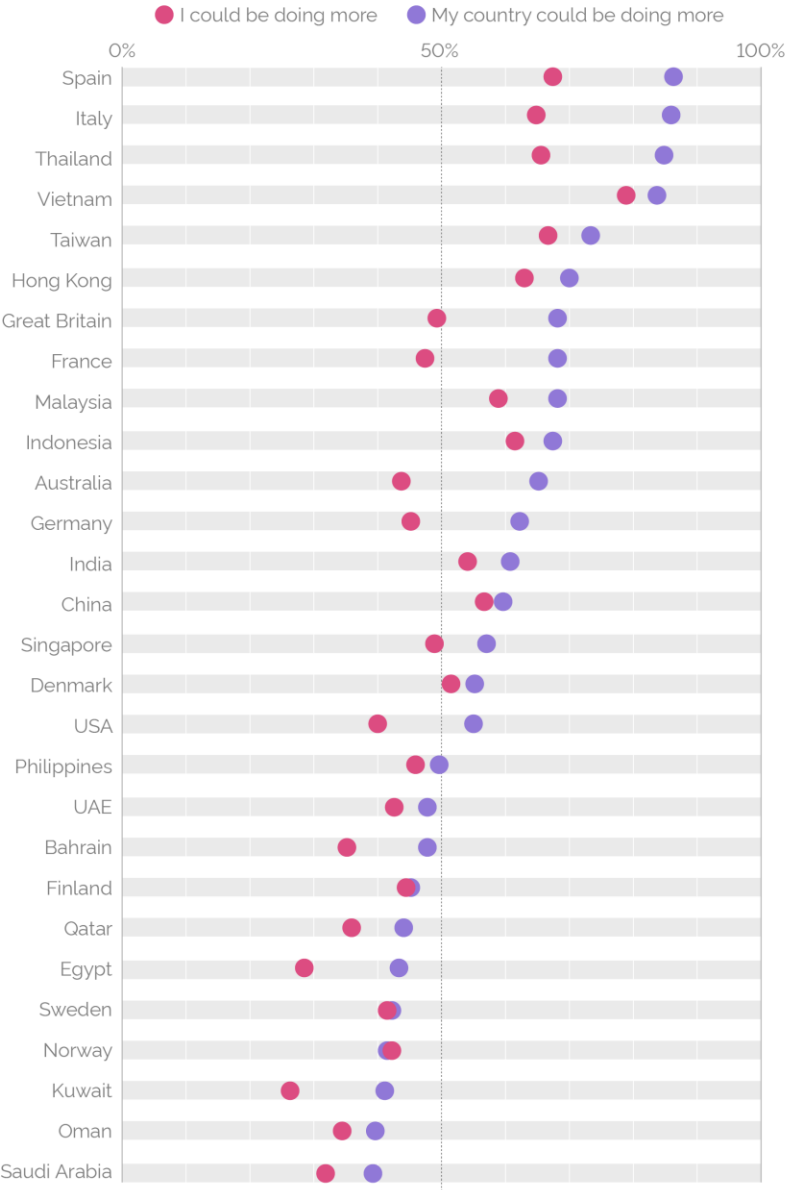


Scientific ambition assessment in climate litigation

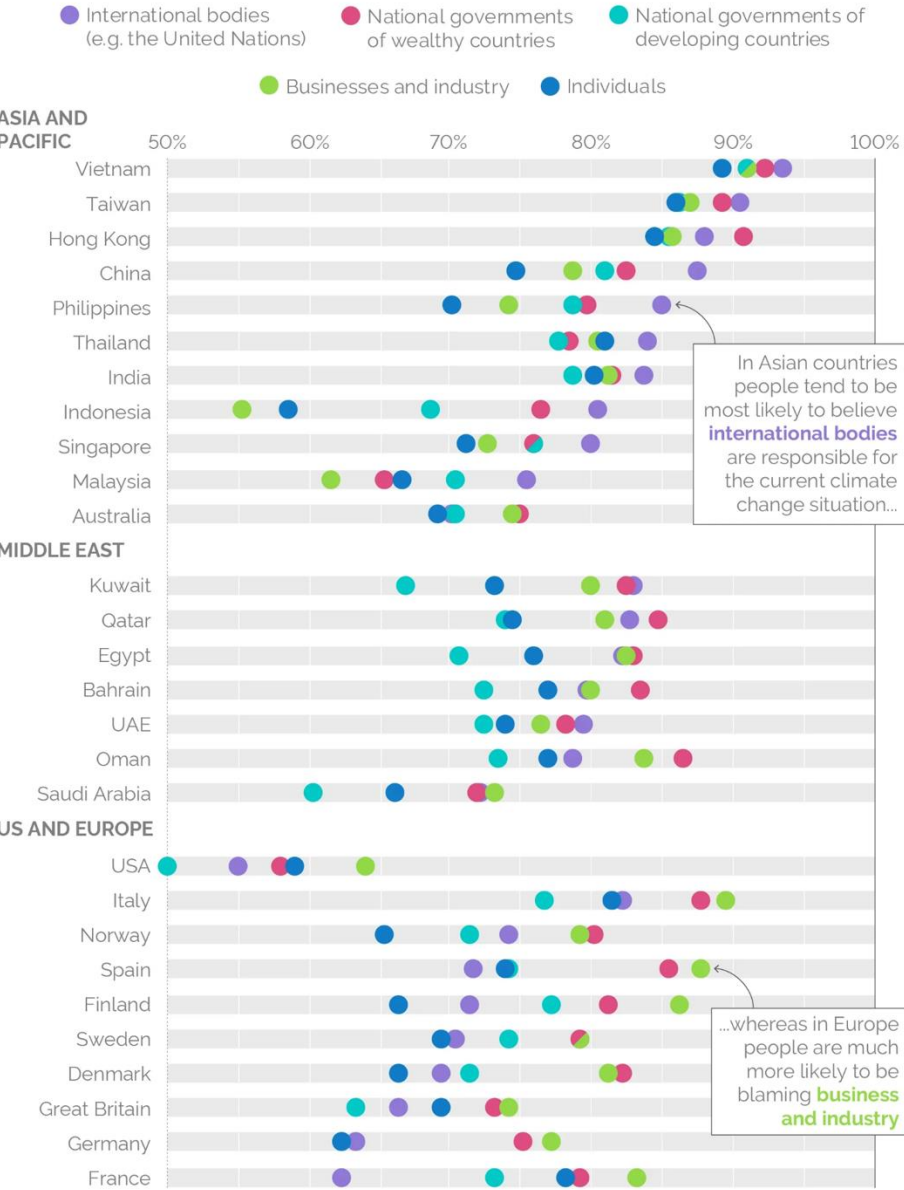
People in the Middle East and Scandinavia are the least likely to think they or their country could be doing more on climate change

Do you think that your country/you personally could be doing more to tackle climate change, or is it/are you already doing as much as it/you reasonably can?
% who say they or their country could be doing more



Who do people in different countries hold responsible for the current state of climate change?

How responsible, if at all, do you think each of the following are for the current situation with climate change?
% of people in each country who answered "very responsible" or "fairly responsible"



WORLD VIEW | 20 April 2020

How scientists can help lawyers on climate action



Research into how to fairly translate global emissions targets to individual countries can make a difference in court.

[Dennis van Berkel](#) 



On 13 March, a group of teenagers filed a climate-change case before the constitutional court of South Korea. The country ranks as the sixth-largest emitter of carbon dioxide, per capita, in the Organisation for Economic Co-operation and Development. The plaintiffs claimed that their rights had been violated by their government. The case is one of around a dozen brought by members of the general public, in countries including France, Canada and Colombia, who seek protection from climate impacts and demand greater emissions reductions from their nations.

In 2019, the Urgenda Foundation, a Dutch non-profit group that aims to mitigate climate change, together with 886 Dutch citizens, successfully sued the government of the Netherlands for doing too little to reduce emissions. As legal counsel to Urgenda, I know that science is instrumental in arguing these cases. Specifically, courts need researchers to translate benchmarks for global emissions into fair and equitable targets for individual countries.

Courts throughout the world now readily accept the scientific evidence that society and the planet face vast, systemic dangers if global emissions are not curbed rapidly. Increasingly, they seem willing to attach legal consequences to governments that fail to step up. In its judgment last December, the Dutch Supreme Court concluded that climate change poses a “real and immediate” threat to people living in the Netherlands, and ordered the government to increase its emissions-reduction efforts.

Similar cases elsewhere have had different outcomes. Courts in Germany, Ireland and New Zealand recognized governments’ responsibility to mitigate the risks of climate change but stopped short of finding that

No quantitative summary of effort sharing in IPCC SR1.5 or AR6. Yet, such ‘science wide’ summaries are yet pivotal for governments that need to adopt targets, and even more so for courts that do not need to decide on one and may only follow a body of science rather than isolated studies.

“Scientists have worked to determine a country’s fair share of reductions through ‘effort-sharing models’.

[...] An evaluation of effort-sharing models that the IPCC included in its report in 2007 was instrumental to Urgenda’s successful arguments in court.

In the Paris agreement of 2015, countries created a framework in which each would determine its own contributions rather than negotiate reductions up front, and so the scientific community has largely disengaged from effort-sharing models, and many are outdated.”

Dennis van Berkel, Urgenda

RELATED

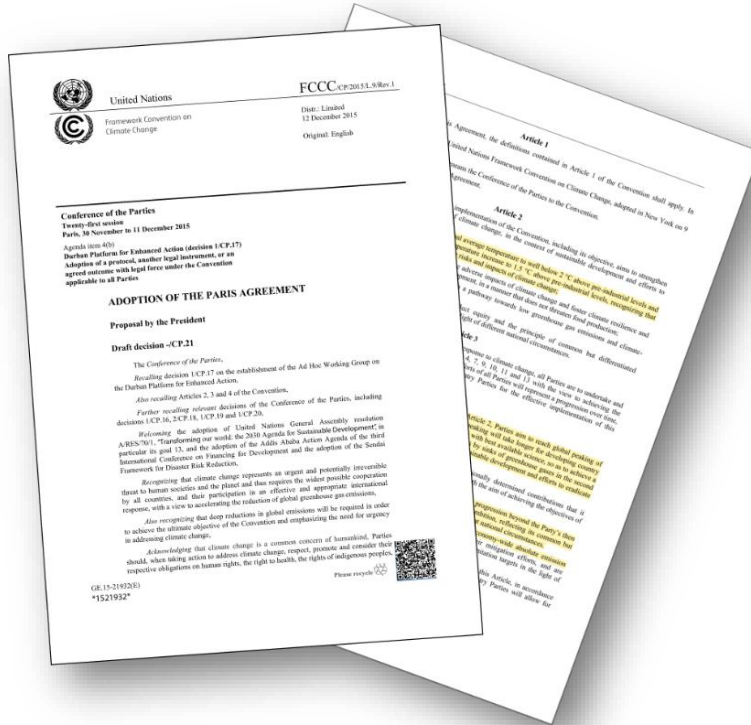


Which laws?

(not my expertise)

Draws on my contributions to court cases:

- Urgenda
- Klimaseniorinnen (European Court of Human Rights, ECtHR)
- Duarte Agostinho (ECtHR)
- People v. Arctic Oil (ECtHR)
- Ongoing: Italy, France, Austria, Netherlands...
- TotalEnergies



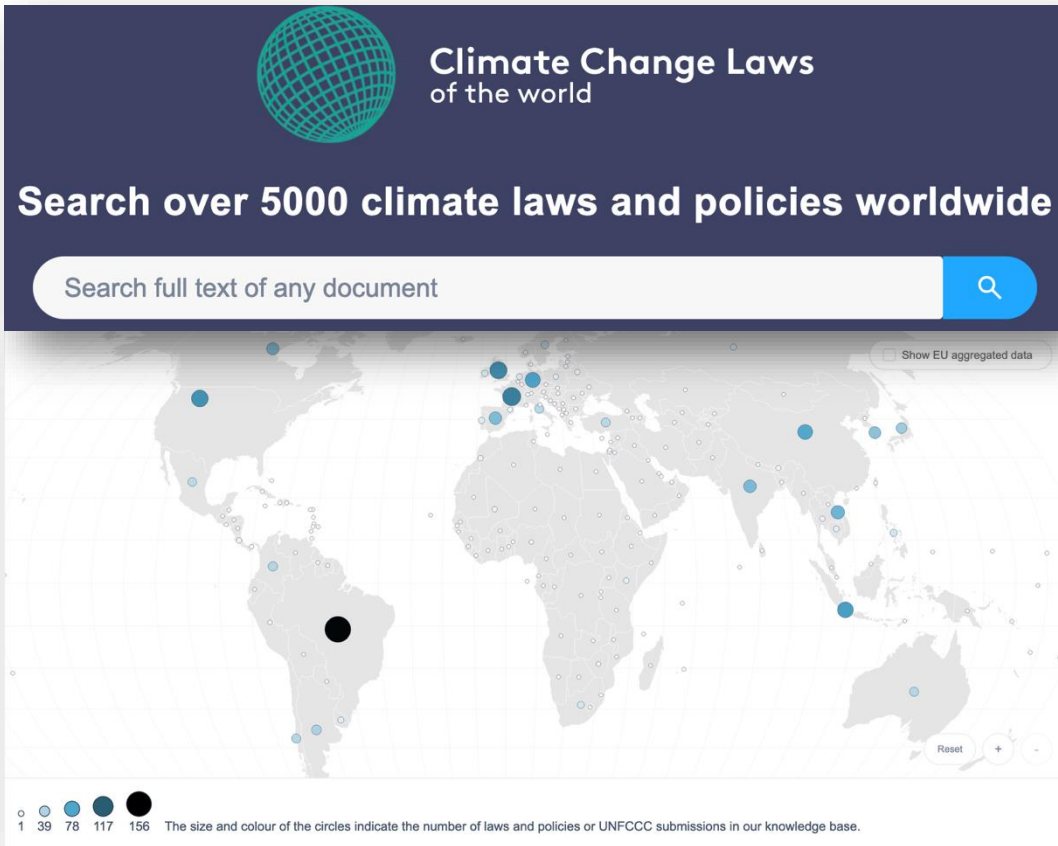
New **global** mitigation goals:

- Pursue 1.5 °C and stay well below 2 °C
- Net-zero emissions in the second half of the century

“This Agreement **will be** implemented to reflect **equity and the principle of common but differentiated responsibilities and respective capabilities**, in the light of different national circumstances.” (Article 2)

Paris Agreement, 2015

⇒ **Legally binding but no enforcing court**



Countries' commitments

⇒ UN targets, the NDCs

⇒ National implementation laws

Plaintiffs (individuals, NGO...) can challenge these laws or their applications before national courts.

U.S. Climate Change Litigation

A collaboration of:

 COLUMBIA LAW SCHOOL
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FEDERAL STATUTORY CLAIMS



CONSTITUTIONAL CLAIMS

Non-U.S. Climate Change Litigation

You may also browse [by Jurisdiction](#) or [by Principal Law](#).

SUITS AGAINST GOVERNMENTS



SUITS AGAINST CORPORATIONS, INDIVIDUALS



Which science?
(my expertise)

Relies on duty of care (not the Paris Agreement)

The decision follows the IPCC AR4 on the ‘fair effort share’ of developed countries in mitigating emissions.

Effort-sharing/equity is the metric for ambition.

Could/did not interpret the ‘result range’ of the IPCC, and ruled for the NL to align with **the minimum end of the suggested range**

(see IPCC AR4, Box 13.7 =>)

IPCC AR6: “*only in relation to such a 'fair share' that the adequacy of a state's contribution can be assessed in the context of a global collective action problem*”

Box 13.7 The range of the difference between emissions in 1990 and emission allowances in 2020/2050 for various GHG concentration levels for Annex I and non-Annex I countries as a group^a

Scenario category	Region	2020	2050
A-450 ppm CO ₂ -eq ^b	Annex I	-25% to -40%	-80% to -95%
	Non-Annex I	Substantial deviation from baseline in Latin America, Middle East, East Asia and Centrally-Planned Asia	Substantial deviation from baseline in all regions
B-550 ppm CO ₂ -eq	Annex I	-10% to -30%	-40% to -90%
	Non-Annex I	Deviation from baseline in Latin America and Middle East, East Asia	Deviation from baseline in most regions, especially in Latin America and Middle East
C-650 ppm CO ₂ -eq	Annex I	0% to -25%	-30% to -80%
	Non-Annex I	Baseline	Deviation from baseline in Latin America and Middle East, East Asia

Notes:

^a The aggregate range is based on multiple approaches to apportion emissions between regions (contraction and convergence, multistage, Triptych and intensity targets, among others). Each approach makes different assumptions about the pathway, specific national efforts and other variables. Additional extreme cases – in which Annex I undertakes all reductions, or non-Annex I undertakes all reductions – are not included. The ranges presented here do not imply political feasibility, nor do the results reflect cost variances.

^b Only the studies aiming at stabilization at 450 ppm CO₂-eq assume a (temporary) overshoot of about 50 ppm (See Den Elzen and Meinshausen, 2006).

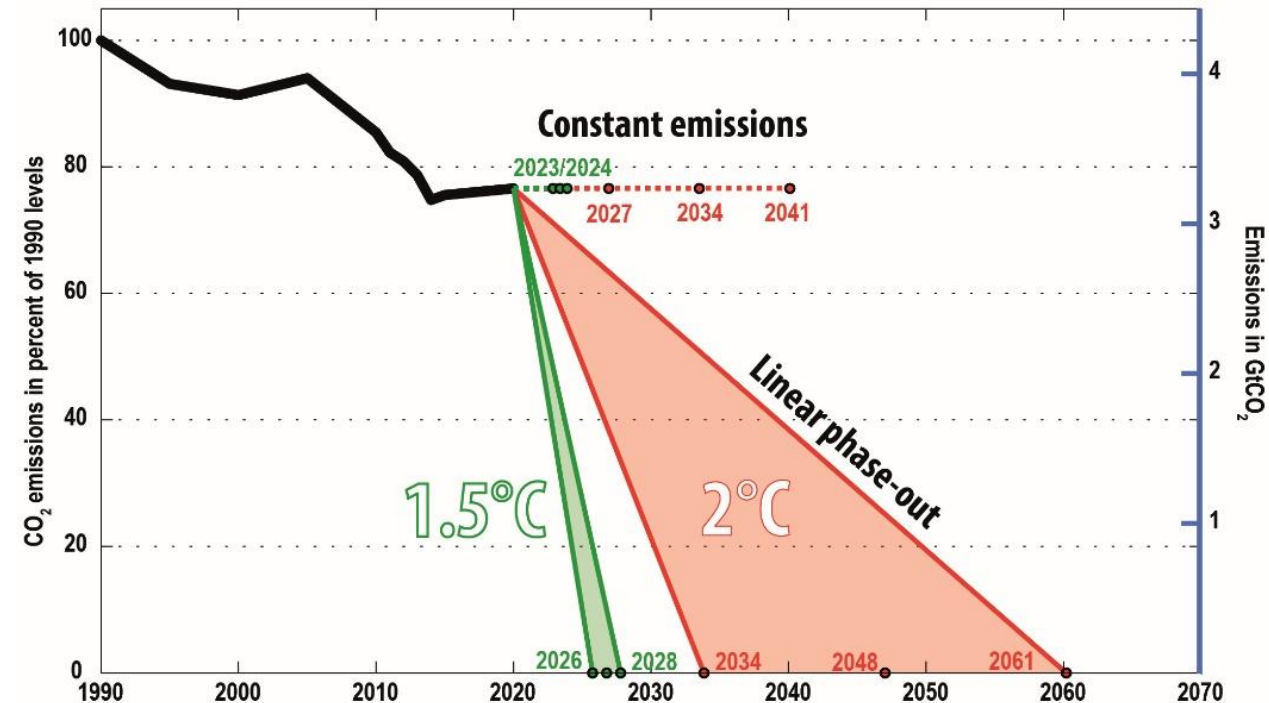
Source: See references listed in first paragraph of [Section 13.3.3.3](#)

Refers to Paris Agreement

The case challenges the biased selection of scenarios at the basis of the EU target. Some were discarded only because they were too ambitious. This is both a scientifically incorrect method and a deliberate choice that worsens climate change.

Bottom-up action: challenge of the three legal acts and sectoral strategies as counterfactual or outdated. Winning such a case over both the national and sectoral strategies can result in a revised target that is easier to implement.

Top-down action: The EU target of 40% below 1990 is unambitious according to the equity literature (IPCC, Paris-Equity-Check.org) but the case also includes a basic demonstration that the EU target is not in line with the an equal per capita share of the global carbon budget from the IPCC:



The life of an application

Proceedings at national level

Beginning of the dispute

Proceedings before the national courts

Exhaustion of domestic court

Decision of the highest domestic court

Proceedings before the European Court of Human Rights

Application to the Court

Admissibility criteria

Exhaustion of domestic remedies

6-month deadline for applying to the Court (from the final domestic judicial decision)

Complaints to be based on the European Convention

Applicant has suffered a significant disadvantage

Initial analysis

Inadmissibility decision = case concluded

Examination of the admissibility and merits

Admissibility decision

Judgment finding a violation

Judgment finding no violation

Request for re-examination of the case

Request dismissed = case concluded

Request accepted = referral to the Grand Chamber

Final judgment finding a violation

Judgment finding no violation = case concluded

Execution of judgment

Transmission of the case file to the Committee of Ministers

Obligations of the State in question

Payment of compensation (just satisfaction)

Adoption of general measures (amendment to the legislation...)

Adoption of individual measures (restitution, reopening of the proceedings...)

Examination by the Committee of Ministers

Unsatisfactory execution

Satisfactory execution

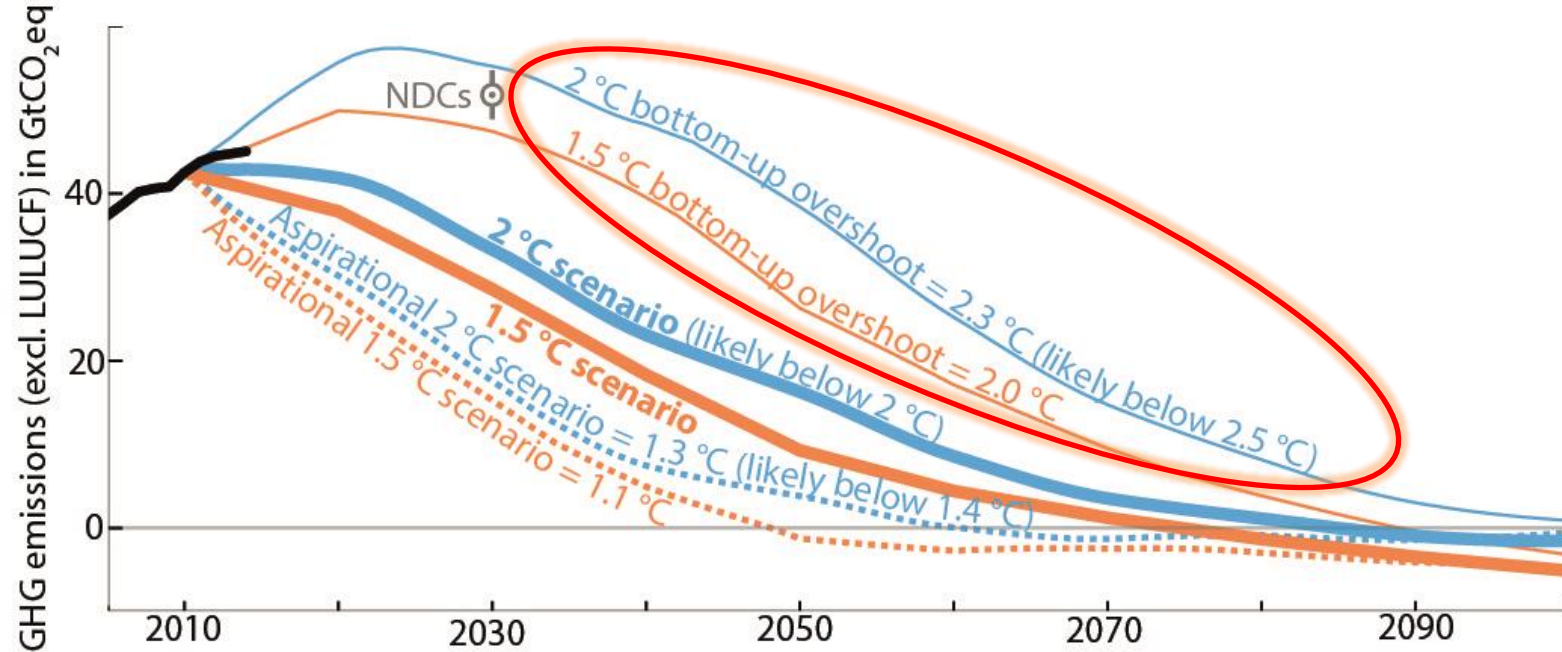
Final resolution = case concluded

If all domestic remedies are exhausted, there can be an application to the European Court of Human Rights



Ruling for 3 cases at the same time on the 09/04/2024

- Carême v. France (inadmissible)
- Duarte Agostinho & Others v. Portugal (inadmissible)
- KlimaSeniorinnen



As Robiou du Pont and Meinshausen have stated in relation to this decision, “systematic court decisions that governments must follow the least-ambitious end of an equity range would be insufficient to achieve the [goal of the] Paris Agreement.”

European Court of Human Rights - Application form 5 / 13

Subject matter of the application

All the information concerning the facts, complaints and compliance with the requirements of exhaustion of domestic remedies and the six-month time-limit laid down in Article 35 § 1 of the Convention must be set out in this part of the application form (sections E, F and G). It is not acceptable to leave these sections blank or simply to refer to attached sheets. See Rule 47 § 2 and the Practice Direction on the Institution of proceedings as well as the “Notes for filling in the application form”.

E. Statement of the facts

AN EMERGENCY LIKE NO OTHER

1. In November 2019, over 11,000 scientists declared “clearly and unequivocally that planet Earth is facing a climate emergency” (Bundle, p.466). More recently, leading scientists warned that climate change poses “an existential threat to civilization” (p.277) and in a joint report the World Health Organization, UNICEF and Lancet noted environmental threats that “jeopardise the future for children on this planet” (p.473). This is the context for this application.

THE APPLICANTS

2. The Applicants are four Portuguese children (Sofia, born [redacted], André, born [redacted], Martim, born [redacted], Mariana, born [redacted]) and two young adults (Cláudia, born [redacted], Catarina, born [redacted]). They allege that the Respondents are breaching their Convention rights through their respective contributions to climate change. Their statements are attached as documents 13-18.

THE INTERNATIONAL CLIMATE CHANGE LEGAL FRAMEWORK: KEY PRINCIPLES

3. In 2015, the Conference of the Parties to the UN Framework Convention on Climate Change (‘UNFCCC’) adopted the Paris Agreement on climate change. Article 2 of the Paris Agreement commits the 195 parties which have ratified it (including each of the Respondents except Turkey, which is nonetheless a signatory) to aiming to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change” (‘1.5°C target’).

4. The Paris Agreement provides for the achievement of this target through a “bottom-up” approach according to which each party “must prepare, communicate and maintain successive nationally determined contributions that it intends to achieve” (Article 4(2)). Each successive nationally determined contribution (‘NDC’) must “represent a progression beyond the Party’s then current nationally determined contribution and reflect its highest possible ambition, reflecting its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances” (Article 4(3)). An NDC must be communicated by parties every five years (Article 4(9)). Each of the Respondents has submitted its first NDC, except Turkey and Russia which have nonetheless submitted “intended” NDCs; the EU has submitted a single NDC for all of its Member States. The Paris Agreement does not prescribe a specific approach to distributing among its parties the global burden of keeping global warming to the target enshrined in Article 2.

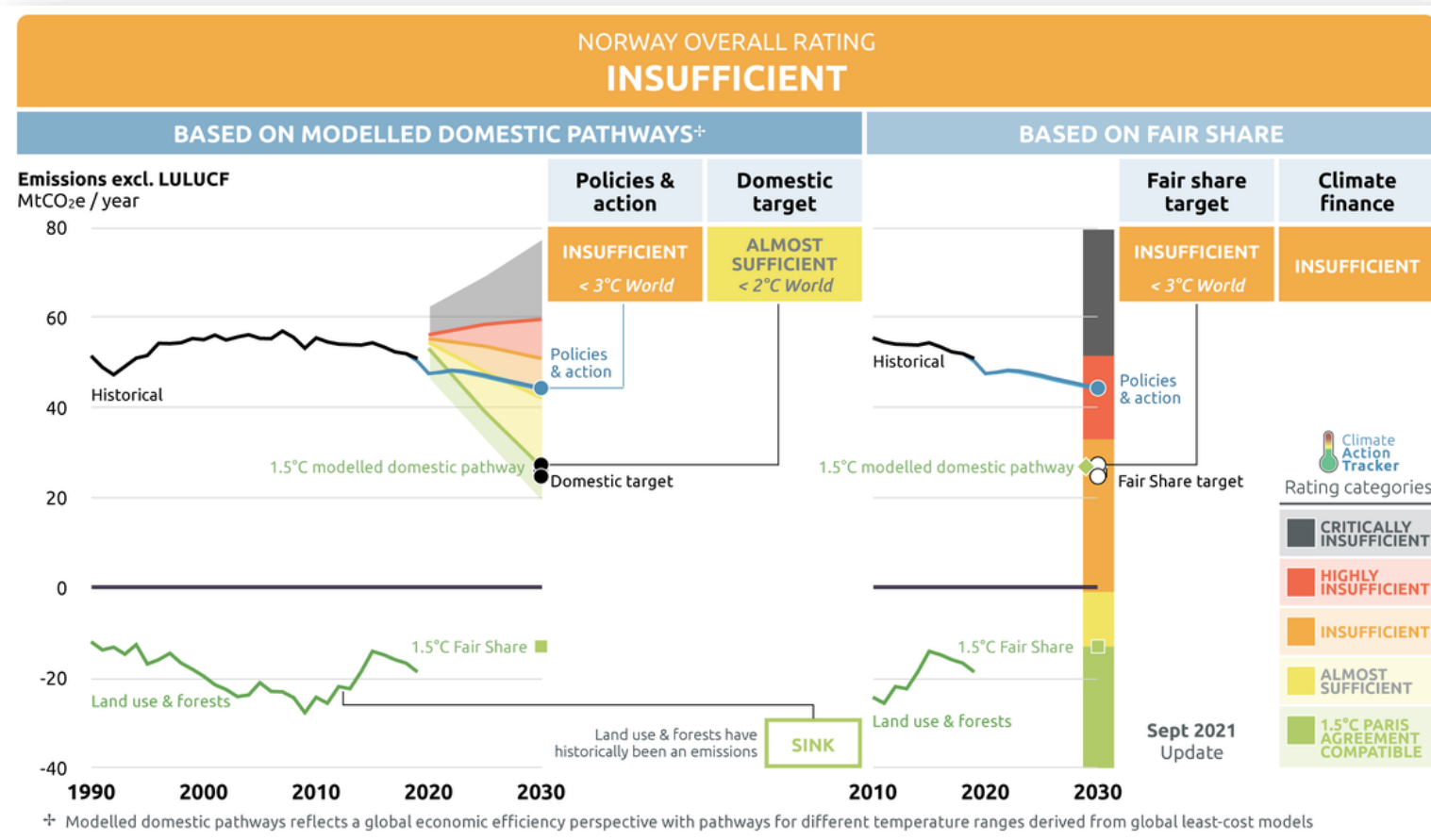
CLIMATE CHANGE: ITS CAUSES, CURRENT TRAJECTORY AND THE MEASURES REQUIRED TO MEET THE 1.5°C TARGET

5. The Summary for Policymakers of the Intergovernmental Panel on Climate Change’s (‘IPCC’) 2018 ‘Special Report on Global Warming of 1.5°C’ (doc.1, ‘SR1.5’) states: “Human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels, with a likely range of 0.8°C to 1.2°C [...] (high confidence)” (p.4, para. A.1). The activities concerned involve either release of greenhouse gas emissions (hereafter “emissions”) into the atmosphere or destruction of “carbon sinks” which absorb such gases, in particular carbon dioxide. Furthermore, as the former UN Secretary-General Ban Ki-moon has stated, “emissions released anywhere contribute to [climate change] everywhere”.

6. According to SR1.5, “[p]athways reflecting current nationally stated mitigation ambition until 2030 are broadly consistent with cost-effective pathways that result in global warming of about 3°C by 2100 [...] (medium confidence)” (p.18; para. D.1.1). The Climate Analytics report, ‘Climate Impacts in Portugal’ (doc.10, ‘Expert Report’) further identifies global warming of 4.1°C by 2100 as falling within the likely (i.e. 66% probability) temperature range according to a pathway based on the measures to reduce emissions (‘mitigation measures’) currently adopted worldwide (p.5327). According to the same pathway there exists a 17% possibility of warming exceeding that range (p.5327). These probabilities reflect the uncertainties as to the response of the climate system to emissions (p.5327). SR1.5 also states that “[g]lobal warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate (high confidence)” (p.4, para. A.1). According to the Expert Report, the global mean temperature increase “will exceed 1.5°C around the year 2035 (model median) and 2°C around the year 2055; by 2100 it will have exceeded 3°C” (pp.532-533).

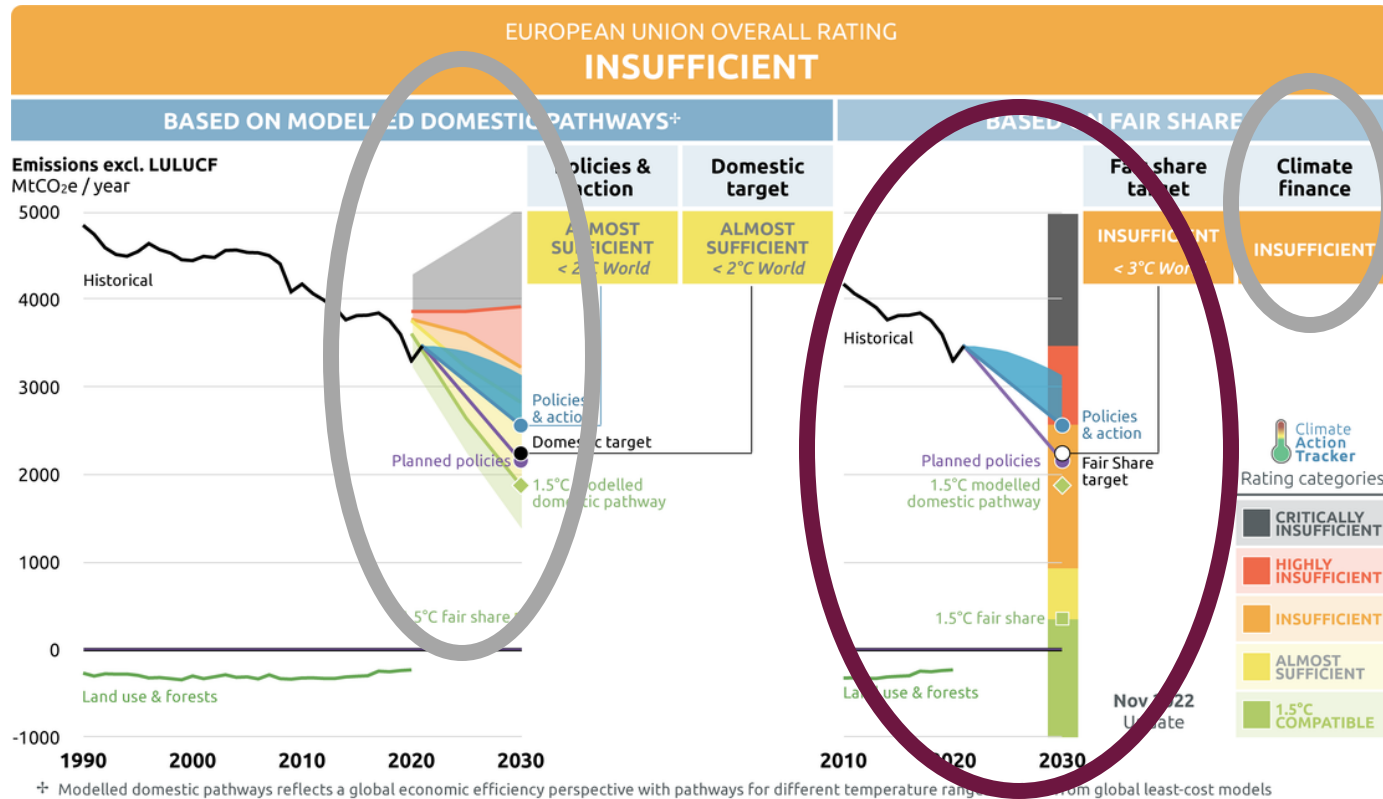
At Issue: Whether 33 countries had violated children and youth's human rights for failing to take sufficient climate action.

Request for emissions objectives based on the scientific literature:



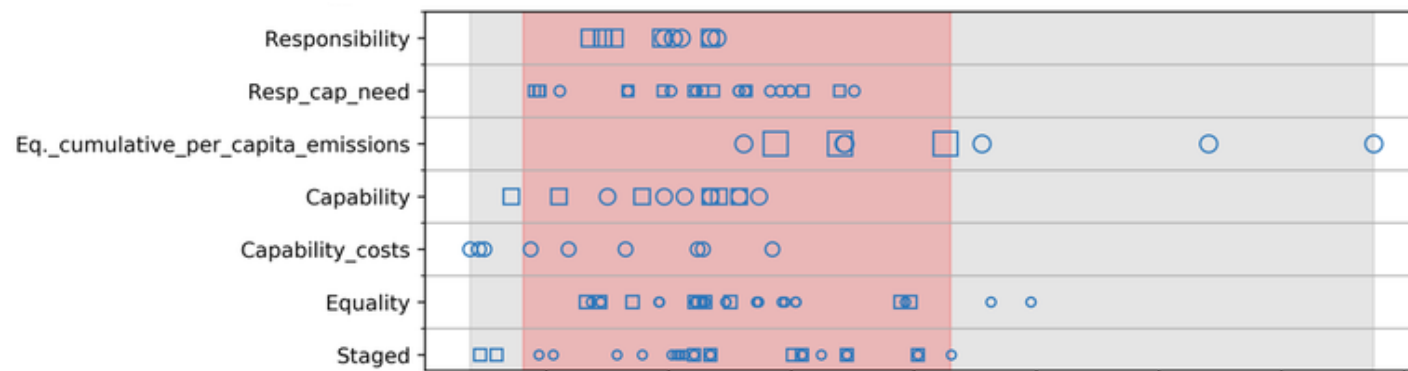
Rajamani et al., *National 'fair shares' in reducing greenhouse gas emissions within the principled framework of international environmental law*, *Climate Policy*. 2021

Portuguese youth case



Only fairness/equity metrics enable to assess the **ambition** of a country's total contribution that can be met through a combination of domestic mitigation and international support for global mitigation.

Domestic mitigation and climate finance can be seen as means of implementation of a whole target informed by fairness considerations.



Fair share ranges based on a broad literature and several concepts of fairness.

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Climate crisis

Ajit Niranjan

Tue 9 Apr 2024 14.25 CEST

Share

Human rights violated by Swiss inaction on climate, ECHR rules in landmark case

Court finds in favour of group of older Swiss women who claimed weak policies put them at greater risk of death from heatwaves



Older Swiss women win historic climate court ruling – video

Weak government climate policies violate fundamental human rights, the [European court of human rights](#) has ruled.

In a landmark decision on one of three major climate cases, the first such rulings by an international court, the ECHR raised judicial pressure on governments to stop filling the atmosphere with gases that make extreme weather more violent.

The court's top bench ruled that [Switzerland](#) had violated the rights of a

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Bullish Iran hails attack on Israel as a success and says operation is over



Live Iran attack on Israel takes Middle East to 'edge of a precipice', says German foreign minister - live



'My hoo haa is gonna be out': US Olympians slam Nike for skimpy women's track kit



Iran warns it will strike again with greater force if Israel or US retaliate



Revealed: the picture sneaked by employee into a German gallery

KlimaSeniorinnen v Switzerland (ECtHR)

Filing Date: 2020

Reporter Info: Application no. 53600/20

Status: Decided

Case Categories: [Suits against governments](#) > [Human Rights](#) > [Other](#)
[Suits against governments](#) > [GHG emissions reduction and trading](#) > [Other](#)
Jurisdictions: [European Court of Human Rights](#)
Principal Laws: [International Law](#) > [European Convention on Human Rights](#)

Summary:

For a summary of the Swiss case, see [here](#).

After having exhausted all national remedies available, with the final decision from the Swiss Supreme Court communicated to the parties in May 2020, on November 26, 2020 an association of senior women (Senior Women for Climate Protection Switzerland) took the Swiss government to the European Court of Human Rights because their health is threatened by heat waves made worse by the climate crisis. They also requested the case to be treated under the expenditure procedure pursuant to Article 41 of the Rules of the Court.

The application listed three main complaints: Switzerland's inadequate climate policies violate the women's right life and health under Articles 2 and 8 of the ECHR; the Swiss Federal Supreme Court's rejected their case on arbitrary grounds, in violation of the right to a fair trial under Article 6; and the Swiss authorities and courts did not deal with the content of their complaints, in violation of the right to an effective remedy in Article 13.

The ECtHR preliminary accepted the case and communicated it to the Swiss government on March 25, 2021. The ECtHR gave the case priority status and called on Switzerland to submit a response by July 16, 2021, which was timely filed.

On September 21, 2021, the International Commission of Jurists (ICJ) and the Swiss Section of the ICJ submitted a third-party intervention providing observations on the effects of climate change on the right to life and the right to respect for private and family life and for the home and the positive obligations of States resulting from these rights, in light of principles of international environmental law, among other issues. The European Network of National Human Rights Institutions (ENNHRI) also submitted a third-party intervention.

On October 13, 2021, the petitioner replied to the Swiss government's response to the ECtHR, arguing that the Swiss government failed to protect the Applicants' rights to life and private life under Arts. 2 and 8 ECHR, by failing to adopt the necessary legislative and administrative framework to do its share to prevent a global temperature increase of more than 1.5°C above pre-industrial levels.

On April 26, 2022, the Chamber of the European Court of Human Rights relinquished jurisdiction in favor of the Grand Chamber of the Court. The case is now going to be examined by the ECtHR's Grand Chamber of 17 judges on account of the fact that the case raises a serious question affecting the interpretation of the Convention (Art 30 ECHR).

On December 2, 2022, the applicants submitted a petition highlighting observations on the facts, admissibility and the merits. On December 5, 2022, several organizations, including the Sabin Center for Climate Change Law, submitted third party interventions to the case. Hearings were held in March 2023.

On April 9, 2024, the European Court found a violation of the right to respect for private and family life (Article 8) and access to court (Article 6 § 1). The Court found that Article 8 of the Convention encompasses a right to effective protection by the State authorities from the serious adverse effects of climate change on lives, health, well-being and quality of life. The Court found that Switzerland failed to comply with its positive obligations under the Convention concerning climate change, with critical gaps in establishing a relevant domestic regulatory framework, including through a carbon budget or national GHG emissions limitations. Switzerland had also failed to meet its past GHG emission reduction targets.

While recognizing that national authorities enjoy wide discretion concerning the implementation of legislation and measures, the Court held that the Swiss authorities had not acted in time and in an appropriate way to devise, develop, and implement relevant legislation and measures in this case. In addition, the Court found that Article 6 § 1 of the Convention applied to the applicant association's complaint concerning effective implementation of the mitigation measures under existing domestic law.

At Issue: Adequacy of Swiss government's climate change mitigation targets and implementation measures and possible infringement on human rights.

Case Documents:

FILING DATE	TYPE	FILE	SUMMARY
11/26/2020	Application	Download	Application to the European Court of Human Rights
03/25/2021	Order	Download	Court communication letter to the Swiss government (in English)

At Issue: Adequacy of Swiss government's climate change mitigation targets and implementation measures and possible infringement on human rights.

- The European Court found a violation of the right to respect for **private and family life and access to court**.
- The Court found that [...] the Convention encompasses a right to effective protection by the State authorities from the serious adverse **effects of climate change on lives, health, well-being and quality of life**.
- The Court found that Switzerland failed to comply with its positive obligations under the Convention concerning climate change, with **critical gaps in** establishing a relevant domestic regulatory framework, including through **a carbon budget or national GHG emissions limitations**.
- Switzerland had also **failed to meet its past GHG emission reduction targets**.

Environment and Development Economics 18, 517–536 © Cambridge University Press 2013
doi:10.1017/S1355770X13000284

Climate policy and equity principles: fair burden sharing in a dynamic world

LUCAS BRETSCHGER

Centre of Economic Research at ETH Zurich (CER-ETH), ZUE F7,
CH-8092 Zurich, Switzerland.
Tel: +41 44 632 21 92. Fax: +41 44 632 13 62.
Email: lbretschger@ethz.ch

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29 May 2013

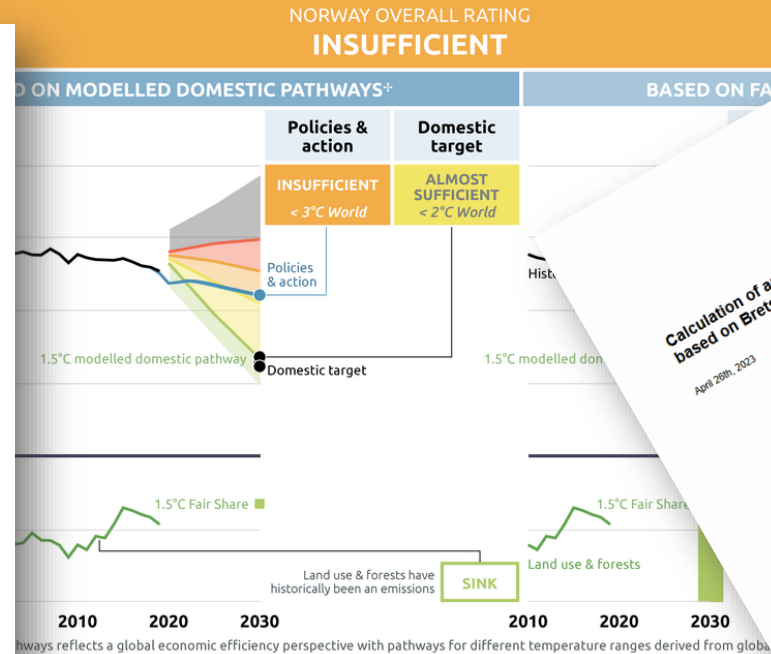
ABSTRACT. The paper argues that negotiation costs can prevent the international community from finding a new international climate agreement. To define a feasible way of facilitating the negotiation process, I analyze basic equity principles and their relationship to climate policy and economic development. Based on the most relevant principles, I propose a general synthetic rule for burden sharing in international climate policy. The rule avoids complexity and comprises both egalitarian and cost-sharing aspects, which appears to be crucial for achieving a climate agreement. Carbon budgets for the different countries are calculated under different parameter assumptions.

1. Introduction

The task of reaching a new international climate agreement is difficult due to specific conditions affecting costs and benefits of the different countries. First, perceived costs of climate mitigation are substantial, because fossil fuels are still widely used in most economies.¹ This stands in sharp contrast to the successful Montreal Protocol on the ozone layer, where the costs of protection were small (and the benefits were large). Second, the negative effects of climate change are unevenly distributed across the different countries. Specifically, many low-developed countries are most vulnerable to climate change due to their geographical location and dependence on agriculture (see World Bank, 2010). Also, adaptation to changing climate

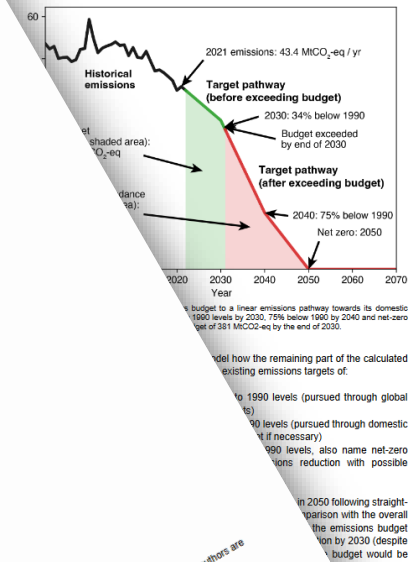
¹ A survey of the costs according to 10 of the world's leading integrated assessment models is given in Clarke *et al.* (2009); for the costs in a fully dynamic model, see Bretschger *et al.* (2011).

The author thanks Max Meulemann, Stefan Rucht, Pierre Lasserre, Julien Diakoures, Martin Stadelmann, Philippe Thalmann and two anonymous referees for valuable comments and Laura Ochoa for providing technical assistance with the data.



Calculation of an emissions budget for Switzerland based on Bretschger's (2012) methodology

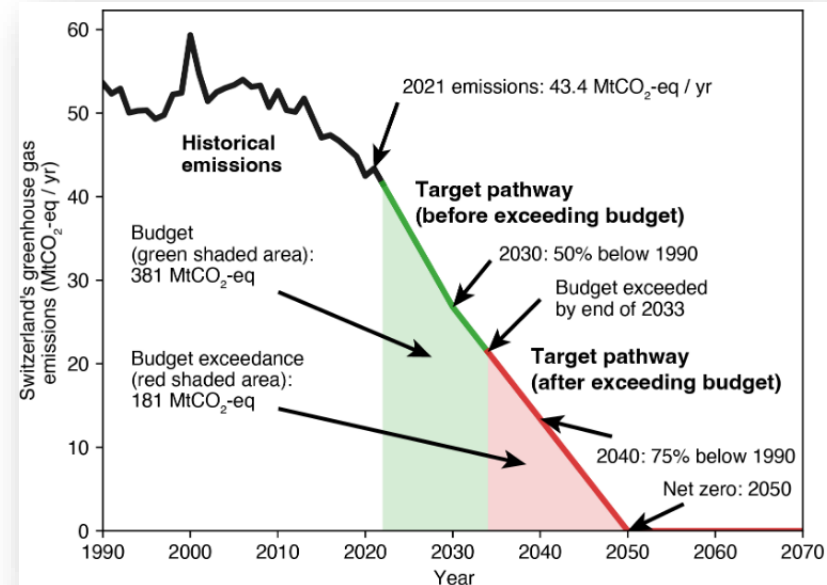
April 20th, 2023



Dr. Yann Robiou du Pont,
Dr. Zsófia Nicholls
The scientific report is based on the most recent and best available science. The authors are
uninfluenced as to form or content by the exigencies of litigation.



Calculation of an emissions budget for Switzerland based on Bretschger's (2012) methodology Robiou du Pont, Nicholls, 2023



GRAND CHAMBER

CASE OF VEREIN KLIMASENIORINNEN SCHWEIZ AND OTHERS v. SWITZERLAND

(Application no. [53600/20](#))

Switzerland had a 50% reduction target by 2030, and net-zero by 2050, yet:

“The expert report calculated that, based on Switzerland’s current and planned emission reduction targets, this **budget would be depleted by between 2030 and 2033.**”

“For Switzerland to stay within the budget as defined by the methodology of the **Policy Brief**, it would need to achieve **net-zero emissions by 2040**, and thus well before its current target of net zero by 2050.”

“In any event, there was no established methodology to determine a country’s **carbon budget** or a country’s “fair share”.^[180] Switzerland had not determined a specific carbon budget [...]” <https://hudoc.echr.coe.int/eng?i=001-233206>

KlimaSeniorinnen v Switzerland (ECtHR)

Filing Date: 2020

Reporter Info: Application no. 53600/20

Status: Decided

Case Categories: [Suits against governments](#) > [Human Rights](#) > [Other](#)
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The application listed three main complaints: Switzerland's inadequate climate policies violate the women's right life and health under Articles 2 and 8 of the ECHR; the Swiss Federal Supreme Court's rejected their case on arbitrary grounds, in violation of the right to a fair trial under Article 6; and the Swiss authorities and courts did not deal with the content of their complaints, in violation of the right to an effective remedy in Article 13.

The ECtHR preliminary accepted the case and communicated it to the Swiss government on March 25, 2021. The ECtHR gave the case priority status and called on Switzerland to submit a response by July 16, 2021, which was timely filed.

On September 21, 2021, the International Commission of Jurists (ICJ) and the Swiss Section of the ICJ submitted a third-party intervention providing observations on the effects of climate change on the right to life and the right to respect for private and family life and for the home and the positive obligations of States resulting from these rights, in light of principles of international environmental law, among other issues. The European Network of National Human Rights Institutions (ENNHR) also submitted a third-party intervention.

On October 13, 2021, the petitioner replied to the Swiss government's response to the ECtHR, arguing that the Swiss government failed to protect the Applicants' rights to life and private life under Arts. 2 and 8 ECHR, by failing to adopt the necessary legislative and administrative framework to do its share to prevent a global temperature increase of more than 1.5°C above pre-industrial levels.

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While recognizing that national authorities enjoy wide discretion concerning the implementation of legislation and measures, the Court held that the Swiss authorities had not acted in time and in an appropriate way to devise, develop, and implement relevant legislation and measures in this case. In addition, the Court found that Article 6 § 1 of the Convention applied to the applicant association's complaint concerning effective implementation of the mitigation measures under existing domestic law.

At Issue: Adequacy of Swiss government's climate change mitigation targets and implementation measures and possible infringement on human rights.

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03/25/2021	Order	Download	Court communication letter to the Swiss government (in English)
04/26/2021	Order	Download	Subject matter of the case and questions attached to the communication letter (in French)
07/16/2021	Reply	Download	Swiss Government's reply on admissibility and merits

“The Court also takes note of **the applicant association’s reference to several studies suggesting deficiencies in Switzerland’s measures to tackle climate change**, which the Government challenged, considering them to be **based in essence on subjective hypotheses**.

[...] **the Court does not find it necessary for its determination of the present case to resolve the disagreements** between the parties concerning the findings made in those studies.”

What now?

⇒ **The Court does not want to decide on how to define ‘fair-shares’ and determine emissions targets.**

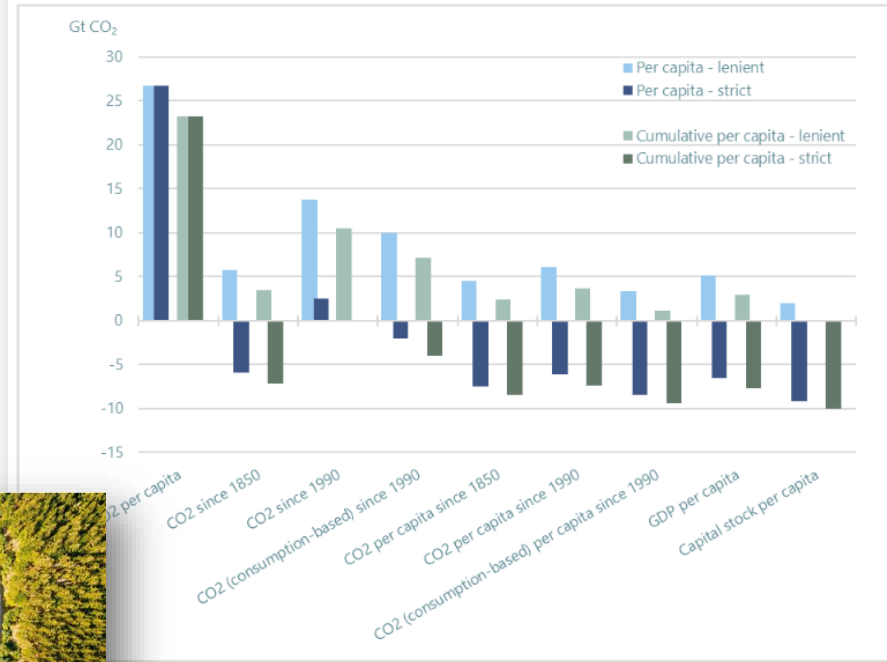
⇒ **Government is to explain how its targets limit emissions in line with the Paris-Agreement CBDR-RC (responsibility and capability).**

⇒ **Different reference to establish breach and remedy**

What strategic developments?

What reference for fair shares?

Figure 3 EU fair share carbon budget estimates from 2020, according to different principles and allocation methods



Second option the EU Scientific Advisory Board

- “The Advisory Board assessed the fairness of the EU’s contribution under different ethical principles. **Under some of these principles, the EU has already exhausted its fair share of the global emissions budget.**
- Because none of the assessed pathways towards climate neutrality fully align with the fair share estimates, additional measures need to be pursued to account for this shortfall. [...]
- Support, **cooperation and partnerships outside the EU can address the shortfall between the EU’s fair share and the recommended feasible budget.**
- but methods not peer-reviewed (yet) and many approaches



Scientific advice for the determination of an EU-wide 2040 climate target and a greenhouse gas budget for 2030–2050



What about Norway?

Norway's first NDC – no equity

Claimed to be based on science (Table 6.4, IPCC AR5 WG3) but uses economic-based distribution of effort, instead of the equity principle of the Paris Agreement (Article 2).

Therefore, **this NDC does not meet the requirement to explain how the target is fair and ambitious**. Equity based metrics, that serve to assess national ambition, find Norway's NDC insufficient.

Table 6.4 | Regional peak year of CO₂ emission and emissions reductions in 2030 over 2010, for 430–530 and 530–650 ppm CO₂eq scenarios. Negative values for emissions reductions indicate that 2030 emissions are higher than in 2010. Figures are averages across models. The numbers in parenthesis show the interquartile range across scenarios. The number of underlying scenarios is the same as in Figure 6.9. Source: WG III AR5 Scenario Database (Annex II.10), idealized implementation and default technology scenarios.

		OECD-1990	ASIA	LAM	MAF	EIT
Peak year of emissions	430–530 ppm CO ₂ eq	2010 (2010/2010)	2020 (2015/2030)	2015 (2010/2020)	2020 (2010/2030)	2014 (2010/2015)
Peak year of emissions	530–650 ppm CO ₂ eq	2014 (2010/2015)	2030 (2030/2030)	2020 (2010/2030)	2034 (2020/2040)	2016 (2010/2020)
2030 Emission reductions w.r.t. 2010	430–530 ppm CO ₂ eq	32 % (23/40 %)	–1 % (–15/14 %)	35 % (16–59 %)	8 % (–7/18 %)	32 % (18/40 %)
2030 Emission reductions w.r.t. 2010	530–650 ppm CO ₂ eq	14 % (6/21 %)	–34 % (–43/–26 %)	9 % (–17/41 %)	–22 % (–41/–12 %)	8 % (–5/16 %)

Norway's statement on fairness in second NDC – grandfathering

“Norway's approach to consider fairness and ambition is to assess how its nationally determined contribution contributes to meeting the global long-term goal of the Paris Agreement. The scientific basis for such an assessment is the recent IPCC reports. The 5th Assessment Report shows that scenarios that are likely to limit global warming below 2°C require that **global emissions** must be reduced by 40 to 70% by 2050 compared to 2010 levels.

The IPCC special report on the impacts of global warming of 1.5°C shows pathways that limit global warming to 1.5°C with no or limited overshoot. They describe a 40 - 50 % reduction in net anthropogenic GHG emissions by 2030 compared to 2010 levels, and net anthropogenic CO₂ emissions reaching net zero around 2050 (2045 – 2055) accompanied by the reductions in non-CO₂ emissions.

Norway's nationally determined contribution is in line with the emissions pathways towards 2050 and onwards that correspond to keeping global warming in line with the global long-term goal of the Paris Agreement.”

... but how?



What about oil and gas?

People v. Arctic Oil

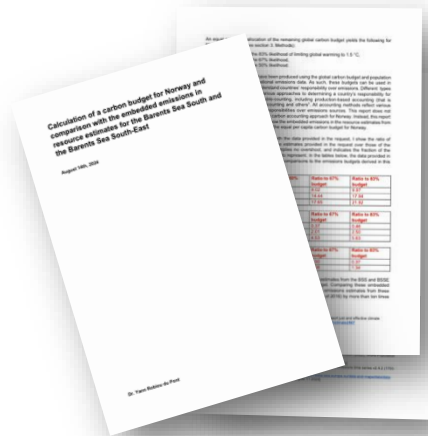


The case challenges **the lack of impact assessment related to climate change for Oil&Gas exploration projects**, it is NOT about economy-wide reduction and NOT only about territorial emissions.

⇒ Globally, “Existing fossil fuel extraction would warm the world beyond 1.5°C” (Tout, Muttitt et al., 2022) = **No new exploration**

⇒ Equal per-capita approach of the remaining budget does not assume emissions scope and can be compared to the embedded reserves.

What is Norway’s share of responsibility over exported harm?



Barents Sea South	Total MtCO2	Ratio to 50% budget	Ratio to 67% budget	Ratio to 83% budget
Min	2880	6.71	8.02	9.97
Median	5184	12.08	14.44	17.94
Max	6336	14.77	17.65	21.92

Barents Sea South East	Total MtCO2	Ratio to 50% budget	Ratio to 67% budget	Ratio to 83% budget
Min	132	0.31	0.37	0.46
Median	722	1.68	2.01	2.50
Max	1627	3.79	4.53	5.63

Barents Sea South East	Total MtCO2	Ratio to 50% budget	Ratio to 67% budget	Ratio to 83% budget
Low scenario	106.9	0.25	0.30	0.37
High scenario	388.0	0.90	1.08	1.34

People v. Arctic Oil

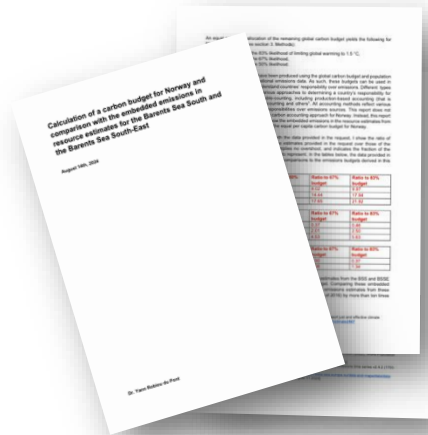


“the ECtHR found ‘**attributable**’ to Switzerland the GHG emissions taking place abroad, ‘**embedded**’ into goods” (Vidigal Sarbin Center, 2024)

The fields represent at least **7 times the remaining equal per capita carbon budget** (as of 2016)

In addition, the combustion emissions from Norwegian oil and gas from 2016 to 2022 were about 3218 MtCO₂, which overshoots

- the equal per capita budget based on an 83% likelihood of limiting global warming to 1.5 °C **with a ratio of more than 11.13**,
- the budget based on a 67% likelihood **with a ratio of 8.96**, and
- the budget with a 50% likelihood **with a ratio of 7.50**

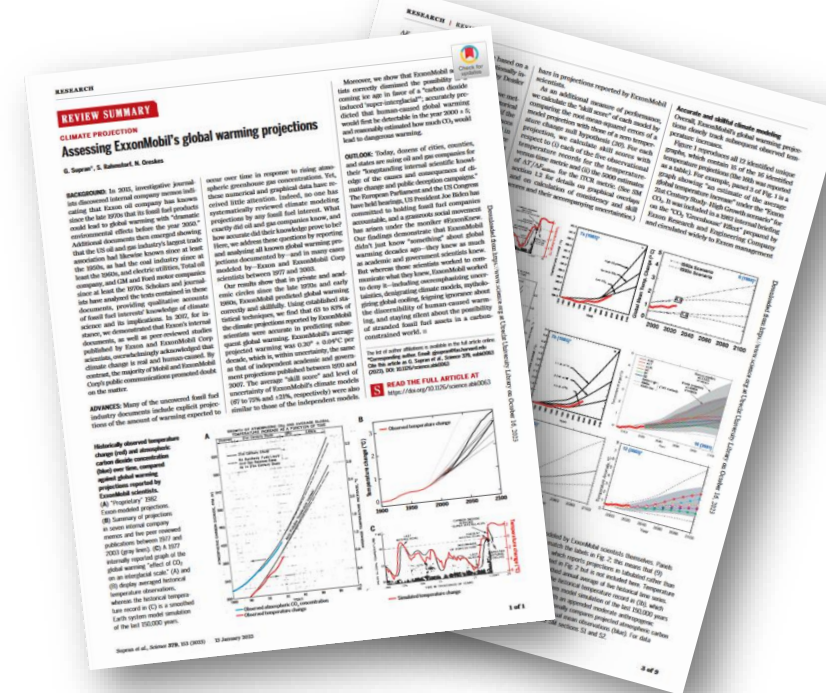


- ⇒ **Accounting for only a 15% responsibility over embedded emissions in the fields would overshoot the budget**
- ⇒ **Is there a percentage of shared responsibility over embedded emissions?**

What about corporate litigation?

Revealed: the 20 firms behind a third of all carbon emissions

New data from world-renowned researchers reveals how this cohort of state-owned and multinational firms are driving the climate emergency that threatens the future of humanity, and details how they have continued to expand their operations despite being aware of the industry's devastating



Supran *et al.* show that one of those fossil fuel companies, **ExxonMobil**, **had their own internal models that projected warming trajectories** consistent with those forecast by the independent academic and government models.

What they understood about climate models thus contradicted what they led the public to believe.

Court orders Royal Dutch Shell to cut carbon emissions by 45% by 2030

Oil giant told plans should be brought into line with Paris climate agreement



Donald Pols, director of Milieudefensie, an environmental group, reacts after the verdict at the Hague.
Photograph: Piroshka van de Wouw/Reuters

A court in the Hague has ordered **Royal Dutch Shell** to cut its global carbon emissions by 45% by the end of 2030 compared with 2019 levels, in a landmark case brought by Friends of the Earth and over 17,000 co-plaintiffs.

The oil giant's sustainability policy was found to be insufficiently "concrete" by the Dutch court in an unprecedented ruling that will have wide implications for the energy industry and other polluting multinationals.

The Anglo-Dutch company was told it had a duty of care and that the level of emission reductions of **Shell** and its suppliers and buyers should be brought into line with the Paris climate agreement.

Personal interpretation:

It needs to be "a" solution, it can a floor ask

The ask must be easy to understand by the court and public

It needs to be relatable to science (but not necessarily scientific)

It must be replicable to be normative

It does not need to aligned with the best available science, (cost) efficient relevant economically

⇒ **This leaves room for strategic ask setting**

⇒ **But should scientist help lawyers or courts?**

BUSINESS | NETHERLANDS

Dutch government angered over Shell's plan to move HQ to UK

11/15/2021

The oil giant has announced it will take up a new tax residency and remove "Royal Dutch" from its name. The relocation follows a Dutch court order to slash its emissions by 2030.



Court orders Royal Dutch Shell to cut carbon emissions by 45% by 2030

Oil giant told plans should be brought into line with Paris climate agreement



Donald Pols, director of Milieudefensie, an environmental group, reacts after the verdict at the Hague. Photograph: Piroshka van de Wouw/Reuters

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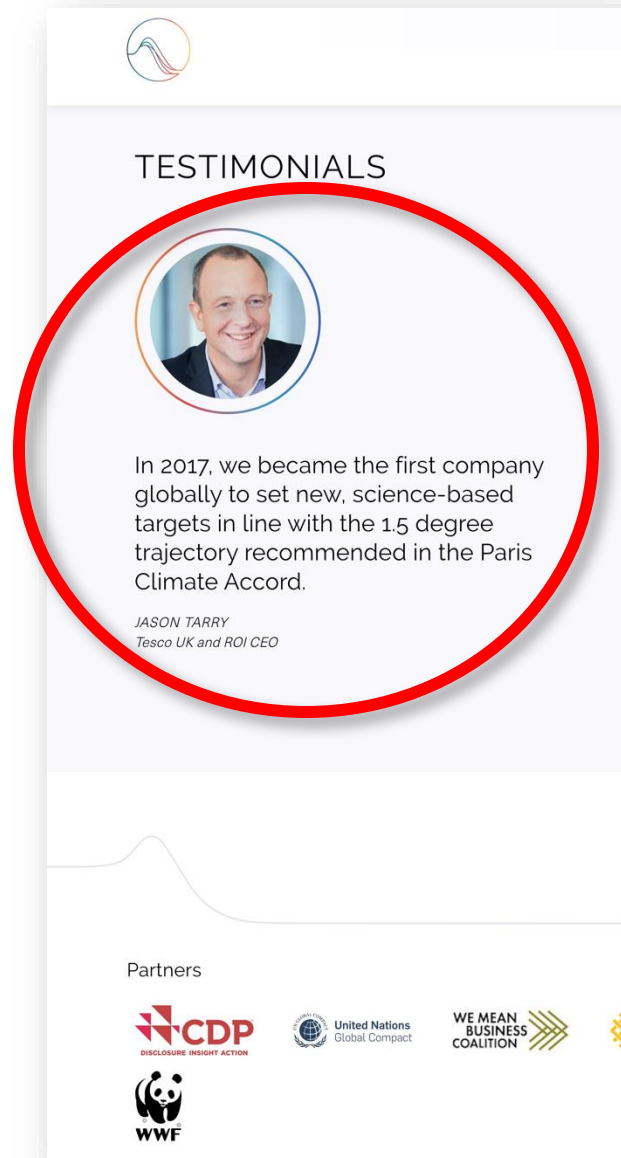
Initially, Shell should reduce by 45% because the world should reduce its emissions by 45%

- Imposing a 45% reduction to all actors **adds up to a 45% collective reduction only if all existing actors comply** (which is consistent with a ruling applicable to all but ignores market dynamics)
- "reasonable to expect oil and gas companies to take into account the negative consequences of a further expansion of the supply of fossil fuels for the energy transition also when investing in the production of fossil fuels. Shell's planned investments in new oil and gas fields may be at odds with this."




“Science-Based” Targets?

- ⇒ Science Based Targets applies a simple **top-down grandfathering approach** to determine individual corporate targets
- ⇒ Voluntary emissions pledges are found to correlate with **increased climate action**, but causation is not established
- ⇒ But is it enough? Is it **science-based**?



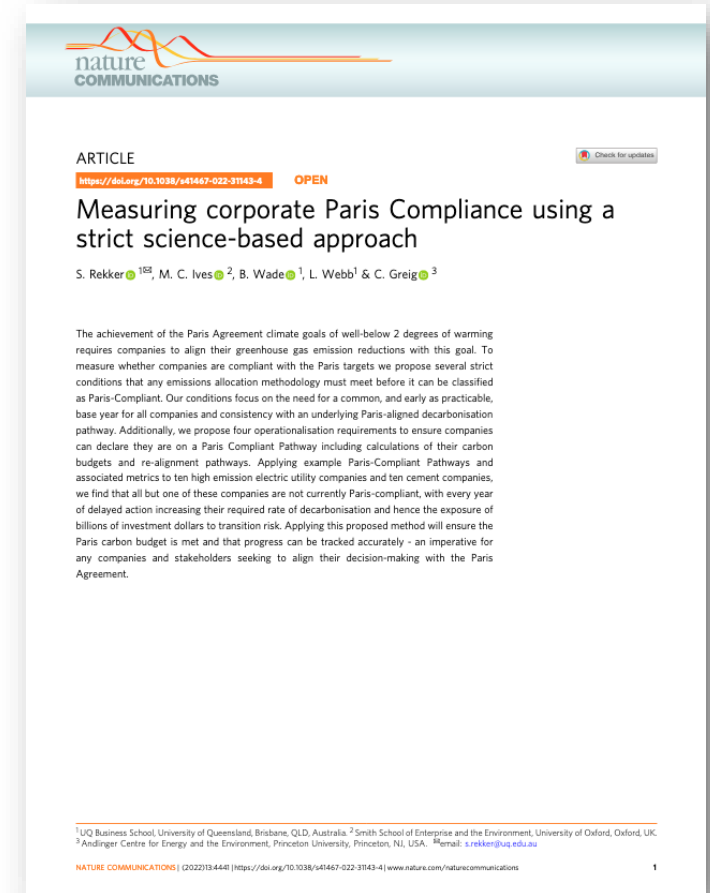

TESTIMONIALS



In 2017, we became the first company globally to set new, science-based targets in line with the 1.5 degree trajectory recommended in the Paris Climate Accord.

JASON TARRY
Tesco UK and ROI CEO

Partners



nature COMMUNICATIONS

ARTICLE <https://doi.org/10.1038/s41467-022-31143-4> OPEN

Measuring corporate Paris Compliance using a strict science-based approach

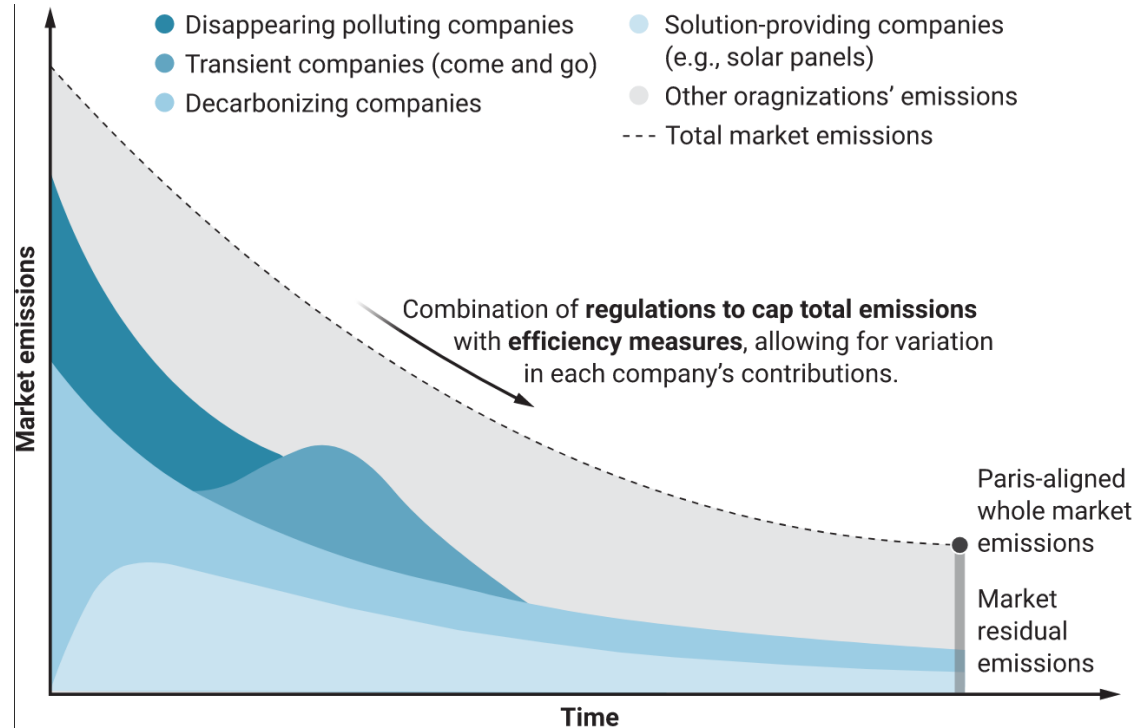
S. Rekker^{1,2}, M. C. Ives², B. Wade¹, L. Webb¹ & C. Greig³

The achievement of the Paris Agreement climate goals of well-below 2 degrees of warming requires companies to align their greenhouse gas emission reductions with this goal. To measure whether companies are compliant with the Paris targets we propose several strict conditions that any emissions allocation methodology must meet before it can be classified as Paris-Compliant. Our conditions focus on the need for a common, and early as practicable, base year for all companies and consistency with an underlying Paris-aligned decarbonisation pathway. Additionally, we propose four operationalisation requirements to ensure companies can declare they are on a Paris Compliant Pathway including calculations of their carbon budgets and re-alignment pathways. Applying example Paris-Compliant Pathways and associated metrics to ten high emission electric utility companies and ten cement companies, we find that all but one of these companies are not currently Paris-compliant, with every year of delayed action increasing their required rate of decarbonisation and hence the exposure of billions of investment dollars to transition risk. Applying this proposed method will ensure the Paris carbon budget is met and that progress can be tracked accurately - an imperative for any companies and stakeholders seeking to align their decision-making with the Paris Agreement.

¹UQ Business School, University of Queensland, Brisbane, QLD, Australia. ²Smith School of Enterprise and the Environment, University of Oxford, Oxford, UK. ³Andlinger Centre for Energy and the Environment, Princeton University, Princeton, NJ, USA. [✉]email: s.rekker@uq.edu.au

NATURE COMMUNICATIONS | (2022)13:4442 | <https://doi.org/10.1038/s41467-022-31143-4> | www.nature.com/naturecommunications

Assessing corporate ambition



For companies, as actors of a competitive market, the ambition of companies' objectives **cannot be measured by emissions objectives** without assuming future market composition.

Assessing Paris-alignment for companies (including for the CSDDD) needs to consider **more than emissions targets**.

Conceptually, **we do not know what is needed from individual companies in the transition**.

⇒ Rather than quantifying Paris-aligned objectives, we can determine what objectives/activities are **Paris-misaligned**

Corporate emissions targets and the neglect of future innovators

Robiou du Pont, Rogelj, Hsu, van Vuuren, Hoepner

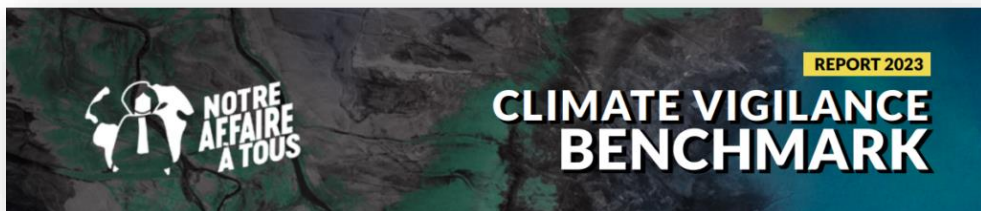
Science, 2024





Implication for litigation against companies?

- ⇒ Can be used to characterize **greenwashing** for claims of objectives being 1.5°C-alignment, Paris-Alignment, net-zero alignment, sustainable etc.
- ⇒ **Difficulty for companies to demonstrate compliance with the CSDDD**
- ⇒ But corporate **objectives can be Paris-incompatible/misaligned**
- ⇒ Useful given the burden of proof on litigants to **establish breach** by corporations
 - ⇒ E.g. **no new fossil fuel exploration** (as case v. TotalEnergies)
 - ⇒ Externalities? **Ecomap.org** shows the costs incurred by companies' emissions, sometimes exceeding their profit, leading to a net negative contribution to the economy.



Shell defeats landmark climate ruling ordering cut in carbon emissions

Oil and gas company had challenged 2021 ruling that it must reduce greenhouse gas emissions by 45% by 2030

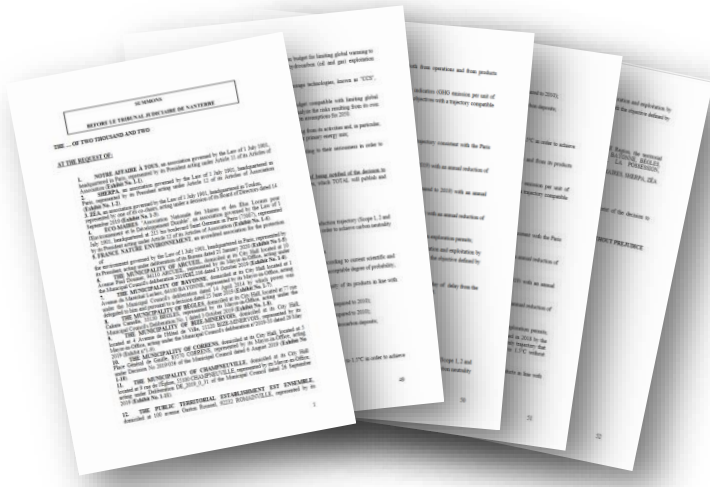


Winnie Oussoren and Donald Pols, of the NGO Milieudefensie, attend the court session in The Hague hearing Shell's appeal. Photograph: Yves Herman/Reuters

Shell has won its appeal against a landmark climate judgment by a Dutch court, which in 2021 ordered the fossil fuel company to sharply reduce its greenhouse gas emissions.

A court of appeal ruled on Tuesday that, while Shell does have a “special responsibility” to cut its emissions as a big oil company, this would not be achieved by imposing a specific legal goal.

In November 2024, Shell’s appeal ruling reflects our understanding of individual companies’ obligations



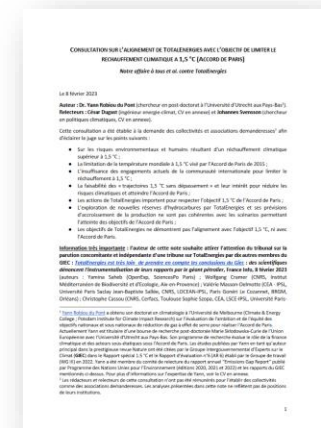
Emissions

- Aligning carbon intensity, and Scope 1, 2 and 3 to 1.5°C without overshoot & neutrality by 2050 ("P1")
- Minimizing its net emissions by 40% by 2040 (compared to 2019)
- Reducing its hydrocarbon production by 35% in 2040 (compared to 2019)

Production

- Putting an end to the exploration and solicitation of new hydrocarbon permits
- Implementing a gradual cessation, by 2040, of hydrocarbon exploration and exploitation by committing to leave 80% of known reserves in accordance with the objective defined by Law n° 2017-1839 of December 30, 2017, known as "Hulot";
- Reducing gas production by 25% by 2030 and 74% by 2050 (compared to 2010);
- Reducing oil production by 37% by 2030 and 87% by 2050 (compared to 2010);
- Immediately ceasing the exploration and exploitation of new hydrocarbon deposits;

Consultation sur l'alignement de TotalEnergies avec l'objectif de limiter le réchauffement climatique à 1,5 °C (Accord de Paris). Robiou du Pont et al. 2023.



Welcome to EcoMap

The first search engine for the environmental cost of
companies, industries and countries

Try 'Equinor'...



Learn about the environmental cost of **21 industries**

A pro-bono project developed in collaboration with

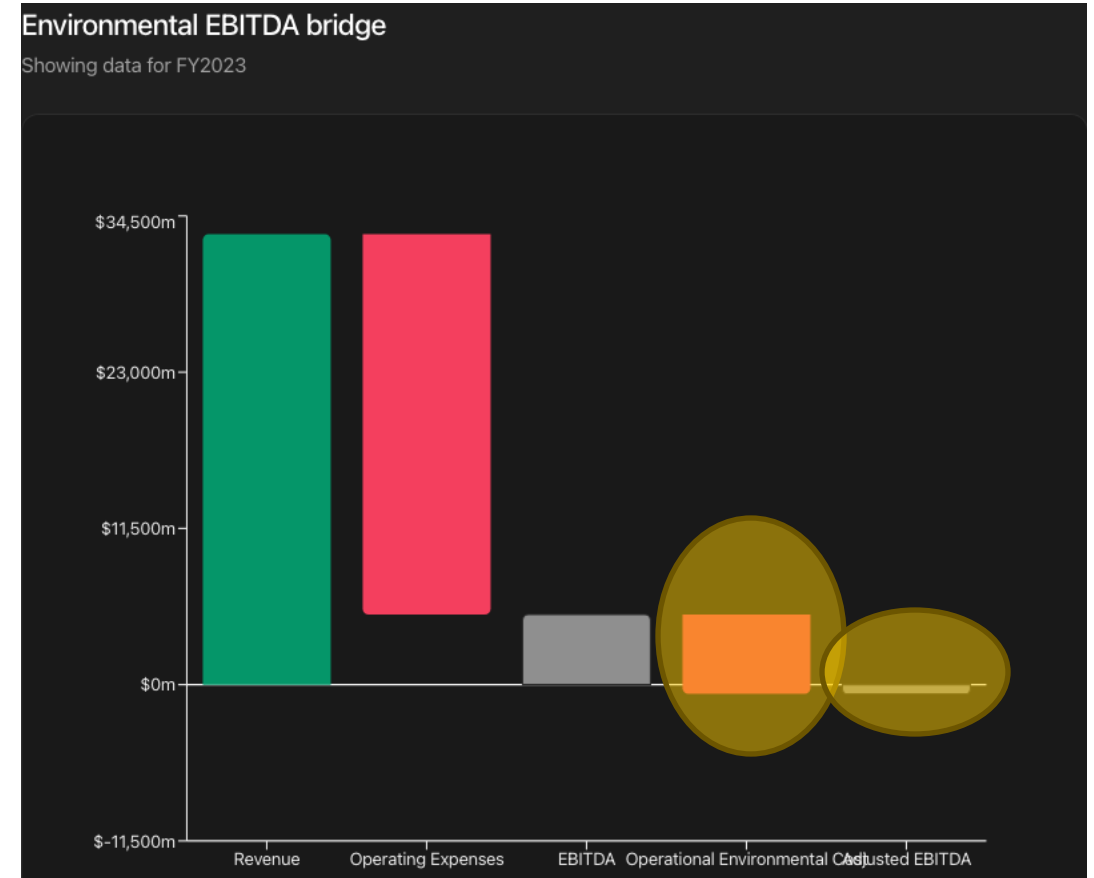


Data provided by MSCI ESG Research LLC

Environmentally corrected profit for 20,000 companies

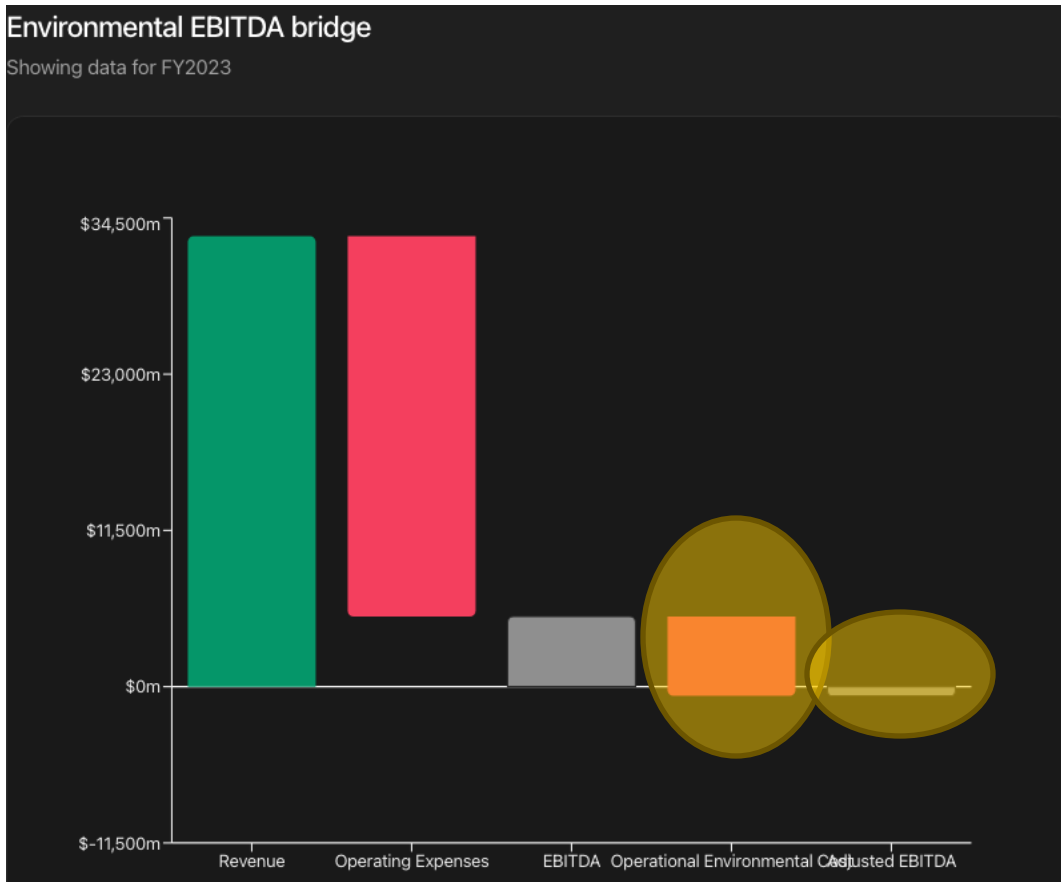
Ex: Air France / KLM

- ⇒ Negative profit (EBITDA) when accounting for the social cost of carbon
- ⇒ Collectively unsustainable, but how could it be translated at the company-level?



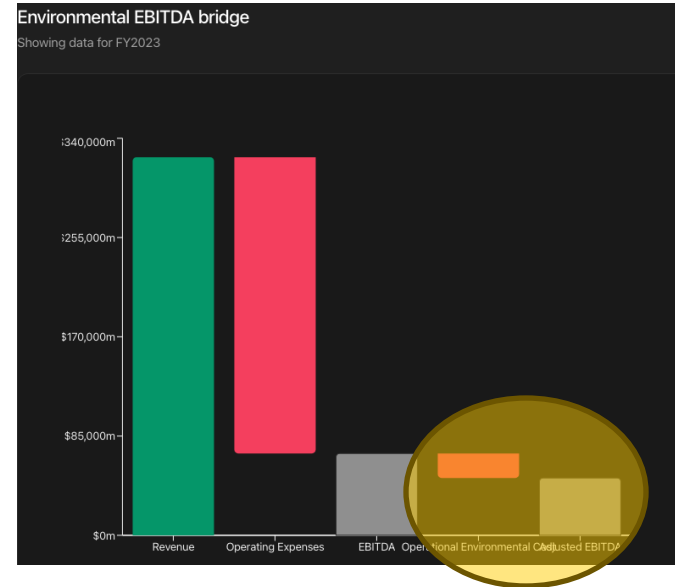
Air France / KLM

⇒ Its profit (EBITDA) is negative when accounting for the social cost of carbon

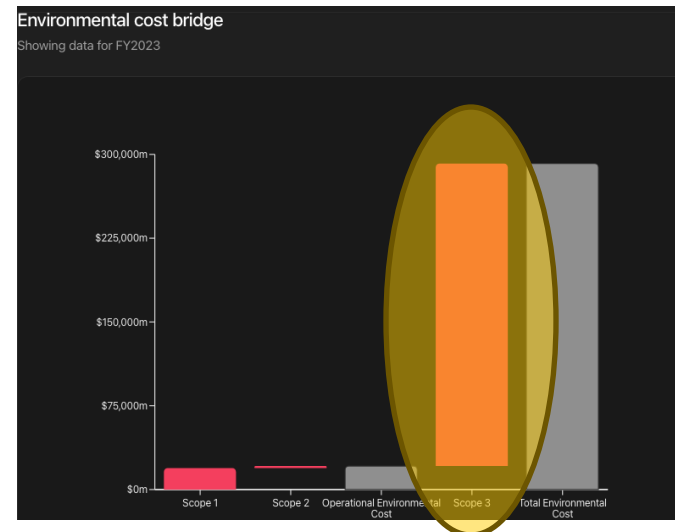


Shell

⇒ Positive profit (EBITDA) when accounting for the social cost of carbon of direct emissions



⇒ But... Very negative when accounting for embedded emissions (70 bn EBITDA vs. 292 bn of costs)



- Is it taking sides?
- **Importance of modelling choices**
- **Importance of writing clearly (simply)**
- Account for practitioners' norms
- Does not need to be politically acceptable, but...
- still feasible (subjective) => strategic litigation

Yann Robiou du Pont

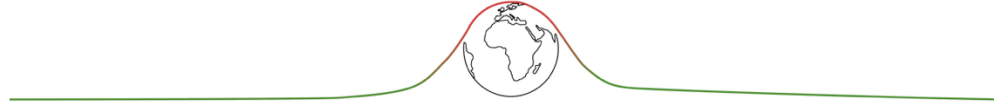
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Scientific assessment of fair and ambitious climate targets



ACTORS

How much effort should different actors contribute to reduce emissions?



Impacts

Explore the impact of our research on decisions making processes

