*Verein KlimaSeniorinnen and Others v Switzerland* (Application no. 53600/20)

Response to the Respondent's written answers to the questions communicated by the Court to the parties on 16 March 2023 to be addressed in their oral submission at the hearing before the Grand Chamber

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## 1. Introduction

1 By letter of 16 March 2023, the Court invited the parties to address specific questions in their oral submissions at the hearing on 29 March 2023. Instead, the Respondent submitted written answers (**"written answers"**) and material in support, including a Policy Brief by Prof. Dr. Lucas Bretscher from 2012[1] (**"Policy Brief"**) at Annex 1 and an internal working document commissioned by the Federal Office for the Environment (**"FOEN"**) titled "Klimawandel und das Paris Abkommen: Welcher NDC der Schweiz ist 'fair und ambitiös'?" from 2020 (**"internal working document"**) at Annex 2. This was only provided to the Applicants immediately before the hearing on 29 March 2023.

2 In order to reply to the Respondent's written answers, the Applicants have numbered the Respondent's written answers (see accompanying Annex document **"doc."** 1, referred to as **"Respondent, para."**).

3 This submission is limited to responding to the Government's written answers and, in so far as relevant, to the additional material filed.

## 2. Summary of the written answers of the Respondent to the Court's questions

4 The Respondent contends that Switzerland's emission targets constitute a fair contribution toward holding the global temperature below 1.5°C. It claims that its Nationally Determined Contribution (**"NDC"**) has been determined by reference to principles and indicators such as responsibility, capacity, Switzerland's small share of global emissions and the fact that its mitigation costs are high. This part of the Respondent's written answers can be characterised as the "qualitative assessment" of its "fair share." To substantiate its qualitative assessment, the Respondent submitted an internal working document which allegedly formed a basis of the NDC and which further sets out relevant principles and indicators for fairness.

5 The second part of the Respondent's written answers relates to what can be characterised as the "quantitative assessment" of its "fair share." This part addresses the question of whether it is possible to operationalise the principles and indicators of the qualitative assessment into concrete national carbon

[1] BRETSCHGER, Climate Policy and Equity Principles: Fair Burden Sharing in a Dynamic World, Center of Economic Research at ETH Zurich, Policy Brief 12/16, March 2012 (Respondent, Annex 1). It should be noted that this Policy Brief has been published in an updated version on the website of ETH Zurich in June 2012 (link) and in October 2013 after undertaking a peer review process in a further updated version in the journal Environment and Development Economics Vol. 18, No. 5, pp. 517–536 (link).

budgets and related emission targets. The Respondent alleges that because there is not one "agreed methodology,", all attempts at quantifying a "fair share" are inherently subjective, including the studies put forward by the Applicants. This is also why, according to the Respondent, the Intergovernmental Panel on Climate Change (**"IPCC"**) has refrained from proposing national budgets. The Respondent asserts that due to the lack of an agreed methodology, it cannot be required to provide a quantitative substantiation of the fairness of its emission reduction targets.

6 Despite challenging the concept of quantification of emission reduction targets, the Respondent put forward two bases on which it claims to have determined its emission reduction targets. The first is the Policy Brief from 2012, which purports to quantify national emission budgets for holding the global average temperature increase to below 2°C based on fairness principles. The second is the IPCC's global emission reduction pathways. The Respondent alleges that its emission targets are in line with these global emission reduction pathways, which would suffice to meet a "fair share" contribution towards the global mitigation limit of 1.5°C.

7 The Respondent then goes on to allege that the "fair share" contribution requested by the Applicants based on several studies is far too costly and thus is an inequitable burden for Switzerland.

## 3. Resolving fundamental misconceptions underlying the written answers of the Respondent

8 Three fundamental misconceptions underlie the Respondent's approach. First, that quantifications of "fair share" are inherently subjective. Secondly, that the Respondent cannot achieve the reduction requirements that derive from effort sharing studies, Thirdly, that average global emission reduction trajectories provide appropriate benchmarks for a country's emission reduction efforts.

### 3.1. A quantitative assessment of Switzerland's "fair share" is indispensable to determine the scope of the Respondent's obligation to protect

9 The importance of conducting a quantitative assessment of a country's "fair share" and indeed the feasibility of such a calculation can best be illustrated by reference to the Policy Brief, upon which Switzerland allegedly based its emissions targets. The Policy Brief defines emission budgets for selected countries, *but not for Switzerland*. To assess whether the methodology put

forward in the Policy Brief can indeed result in a national emission budget that would validate Switzerland's current and planned emission reduction targets, the Applicants commissioned an independent scientific report by two scientists with extensive experience in effort-sharing modelling (Dr. Yann Robiou du Pont and Dr. Zebedee Nicholls, "Calculation of an emissions budget for Switzerland based on Bretschger's (2012) methodology", 26 April 2023, **"Expert Report"**, doc. 2). The Expert Report applied the methodology of the Policy Brief to the remaining global 1.5°C budget from the IPCC's Sixth Assessment Report (**"AR6"**) and determined a remaining budget for Switzerland of **381 $MtCO_2eq$** from 1st Jan 2022 onwards. Notably, the Expert Report calculated that, based on Switzerland's current and planned emission reduction targets, this budget would be depleted **by 2030/2033** (Expert Report, Figures B and C). On the basis of its current and planned targets, Switzerland would apportion itself **0.2073%** of the remaining global $CO_2$ budget as of 2022, compared to a population share of **0.1099%** (Expert Report, p. 9). For Switzerland to stay within the budget as defined by the methodology of its "own" Policy Brief, it would need to achieve net-zero emissions **by 2040** (Expert Report, Figure A), and thus well before its current target of net-zero by 2050.

10 Furthermore, the Expert Report notes several shortcomings of the methodology in the Policy Brief which make it unsuitable to inform "fair share" targets for countries (below §51). The Applicants, on the other hand, have already submitted studies that base their results on a broad assessment of the existing literature and are for this reason a better basis to assess the fairness of Switzerland's targets (Observations of 2 December 2022 **"Obs."**, §§ 41-43). Despite these shortcomings in the Policy Brief, the Expert Report clearly shows that even when assessed against this methodology, the Respondent's climate strategy falls far short. Any quantitative assessment necessitates the conclusion that the remaining budget that Switzerland has apportioned to itself is too large for it to remain below the 1.5°C temperature limit.

11 Furthermore, contrary to what the Respondent alleges, the IPCC has engaged with assessments of effort-sharing methodologies, particularly in its Fourth and Fifth Assessment Reports (**"AR4"** and **"AR5"**; cf. Obs., §40). In its most recent AR6, the IPCC explicitly recognises the importance for countries to explain how fairness principles are "operationalised" and to express their targets in

terms of the portion of the remaining global budget,[2] which the Respondent has failed to do. The IPCC recognises that since the feasibility of agreeing on one methodology to divide the remaining carbon budget "within the climate change regime is low," the onus is on actors outside the regime to develop these, giving special attention to the role of Courts.[3] This is because as the IPCC set out: "it is 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."[4]

12 Clearly, and all the more so in the absence of any quantitative assessment, the determination of Switzerland's "fair share" of the remaining global emission budget is an appropriate way for Courts to determine the scope of the Respondent's duty to protect. The Respondent rightly does not claim otherwise in its written answers. Notably, the Dutch Courts for instance based their respective judgements in *Urgenda v. The Netherlands* on assessments of the then-existing literature on effort-sharing methodologies in the IPCC's AR4.[5] It recognized that in the absence of political decisions at the global level on emission reductions which are sufficient to collectively lead to holding the global temperature level below the appropriate level, it was for the courts to: "*assess whether the measures taken by the State are too little in the view of what is clearly the lower limit of its share in the measures to be taken worldwide against dangerous climate change.*"[6] The Procurator General of the Supreme Court in its Advisory Opinion recognised that such scientific studies are not binding in and of themselves, nor provided "cut-and-dried answers."[7] However, given the assessment was derived from the latest scientific studies and covered a "broad spectrum" of effort-sharing methodologies,[8] it could be

[2] IPCC, Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (**"AR6 WGIII"**), Chapter 14, p. 1468 (link).
[3] Ibid: "Equity and fairness concerns are being raised in national and regional courts that are increasingly being asked to determine if the climate actions pledged by states are adequate in relation to their fair share (The Supreme Court of the Netherlands 2019; European Court of Human Rights 2020; German Constitutional Court 2021), as it is 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."
[4] Ibid.
[5] The Hague District Court, Urgenda v. The Netherlands, ECLI:NL:RBDHA:2015:7196, 24 Jun. 2015 (link) and Dutch Supreme Court, Urgenda v. The Netherlands, ECLI:NL:HR:2019:2007, 20 Dec. 2019 (link).
[6] Dutch Supreme Court, Urgenda v. The Netherlands (n 5), §6.3 (link).
[7] Advisory Opinion on Cassation Appeal of the Procurator General in the Matter between the Netherlands v Urgenda ECLI:NL:PHR:2019:1026, 13 Sept. 2019 §4.129-4.137 (link).
[8] Ibid., §4.131.

considered a "reasoned proposal" that the Court was right to attach significance to in specifying the State's legal obligations under Arts. 2 and 8 ECHR.[9]

13 The German Federal Constitutional Court in *Neubauer and Others v Germany*[10] similarly engaged in a detailed manner with the science of determining a country's "fair share."[11] The Court acknowledged that there are several scientific methods for determining a State's necessary emissions reductions to hold global warming to a particular temperature limit, all of which entail uncertainties. Nevertheless, the Court found that:

*"this does not make it permissible under constitutional law for Germany's required contribution to be chosen arbitrarily. Nor can a specific constitutional obligation to reduce $CO_2$ emissions be invalidated by simply arguing that Germany's share of the reduction burden and of the global $CO_2$ budget are impossible to determine."*[12]

The Court particularly emphasised the importance of the carbon budgets as specified by the IPCC, stating that:

*"In view of the risk of irreversible climate change, the law must therefore take into account the IPCC's estimates on the size of the remaining global $CO_2$ budget and its consequences for remaining national emission budgets (...) if these point to a possibility of exceeding the constitutionally relevant temperature limit."*[13]

Based on a report on a national carbon budget by the German Advisory Council on the Environment, the Court concluded that under the legislated reduction targets, almost the entire carbon budget for Germany would be used up by 2030.[14] On this basis, the Court held that:

*"the legislator has violated its duty, arising from the principle of proportionality, to ensure that the reduction of $CO_2$ emissions to the point of climate neutrality that is constitutionally necessary under Art. 20a GG is spread out over time in a forward-looking manner that respects fundamental rights."*[15]

14 The studies provided by the Applicants provide an appropriate common ground on which the Applicants' request can be granted. Both the study of the Climate Action Tracker (**"CAT"**), as well as the study of Rajamani et al.[16] (Obs., §§41

[9] Ibid., §§4.133 and 4.137.
[10] BVerfG, Neubauer and Others v. Germany, 1 BvR 2656/18, 24 March 2021 (link).
[11] Ibid., §222-225.
[12] Ibid., §228
[13] Ibid., §229
[14] Ibid., §231.
[15] Ibid., §243.
[16] RAJAMANI ET AL., National 'fair shares' in reducing greenhouse gas emissions within the principled framework of international environmental law, Climate Policy 21:8, pp. 983–1004, 2021 (link) *(Obs., doc. 43)*

f.) built upon the assessment of effort-sharing studies as reported by the IPCC in its AR5, updated with more recent studies and historical data.[17] They therefore cover an even "broader spectrum" of effort-sharing methodologies as compared to the AR4 assessment which served as the basis of the Dutch Supreme Court's judgement. In contrast, the Respondent has not provided *any* quantified justification for the fairness of its emission target.

### 3.2. The "fair share" contribution requested by the Applicants does not put an inequitable burden on the Respondent

15 First of all, the requested level of net-negative emissions by 2030 by the Applicants is significantly less stringent than the result of the CAT and Rajamani et al. study (i.e. a reduction between 160% and 200% by 2030 below 1990 levels, Obs., §§41 f.). Moreover, the effort-sharing studies put forward by the Applicants only determine the "fair share" level of emission reductions for a country, and *not* whether these reductions need to be achieved *domestically*. Alleged technical difficulties and high costs of reducing emissions *within* the Respondent's territory are irrelevant to determine the level of responsibility for overall emission reductions,[18] which can also be achieved through supporting countries with lower levels of responsibility and capability.[19]

16 The Respondent is well aware of this, as is evident from the fact that it specifically plans to achieve its communicated goal of 50% reduction by 2030 compared to 1990 levels through purchasing emission reductions abroad (Obs., §34). Given that the Respondent is one of the wealthiest States globally, it can

[17] CAT, CAT rating methodology, fair share (link), contains a full description of the methodology and i.a. states: "The effort-sharing studies in the CAT's database include over 40 studies used by the 5th Assessment Report of the IPCC (chapter 6 of WG III, Höhne et al. (2013)), new studies that have been published since, and additional analyses the CAT has performed to complete the dataset." The Supplementary material of Rajamani et al. mentions: "The literature database for national emission levels based on effort sharing builds off that developed by Höhne et al (2014)and used in the IPCC WGIII AR5 report (Clarke et al., 2014) and used in the Climate Action Tracker (Ganti et al., in prep)" (link).

[18] RAJAMANI ET AL. (n 16), s2.3.1.

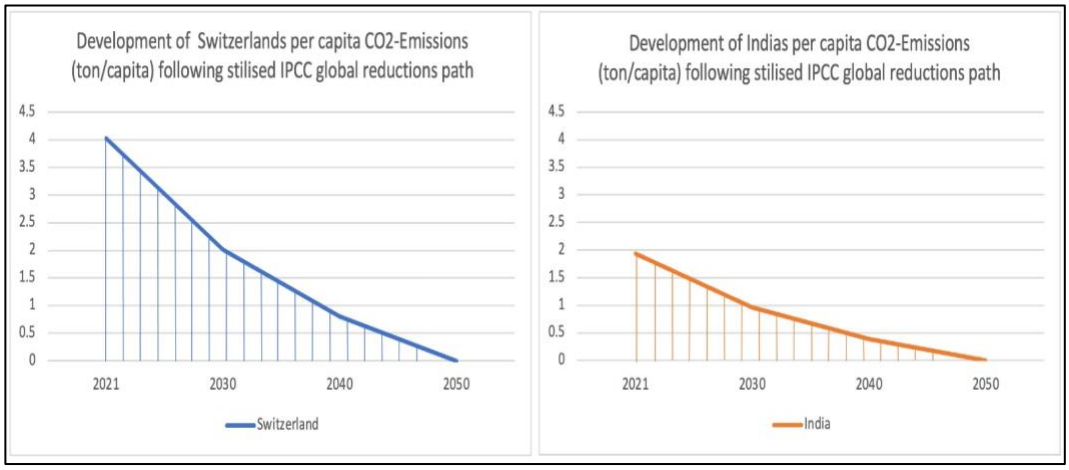
[19] See IPCC, Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (**"AR5 WGIII"**), Chapter 6, p. 457 (link): "A crucial consideration in the analysis of the aggregate economic costs of mitigation is that the mitigation costs borne in a region can be separated from who pays those costs. Under the assumption of efficient markets, effort-sharing schemes have the potential to yield a more equitable cost distribution between countries." Also, RAJAMANI ET AL. (n 16), s4: "Developed states that have high historic responsibility, high GDP per capita, etc. end up with a 1.8°C or 1.5°C consistent emissions level in 2030 that is around zero (USA, Japan) or net-negative (e.g. Germany, France, UK). This means that these states have already used their fair share of emissions space and should stop emitting by 2030. If such a level is not reachable with domestic emission reductions, these states will need to correspondingly scale up the support they offer to others to reduce their emissions, based on the principle of cooperation."

undoubtedly scale up its support to developing countries in the form of finance or other support for mitigation to reduce their emissions as part of its "fair share" contribution. The Applicants stress that the Respondent has never claimed that it is not able to raise its ambition (Obs., §55).

### 3.3. The IPCC's global emission reduction pathways are not "fair share" pathways

17 Contrary to the Respondent's view, the IPCC global emission reduction pathways cannot be used as indicators of fairness. This is explicitly recognised by the IPCC itself, stating that most of the "*global modelled emission pathways, (…) do not make explicit assumptions about global equity, environmental justice or intra-regional income distribution*."[20]

18 The stark contrast between following a "fair share" or a global modelled emission reductions pathway can be illustrated by the graphs below. In these graphs the methodology of following global modelled pathways put forward by the Respondent is applied to Switzerland (with relatively high historic emissions and large financial capacity) and India (with relatively low historic emissions and low financial capacity). The current per capita $CO_2$ emissions of Switzerland in 2021 is 4.02 tonnes of $CO_2$[21], compared to that of India which is 1.93 tonnes of $CO_2$.[22] For determining their emission targets, both countries start from their current level of emissions and follow the emission reduction pathway towards zero from the IPCC global trajectories. The dashed area below the curve shows the cumulative emissions emitted by each country from the current day until 2050.




[20] IPCC, Climate Change 2023: AR6 Synthesis Report (**"AR6 SYR"**), SPM Box SPM.1 (link).
[21] Our World in Data based on the Global Carbon Project (2022) (link).
[22] Ibid.

19 These graphs clearly show that the Respondent's approach of following global modelled pathways, allows itself to cumulatively emit significantly more greenhouse gases (**"GHG"**) *per capita* than India. This is because the current share of global emissions also determines the future share of global emissions. It is clear that the Respondent's strategy that grandfathers past emissions and applies constant emission ratios for future emissions cannot be considered a "fair share" of the global burden of mitigating climate change. This is also recognised in the internal working document (see below, §57).

20 As clearly and convincingly set out by Rajamani et al., it is also in violation of equitable principles of international environmental law:

> *"(...) the pragmatic choices some states make in selecting their NDCs based on current emissions levels ('grandfathering') and in charting an extended mitigation pathway that privileges current (high) levels, and may even maintain the current uneven distribution of emissions across nations ('constant emissions ratios'), finds no justification in the equitable principles of international environmental law. Quite the contrary. The principles of sustainable development, common but differentiated responsibilities, and equity, read in the light of the normative framework of the UN climate treaties, recognize that current levels of emissions in some states are high (United Nations, 1992b, preambular recital 3) and in others emissions may need to grow to achieve sustainable development, and eradicate poverty (United Nations, 1992b, preambular recital 22, Art. 4.7; UNFCCC, 2015, preambular recital 8, and Articles 2.1 (chapeau), and 4.1). Grandfathering or maintaining constant emission ratios arguably creates 'cascading biases' against poorer states (Kartha et al., 2018), is not a 'standard of equity' (Dooley et al., 2021), and is indeed morally 'perverse' (Caney, 2011). It is also a well-established principle of common law that no person ought to profit from their own wrong (Dworkin, 1967). It is worth noting that international legal accountability for historical emissions hinges on whether such emissions were internationally wrongful acts at the time. However, selecting a share of emissions reduction effort based on models that privilege current and past high levels of emissions and that may even lead to a continuation of uneven shares is an ongoing (not a historical) wrong."*[23]

[23] RAJAMANI ET AL. (n 16), s2.3.1.

## 4. Detailed reply to the Respondent's written answers to the questions posed by the Court

### 4.1. The Respondent did not approach the question of what level of climate protection must be ensured to be in line with the 1.5°C limit with due diligence

21 The Respondent alleges that the Swiss NDC "is based" on the Policy Brief and the internal working document (Respondent, paras. 6 and 15). However, in its letter handed to the Court on 12 April 2023, the Respondent (i.e. Mr. Franz Perrez, Ambassadeur de la Suisse pour l'Environment, Chef de la Division des Affaires Internationales de l'Office fédéral de l'environnement) put it in a more modest perspective: "The document provided is an internal study produced independently by the ethics department of the Federal Office for the Environment, *which does not reflect the views of the Swiss government*. Switzerland *has taken this study into account* in developing its climate target" (emphasis added). It should be noted here that the internal working document does refer to a further document as a "basis for mitigation" called "Equity Betrachtungen in der Klimazielsetzung" of the FOEN division of international affairs. This document has not been provided by the Respondent, and the Applicants sought access to this document in their request dated 6 April 2023 (doc. 3).

22 The positive obligation to protect the Applicants effectively includes first and foremost *establishing* a legislative and administrative framework to do its share to prevent a global temperature increase of more than 1.5°C above pre-industrial levels (see e.g. Obs., §112). Furthermore, there are procedural obligations or due diligence obligations with regard to how the Respondent has to approach the question of what level of climate protection should be pursued to be in line with the 1.5°C limit.

23 Under the Court's case law, when a State has to deal with complex environmental and economic policy issues, and in particular when dangerous activities are involved, the decision-making process *prior* to establishing a legislative and administrative framework must first involve the *carrying out of appropriate investigations and studies*, to prevent and assess in advance the effects of activities which may harm the environment and the rights of

individuals.[24] Also, *the public must have access to the conclusions of such studies* and to information enabling it to assess the danger to which it is exposed.[25] Furthermore, the decision-making must effectively take into account the outcome of the assessment so as not to deprive the procedural guarantees of any useful effect.[26] This approach of the Court is supported by the requirements of Art. 4, 6 f. and 9 Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (**"Aarhus Convention"**).[27]

24 As the Applicants stated in their Observations, the Respondent has not only failed to establish a legislative and administrative framework to do its share to prevent a global temperature increase of more than 1.5°C above pre-industrial levels. The Respondent has also failed to afford the Applicants the necessary procedural guarantees or to approach the question of the necessary level of climate protection with due diligence.

25 Particularly, as the Applicants noted in their submissions, the Respondent has never conducted any studies to find out what its "fair share" would be to limit global warming to 1.5°C (Observations on the Facts of 13 October 2021, **"OF"**, §130 and Obs., §125). It should be emphasised that it was the *FOEN that confirmed this* to the Applicants. To be more specific, on 19 February 2021, based on the Freedom of Information Act, notably an important domestic implementation of the Aarhus Convention,[28] the Applicants requested access to investigations and studies on which the level of climate protection is based (Obs., doc. 20). With a letter dated 10 March 2021, the FOEN stated the following (Obs., doc. 21; own translation from the German original):

*"The FOEN has referenced and published all the documents used and taken into account in the respective dispatches and in the long-term climate strategy. The bibliographies of the long-term climate strategy for Switzerland and the dispatch on the total revision of the $CO_2$ Act after 2020 can be found in the annex. The studies and research on which the current $CO_2$ Act is based are also referenced in the Dispatch on Swiss Climate Policy after 2012.* ***The FOEN has not commissioned any further***

[24] See *Tătar v. Romania*, no. 67021/01, §88 and *Taşkin and Others v. Turkey*, no. 46117/99, §119.
[25] See *Tătar v. Romania*, no. 67021/01, §88 and *Taşkin and Others v. Turkey*, no. 46117/99, §119.
[26] See *Taşkin and Others v. Turkey*, no. 46117/99, §125.
[27] In its previous case law, the Court has repeatedly referred to these requirements of the Aarhus Convention, see *Di Sarno and Others v. Italy,* no. 30765/08, §107; *Tătar v. Romania*, no. 67021/01, §118; *Taşkin and Others v. Turkey*, no. 46117/99, §99.
[28] Eidgenössischer Datenschutz- und Öffentlichkeitsbeauftragter (EDÖB), Aarhus Convention, last updated 18 January 2023 (link).

*investigations or studies or relied on any other non-referenced significant studies" (emphasis added).*

26 Remarkably, the aforementioned bibliography (Obs., doc. 21) included various documents somewhat related to climate change but did *not* include any investigations or studies relating to the *level of climate protection* and importantly, made no mention of *the Policy Brief and the internal working document*. Indeed, neither the Policy Brief nor the internal working document have been cited in any dispatch on Swiss climate policy to this date.[29]

27 The Applicants note with great surprise that the Respondent has now pulled the Policy Brief and the internal working document, notably dating from 2012 and 2020 respectively, out of the hat, without ever referring to them in the proceedings before this Court or in the national proceedings. The Respondent is alleging in its written answers in clear contrast to FOEN's 2021 statement that the level of climate protection would have been based on these documents (Respondent, para. 15), and later in F. Perrez' letter to the Court, that these documents have been taken into account in determining the level of climate protection. At the same time as allegedly determining the level of climate protection in Swiss policies, the Respondent nonetheless states that these documents do not reflect the views of the Swiss government.

28 Regardless of the truth of the position, the Policy Brief and the internal working document are insufficient to satisfy the procedural guarantees and due diligence obligations (above §23) owed by the Respondent towards the Applicants. The Respondent rightly does not claim otherwise.

29 First, the Respondent did not carry out any "appropriate" investigations or studies, as will be shown in detail below (ss4.2–4.7). With regard to the "new" material handed to the Court, it should be noted that the Policy Brief is a general study about fair burden sharing "in a Dynamic World" and calculates carbon budgets for "selected countries" (Policy Brief, s4.2), but *not for Switzerland*. The internal working document on the other hand relates to Switzerland but does not entail any *quantitative* assessment of Switzerland's

[29] Regarding the $CO_2$-Act 2011, see Federal Gazette, BBl 2009 7433 (link); regarding the ratification of the Paris Agreement, see Federal Gazette BBl 2017 317 (link); regarding the (later rejected) $CO_2$-Act 2020, see Federal Gazette, BBl 2018 247 (link); regarding the revision of the $CO_2$-Act 2011 for the time until 2024, see Federal Gazette, BBl 2021 2252 (link); regarding the revision of the $CO_2$ Act for the time after 2024, see Federal Gazette, BBl 2022 2651 (link); regarding the climate policy for the time after 2030 until 2050, see Federal Gazette, BBl 2021 1972 (link), BBl 2022 1536 (link) and BBl 2022 1540 (link).

"fair share." From this alone, it follows that neither document can be considered as an "appropriate" assessment of the necessary level of climate protection.

30 Second, the Policy Brief and the internal working document have *not (or only partly)* been made in advance, i.e. *before decision-making*. Important decisions regarding the Swiss climate policy, particularly regarding the level of climate protection by 2020 and by 2030, were taken from 2011 onwards.[30]

31 Third, the conclusions of the Policy Brief and the internal working document have *not* been made available to the public by the Respondent in the context of its decision-making process regarding the level of climate protection, *even not upon explicit request* (see above §25 f.).

32 Fourth, the decision-making did not effectively take into account the Policy Brief and the internal working document. This is clear from the fact that if the Respondent *had* taken them effectively into account, Switzerland's climate policy *would differ significantly* from today's approach. For example, as made clear by the Expert Report based on Switzerland's current and planned emission reduction targets, the remaining 1.5°C Swiss budget that can be calculated on the basis of Policy Brief's methodology will already be depleted **before 2030/2033.**

33 Thus, had the Respondent applied the 2012 Policy Brief's methodology to Switzerland and implemented the results in its climate policy, Switzerland would have had to adopt emissions targets that are significantly more stringent than its current and planned targets (see above §9). Also, the internal working document would have provided for a significantly different climate policy, stating e.g. contrary to the current and planned Swiss climate policy – and indeed in line with the Applicants' requests – that grandfathering does not provide satisfying answers on how to distribute the burden of mitigating climate change (internal working document, pp. 26–36), that the territorial approach needs to be complemented by a consumption-based approach (internal working document, p. 58), and that offsets (purchasing emission reductions abroad) cannot be used as a substitute to meeting its domestic target (internal working document, p. 58). Lastly, the internal working document itself says that it is a

[30] Regarding the $CO_2$-Act 2011, see Federal Gazette, BBl 2009 7433 (link); regarding the ratification of the Paris Agreement including approval of Switzerland's 2015 NDC, see Federal Gazette BBl 2017 317 (link); regarding the (later rejected) $CO_2$-Act 2020 that has foreseen Switzerland's climate policy until 2030, see Federal Gazette, BBl 2018 247 (link).

piece in the internal opinion forming process, but that, for taking *decisions*, *legal and political criteria* would be *decisive instead* (internal working document, p. 1).

34 Overall, the Respondent did not approach the question of what level of climate protection must be ensured to be in line with the 1.5°C limit with due diligence. The Respondent rightly does not allege otherwise.

35 Furthermore, the manner in which the Policy Brief and the internal working document were withheld (notwithstanding the Applicants' explicit request for disclosure) and the contrast of the advice contained in the documents with the Respondent's claims to have it "taken into consideration", both further demonstrate why it is critically important for this Court to order general measures under Art. 46 ECHR as requested by the Applicants (Obs., p. 70).

### 4.2. The decision-making process prior to establishing a legislative and administrative framework did not involve the carrying out of "appropriate" investigations and studies and consequently did not result in a "fair share" contribution by Switzerland

36 In the following sections, the Applicants further substantiate that the Respondent did not approach with due diligence the question of what level of climate protection must be ensured to be in line with the 1.5°C limit. First, the Applicants turn to the Respondent's "qualitative assessment" of its "fair share" and show that this "assessment" cannot be considered an "appropriate" assessment of the necessary level of climate protection (s4.3). Second, the Applicants turn to the Respondent's "quantitative assessment" of its "fair share." They show that the Respondent did not determine any national carbon budget as a "fair share" of the remaining global budget (s4.4); that the alleged alignment of the Respondent with the IPCC global emission trajectories is not appropriate and consequently did and will not result in a "fair share" contribution by Switzerland (s4.5); and that the Respondent's critique on the expert studies put forward by the Applicants is superficial and unfounded (s4.6). Third, the Applicants show that the requested emission reductions do not put an inequitable burden on the Respondent (s4.7).

37 Ultimately, the Respondent did develop a climate strategy that is not in line with the 1.5°C limit. The Applicants showed this in detail in their Observations and fully uphold these statements (see Obs., s1.10). Nothing has changed in

this respect as a result of the Respondent's written answers. To the contrary, the Policy Brief and the internal working document submitted by the Respondent can only serve to validate the position of the Applicants.

### 4.3. Indicators of fairness put forward by the Respondent are not in line with relevant principles, including those set out by the Respondent in its internal working document

38 The Respondent sets out at paras. 7–11 of its written answers the three equity considerations on which its NDC is allegedly based. These are responsibility (Respondent, para. 8), ability (Respondent, paras. 9 and 11), the "available effective mitigation potential" and the costs of reducing emissions (Respondent, para. 10). Furthermore, the Respondent alleges that its NDC is based on analysis including the Policy Brief and the internal working document (Respondent, para. 15).

39 The Applicants first turn to the considerations on *responsibility*. The Respondent states that, with a view to responsibility, total emissions must be taken into account (Respondent, para. 8). However, a small share of global emissions is *not* an indicator that is in line with principles of international environmental law[31] and thus cannot be taken into account to inform a State's "fair share"[32] (Obs., §41). Absolute emissions mainly relate to the size of the country. Notably, all countries with less than a 2% share of global emissions represent in total 36% of global emissions, which is far from "negligible" and indeed more than e.g. China.[33]

40 The Respondent further refers to the indicator "per capita emissions." Although this indicator is not directly anchored in principles of international environmental law, according to Rajamani et al., it arguably finds support in human rights instruments and approaches and is thus included in the results of their study.[34] Thus, while this indicator can be used to inform a State's "fair share", the Respondent wrongly alleges that the Swiss "per capita emissions"

[31] See hereto in detail RAJAMANI ET AL. (n 16), pp. 991 f., stating that "Principles of international environmental law build on the understanding that the environment is a matter of 'common concern' and that all states, 'big and small' (United Nations,1972, principle 24) 'cooperate in a spirit of global partnership' to restore the environment (United Nations,1992a, principle 7). National court decisions have also rejected the argument that a small share of emissions, whether from a mining project or a state, justifies continuation of those emissions or limits the action that needs to be taken (...)."
[32] Ibid., p. 995.
[33] RITCHIE, Why "my country only emits 1% of emissions" is no excuse for rich countries to not tackle climate change, Sustainability by numbers, 11 March 2023 (link).
[34] RAJAMANI ET AL. (n 16), p. 996.

would be below the global average and would "continue to decrease" (Respondent, para. 8). Notably, and decisive with a view to the Respondent's historic responsibility, from 1954 to 2013, the Swiss "per capita emissions" have constantly been above the global average, and often to a significant extent of about 50 to 70%.[35] Indeed, the Respondent's per capita emissions have been increasing since 2020.[36] Furthermore, when pointing to allegedly low "per capita emissions" today, the Respondent omits the significant share of external emissions attributable to Switzerland, including consumption-based emissions (see hereto Obs., §§3 ff.). Notably, the Swiss per capita consumption-based emissions are well over the average for EU countries (Obs., § 4), and from 1990 onwards constantly around three to four times higher than the global average.[37]

41 Besides that, it is notable that the Respondent's understanding of responsibility and its application in its NDC 2021[38] dismisses important considerations made in its internal working document. For example, the internal working document finds that the State is responsible to pay poorer countries for mitigation measures *without* counting them towards its own obligation of domestic emission reductions (internal working document, pp. 41f. and p. 58). It explicitly holds that it is not justified to buy your way out of responsibility and that Art. 6 Paris Agreement (**"PA"**) should not be used for that purpose either (internal working document, p. 58). Rather, the internal working document states that the territorial measurement of GHG emission should be supplemented by a consumption-based view, to take into account the whole carbon footprint (internal working document, p. 58).

42 Concerning the Respondent's considerations on *ability*, the parties agree that the indicator gross domestic product (**"GDP"**) per capita is consistent with the principles of environmental law and thus has to be taken into account when determining its "fair share" (Respondent, para. 9).[39] The parties agree that Switzerland has an extremely high GDP per capita (Respondent, para. 11). Remarkably, Switzerland has the third largest GDP per capita in the world.[40]

[35] Our World in Data, Per capita $CO_2$ emissions, Switzerland and World (link).
[36] FOEN, Kenngrössen zur Entwicklung der Treibhausgasemissionen in der Schweiz, 1990–2021, April 2023, p. 39 (link).
[37] Our World in Data, Per capita consumption-based $CO_2$ emissions, Switzerland and World (link).
[38] Switzerland's information necessary for clarity, transparency and understanding in accordance with decision 1/CP.21 of its updated and enhanced Nationally Determined Contribution ("NDC 2021") under the Paris Agreement (2021-2030), 17 Dec. 2021 (link) *(Obs., doc. 46)*.
[39] RAJAMANI ET AL. (n 16), p. 996.
[40] Statista, Die 20 Länder mit dem grössten Bruttoinlandsprodukt (BIP) pro Kopf im Jahr 2021, October 2022 (link).

The internal working document rightly makes clear that the wealthier a State is, the larger has to be its contribution to burden sharing (internal working document, p. 45), and that rich countries like Switzerland must do much more to support poorer countries (internal working document, p. 57). However, there is no evidence whatsoever that the Respondent took all this into account in both determining and quantifying its allegedly "fair share" – but there is plenty of evidence that it did not do so.

43 The Applicants lastly turn to the Respondent's allegation that the *"available effective mitigation potential"* and *"the costs of reducing emissions"* as well as *"past efforts"* (Respondent, paras. 10 f.) have to be taken into account. Cost efficiency is not an indicator that is supported by the equity principles of international environmental law and thus not an indicator that can be used to determine the Respondent's "fair share" (Obs., §41).[41] As explained in the above (s3.2) technical difficulties and high costs of reducing emissions *within* its territory are irrelevant to determine the level of responsibility for overall emission reductions, which can also be achieved through supporting countries with lower levels of responsibility and capability.

44 Moreover as is confirmed by the Respondent's internal working document, wealthy States have to implement the lowest-emission technologies in their economies, even if this is associated with higher costs (internal working document, p. 47), which is why cost-efficiency (and rewarding allegedly early movers) are not relevant considerations in determining a State's "fair share" (internal working document, p. 57).

45 That said, least-cost pathways are relevant in determining the *minimum level* of the *domestic* emission reduction component of a State's "fair share."[42] As will be further discussed below, if a country were to reduce its emissions at a lower rate than its modelled domestic pathway that is derived from the IPCC global pathways, other countries would need to cut emissions faster to maintain 1.5°C compatibility (§§77 f.). In other words, if Switzerland reduces its domestic emission by less than the requested "more than 60%" by 2030 compared to 1990 (Obs., §§ 45ff.), not only would this gap in emissions reductions need to be compensated by other countries; the additional emission

[41] See RAJAMANI ET AL. (n 16), pp. 991 f.
[42] Compare also RAJAMANI ET AL. (n 16), p. 992, stating that "identifying a least cost pathway may be a relevant consideration in choosing between alternative means of implementing national fair shares, it is not a relevant consideration in determining fair shares."

reduction measures that would have to be taken in this scenario would generally also be more expensive than if Switzerland had taken those measures itself (Obs., §46). Moreover, given that these modelled domestic pathways are technically and economically feasible (Obs., §46) they disprove the assertion of the Respondent that it would not be able to achieve this level of more than 60% emission reductions by 2030 compared to 1990 domestically (Obs., §55).

46 Further, the Respondent does not provide any evidence for its claim that there would be only limited availability of cost-effective mitigation potential in the short term (Respondent, para. 11). The Applicants submit that this is wrong (see hereto Obs., §§ 45 ff. and 53, and OF, §§118–123). It should be reiterated that there are important GHG-relevant sectors including cost-effective mitigation potential which are *not* regulated and used, e.g. in the agriculture and finance sector (Obs., §53; OF, §123). Also, the potential for reducing emissions in the building and transport sectors is being severely under-used and the available measures were insufficiently enforced (Obs., §53; OF, §122 with further references). Precisely *because* these sectors are characterised by long processing periods, it is all the more important to take immediate action to avoid a lock-in of carbon-intensive infrastructure.

### 4.4. The Respondent did not determine any national carbon budget as a "fair share" of the remaining global budget

47 The Respondent alleges that Switzerland has adopted a national climate policy that "comes close to a budgetary approach" (Respondent, paras. 1 and 2).

#### 4.4.1. No overall national budget has been adopted in relation to the global emissions budget

48 The Respondent did not adopt an overall quantitative national emissions budget in relation to the global 1.5°C emissions budget. By setting emission reduction targets, the Respondent has merely defined an approximate budget of emissions that *it allows itself*. The Respondent has admittedly not developed any quantitative assessment of its national carbon budget, let alone a budget that could be considered fair, *in relation to the global budget*. Doing so would require first determining the portion which can be seen as the "fair share", as was done in its "own" Policy Brief (but not for Switzerland). In a purely "equal per capita" methodology, this share would be equal to the share of Switzerland in the global population (cf. Obs., §38). This share would then be applied to

the available global budget to determine a national budget. Emission targets would then need to be set such that the resulting total cumulative emissions over time do not exceed the defined budget. It is clear from all evidence that the Respondent did not conduct any quantitative assessment of its national emissions budget to that effect.

#### 4.4.2. The Respondent's "budgetary approach" leads to a completely inadequate "national budget"

49 Even by applying a simple "equal per capita" approach from 2020 onwards, under its current climate strategy, the Respondent will have used up its remaining budget by 2034 (Obs., §38). From this alone it is clear that the Respondent's "budgetary approach" is arbitrary, leading to a completely inadequate "national budget." If all countries were to set their budgets in this manner, the available global budget would be far exceeded.

#### 4.4.3. What if the Respondent adopted a national budget based on the Policy Brief?

50 The Expert Report applied the methodology of the Policy Brief to the remaining global 1.5°C budget from the IPCC's AR6 and calculated that following Switzerland's current and planned emission reduction targets, Switzerland's budget would be depleted **before 2030/2033** (Expert Report, Figures B and C). For Switzerland to stay within the budget as defined by the methodology of its own Policy Brief, it would need to achieve **net-zero emissions by 2040**, and thus well before its current target of net-zero by 2050 (Expert Report, Figure A).

51 It should be noted that the Expert Report indicates several shortcomings in the methodology in the Policy Brief. For example, the Policy Brief approach gives higher shares to countries that historically have higher per capita emissions, the capabilities of countries do not affect their "fair share", and it focuses on the inclusion of costs, technological feasibility and political acceptance (Expert Report, s3). The Expert Report notes that as such, the approach in the Policy Brief is not appropriate to determine Switzerland's "fair share" emission reduction target in line with the **PA** temperature limit that can be met through both domestic emission reductions and international support (Expert Report, s6).

52 The Expert Report's critique of the Policy Brief illustrates how a principled analysis of the quantification of a country's "fair share", as done by Rajamani et al., can assist in defining "fair shares" in line with a country's *legal* obligations (rather than political convenience). It also shows that choices on the weighing of indicators influence the results of individual studies. As is further explained below (s4.6), contrary to the Respondent, the Applicants do not rely on a single paper which applies a single set of assumptions on the weighing of indicators. In contrast to the study in the Policy Brief, the studies from the CAT and Rajamai et al. are each assessements of more than 30 individual studies that all apply their own assumptions. These assessment studies determine their results based on all the interpretations of fairness in the academic literature giving each category of interpretation equal weight, and thus represent the scientific "common ground" as assessed by the best available science.

## 4.5. The alleged alignment of the Respondent with the IPCC global emission trajectories did and will not result in a "fair share" contribution by Switzerland

### 4.5.1. The development of NDC in 2015 based on global (and thus not "fair") pathways and with a view to the now outdated 2°C limit

53 The Respondent states that it developed its NDC in 2015 based on AR5. It alleges that AR5 "recommended" a reduction of GHGs of 40 to 70% by 2050 compared to 2010 levels, but that Switzerland has committed to more ambitious targets, i.e. minus 50% by 2030 and 70–85% by 2050 (Respondent, para. 2).

54 The Applicants submit that the Respondent's reference relates to the *global* trajectories defined in AR5[43] and that the Respondent's strategy was to roughly follow this global trajectory.

55 As explained above, the IPCC has been explicit in its reports that *global* trajectories cannot be used to determine a country's "fair share" (s3.3). On the contrary, in its AR5, the IPCC provided various trajectories based on different burden-sharing methods (cf. Obs., § 32). Significantly, for a 66% likelihood of the now outdated 2°C temperature limit not being exceeded, the IPCC

[43] IPCC: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (**"AR5 SYR"**), p. 20 (link).

concluded that to reflect responsibility,[44] capability[45] and need,[46] OECD countries such as Switzerland needed to meet negative emissions targets; they had to reduce emissions by between – 106% and up to – 128% below 1990 levels by 2030.[47]

56 Following the global trajectory is not consistent with the equitable principles of international environmental law (e.g. the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances "**CBDRRC-NC"**, Art. 4(3) PA, Art. 3(1) and 4(1) UNFCCC, Principle 7 Rio Declaration[48]).

57 First, as shown above, by taking the current level of emissions as a starting point, a State's historic responsibility for past emissions is ignored (s3.3). This methodology effectively means that States with higher current emissions (like the Respondent) are afforded higher future emission allowances. This is "grandfathering."[49] This is recognised in the Respondent's internal working document which states that grandfathering is "not plausible" (internal working document, p. 14) and does "not give a satisfying answer" to the question of how to distribute the burden of mitigating climate change (internal working document, pp. 26–36).

58 Secondly, the global emissions pathways presented by the IPCC generally describe emissions pathways that are most cost-efficient *at a global level*.[50] Taking such cost-efficiency considerations as the basis for an individual country's overall emission reductions is not supported by principles of international law[51] and does not entail any considerations of equity and CBDRRC-NC which are central principles of the international climate treaty regime. The Applicants further refer to their Observations (Obs., §§37 ff.).

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[44] IPCC, Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (**"AR5 WGIII"**), p. 458 (link): "The concept to use historical emissions to derive emission goals was first directly proposed by Brazil in the run-up of the Kyoto negotiations (UNFCCC, 1997), without allocations. Allowances based only on this principle were quantified by only a few studies."
[45] Ibid.: "Frequently used for allocation relating reduction goals or reduction costs to GDP or human development index (HDI). This includes also approaches that are focused exclusively on basic needs."
[46] Ibid.: "A multitude of studies provide allocations based on immediate or converging per capita emissions."
[47] Ibid., p. 460 figure 6.28, p. 13 table SPM.1. Note that fig. 6.28 of p. 460 states in its explanation: "For the OECD-1990 in the category 'responsibility, capability, need' the emission allowances in 2030 is – 106% to – 128% (20th to 80th percentile) below 2010 level (therefore not shown here)."
[48] See RAJAMANI ET AL. (n 16), p. 990.
[49] Ibid., p. 992.
[50] IPCC, AR6 SYR (n 20), SPM Box SPM.1
[51] RAJAMANI ET AL. (n 16), s2.3.

### 4.5.2. The alleged reassessment of NDC in 2020 was merely a formal update and did not make it "fair"

59 The Respondent alleges that it reassessed its 2015 NDC following the IPCC's Special Report on the impacts of global warming of 1.5°C (**"1.5°C SR"**) with a view to the new global emission reductions trajectories therein (Respondent, paras. 4 f.).

60 However, the Respondent's "update" of its 2030 emissions reduction target in the NDC did not represent a "progression," as required by, for example, Art. 4(3) PA, but was no more than a formality (Obs., §34).

61 Furthermore, following the global cost-efficient trajectories cannot be considered as "fair" and is not in line with equitable principles of international environmental law (s3.3). What a 1.5°C compatible "fair share" contribution of the Respondent looks like is set out by the Applicants in their Observations (Obs., s1.10.1).

### 4.5.3. The alleged planned reassessment of NDC in 2025 is unlikely to take place and to make it "fair"

62 The Respondent subsequently refers to the IPCC's AR6 and the therein modelled global pathway with a possibility of over 50% of limiting warming to 1.5°C, requiring a reduction in net global GHG emissions from 2019 levels of 43% by 2030 and by 85% by 2050[52] (Respondent, para. 4). The Respondent alleges that the Swiss 2030 climate target would be in line with this global pathway and for 2050, it would go even further, thus respecting the "*encouragement of the Paris Agreement that developed countries should continue to take the lead"* (Respondent, para. 5). The Respondent then goes on to allege that it will take the "latest findings" of the AR6 into account when setting a new emission reduction target, to be communicated in 2025 (Respondent, para. 5).

63 The Applicants assume against this background that the Respondent plan, to take "the latest findings" into account, relates to the IPCC AR6 Synthesis Report finalised in March 2023.[53] The Synthesis report, however, does not have any different modelled global reduction trajectories than those in the IPCC's AR6 WGIII report. Thus, if the Respondent takes global trajectories of the Synthesis

[52] See IPCC, AR6 WGIII (n 2), SPM C.1.1.
[53] IPCC, AR6 SYR (n 20).

Report as the foundation for deciding whether to increase its climate targets (as required by, for example Art. 4(3) PA), it is clear that the Respondent will not set new emission reduction targets at the next round of NDC submissions. The Respondent also does not provide any evidence for its alleged reassessment. On the contrary – the Respondent's public communication, e.g. in recent dispatches, leaves no doubt that if the 2030, 2040 and 2050 targets are accepted by the Parliament or the Swiss people, this is the way to go in the future.[54]

64 Moreover, following an emissions reduction pathway that is marginally more ambitious than the global cost-efficient trajectory (that is not a "fair share" pathway, see above s3.3) cannot be considered to be in line with the obligation of "taking the lead" (Obs., §§ 37 and 141).

65 The Respondent's climate policy is not even aligned with global cost-efficient trajectories: Climate Analytics as well as CAT scaled down the global cost-effective emission pathway to the level of Switzerland and thereby derived a domestic emissions reduction of more than 60% by 2030 (see Obs., § 46), which stands in stark contrast to the envisaged domestic reduction of –34% by 2030 (see Obs., §34).

66 While a reassessment of Switzerland's NDC or its national climate targets is unlikely, it would be even less likely that this reassessment would result in a Swiss climate strategy that is in line with the 1.5°C limit as requested by the Applicants (Obs., ss1.10, 2.5 and 3).

67 Lastly, the Applicants stress that there is no time to wait until 2025 to set new emission reduction targets. The longer the Respondent waits to start cutting its emissions in line with its "fair share", the faster it will eventually have to cut emissions to make up for lost time and stay within its "fair share" budget (see Expert Report, Figure D). Such increasingly steeper emission reductions will become progressively more difficult to achieve (Obs., §47).

[54] That there has to be a periodic review of the climate targets is only mentioned in theoretical terms. See e.g. Federal Gazette, BBl 2022 2651 section 1.1.2 (link) "Contexte international" and section 1.2 "Nécessité d'agir at objectifs" and BBl 2022 1536 section 1.4 (link) stating "Parallèlement, le présent contre-projet indirect à l'initiative pour les glaciers doit définir le cadre des prochaines révisions de la loi sur le $CO_2$ et *marquer l'ambition de la politique climatique de la Suisse*" (highlights added) and section 2.1 "L'art. 11, al. 1, de la loi-cadre oblige le Conseil fédéral à soumettre suffisamment tôt à l'Assemblée fédérale, après avoir entendu les milieux concernés et en tenant compte des dernières connaissances scientifiques, des propositions de *mise en œuvre des objectifs de la loi* pour les périodes suivantes…" (emphasis added).

### 4.6. The Respondent's critique of expert studies is superficial and unfounded

68 The Respondent alleges throughout its written answers that there is no agreed methodology for calculating "fair shares" or for allocating the global carbon budget to individual States (Respondent, paras. 1, 3, 6, 14, 15). In this context the Respondent argues that the studies put forward by the Applicants contain "strong elements of subjectivity" and have several shortcomings. As will be shown in detail, this critique is superficial and unfounded.

#### 4.6.1. No agreed methodology for calculating "fair shares"

69 As demonstrated above (s3.1), while there is no set mechanism on what constitutes a fair level of contribution (Obs., §39), it is still possible and, the Applicants submit, necessary for the Court to assess

- whether the Respondent's climate strategy is in line with 1.5°C (Obs., s1.10) and thus in line with its obligations to protect the Applicants' Convention rights, and, if not,
- to determine what that obligation should be (Obs., s2.5).

70 For example, the apex Courts of the Netherlands and Germany have illustrated that national emission reduction efforts are within the scope of judicial scrutiny (see above §§12 f.). Drawing on established principles and norms of international environmental law and the scientific consensus, various national courts have assessed the lawfulness of a State's mitigation efforts and, in some cases, determined absolute minimum GHG emissions reduction efforts that are necessary to protect human rights (see Obs., footnote 414).

71 Notably, the scope of the Respondent's obligation to protect is determined *inter alia* by the precautionary principle (Obs., s2.5.4). The precautionary principle has been invoked by many national courts in their deliberations on the appropriate level of action for a State to take in climate cases (Obs., §147 and footnote 327). In particular, the precautionary principle supports the position that any ambiguity as to the necessary emissions reductions to prevent a global temperature increase of more than 1.5°C should be resolved in favour of the Applicants (Obs., §149). Also, the Applicants submit that with a view to the precautionary principle, there is no discretion regarding the emissions reductions necessary to do its share (Obs., §134); in any case not to the extent that the discretion goes beyond the emission reductions requested by the Applicants. This is because the requested "fair share" contribution of net-

negative emissions in 2030 is even significantly lower than the scientific "common ground" as assessed by best available science, i.e. the IPCC, CAT, Climate Analytics and Rajamani et al. (cf. speech for the oral hearing,[55] §51). Lastly, it should be noted that the approach of drawing on other norms of international law to determine the content of a State's "fair share" – as adopted by the Rajamani et. al. study – is consistent with this Court's harmonious interpretation of the Convention (Obs., §41 and s2.5.4). It is also in line with the Recommendation CM/Rec(2022)20 of the Committee of Ministers adopted on 27 September 2022, stating in the Appendix that

*"the member States should ensure the respect of general principles of international environmental law, such as the no harm principle, the principle of prevention, the principle of precaution and the polluter pays principle, and take into account the need for intergenerational equity."*[56]

72 Overall, the fact that there is no agreed methodology for calculating "fair shares" is no justification for the Respondent failing to protect the Applicants effectively (Obs., s2.5.1.3). As the IPCC noted, it is only in relation to a "fair share" that the adequacy of a State's contribution can be assessed.[57] Contrary to the Respondent (Respondent, para. 13), the onus is on the Respondent to justify its climate strategy, using detailed and rigorous data (Obs., §125), which the Respondent has not done. On the contrary, even the methodology from the only study put forward by the Respondent which quantifies national "fair shares" shows that the Respondent's emission targets are grossly insufficient to contribute towards holding global warming below the 1.5°C limit.

### 4.6.2. Critique of the CAT and Climate Analytics Studies

73 In its written answers the Respondent argues that the studies from the CAT (Obs., docs. 19 and 44) as well as the study by Climate Analytics: A 1.5°C compatible Switzerland (Obs., doc. 41), contain "strong elements of subjectivity" and have several shortcomings (Respondent, paras. 14–16 and 18).

[55] Speech for the oral hearing of 29 March 2023 (link).
[56] Committee of Ministers, Recommendation CM/Rec(2022)20 to member States on human rights and the protection of the environment, 27 September 2022 (link).
[57] IPCC, AR6 WGIII (n 2), p. 1468.

74 Both CAT and Climate Analytics publish extensively on the methodologies that underpin their studies.[58] The Applicants respectfully submit that the Respondent's critique in no way engages with any element of the methodologies of the studies and that most if not all of its critique is addressed in the methodological descriptions. To assist the Court in evaluating the critique of the Respondent to the fullest extent possible, the Applicants requested Climate Analytics and the CAT consortium to provide a detailed response on each element of the critique for the attention of the Court, what they both did with a letter dated 26 April 2023 each: response by Climate Analytics, represented by Prof. Dr. Carl-Friedrich Schleussner (**"CA response"**, doc. 4) and response by Prof. Dr. Niklas Höhne, NewClimate Institute and Bill Hare, CEO Climate Analytics, acting on behalf of the CAT consortium (**"CAT response"**, doc. 5). It is worth mentioning that Prof. Dr. Niklas Höhne was the main author of the sections on effort-sharing in both AR4 and AR5.

75 The CA and CAT responses (including the explanatory context of the Applicants' questions to CAT and Climate Analytics) *form an integral part of this submission*. In addition to what is stated in the CA and CAT responses, in the following paragraphs the Applicants will address the critique that the studies contain "strong elements of subjectivity."

76 As the Respondent points out, the CAT on its website acknowledges that no single equity framework has been agreed upon at the international level. The academic literature however has set out the different ways in which equity principles can be operationalised into national reduction targets. The IPCC in AR4 and AR5 provided results on an assessment of the entire scope of interpretations proposed in the literature. The CAT has taken the AR5 assessment and its underlying database of studies as a starting point and updates its findings on a continuous basis, with recent studies and emissions data (CAT response, p. 2). Each of the individual studies that make up the entire database used by the CAT applies its "own" normative assumptions. Different from these individual studies however, the CAT applies an equal weighting to *all* the different categories of fairness principles. Thus, it considers all normative interpretations equally. As explained in the CAT response, this equal weighting

[58] A full description of the methodology of the CAT analysis is published here; the detailed description of the methodology to determine countries fair share is published here; the detailed description of the methodology to determine a countries nessesary domestic reductions is published here; the methodology for calculation domestic pathways in the Climate Analytics report is published here.

is "to avoid favouring any particular equity principle over another, as well as to develop the most thorough equity framework possible in line with the best available science" (CAT response, p. 2) and "developing a synthesis framework of all relevant equity approaches based on the best available science is the most objective way of establishing a state's fair share of the global effort" (CAT response, p. 3).

77 In further defining the required level of emission reductions for each country the CAT applies an "equal level of ambition" for all countries within the range of fairness interpretations from the literature (CAT response, p. 3). If all countries were to "cherry pick" the equity interpretation most preferable to it, the temperature target would be missed by a significant margin (CAT response, p. 2). By applying an equal level of ambition, no country is treated differently, while still accounting for all the different interpretations of fairness. The Applicants submit that, based on the precautionary principle, the results from an assessment that weighs all interpretations of fairness equally and applies an equal level of ambition within the range of fairness interpretations, such as is the case in the CAT, provides an adequate basis for the determination of what must be perceived as the minimum level of protection that is required of the Respondent. Accepting any lower level of protection would inevitably either come at the cost of other countries or lead to the breaching of the temperature limit.

78 The assertion of subjectivity by the Respondent concerning the Climate Analytics report "A 1.5°C compatible Switzerland" is equally unfounded. Rather than applying "different" assumptions than the IPCC for determining the appropriate level of domestic emission reductions, the report uses as its base all the models from the IPCC that are compatible with holding the temperature increase below the 1.5°C limit and downscales these to the country levels (CAT response, p. 4). The report thus does not apply its "own" assumptions but uses the same "robust" assumptions as applied by the IPCC. Contrary to the Respondent's assertion (Respondent, para. 16), Climate Analytics provides a statistical range for the modelled domestic pathways, which the Applicants explicitly mentioned in their Observations (Obs., §46). The median of that range describes the minimum reduction level a country needs to achieve domestically for it to be in line with the 1.5°C temperature limit. For Switzerland this minimum is a reduction of more than 60% by 2030 compared

to 1990 levels. As is further explained in the CAT response, a lower emission reduction by Switzerland would necessitate faster reductions for other countries (CAT response, p. 5). Given that these modelled pathways are based on cost-effective considerations these higher recutions by other countries would presumably also be more expensive (CAT response, p. 5).

### 4.6.3. Critique of the Rajamani et al. study

79 With regard to the study by Rajamani et al., the Respondent alleges that the principles of international environmental law are interpreted in a "subjective way", whereas the content and legal status of these principles vary and would be open to a range of interpretations. The Respondent further dismisses Rajamani et al.'s exclusion of the principles of "small share of global emissions" and "cost efficiency" as not adequately reflecting the specific situation of Switzerland (Respondent, para. 17).

80 The Applicants submit the Respondent has a wrong understanding of Rajamani et al. study. The interdisciplinary study led by Prof. Rajamani, notably Coordinating Lead Author of the AR6 chapter 14 on International Cooperation, alongside a team of leading climate scientists proceeds on the basis that there is "no single accepted definition of the term" "fair share."[59] Its critical contribution, however, is to identify "principled limits" to the determination of a State's "fair share," which it does in a transparent manner on the basis of well-established principles and norms of international law.[60] The Rajamani et al. study first identifies principles and norms of international law that inform a State's "fair share." This includes the principles of sustainable development, common but differentiated responsibilities and respective capabilities, and equity. These principles are not randomly selected but rather derive from widely-subscribed-to international instruments, including the UNFCCC and the Paris Agreement. The study further confirms the relevance of these principles to the issue of "fair share" by showing how States themselves invoke these principles to justify the fairness of their contributions in their NDCs.[61] On the basis of these principles, the Rajamani et al. study excludes certain indicators that States invoke to justify the fairness of their NDCs – i.e. "small share of

[59] RAJAMANI ET AL. (n 16), p. 984.
[60] Ibid.
[61] The study assesses all NDCs submitted as of 31 December 2020 (168 NDCs in total) to identify explicit and implicit references to these principles and norms.

global emissions" and "least cost."[62] Far from being purely subjective, the study makes clear why these indicators are not consistent with principles of international law and refers to national jurisprudence to date.

81 The second step in the study is to further narrow the "fair share" range for individual countries by reference to the principles of harm prevention (which is binding customary international law[63]) and precaution, in addition to the normative pillars of the Paris Agreement (its objectives; the expectation of progression and "highest possible ambition"; and human rights). As is described in the CAT response, the methodology of quantitatively determining the fair share emission reductions of individual countries applies the same approach as CAT, drawing from the full spectrum of equity perspectives provided in the scientific literature.[64]

82 The particular focus of the Rajamani et al. study is to analyse the broad spectrum of effort-sharing methodologies through the spectrum of the principles framework of international law and that focus makes this study particularly suitable to inform the Respondent's obligation to protect under the ECHR that is determined by the harmonious interpretation of the Convention (Obs., §41 and s2.5.4).

### 4.6.4. The costs of reducing emissions within a few years would be very high

83 The Respondent alleges the costs for achieving net negative emissions by 2030 would be very high or at least disproportionate given the modest effect of Switzerland's small contribution to global emissions (Respondent, paras. 16 and 17).

84 Climate Analytics and CAT explain (CA response, p. 2 f. and CAT response, p. 5), as did the Applicants in their Observations (§§44 and 55), that the "fair share" contribution does not have to be achieved in full domestically (with measures taken within its own borders), but also with contributions to emissions reductions abroad and support for developing countries being able to

[62] RAJAMANI ET AL. (n 16), pp. 991 f.
[63] See: Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion [1996] ICJ Reports 226 (ICJ); Case concerning the Gabcikovo-Nagymaros Project (Hungary v Slovakia) [1997] ICJ Reports 7 (ICJ); Case concerning Pulp Mills on the River Uruguay (Argentina v Uruguay) (2010) 2010 ICJ Reports 14; Certain activities carried out by Nicaragua in the border area and Construction of a road in Costa Rica along the San Juan River (2015) 665 ICJ Reports (ICJ).
[64] A full description of the methodology of the RAJAMANI ET AL. (n 16) study is published in the supplementary materials, available here.

count towards this level of contribution. The Respondent thus seems to misinterpret the results of Climate Analytics, CAT and Rajamani et al.

#### 4.6.5. "Not all" qualitative assessments of equity can be translated into quantitative results

85 The Respondent alleges that "not all" qualitative assessments of equity can be translated into quantitative results, and that the results have their limitations (Respondent, para. 17).

86 It remains unclear what conclusions the Respondent draws from this in terms of its "fair share." Although limitations of effort-sharing analysis are recognised, this does not mean that the Respondent can discharge itself of its positive obligations to do its "fair share" to limit global warming to 1.5°C.

87 Furthermore, the IPCC in its AR4 and AR5, CAT and Rajamani et al. have provided quantitative results of their "fair share" assessments (see Obs., §§31, 32, and 40–42), based on qualitative assessments undertaken as a first step. Thus, qualitative assessments can indeed be translated into quantitative results, which is, in principle, also accepted by the Respondent.

#### 4.6.6. The studies put forward by the Applicants provide the best available science to inform the scope of the Respondent's obligation to protect

88 The scope of the obligation to protect is *inter alia* informed by the best available science (Obs., §141). To the knowledge of the Applicants the recent assessments on the range of fair level of contribution as provided by the Applicants are the only available studies that provide a synthesised assessment based on the full spectrum of effort sharing interpretations and thus present the scientific "common ground" as assessed by best available science (see above §§14 and 52).

89 The Respondent rightly does not allege otherwise; notably, it did not offer any other or "better" science.

### 4.7. The requested emission reductions can be achieved by the Respondent

#### 4.7.1. The Respondent fails to meet its own (inadequate) climate targets and emissions are going up

90 The Respondent is alleging that Switzerland's emission reductions were "on a clear trajectory to achieve zero net emissions by 2050" (Respondent, para. 5).

91 However, the Respondent missed its 2020 target (Obs., §52), and the latest emission data published 11 April 2023 are showing that emissions are not going down, but up:

*"En 2021, la Suisse a émis 45,2 millions de tonnes d'équivalents $CO_2$ (éq.- $CO_2$), soit 1,3 million de plus qu'en 2020. Dans l'ensemble, les émissions étaient 18,2 % inférieures à leur niveau de 1990. Ces chiffres s'appuient sur l'inventaire de l'OFEV sur les gaz à effet de serre. La plus forte hausse a été enregistrée dans le secteur du bâtiment, en raison des besoins de chauffage accrus liés à la rigueur de l'hiver. Les émissions dues aux transports ont, elles aussi, légèrement augmenté. Celles des secteurs de l'industrie et de l'agriculture sont quant à elles restées inchangées dans l'ensemble. S'agissant des gaz synthétiques, la tendance légèrement baissière observée ces dernières années se poursuit."*[65]

### 4.7.2. The Respondent's ability to meet its NDC and its commitments under the Paris Agreement pursuant to the available and planned climate mitigation measures

92 The Respondent simply claims that with the proposed measures, emissions will be reduced by 50% in 2030 compared to 1990, of which 34% will be achieved domestically, and that it is thus taking the necessary steps to meet its NDC. The Respondent goes on to state that it does not share the view of CAT and CA that the negative outcome of the June 2021 referendum would make it significantly more difficult to achieve the objectives set (Respondent, para. 20), and that the Federal Council has given itself the means to achieve its NDC (Respondent, para. 19).

93 The Applicants submit that the Respondent neither provides any evidence for its claim that the proposed measures will result in the reduction of domestic emissions by 34% by 2030 compared to 1990 levels, nor does it explain why it does not agree with the outcome of CAT's and CA's assessment.

94 In its public communication, the Respondent itself conceded that the reduction path to 2024 will not be sufficient to achieve Switzerland's NDC; that compensating for the delay in emissions reduction will be a major challenge and the share of measures taken abroad will have to be significantly higher than planned (Obs., §34 and footnote 81). In the context of the proposed 2030 target, however, the Respondent does not explain how the mentioned delay could be counteracted. Instead, it refers to technological progress that

[65] FOEN, Légère hausse des émissions de gaz à effet de serre en 2021, 11 April 2023 (link).

admittedly entails clear uncertainties (Obs., §34 and footnotes 85–87), and the (planned) emission reduction measures for 2030 which remain largely similar to the ones in the extant $CO_2$ Act 2011 (Obs., §54).

95 However, in purely arithmetical terms, the Respondent has secured the achievement of the overall (not domestic) 2030 NDC target by allowing itself to flexibly choose the share of domestic reduction (Obs., §34), with the aim of purchasing carbon credits from other countries to the extent necessary, to claim that it has made the necessary reductions (Obs., §54).

96 It should be noted that with regard to the planned 2040 and 2050 targets, the Respondent does *not* allege that it is able to meet these with the proposed measures (Respondent, para. 21).

97 Clearly, and irrespective of the 2021 referendum, with its current and planned climate strategy, the Respondent is not able to meet its commitment in the Paris Agreement to limit global warming to 1.5°C (Obs., s.1.10), neither in terms of its "fair share", nor in terms of its domestic emission reduction pathway. The Respondent rightly does not allege otherwise.

## 5. Request for expert hearing

98 During the hearing on 29 March 2023, the Applicants invited the Court to consider holding an expert hearing particularly relating to the questions posed by the Court to the parties by letter of 16 March 2023.

99 The Applicants are aware that the questions on "fair share" and "carbon budget" raise legal questions which are based on complex technical matters. If the Court comes to the view that some issues remain unclear despite this submission and its annexes, the Applicants respectfully invite the Court to hold an expert hearing on these issues.

Zurich, London and Lausanne, 27 April 2023

Yours faithfully,

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*Verein KlimaSeniorinnen and Others v Switzerland* (Application no. 53600/20)
Table of content of the annexes to the submission to the ECtHR of 27 April 2023

Doc. 1: Respondent's written answers with paragraph numbers added ("written answers")

Doc. 2: Dr. Yann Robiou du Pont and Dr. Zebedee Nicholls, "Calculation of an emissions budget for Switzerland based on Bretschger's (2012) methodology," 26 April 2023 ("Expert Report")

Doc. 3: Request to FOEN for access to official documents, 6 April 2023

Doc. 4: Response by Climate Analytics, represented by Prof. Dr. Carl-Friedrich Schleussner, 26 April 2023 ("CA response")

Doc. 5: Response by Prof. Dr. Niklas Höhne, NewClimate Institute and Bill Hare, CEO Climate Analytics, acting on behalf of the CAT consortium, 26 April 2023 ("CAT response")