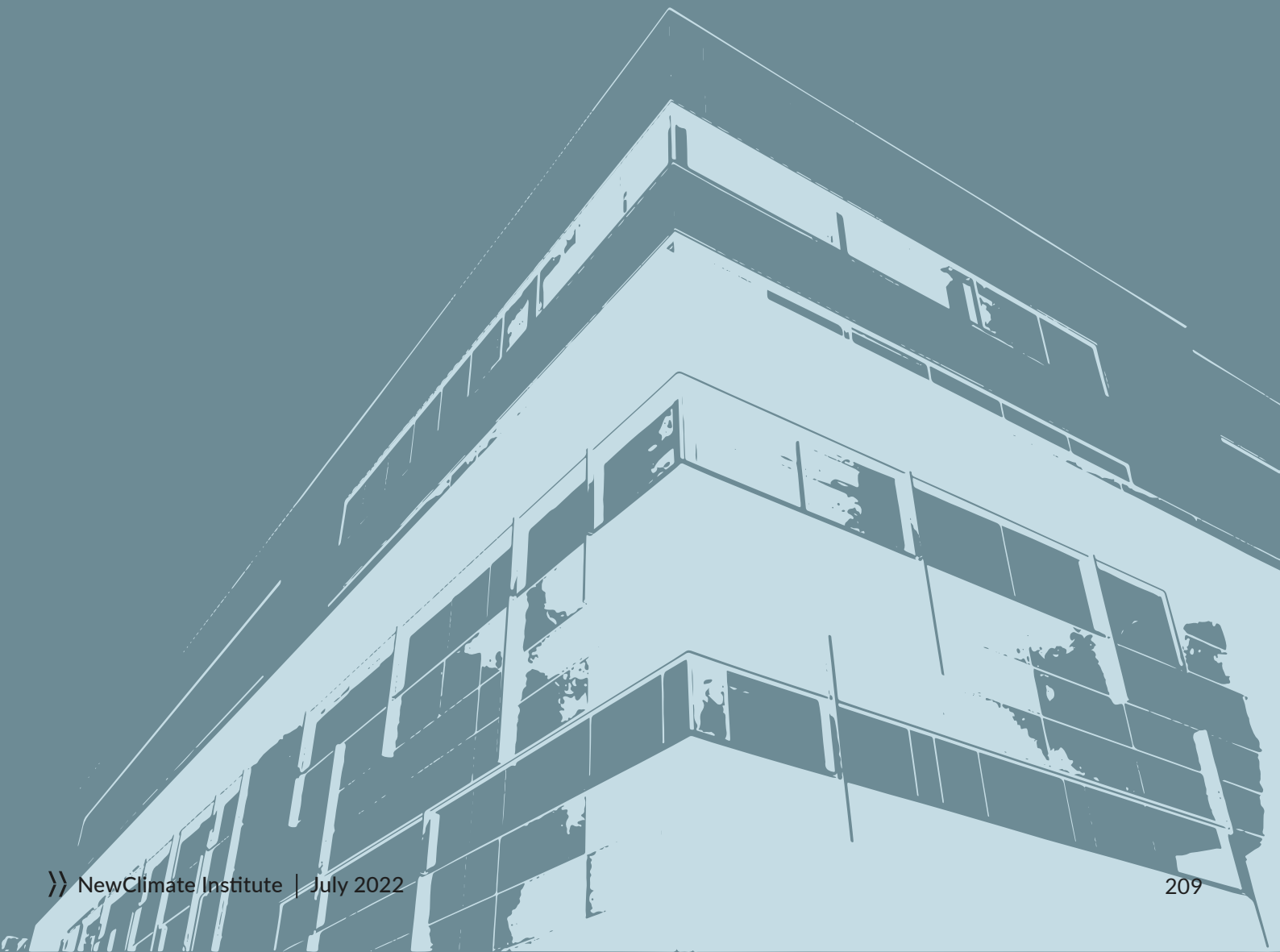
thresholds presented in more recent publications (NN Group, 2022c). NN Group reiterates its intention to take a group-wide approach (including insurance underwriting) to phasing-out exposure to coal mining and coal-fired power generation to "close-to-zero" by 2030 in its latest annual report (NN Group, 2022c).

NN Group has developed an engagement standard for proprietary assets, which describes in detail various forms of engagement, triggers, and the overall process. The group says it actively engages - either directly, or through collaborative efforts - with oil and gas companies, electric utilities, and actors exposed to deforestation risks. These include soy and palm oil producers as well as the countries Brazil and Indonesia more generally (NN Group, 2022a). The group intends to achieve an engagement threshold of 75% of financed emissions by 2025, but provides little information on how engagement coverage is defined (NN Group, 2022c). It is not entirely clear how NN Group targets its engagement measures, but the group claims to use carbon intensity measures of its proprietary investments to identify exposure to large carbon risks (NN Group, 2022c). NN Group also says it practices active engagement and dialogue with indirect stakeholders such as customers, employees, regulatory bodies, government agencies, and civil society groups (NN Group, 2022c).

NN Group claims to practice active ownership over investee companies and seeks to use its influence to request companies to reduce GHG emissions in line with the Paris Agreement goals, among other climate change related topics (NN Group, 2022a). Specifically, the group claims to use its voting powers to drive target setting and disclosure at investee companies, among other things (NN Group, 2022a).

NN Group makes contributions to various environmental organisations and charities. NN Group plans to contribute 1% of its operating result, in the form of cash donations and volunteering, towards communities by 2023, but does not transparently state the climate-relevant volume of these contributions (NN Group, 2022c). As part of this scheme, NN Group and its subsidiaries collaborate with environmental organisations and charities on topics such as plastic pollution, North Sea protection, as well as tree planting (BeFrank, 2021; NN Group, 2021b; Trees for All, 2022). NN Group also procures offset credits from forest conservation in Peru and claims to have been carbon neutral since 2007 (NN Group, 2022c). However, carbon dioxide removals from forest conversation projects are not suitable to support a neutralisation claim, mainly due to issues related to permanence (see Section 4.2.1 in the methodology, Annex I).



PFZW

Financial services

Stichting Pensioenfonds Zorg en Welzijn (PFZW) is the Dutch pension fund for the healthcare sector. At the end of 2021, PFZW had invested assets worth EUR 277 billion. **PFZW aims to have a climate neutral portfolio by 2050.**

Operating income	Emissions	Pledge	Transparency	Integrity
EUR 277 bn (end of 2021)	8.3 $MtCO_2e$ (2021) (financed emissions)	A climate neutral portfolio by 2050	Reasonable	Low

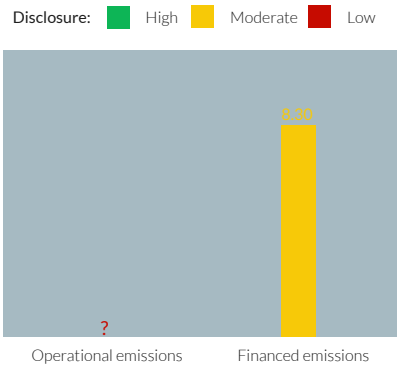
1 Tracking and disclosure of emissions

Transparency & Integrity: Moderate

Tracking and disclosure
Financed emissions: 8.3 $MtCO_2e$ in 2021 (scope 1 and 2 investee companies)

Major emission sources: Financed emissions.

Disclosure: PFZW reports on CO_2 emissions of 53% of its assets under management. Reporting covers scope 1 and 2 emissions; scope 3 disclosure will follow as of next year.



2 Setting emission reduction targets

	Transparency	Integrity
	Reasonable	Moderate

Headline target or pledge for financed emissions — Climate neutral portfolio by 2050.

Coverage of financed emission sources *(in headline pledge)*	The headline target covers emissions from all assets in PFZW's portfolio (scope 3, category 15).	High	High
Reduction of financed emissions *(for pledge year, compared to portfolio emissions in 2019)*	? by 2050 — No quantitative reduction target alongside the climate neutral portfolio pledge	Low	Low
Interim targets for financed emissions *(for pledge year, compared to portfolio emissions in 2019)*	? by 2025 — ▪ To reduce the CO_2 intensity of listed equity by 30% between 2020 and 2025. ▪ To reduce the CO_2 intensity of credits by 20% by June 2023 and by an additional 5% by June 2024; followed by annual reductions of 3-7% in the following three years. ▪ Share of investee companies with Paris-aligned reduction commitments of AUM by 2025: - Listed real estate: 60% - Private real estate: 40% - Infrastructure: 60%	High	?

Headline target or pledge for emissions from business operation — None

3 Reducing financed and own emissions		Transparency: Reasonable	Integrity: Low
Emission reduction measures	**Exclusion policy:** Apply to coal and shale gas and tar sands only.	High	Low
	Engagement policy: Will divest from investee companies in the fossil fuel energy sector unless they commit to 1.5°C pathway by the end of 2022 and present a climate strategy by the end of 2023. Engagement on various thematic areas.	High	Moderate
Renewable electricity procurement	No information identified.	Low	?

4 Climate contributions and offsetting claims		Transparency: Low	Integrity: Very low
Responsibility for unabated emissions	No information identified on how the company takes responsibility for unabated emissions.	Low	Low
Climate contributions	*No information identified on how the company takes responsibility for unabated emissions.*	N/A	Low
Offsetting claims today	*No offsetting claim identified.*	N/A	N/A
Offsetting plans for the future	May use investments in negative emissions to offset residual portfolio emissions by 2050 but we could not identify further details.	Moderate	?

Ratings

Overall: 5-point scale. Average of sections 1-4. Weighted average of sections 1-4 (50% for element 3; 17% for elements 1, 2 and 4).

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High | Reasonable | Moderate | Low | Very low

High | Reasonable | Moderate | Low | Very low

High | Moderate | Low

N/A Not applicable | ? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from PFZW (2020a, 2020b, 2020c, 2021, 2022c, 2022d, 2022a, 2022b).

PFZW

PFZW is the Dutch pension fund for the healthcare sector. It is the second largest pension fund in the Netherlands, responsible for the pensions of over 2 million people. PFZW is committed to having a climate neutral portfolio by 2050. The pension fund has various interim targets for 2025, including a reduction in the CO_2 intensity of listed equity by 30% between 2020 and 2025. PFZW's exclusion policy covers coal and tar sands but no other harmful activities. As part of its engagement strategy, PFZW asks investee companies in the fossil sector to commit to Paris-compatible reduction targets and strategies. The pension fund also engages with investee companies involved in deforestation. PFZW is planning to release a new climate strategy, including (interim) targets, criteria and reduction trajectories for its entire portfolio in August 2022 (PFZW, 2022c).

PFZW aims to have a climate neutral portfolio by 2050, although it remains unclear to what extent the pension fund aims to rely on investments in negative emissions to "offset" residual portfolio investments. PFZW explains that it will realise a climate neutral portfolio through a combination of reductions of investee companies' GHG footprints, fewer investments in carbon-intensive companies and investments in what PFZW calls "climate solutions", such as renewable energy. PFZW plans to neutralise any remaining emissions in its portfolio with investments in negative emission technologies (PFZW, 2020c, p. 6). While the private sector is expected to play a distinct role in directing finance for scaling up CDR (Babiker et al., 2022, p. 64), it would be problematic for PFZW to use that funding as a justification of continued investments in emitting assets elsewhere. Due to their environmental costs and scarce availability, most carbon dioxide removal measures cannot be considered a credible equivalent to reducing emissions (Jeffery et al., 2020; Day et al., 2022). Instead of investing in negative emissions to neutralise residual emissions, PFZW could make larger investments in zero-carbon technologies that contribute to decarbonising hard-to-abate sectors and therefore contribute to bringing residual portfolio emissions to net zero.

There may be legitimate grounds as to why PFZW cannot, or does not consider it constructive to, completely eliminate portfolio emissions around mid-century. However, the pension fund does not explain what portfolio emissions may remain until 2050 and for what reasons. This explanation is needed to understand and qualify PFZW's climate neutrality target – indeed neutrality is not the measure of ambition.

PFZW have several interim targets for 2025 and will announce (reduction) targets for 2030 later this year. Between 2015 and 2020, PFZW decreased the relative carbon footprint of its equity investments by 53% through divesting carbon-intensive assets and more investments in low-carbon assets (PFZW, 2020b, p. 22). PFZW committed to decrease its relative carbon footprint of listed equity investments by another 30% between 2020 and 2025 (PFZW, 2022a). The pension fund also committed to reduce the CO_2 intensity of credits by 20% by 30 June 2023, by an additional 5% by 30 June 2024; and by 3-7% annually in the following three years (PFZW, 2022a). In addition, PFZW set targets for the share of investee companies in its portfolio that committed to Paris-aligned emission reduction targets. For real-estate and infrastructure investments, PFZW pledges that by 2025, 60% of AUM will be from investees with such targets, and for private real estate 40% of AUM (PFZW, 2022a). The pension fund still needs to disclose how it evaluates whether its investee companies' reduction pledges are Paris-aligned. Later this year, PFZW will publish (emission)

reduction targets for 2030 for the asset classes on which it currently tracks and discloses GHG emissions: listed equity, credits, listed real estate, private real estate and infrastructure (PFZW, 2022a).

PFZW excludes coal-fired energy production and oil extraction from tar sands, but does not have exclusion policies for other fossil fuel-related activities. The pension fund excludes all assets from companies involved in energy production from coal and the extraction of oil from tar sands, using a revenue threshold of 5% for coal and 1% for tar sands (PFZW, 2022d). PFZW lowered these thresholds from 30% for coal and 5% for tar sands in February 2022 (PFZW, 2022d). By the end of 2021, the pension fund had divested from 99 coal and 10 tar sands companies (PFZW, 2022a). PFZW has no exclusion policy for other fossil-fuel activities, such as gas exploration and fracking, oil and gas transport infrastructure, or high-carbon stock land use activities (see Section 3.3.1 in the methodology (Annex I) for a list of activities that financial institutions should generally place on their exclusion list to avoid supporting carbon-intensive activities). Although the pension fund states that it investigates whether to add categories to its exclusion list, for instance shale gas and oil extraction in the Arctic, it does not provide more details or commit to a clear timeframe for this (PFZW, 2020c, p. 11).

PFZW's divestment strategy lacks detail and is narrow. The pension fund states that it divests from companies that do not meet PFZW's minimum sustainability criteria, which are based on, among others, the OECD guidelines and the UN Global Compact (PFZW, 2020b, p. 27). According to the pension fund, it divested from 200 companies between 2015 and 2020 and another 100 in 2020 (PFZW, 2021, p. 2). PFZW provides no further details on those companies, nor on its minimum sustainability criteria in its annual report on sustainable investing, its sustainable investment policy or its sustainability-related disclosure. We were therefore neither able to evaluate the criteria's stringency nor to evaluate whether the pension fund systematically and consistently applies them. PFZW could improve transparency on its divestment strategy by publishing the details on its minimum sustainability criteria.

In February 2022, PFZW announced it will divest from companies in the fossil fuel sector that do not commit to bringing their business in line with the goals of the Paris Agreement and the increased ambitions set out at the COP26 conference held in Glasgow in 2021. More concretely, this means that PFZW requires investee companies in the fossil fuel sector to (PFZW, 2022d, 2022a):

- Have a GHG emissions reduction target;
- Make a clear commitment to contribute to the Paris temperature goal by the end of 2022; and
- Develop a "convincing and verifiable climate transition strategy", which includes Paris-aligned short- and medium-term targets by the end of 2023.

If investee companies do not prepare a plan by 2023, PFZW will no longer invest in them as of 2024 (PFZW, 2022d). PGGM, which manages all of PFZW's assets, outlines what criteria it uses to determine whether oil and gas companies' climate targets and strategies are Paris-aligned (Achmea Investment Management et al., 2022). All criteria are derived from CA100+ Net Zero Company Benchmark, the TPI framework, the IIGCC Net Zero Standard for Oil and Gas, and the IEA (Achmea Investment Management et al., 2022). PGGM requires fossil fuel companies to set intensity targets that meet TPI benchmarks, but does not require them to commit to absolute emission reduction targets nor to phase out fossil fuel production. This can offer investee companies the loophole of increasing their production of low-carbon fuels, while keeping fossil fuel production flat (see also our analysis of bp).

PFZW engages with investee companies on several thematic areas, most extensively on fossil energy and deforestation. PFZW will continue to invest in fossil fuel companies if those companies present a convincing climate plan and align their business activities with the Paris Agreement (PFZW, 2022a). The pension fund argues that the world will continue to depend on fossil fuels for the next couple of decades and, as a shareholder, PFZW could

encourage fossil fuel companies to transition to zero-carbon alternatives at a faster pace (PFZW, 2020b, 2022a). PFZW recently expanded its engagement efforts to also address deforestation and financing the fossil sector in Asia (PFZW, 2022a). Further, the pension fund provides that it voted on climate-related resolutions at 27 shareholder meetings in 2021, including a vote against Shell's Energy Transition Plan on the basis that Shell does not commit to absolute emission reductions (PFZW, 2022a). PFZW also voted in favour of resolutions calling on Shell to commit to Paris-aligned reduction targets; on Chevron to set reduction targets for scope 3 emissions; and on Delta Airlines to bring its lobby activities in line with the Paris Agreement climate objectives (PFZW, 2022a). PFZW provides a full overview of its voting decisions at shareholder meetings (PFZW, 2022e; PGGM, 2022).

Although PFZW does not yet report on all investee companies' scope 1 and 2 emissions, the pension fund undertakes efforts to improve its data collection and disclosure and plans to start reporting on investee companies' scope 3 emissions as of 2023. Scope 1 and 2 emissions of investee companies amounted to 8.3 $MtCO_2e$ in 2021 but PFZW currently reports on the CO_2 emissions of just 53% of its assets under management, compared to 43% in 2021 (PFZW, 2022a). The pension fund reports on emissions from the following asset classes: listed equity, credit in developed markets, credit in emerging markets, listed equity, private equity and infrastructure (PFZW, 2022a). PFZW does not report on other asset classes either because of a lack of internationally approved calculation methods or lack of data (PFZW, 2022a). The pension fund currently also does not report on investee companies' scope 3 emissions, but plans to include those – at least partially - in its emissions disclosure over 2022 (PFZW, 2022a). Reporting on investee companies' scope 3 emissions would be in line with best practice guidelines (see Section 1.1.1 in the methodology, Annex I).

PFZW neither reports on its GHG emissions from direct business operations nor commits to reduce them. Although financed emissions (i.e. scope 3, category 15) very likely account for by far the vast majority of PFZW's overall GHG footprint, it is best practice for financial institutions to also report on and commit to reduce the scope 1 and 2 emissions of its own operations, as well as on all relevant scope 3 emission sources, including business travel and procurement. To keep a reasonable chance of limiting global warming to 1.5°C, global CO_2 emissions should reach net zero around mid-century. This implies that companies should make efforts to reduce all emissions across their value chain to (near) zero, regardless of how small some of those sources may be. PFZW has full control over its scope 1 and 2 emissions and various relevant scope 3 emission sources, such as business travel; and solutions to substantially reduce those are available today.

Rabobank

Financial services

Rabobank is a Dutch multinational banking and financial services company operating in 37 countries, headquartered in Utrecht. The bank has a strong focus on the food and agricultural sectors but provides services to individuals and firms across economic sectors in the Netherlands. Rabobank is committed to aligning lending and investment portfolios with pathways to net-zero GHG emissions by 2050.

Operating income	Emissions	Pledge
EUR 3.69 bn (2021)	46.6 $MtCO_2e$ (2021) (financed emissions)	Rabobank is committed to aligning lending and investment portfolios with pathways to net-zero GHG emissions by 2050

Transparency	Integrity
Moderate	Low

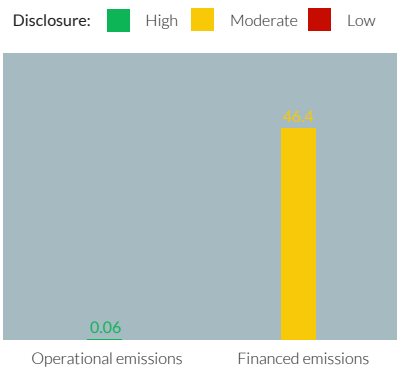
1 Tracking and disclosure of emissions

Transparency & Integrity: Moderate

- **Tracking and disclosure**
  Operational emissions: 0.01 $MtCO_2e$ (2021)
  Financed emissions: 46.6 $MtCO_2e$ (2021)
  (borrowers' and investee companies' scope 1 and 2)

Major emission sources: Financed emissions (scope 3, category 15) make up over 99% of reported emissions.

Disclosure: The group discloses scope 3 emissions, but only 85% of financed emissions; investee companies' scope 1 and 2 emissions reported.



2 Setting emission reduction targets

	Transparency	Integrity
	Low	Low

Headline target or pledge for financed emissions

Rabobank is committed to aligning lending and investment portfolios with pathways to net-zero GHG emissions by 2050.

		Transparency	Integrity
Coverage of financed emission sources *(in headline pledge)*	Lending and investment portfolio via NZBA, limited to banking activities.	Low	Moderate
Reduction of financed emissions *(for pledge year, compared to portfolio emissions in 2019)*	? by 2050 No quantitative reduction target alongside the net-zero pledge.	Low	Low
Interim targets for financed emissions *(for pledge year, compared to portfolio emissions in 2019)*	No overall reduction target, but: ▪ Mortgage portfolio: average energy label of A by 2030; ▪ Investment products: 50% lower CO_2 intensity than global indices by 2024; ? by 2030 ▪ Dairy sector lending: follow Dutch dairy sector emission reduction targets; ▪ Expansion of sustainable energy exposure in energy portfolio by 20-30% annually (vs. 2019) for the next 2 years.	High	?

Headline target or pledge for emissions from business operation *(excl. financed emissions)*

To reduce emissions by 41% by 2030 compared to 2018 levels.

3 Reducing financed and own emissions		Transparency	Integrity
		Moderate	Very low
Emission reduction measures	**Exclusion policy:** Applicable across its full lending portfolio but excludes few harmful activities.	High	Low
	Engagement policy: Applicable to its full lending portfolio but provides limited detail on thematic focus of engagement activities or consequences of non-compliance.	Moderate	Low
Renewable electricity procurement	Rabobank provides limited information on green energy procurement.	Low	?

4 Climate contributions and offsetting claims		Transparency	Integrity
		Low	Very low
Responsibility for unabated emissions	Offsetting approach with limited details.	Low	Low
Climate contributions	*No climate contributions identified.*	N/A	Low
Offsetting claims today	*Rabobank claims climate neutrality of its direct business operations using offsets without providing detailed information on type and price.*	Low	?
Offsetting plans for the future	Rabobank intends to offset emissions from direct business operations via afforestation projects from 2022 onwards but provides limited information on type and price.	Moderate	Low

Ratings

Overall: 5-point scale. Average of sections 1-4. Weighted average of sections 1-4 (50% for element 3; 17% for elements 1, 2 and 4).

Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.

Rating criteria: 3-point scale. See methodology document for an explanation per criterion.

High | Reasonable | Moderate | Low | Very low

High | Reasonable | Moderate | Low | Very low

High | Moderate | Low

N/A Not applicable | ? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Authors' interpretation of identified public documentation from Rabobank (2020, 2021b, 2021a, 2022d, 2022b, 2022e, 2022a, no date) and NZBA (2021).

Rabobank

Rabobank holds EUR 632 billion of assets under management, 70% of which it labels as "climate material" (Rabobank, 2022d, p. 11). Rabobank manages a large mortgage portfolio in the Netherlands and provides lending to domestic industry. It also holds an international lending portfolio with a strong focus on the food and agriculture industry, trade industry and services sector, as well as leasing (Rabobank, 2022d, p. 6). As a signatory of the NZBA, Rabobank committed to align its portfolio with pathways to net-zero emissions by 2050, but so far has not set concrete climate targets.

Rabobank discloses scope 1, scope 2, as well as scope 3 emissions with moderate with moderate levels of detail (Rabobank, 2022d, p. 11). Disclosed financed emissions (i.e. scope 3, category 15) cover 85% of the bank's climate-material portfolio, or around 60% of the bank's total assets under management. Financed emissions reporting is in place for 23% of the bank's international leasing portfolio, 75% of its wholesale and rural banking portfolio, 95% of Dutch business clients, as well as 99% of loans to private households (Rabobank, 2022d, p. 11). The bank reports financed emissions as "estimates on a best effort basis" as data availability and quality remain low (Rabobank, 2022d, p. 9). The bank states a clear ambition to increase coverage of emissions reporting to 100% of its climate-material portfolio (Rabobank, 2022d, p. 10). Rabobank provides breakdowns of financed emissions for climate-material assets with moderate levels of detail (Rabobank, 2022d, p. 11, 15, 20). The bank reports on borrowers' and investee companies' aggregated scope 1 and 2 emissions, but not on their scope 3 emissions. While Rabobank reports on avoided emissions from its renewable energy lending portfolio, it provides limited information on its estimation approach (Rabobank, 2022d, p. 11).

Rabobank identifies about 30% of its assets under management as not climate material and does not disclose emissions from these sources. The bank is transparent about which asset classes it considers non-climate-material, but provides no information on the criteria with which it determines materiality (Rabobank, 2021b, p. 8). Non-climate-material or partially-material financial assets include lending to government clients, loans to other banks, and some SME lending, among others (Rabobank, 2021b, p. 8).

By signing up to the Net Zero Banking Alliance (NZBA), Rabobank committed to align its lending and investment portfolios with pathways to net-zero GHG emissions by 2050 and to setting reduction targets within 18 month of joining the initiative (NZBA, 2021). Rabobank has not yet translated its NZBA commitments into an official and transparently presented headline pledge. Rabobank acknowledges the European Climate Law's intermediate target to reduce economy-wide GHG emissions by 55% by 2030 (versus 1990 levels) across the EU, but does not formally commit to it (Rabobank, 2022d, p. 18). The bank does not explicitly provide company-wide absolute emissions reduction targets to support its pledges at the moment, but has announced it will disclose "main reduction targets" by 2022 at the latest (Rabobank, 2020, p. 4).

Rabobank has set and disclosed interim targets across all of the financial services it deems climate-material (Rabobank, 2020, pp. 9–17). However, we are unable to assess the integrity of these targets as they are either qualitative or do not express emissions reductions. The bank has announced it will publish emission reduction targets and measures aligned with the Dutch Climate Agreement and the Net Zero Banking Association in its upcoming Road to Paris publication (expected in late 2022) (Rabobank, 2022c, p. 4).

Across its mortgage portfolio (largest on-balance sheet exposure), Rabobank has set itself the target to achieve an average energy label of B by 2024 and an average energy label of A by 2030 (Rabobank, 2020, p. 9). Currently, the bank's mortgage portfolio has an average energy label of C (Rabobank, 2020, p. 9), which is likely not aligned with the 1.5°C compatible pathway the bank pursues (Rabobank, 2022d, p. 20). The bank aims to finance "sustainability measures in 20% of [its] mortgage applications" (Rabobank, 2020, p. 9), but it is not clear that this will be sufficient to improve the energy rating of its mortgage portfolio. The bank claims that by 2024, "125,000 homes will be improved by at least two energy labels – baseline 2019 (2030: 400,000 homes)" (Rabobank, 2020, p. 9), but it does not transparently communicate how it will achieve this target. The bank also states that proposed energy label targets may not be achievable due to delays in municipal programmes to reduce residential gas use (Rabobank, 2022d, p. 20). This indicates that the bank's targets may reflect expected real estate sector development, rather than demonstrate real ambition.

Rabobank has committed to require its investment products (asset-based funds) to have a 50% lower CO_2 intensity than global indices in 2024 (Rabobank, 2020, p. 15). However, the bank does not provide absolute emissions reduction targets and does not transparently provide information on which worldwide indices it will use to benchmark their funds (Rabobank, 2020, p. 15).

For its domestic and international food and agriculture lending portfolio, Rabobank does not set absolute emission reduction targets (Rabobank, 2020, p. 11). The bank states its commitment to the Paris Agreement, as well as the Dutch Climate Agreement, the latter of which includes the goal of cutting emissions from agriculture and land use by 6 $MtCO_2e$ by 2030. The bank explicitly commits to following "absolute emissions reduction targets" (Rabobank, 2022d, p. 15) aligned with the Dutch Climate Agreement for its dairy lending portfolio, but does not disclose these targets. Rabobank generally provides no concrete information on how its domestic and international lending portfolio must adapt to align with the industry targets and benchmarks it refers to (Rabobank, 2020, p. 11). In 2021, Rabobank has set up a EUR 70 million investment fund together with the Nederlandse Waterschapsbank (NWB Bank) to provide finance for biodiversity conversation and the reduction of methane and nitrogen emissions. The fund follows the specific objective of reducing 2 $MtCO_2e$, but a target year is not transparently provided (Rabobank, 2022d, p. 13).

Rabobank states its intention to no longer directly finance production of coal and non-conventional fossil fuels (e.g. shale gas), but defines no concrete emissions reduction targets for its energy and commodity trade lending portfolio (Rabobank, 2020, p. 16). The bank benchmarks the carbon intensity of its energy sector lending portfolio to IEA's beyond 2 degree (B2DS) and Net Zero scenarios, and shows that the average carbon intensity of its power sector lending is far below the B2DS decarbonisation pathway at the portfolio level (Rabobank, 2020, p. 16). Renewable energy projects represent the largest share of Rabobank's energy lending portfolio (Eerlijke Geldwijzer, 2021, p. 38). However, Rabobank's portfolio emissions intensity benchmarking exercise may be misleading as it is not clear and even unlikely that the bank will reduce its exposure to fossil fuel generation: Rabobank does not commit to reducing fossil fuel lending in the power sector, explicitly highlights the role of natural gas as a transition fuel, and even targets an increase in trade and commodity finance for natural gas by 25% by 2025 (Rabobank, 2020, p. 17). Rabobank claims its upstream energy sector exposure to be non-climate-material, despite the clear link between energy products and climate outcomes. In 2021, Rabobank's loan portfolio included more than EUR 613 million of loans to business customers in oil and gas extraction; EUR 1.3 million in loans for coal mining; EUR 80.9 million in loans for petroleum and coal products manufacturing; EUR 103.7 million of loans for mining and oil and gas field machinery manufacturing; EUR 2.7 billion in loans for petroleum and petroleum products (Rabobank, 2022b, pp. 48–54).

Rabobank has not set emissions reduction targets for the upstream energy sector (Rabobank, 2020, p. 16).

Rabobank claims to exclude project finance for activities related to the conversion or deforestation of high conservation value areas, oil and gas exploration and production in the Arctic region and the Wadden Sea, coal generation, coal fired power generation (5% revenue threshold), as well as trade of coal for power generation (Rabobank, no date, p. 82). Rabobank may choose to lend to clients exposed to harmful activities, provided that finance is not directly used for excluded activities (e.g. working capital). The bank does not provide details on how it ensures that finance does not directly or indirectly benefit fossil-fuel or forest-risk related activities. With its large agriculture lending portfolio, for instance, Rabobank continues to be a large financier of forest-risk commodities, specifically in relation to palm oil (Kuepper and Warmerdam, 2021, p. 23). The bank only fully excludes clients where they are exposed to activities which the bank deems "highly detrimental to sustainable development", such as illegal deforestation (Rabobank, no date, p. 82).

Rabobank engages with clients (credit exposure above EUR 1 million) across its thematic lending portfolios with the objective to improve clients' sustainability performance (Rabobank, no date, p. 86). The bank employs a sustainability assessment tool ("Client Photo") to profile clients' performance and to evaluate engagement needs (Rabobank, no date, p. 86), but so far does not, or not always, incorporate clients' carbon footprints in its assessment (Rabobank, 2020, p. 11). Rabobank states that it proactively seeks dialogue with clients on issues relevant to its lending portfolio, such as deforestation and oil and gas production (Rabobank, 2022b, p. 39), but does not provide a comprehensive overview on themes it engages clients on. It also remains unclear whether and when non-compliance results in exclusion or divestment.

Rabobank reports that it neutralises the climate footprint of its own operations through Gold Standard-certified carbon credits (Rabobank, 2020, p. 4) issued by a Dutch farmer producing biogas (the project claims to reduce methane emissions), but fails to provide more information, including on the volume of credits purchased and price paid (Rabobank, 2022b, p. 21). This sector is covered by the Dutch government's commitment made under the Paris Agreement (NDC) and such investments are unlikely to offer a guarantee that they drive overall emission reductions beyond those that will happen anyway in the Netherlands (see Section 4.2.1 in the methodology, Annex I). From 2022, Rabobank intends to offset emissions through afforestation projects and "other innovative forms of carbon compensation" but does not further specify what those would be (Rabobank, 2022b, p. 21). Afforestation is not a credible equivalent to reducing own emissions, due to the low likelihood of permanence and scarcity of removal potential (see Section 4.2.1 in the methodology, Annex I).

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Glossary and abbreviations

Additional potential (of CDR)	See "Scarcity (of CDR)"
BEV	Battery electric vehicles
Biological capture and storage	See "Nature based solutions"
CCS	Carbon Capture and Storage
CCU	Carbon Capture and Utilisation
Climate contribution	We define climate contributions as the financial support provided by a company to support climate change action beyond the company's own value chain, without claiming the neutralisation of its own emissions in return.
Carbon dioxide removals (CDR)	All scenarios consistent with a 1.5°C temperature increase include a major role for carbon dioxide removals (Rogelj et al., 2018). This includes nature-based solutions for carbon sequestration in forests, soils, peatlands and mangroves, technological solutions such as BECCS and DACCS with underground storage, and solutions with mineral storage.
Carbon offset credit	A carbon offset credit is a certified unit of a reduction of GHG emissions, or a removal of carbon dioxide (see Carbon dioxide removals), which is used to balance out GHG emissions elsewhere. The practice of offsetting is often contentious (see section 4.1.2).
CDM	Clean Development Mechanism
CDP	Formerly the Carbon Disclosure Project: Many companies report emissions as well as other details of their climate strategies to CDP. CDP provide companies with a certified rating of their level of climate transparency, which is often used in company's marketing materials.
CEO	Chief executive officer
CH_4	Methane
CO_2	Carbon dioxide
CPLC	Carbon Pricing Leadership Coalition
CSR	Corporate social responsibility
DACCS	Direct Air Carbon Capture and Storage, see also "Carbon dioxide removals (CDR)"
DRI	Direct reduced iron
EAD	Exposure at default
Engagement policy	Engagement policy formulates the financial institution's approach to stewardship vis-à-vis investee companies, borrowers, or clients with the objective of maximizing assets' economic, social, and/or environmental value over a certain time frame.
ESG	Environmental Social Governance
ESR	Environment and Social Risk
ETF	Exchange Traded Fund
EU	European Union
EV	Electric vehicle
Exclusion policy	Exclusion policy formulates the financial institution's approach and criteria applied to restrict the provision of financial services to companies or clients exposed to harmful activities.
GHG Protocol	The GHG Protocol is an initiative driven by the World Resources Institute and World Business Council for Sustainable Development, that provides international guidance and standards for GHG emissions accounting.
GHG	Greenhouse gas emissions
GRESB	Global Real Estate Sustainability Benchmark
Guarantees of origin (GOs)	Other terminology for Renewable Energy Certificates (REC), see "Renewable Energy Certificates (REC)"
High-hanging fruit	The high-hanging fruit of mitigation potential refers to the technologies and measures to decarbonise emission sources that remain otherwise entirely inaccessible to host country governments in the near- and mid-term future, on account of high costs or other insurmountable barriers that cannot reasonably be overcome.

HVO	Hydrotreated vegetable oil
IATA	International Air Transport Association
IEA	International Energy Agency
ILO	International Labor Organization
Insetting	"Insetting" is a business-driven concept used by a limited number of actors with no universally accepted definition. Insetting is often described as offsetting within the value chain. The approach can lead to low credibility GHG emission offsetting claims and presents a significant risk of double counting the same emission reductions (see Box A4 of the methodology, Annex I).
Integrity (rating)	We assess the transparency and integrity of companies' climate pledges. Integrity, in this context, is a measure of the quality, credibility and comprehensiveness of a company's approaches towards the various elements of corporate climate responsibility.
IPCC	Intergovernmental Panel on Climate Change
LEV	Low-emission vehicles
LNG	Liquified natural gas
Location-based method (for scope 2 emissions accounting)	The location-based method for scope 2 emissions accounting reflects the average emission intensity of the electricity grid from which the consumer's energy is delivered.
Market-based method (for scope 2 emissions accounting)	The market-based method for scope 2 emissions accounting reflects the emissions from electricity generation specifically procured by the consumer (which may not reflect the electricity they actually consume from a grid that features multiple buyers and sellers). It derives emission factors from contractual renewable electricity procurement instruments.
Nationally determined contributions (NDCs)	Nationally determined contributions (NDCs) are the pledges made by national governments to the United Nations Framework Convention on Climate Change to mitigate climate change. The Paris Agreement requires all Parties to submit and regularly update their NDCs to represent their possible highest level of ambition. Recognising the insufficiency of climate change mitigation commitments in existing NDCs, the Glasgow Pact from COP26 urged all Parties to update their NDCs again ahead of COP27.
Nature-based solutions	Nature-based solutions refer to measures for carbon dioxide removal that involve biological carbon capture and storage in natural ecosystems, such as soils, forests, peatland and mangroves.
Neutralisation	Neutralisation of emissions is usually a term that is synonymous with offsetting and refers to the balancing out of emissions released into the atmosphere with the avoidance, or removal from the atmosphere, of an equivalent volume of emissions elsewhere. Many actors now avoid the term offsetting entirely; companies and initiatives more often refer to "neutralisation", "netting-out", "compensation", "reducing the footprint", while some actors use multiple terminologies to distinguish between offsetting in different circumstances and at different times. We define all claims that unabated GHG emissions within the value chain are offset as offsetting claims, including all synonymous terminologies and all project types.
Non-GHG climate forcers	Non-GHG climate forcers include the emission of gases and aerosols, and processes that change cloud abundance, leading to radiative forcing. Radiative forcing is a change in the balance of radiation in the atmosphere, which contributes to global warming. For example, the non-GHG climate forcers are estimated to increase the climate impact of GHG emissions from the aviation industry by a factor of approximately 3.(Atmosfair, 2016)
NZBA	Net Zero Banking Alliance
N_2O	Nitrous oxide
OECD	Organisation for Economic Co-operation and Development
Offsetting	See carbon offset.
PACTA	Paris Agreement Capital Transition Assessment
Partnership for Carbon Accounting Financials (PCAF)	PCAF is a global partnership of financial institutions that developed an accounting framework for tracking and disclosing GHG emissions.
Permanence (of CDR)	The permanence of a CDR outcome refers to the timescale and degree to which sequestered carbon remains stored and not released into the atmosphere.
PHEV	Plug-in hybrid electric vehicle
Power purchase agreement (PPA)	A PPA is a long-term contract between an electricity provider and an electricity consumer,

	usually spanning 10-20 years. The consumer agrees to purchase a certain amount of electricity from a specific asset under a pre-determined pricing arrangement. PPAs are generally signed with new renewable energy installations and form part of the project investment decision (NewClimate Institute and Data-Driven EnviroLab, 2020). PPAs can also be signed for existing installations, in which case it is less likely the PPA results in additional renewable electricity capacity. However, it may be that existing installations would cease operations if the operator cannot sign a new PPA.
PV	Photovoltaics
R&D	Research & Development
REDD+	Reducing Emissions from Deforestation and Forest Degradation and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries
Renewable energy certificate (REC)	Renewable Energy Certificates (RECs) are also known under various names, such as Guarantees of Origin (GOs) or Energy Attribute Certificates (EACs). RECs can be bundled or unbundled with the electricity that a company consumes:
Unbundled RECs	The consumer purchases RECs from a third party, separately from their procurement of electricity from another supplier.
Bundled RECs – third-party generated	The consumer purchases electricity and RECs from the same supplier, but this supplier has procured the RECs from a third party. In this situation, the supplier may sell electricity generated using fossil fuels but market it as 'low-carbon' electricity by bundling an equivalent volume of RECs into the sale.
Bundled RECs – supplier generated	The consumer purchases renewable electricity and associated RECs from the same supplier.
Residual emissions	Residual emissions are the remaining GHG emissions from hard-to-abate emission sources where no known feasible options remain for further decarbonisation. (See also unabated emissions)
Scarcity (of CDR)	The maximum potential of most carbon dioxide removal measures is technically limited, and even further restricted by environmental constraints. Due to issues such as land requirements, high water consumption, high energy consumption, land degradation and pollution, among other environmental costs, carbon dioxide removal technologies can only be scaled-up so far without significantly endangering sustainable development goals, including food security. The scarcity of carbon dioxide removals measures – in terms of their maximum absolute or annual technical potential – is an important consideration when evaluating the feasibility of net-zero claims at the level of individual actors. Robust future use of scarce carbon dioxide removal options must be consistent with achieving net-zero and eventually net-negative emissions at the global level, which is required to avoid the most damaging effects of climate change over the coming decades.
Science Based Targets initiative (SBTi)	SBTi reviews and certifies the climate targets of companies who join the initiative as members. Companies' climate targets are certified as 1.5°C or 2°C compatible if they align with SBTi's own methodology and benchmarks.
Scope (of GHG emissions)	The GHG Protocol Corporate Standard classifies a company's GHG emissions into three 'scopes' (WBCSD and WRI, 2004).
Scope 1 emissions	Scope 1 emissions are direct emissions from owned or controlled sources.
Scope 2 emissions	Scope 2 emissions are indirect emissions from the generation of purchased energy (see also location-based method and market-based method).
Scope 3 emissions	Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions (WRI and WBCSD, 2013).
Upstream scope 3 emission sources	Upstream emissions are indirect GHG emissions related to purchased or acquired goods and services (WRI and WBCSD, 2013).
Downstream scope 3 emission sources	Downstream emissions are indirect GHG emissions related to sold goods and services (WRI and WBCSD, 2013).
Normal scope 3 emission sources	The GHG Protocol's Scope 3 Standard identifies 15 distinct reporting categories for scope 3 emission sources, and requires companies to quantify and report scope 3 emissions from each category (WRI and WBCSD, 2013).
Optional scope 3 emission sources (indirect use-phase emissions)	Indirect use-phase emissions are described by the GHG Protocol Scope 3 Standard (WRI and WBCSD, 2013) as an optional reporting component. In contrast to direct use-phase emissions from products, such as the energy consumption of vehicles and appliances, indirect use-phase emissions refer to the emissions that occur indirectly from the use of a product. For example,apparel requires washing and drying; soaps and detergents are often used with heated water.

Sustainable aviation fuels (SAF)	Sustainable aviation fuels are aviation fuels derived from renewables or waste considering certain sustainability criteria.
Transparency (rating)	We assess the transparency and integrity of companies' climate pledges. Transparency ratings refer to the extent to which a company publicly discloses the information necessary to fully understand the integrity of that company's approaches towards the various elements of corporate climate responsibility.
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
Unabated emissions	Unabated emissions are GHG emissions from emission sources for which further emission reductions are technically feasible at that point in time. (See also residual emissions)
UNGP	United Nations Guiding Principles on Business and Human Rights
US	United States
Value chain emissions	A company's full value chain emissions refers to the entirety of scope 1, scope 2, and scope 3 emissions.
VCS	Verified Carbon Standard
ZEB	Zero-emission building

Annex I –Assessment methodology

The assessment methodology for the company analyses in this report is set out in an accompanying document Guidance and assessment criteria for good practice corporate emission reduction and net zero targets (Version 2.0, July 2022).

Download Guidance and assessment criteria for good practice corporate emission reduction and net zero targets (Version 2.0, July 2022)

https://newclimate.org/sites/default/files/2022-07/NewClimate_MD_CorporateTargetSettingNL_Methodology.pdf

Annex II – Ranking methodology

Ratings

Overall: 5-point scale. Average of sections 1-4. Weighted average of sections 1-4 (50% for element 3; 17% for elements 1, 2 and 4).	High	Reasonable	Moderate	Low	Very low
Sections 1-4: 5-point scale. Average of the criteria in each section, weighted according to case specific relevance.	High	Reasonable	Moderate	Low	Very low
Rating criteria: 3-point scale. See methodology document for an explanation per criterion.	High		Moderate		Low
			N/A Not applicable		? Unclear

Transparency: refers to the disclosure of information. **Integrity:** refers to the quality and credibility of the approach.

Overall rating

The overall rating applies a **five-point scale** to rate transparency and integrity (high, reasonable, moderate, low, very low). The overall rating for each transparency and integrity builds on the four individual section ratings.

For **companies**, the four section ratings count equally towards the overall rating score (average of 25% each). The equal weighting reflects the high importance of all four sections to assess the transparency and integrity of corporate climate action.

For **financial institutions**, the 'reducing financed and own emissions' section rating (section 3) weights 50% towards the overall rating. All other three section weight an equal 16.6%. This higher weighting for the 'reducing financed and own emissions' section accounts for the relative importance of financial institutions' efforts to reduce financed emissions (see further explanations under Chapter 3.1 of the methodology).

Section ratings

Each section rating applies a **five-point scale** to rate transparency and integrity (high, reasonable, moderate, low, very low). Each section rating for transparency and integrity builds on the individual criteria ratings.

For **companies**, all criteria under each section generally count equally towards the respective

section rating (average across all criteria). However, we apply expert judgement to inform a weighted average for company case specific relevance. Under 'setting emission reduction targets' (section 2), for example, we weigh the significance of the criteria 'interim emission reductions' higher if a company sets a 2030 target as its headline target instead of a longer-term net zero or carbon neutrality target.

For **financial institutions**, criteria in section 2 and section 4 are generally counted equally towards the respective section ratings (average across all criteria). In section 1, the section rating depends mainly on financial institutions' disclosure of financed emissions (i.e. scope 3, category 15) and less on their disclosure of operational emissions. In section 3, the section rating mainly depends on financial institutions' emission reduction approaches, that is, their exclusion and engagement policies. We apply expert judgement to inform a weighted average to reflect institution-specific relevance where necessary.

Criteria ratings

The methodology explains all criteria ratings for both transparency and integrity in detail. For example, Table 2-A (for companies) and Table 2-B (for financial institutions) provide a detailed explanation on the rating of a target's coverage of emission sources.

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