The Hague Court of Appeal
18 April 2017
Case number 200.178.245

RESPONDENT'S NOTICE ON APPEAL
INCLUDING NOTICE OF CROSS-APPEAL

In the case of

THE URGENDA FOUNDATION
established in Amsterdam,
respondent in the principal appeal,
appellant in the cross-appeal,
claimant in the first instance,
attorneys: *mrs.* J.M. van den Berg and M.E. Kingma

versus:

THE LEGAL PERSON UNDER PUBLIC LAW
THE STATE OF THE NETHERLANDS,
THE MINISTRY OF INFRASTRUCTURE AND THE ENVIRONMENT
seated in The Hague,
appellant in the principal appeal,
respondent in the cross-appeal,
defendant in the first instance,
attorneys: *mrs.* G.J.H. Houtzagers and E.H.P. Brans

Contents

Part I. General

1. **Introduction: the judgment and the arguments between the parties in the first instance** **p. 5**
   - *Reader's guide* p. 9
2. **The issue of climate change** **p. 11**
3. **Analysis** **p.20**
   - *The IPCC* p. 20
   - *Translation of the IPCC findings to the Paris Agreement: the Structured Expert Dialogue* p. 25

- *The interconnection between dangers, global warming, cumulative emissions and emission reductions in the IPCC* p. 27
- *Linear relationship between cumulative emissions and carbon budget* p. 29
- *Intended Nationally Determined Contribution of Paris* p. 35
- *Reasons for Concern: risks and dangers of global warming* p. 36
- *Human dependence on ecosystem goods, functions and services* p. 39
- *Climate risks proven to be greater since the IPCC AR4 report* p. 40
- *Climate risks increase as the temperature continues to rise* p. 41
- *Paris Agreement* p. 42
- *PBL report on Dutch climate policy* p. 43

4. Current developments **p. 47**

- *Measures* p. 51

Part II. The State's grounds for appeal

5. Urgenda's standing; ground for appeal 1 **p. 53**

- *Ground for appeal 1* p. 53
- *Urgenda's claims fall within the scope of Book 3 Section 305a of the Dutch Civil Code* p. 53
- *The claims fall within the scope of Urgenda's objects formulated in its by-laws: (part 1) territorial scope* p. 55
- *The claims fall within the scope of Urgenda's objects formulated in its by-laws: (part 2) the interests of future generations* p. 56
- *Conclusion regarding ground for appeal 1* p. 59

6. IPCC reports and conclusions of the court: grounds for appeal 2-8 **p. 60**

- *Introduction* *p. 60*
- *Is the 25%-40% reduction in 2020 necessary for reaching the 2 °C target?* P. 66
- *Ground for appeal 2* p. 71
- *Ground for appeal 3* p. 73
- *Both AR4 and AR5 call for a swift and radical reduction of emissions* p. 74
- *Ground for appeal 4* p. 75
- *Ground for appeal 5* p. 76
- *Ground for appeal 6* p. 77
- *Ground for appeal 7* p. 77
- *Ground for appeal 8* p. 80

7. Mitigation, adaptation and climate policy: grounds for appeal 9-20 **p. 82**

- *Introduction* p. 82
- *Ground for appeal 9* p. 82
- *Ground for appeal 10* p. 83
- *Ground for appeal 11* p. 84

- *Ground for appeal 12* p. 84
- *Ground for appeal 13* p. 87
- *Ground for appeal 14* *p. 87*
- *Ground for appeal 15: The waterbed effect and carbon leakage* *p. 88*
    - *The Netherlands is only responsible for its own emissions* *p. 89*
    - *The State's defence is an ad hoc argument* *p. 89*
    - *Dutch emission reductions do not result in emission increases elsewhere* *p. 91*
    - *Repairing the ETS will permanently counter the waterbed effect* *p. 93*
    - *In implementing the Paris Agreement, the waterbed effect will not occur* *p. 95*
    - *Under an unamended ETS, 'additional' allowances will not become available on the market before 2050* *p. 96*
    - *The waterbed effect is a form of carbon leakage* *p. 98*
    - *Conclusion regarding ground for appeal 15* *p. 99*
- *Ground for appeal 16* *p. 99*
- *Ground for appeal 17* *p. 101*
- *Ground for appeal 18* *p. 102*
- *Ground for appeal 19* *p. 103*
- *Ground for appeal 20* *p. 104*

8. The unlawful act: grounds for appeal 21 – 27 **p. 105**

- *Introduction* *p. 105*
- *Urgenda's claim* *p. 108*
- *The district court's judgment* *p. 108*
- *Overview and analysis of the State's grounds for appeal 21 - 27* *p. 109*
- *Causality, damage and the unlawful act in the context of climate change* *p. 111*
- *A more focused look at claims based on liability law* *p. 112*
- *Conclusion regarding the protective scope of Book 6 Section 162 of the Dutch Civil Code and the associated remedies* *p. 121*
- *About the specification of the standard of due care of Book 6 Section 162 of the Dutch Civil Code* *p. 122*
    - *General* *p. 122*
    - *'Reflex effect' as a means to specify the 'open' standard of due care* *p. 123*
- *The hazardous negligence doctrine as a means to specify the 'open' standard of due care* *p. 127*
    - *The hazardous negligence doctrine: (1) the hazardous negligence doctrine and the criteria contained therein have a more general meaning than contended by the State* *p. 128*
    - *The hazardous negligence doctrine: (2) climate change as a problem resulting from 'multiple causes' (the issue of 'the many hands') of dangers and risks* *p. 131*
    - *The hazardous negligence doctrine: (3) multiple cooperative/cumulative causes and the Potash Mines ruling* *p. 133*
    - *The hazardous negligence doctrine: (4) the significance of the Potash Mines ruling for Urgenda's action arising from an unlawful act against climate change* *p. 135*
- *Individual responsibility for contributing to climate change: the opinion of the US Supreme Court in Massachusetts v EPA* *p. 140*
- *Ground for appeal 21: 'Reflex effect'* *p. 142*

- *Ground for appeal 25: Hazardous negligence doctrine* *p. 146*
    - *General* *p. 146*
    - *Factors (i-iii): the nature and scope of the damage resulting from climate change, the knowledge and foreseeability of the damage and the likelihood that dangerous climate change will materialise* *p. 147*
    - *Factor (iv): the nature of the actions (or omissions) of the government* *p. 150*
    - *Factor (v): the onerousness of taking precautionary measures* *p. 152*
    - *Factor (vi): the discretionary power accorded to the State in the performance of its public duty – with due regard to the principles of public law* *p. 157*
    - *Conclusion* *p. 165*
- *Ground for appeal 23: Damage; and Ground for appeal 24 Causal link* *p. 166*
- *Ground for appeal 26: Attribution* *p. 167*
- *Ground for appeal 27: Relativity* *p. 168*
- *Ground for appeal 22: The criteria establishing an unlawful act have not been met* *p. 169*
- *Final remark: the possible relevance of Book 6 Section 166 of the Dutch Civil Code and Book 6 Section 99 of the Dutch Civil Code for the State's liability* *p. 169*

9. The system of the separation of powers; ground for appeal 28 **p. 172**

10. Ground for appeal 29 (catch-all ground for appeal) **p. 181**

Part III. The cross-appeal

11. Ground for appeal in cross-appeal: direct invocation of Articles 2 and 8 ECHR **p. 182**

Conclusion and claim **p. 185**

Part I: General

1. The judgment and the arguments between the parties in the first instance

1.1 Urgenda adheres to the procedural documents produced in the proceedings in the first instance and adheres to the numbering of the Exhibits of the proceedings in the first instance. Urgenda submits the new Exhibits, nos. **104 - 144**.

1.2 Urgenda has taken cognizance of the State's Statement of Appeal.

1.3 Urgenda notes with some disappointment that the State uses a substantial part of its grounds for appeal, mainly grounds for appeal 2 through to 20, to challenge the facts, or at least attempts to sow doubt about those facts.

1.4 The State refrained from doing so in the proceedings in the first instance, when the parties agreed on the facts and merely held different opinions on what the legal meaning and consequences of those facts should be vis-a-vis the State's duty of care. To this Urgenda attached the consequence that the State has a legal obligation to lower the Dutch emission levels more swiftly and more significantly than the State intends to do, and applied to the court for an order to that effect.

1.5 Urgenda realises, and has always realised, that it applies for a far-reaching order from the court.

1.6 Nevertheless, Urgenda felt confident to apply for such an order as it trusts in the rule of law in the Netherlands as well as in the power of facts.

1.7 The facts of the climate problem are such that Urgenda believes they support the requested order.
However, this entails a willingness to take cognizance of the facts, which involves a significant effort as the problem is complex. Urgenda would like to quote from its reply in the original proceedings (Reply no. 629), from the book 'Climate Change Liability':

"Climate change presents to society as a whole a wide range of threats, and a narrower range of opportunities, on the political, economic and social level. It also poses questions and challenges for the law. (…)

Climate change itself is multifaceted in many respects: it raises physical, scientific, economic, social, political and cultural issues along with legal ones. The web connecting the various causes and effects of climate change is complex. Possible legal solutions to climate change problems are likewise complex and difficult to classify. (…)
The law exists to serve society, and has accordingly evolved to meet the changing needs and

challenges of society. With climate change, this evolution involves – and will, we believe, increasingly involve – both the application of existing legal concepts including some ancient doctrines generally seen as dormant if not extinct, to new factual issues, and the development of new legal concepts."

1.8 Climate change is indeed a complex issue and poses problems for humans which they have never faced before, on a scale beyond our imagination. It entails causal chains that are long, complex and perceived as almost abstract, which is aggravated by the fact that problems can take many decades or even centuries to develop. Climate change is set to impact all aspects of our societies, the ecosystems of this planet on which we live and which we need to sustain the human race. And then there is our disbelief that we, insignificant humans, could be the cause of all this on account of that innocently small amount of smoke that is released when we light a fire, or the modern versions of fire, such as car engines, coal plants and gas turbines, which provide us with warmth, energy and prosperity.

1.9 Urgenda is deeply grateful to the district court for the effort it was willing to expend – as is evident from the structure and content of the judgment – to take cognizance of the facts regarding climate change and, mostly, to become fully aware of these facts and their implications. The facts, not Urgenda, convinced the court that the decision asked of the court was both needed and required.

1.10 Urgenda requests the court of appeal to also be willing to be guided by the facts, like the district court was.

1.11 For this reason Urgenda regrets that in its appeal the State attempts to sow doubt and uncertainty about the facts of the dangers and risks of climate change presented by Urgenda.

1.12 To substantiate the facts it has presented, Urgenda relies as much as possible on undisputed or at least highly authoritative sources. Its main sources are the reports of mainly the Intergovernmental Panel on Climate Change (IPCC) but also the UN Environment Programme (UNEP), for instance. It is scientific literature, which is not always easily accessible. Its choice of sources to prove the facts was predominantly based on the idea that when there is no debate on the facts themselves, the proceedings could focus on the crux of the matter, namely does the State have a duty of care towards its citizens with respect to the dangers of climate change? And can those citizens call the State to account in respect of fulfilling its duty of care, through the courts if need be?

1.13 The table of contents of the district court's judgment can almost be viewed as an indicator for those who want to take cognizance of the true problem of climate change and how 'the world' has so far addressed and attempts to address the problem.

1.14 Referencing the facts (under C), the district court identifies the findings and reports of the IPCC (both AR4 and AR5), of the Netherlands Environmental Assessment Agency (*Planbureau*

voor de Leefomgeving, hereinafter: PBL) and the Royal Netherlands Meteorological Institute (*Koninklijk Nederlands Meterologisch Instituut*, hereinafter: KNMI), and of the Emissions Database for Global Atmospheric Research (EDGAR) and UNEP as the core sources for the relevant facts regarding the cause, nature, severity and urgency of climate change and the attendant consequences.
These are also the core sources for answering the question of what actions should be taken (and which avenues would support those actions) if it were decided that the consequences must be prevented.
Without exception, the sources are undisputedly objective and scientifically sound, regarding which see paragraphs 2.8-2.10 of the judgment with respect to the IPCC and UNEP, paragraphs 2.22 and 2.23 with respect to the KNMI and PBL, and paragraphs 2.25 regarding EDGAR.

1.15 Among the facts referenced by the district court, it mentions (under D) how progressively more detailed legal and policy frameworks have developed in response to and concurrent with evolving human knowledge of the dangers and risks associated with climate change. The district court naturally paid special attention to the United Nations Framework Convention on Climate Change, but subsequently also to the policy and legal frameworks that developed in a European and a national context.
The content of the relevant documents (treaty texts, regulations, policy documents) is also undisputed. Moreover, a substantial part of the documents originates from the State or was compiled during international and inter-state consultations in which the State exercised its co-decision powers and right of consent as regards the substance.

1.16 During the proceedings in the first instance, the debate between the parties therefore centred on the legal core question that remains a point of contention between the parties to this day, namely: does the State have a *legal obligation* to pursue an adequate climate policy? And if so, does this duty entail the 25%-40% reduction of Dutch CO2 emissions by 2020 compared to the level of emissions in the Netherlands in 1990, as claimed by Urgenda?

1.17 The existence of a 'legal obligation' entails and results in the fact that fulfilment of that obligation can be enforced in court.
This also applies to a legal obligation of the State. After all, in a state under the rule of law the State itself as well as all its bodies are bound to the laws and regulations laid down by the State. This also means that 'legal protection' can be sought against the State if the State's actions contravene or will likely contravene its legal obligations.

1.18 If Urgenda has interpreted it correctly, the State has not denied, neither in the proceedings in the first instance nor in the appeal proceedings, that it has a special responsibility to combat climate change and the attendant consequences.

1.19 But the State fiercely opposed Urgenda's assertion that this obligation also takes the form of a legal obligation, which Urgenda may rely on. The State therefore interprets its responsibility to combat climate change as one which it can neglect without being held accountable in court

by its citizens. It interprets this responsibility as a public duty (see Article 21 of the Constitution) the fulfilment of which it does not have to account for in court. Importantly, this goes far beyond the mere assertion that the State is entitled to a generous degree of policy freedom with respect to its climate policy. The State claims to have a *limitless* discretionary power without any judicial control, no less in a matter regarding which the State has recognised that it has major consequences and risks for the Dutch territory, Dutch society and its citizens.

1.20 In the proceedings in the first instance, the State argued in its main defence (also according to the district court, see paragraphs 4.2 and 4.34) against Urgenda's claims that according to national, Dutch law it has no legal obligation to pursue a climate policy that extends beyond its current actions to carry out its international obligations, which it only has towards other states and which it believes Urgenda cannot invoke.

1.21 The State prefers to view climate change as a collective problem of the community of states as a whole for which there is only collective responsibility rather than an individual responsibility which the State has in common with all other states. For instance, in its Statement of Appeal, the State invokes the image that climate change is a global commons problem[1] (Statement of Appeal 4.13 et seq.). The State cites from the IPCC's AR5 report that a global commons problem elicits free rider behaviour and that climate change can therefore solely be solved through collective, international cooperation (Statement of Appeal 4.16).

1.22 The State has furthermore argued – partially in view of the fact that it fulfils or will fulfil the obligations it entered into on the international stage – that it is pursuing an adequate climate policy.
Incidentally, the State did acknowledge in the proceedings in the first instance that the reduction targets currently agreed between all states in an international context are insufficient to prevent dangerous climate change. It appears that in the appeal proceedings the State still cannot deny this, but seems to want to shift emphasis, namely (Statement of Appeal 13.16) that it 'cannot *entirely* yet' be ruled out that measures '*could* still be taken' to keep the prevention of dangerous climate change *within reach* if it were concluded in 2030 that insufficient reduction measures have been taken.

1.23 In section 4 of the judgment ('The Assessment') the district court established and found that according to *written* national law, the State does not have a legal obligation which Urgenda can invoke directly for the sought emission reductions (see paragraph 4.52). The district court then assessed whether such a legal obligation must still be found and accepted based on national *unwritten* law, more specifically the (unwritten) legal standard of due care in society which the State must observe under Book 6 Section 162 of the Dutch Civil Code (paragraphs 4.53-4.82).

[1] A 'global commons problem' is a situation in which damage is caused to a public good (for instance, soil pollution or

1.24 The district court established that the State does have the (unwritten) legal obligation as asserted by Urgenda to achieve the emission reductions sought by Urgenda (paragraph 4.93).

1.25 The State's argument in the appeal proceedings mainly centres on the fact it believes that the district court misunderstood the reports, mainly those of the IPCC, or misinterpreted them and in particular attached a legal significance to them which they do not have or which should not be accorded to them. The State also complains that those reports have too many uncertainties to justify the emission reductions ordered by the district court. The State alleges that the district court failed to recognise other facts about climate change problems or about the limited means available to the State to reduce the Dutch emission levels.

1.26 With all due respect: most of the State's defences are ad hoc defences, brought about by political unwillingness. If anything, the arguments the State has put forward in this context underline the general tenor in scientific literature and also confirm what Urgenda asserted in the proceedings in the first instance and in particular in its reply: the issue of climate change can still be resolved with technological, financial and economic means, but *political unwillingness* remains the obstacle. A quote from the same book as referenced above:

"The debate about climate change itself remains as vigorous as ever. The overwhelming scientific consensus is that it is occurring, that it is potentially very damaging, and that its cause is largely anthropocentric in nature. (…)
As is well known, the current international regime reflects what is politically possible and not what is considered scientifically essential or even desirable. The gap between these different indicia is immense, and it is not clear even whether it is currently closing or opening wider."

1.27 Due to political reluctance, an adequate approach to the issue of climate change has been so sluggish that climate change has now also become very difficult to resolve with technological, financial and economic means. 'The window of opportunity is rapidly closing' is a turn of phrase that is often used in recent scientific literature.[2] The Dutch government, as a representative of the State, is expressly not a member of the 'coalition of willing'. In fact, it single-handedly ensured that in terms of climate policy the Netherlands ranks more or less lowest in the European ranking according to a recentreport of Statistics Netherlands (CBS) , which Urgenda references below.

Reader's guide

1.28 The structure of this defence on appeal is as follows.

1.29 Urgenda starts with that which the State has not addressed at all, namely: what is the issue of climate change? Urgenda presents a brief overview of climate change and the debates about this issue. The overview is intended as a tool which the court of appeal may want to use to

[2] For instance, **Exhibit 108**: Smith et al., "Biophysical and Economic limits to negative CO_2 emissions", Nature Climate Change 6, 42–50 (2016), p. 48 and the sources referenced therein.

gain insight into the playing field while also serving as a frame of reference for excerpts from the IPCC reports, for instance.

1.30 This is followed by an in-depth analysis, in which Urgenda explores in more detail the findings of the most recent IPCC report on climate change, and in particular the carbon budget and its implications, also as regards the pace and urgency of emission reductions. In this section, Urgenda also deals with the great dangers and risks of climate change and briefly discusses the Paris Agreement and its consequences for the Dutch climate policy. The in-depth analysis concludes with several recent developments, in particular the National Energy Outlook 2016 (NEV 2016) and the latest emission figures.

1.31 Urgenda then discusses the State's grounds for appeal, mainly in the order in which they were represented by the State. However, Urgenda has chosen to give a general comment about the theme of several grounds for appeal presented by the State, because it wants to prevent a 'running out of steam' that may arise in extensively discussing each and every idea presented by the State in its grounds for appeal individually.

1.32 Urgenda concludes with a ground for appeal in cross-appeal of a purely legal nature: is Urgenda entitled to direct reliance on Articles 2 and 8 ECHR?

2. The issue of climate change

2.1 The State has written a lot about the problems and objections it believes are attached to the national approach to national and global climate change desired by Urgenda.

2.2 But the State has hardly touched on the issue of the severity, scope, nature and urgency of climate change and how it could seriously impact the Netherlands as well.
And the State has steered clear altogether of the fact that the per capita emissions in the Netherlands are among the highest in the world, making the Netherlands one of the relatively biggest contributors to the climate change problem, while this is exactly where the special responsibility of the State lies to combat climate change.

2.3 These two specific elements of climate change, a no-go subject of discussion for the State, have convinced Urgenda of the necessity of and justification for the decision requested from the Dutch court.

2.4 Urgenda is aware that the decision it has requested is drastic, as was the district court given its considerations about the separation of powers in the Netherlands and the role of the courts. But the severity and scope of the dangers and risks of climate change are such that they warrant such a decision.

2.5 Urgenda is of the opinion that the district court reached the same conclusion based on the facts and took its responsibility as an element of government authority to provide legal protection when rights and interests are in danger of being or are compromised.

2.6 Urgenda believes that it is therefore useful to provide a general outline of the issue of climate change, which role is assigned to the international scientific community and how international and national politics have responded to climate change over the years, but mainly from 1992 onward.

2.7 People use energy on a very large scale to increase productivity and with it their welfare. Since the beginning of the Industrial Revolution, that energy has mainly been produced by burning fossil fuels (coal, oil, gas). CO_2 is released during this process of combustion, which ends up in the atmosphere.

2.8 Roughly half of all the CO_2 emitted remains in the atmosphere for ever or at least for several millennia.[3] Each CO_2 emission adds to the amount of CO_2 in the atmosphere, thus further increasing the concentration of CO_2 in the atmosphere.

[3] Explanatory note: the atmosphere, biosphere (the land mass and in this context mainly the forests and plants) and the oceans are all connected with each other, and together make up a system of interconnected vessels so that they are balanced or can return to that state of balance following a disturbance in one of its components. Due to this system of interconnected vessels, about 50% of every extra CO_2 emission into the atmosphere is absorbed by the oceans, which

2.9 CO_2 is a greenhouse gas which traps heat. The more CO2 ends up in the atmosphere, the greater the greenhouse effect in the atmosphere, which in turn increases global warming.[4]

2.10 The increase in global temperatures will continue for as long as CO2 continues to be emitted into the atmosphere. When all CO2 emissions stop, the earth's temperature will stabilise at a new level which will virtually remain unchanged for millennia to come. The rest of the earth's climate system will continuously change in a long process of adjustment to the new temperature balance. For instance, sea levels will continue to rise for hundreds of years and ice caps will continue to melt. The delayed response of the entire climate system to a changing CO2 concentration in the atmosphere is also known as climate inertia. This means that the current concentration of CO2 and also current global warming at about 1.1 °C do not only result in the consequences that are currently clearly detectable, but will have other, drastic consequences that are not yet apparent, but will mainly impact generations to come.

2.11 Since each CO2 emission in the atmosphere will remain there for millennia, with its accompanying warming effect, the only way to stop climate change is to phase out all emissions of greenhouse gases and mainly of CO2. In other words, it is not enough to stabilise the emissions at a certain level. What needs to happen is a stabilisation of the atmospheric concentration, which requires zero emissions. So far large amounts of greenhouse gases, mainly CO2, have been pumped into the atmosphere on a daily basis since the Industrial Revolution.

2.12 Due to all the CO2 that has been emitted since the Industrial Revolution, global warming is indeed a fact. At present global warming is taking place at roughly 1.1 °C compared to the pre-industrial age.[5]

2.13 The earth will continue to warm up as long as emissions continue. As a result, the CO2 'budget' available in order to keep global warming under 2 °C is limited. And if global warming must remain lower than 1.5 °C, the available budget is even substantially smaller. This is also known as the carbon budget. The concept of the carbon budget and its consequences were extensively discussed in the latest IPCC report, predominantly in the summary AR5 Synthesis Report.[6] Urgenda discusses this report in more detail below.

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acidify as a result, and by the biosphere (forests) in a process that lasts between 5 to 10 years. The other half of CO2 remains in the atmosphere for several millennia as CO2 is a stable chemical compound that does not decompose.

[4] For the sake of completeness: there are also other, non-CO2 greenhouse gases, such as methane. These have a stronger warming effect than CO2 in the short term, but since they are not chemically stable compounds, they strongly decompose over a matter of decades and do not remain in the atmosphere indefinitely. The warming effect of these greenhouse gases are, essentially, temporary in nature. They produce an extra but temporary peak on top of the warming caused by CO2. The warming effect of CO2, however, is permanent, at least in time frames relevant for man. Climate science has started to make mention of the Anthropocene to indicate the new geological era, like the Jurassic, Cretaceous or the Carboniferous, that has begun on earth, referring to the current CO2 concentrations which are edging the planet to a new equilibrium that will drastically alter the face of the earth.

[5] **Exhibit 105:** World Meteorological Organization (WMO) Statement on the State of the Global Climate 2016

[6] **Exhibit 104**

2.14 If the annual global emissions do not change and remain at their 2015 level, the carbon budget that will limit global warming to 2 °C will be depleted in twenty years' time,by 2037. At the current level of global emissions, the carbon budget to keep global warming below 1.5 °C will be finished in five years, in 2022 (see chapter 4). The annual global emissions have not been stable over the past decades and have, in fact, increased annually by about 2%. In other words: the atmospheric concentration of CO2 is growing at an increasingly higher pace. Since measurements began in about 1850, 16 of the 17 hottest years were recorded in this century (the other in 1998).

2.15 Article 2 of the 1992 United Nations Framework Convention on Climate Change (UNFCCC), to which 195 countries (virtually all) are parties, states in brief that dangerous climate change must be prevented. The concept of 'dangerous' climate change cannot be deduced from the text of Article 2, although it does contain a number of indicators.

2.16 For the purpose of international consultations on climate change, the UNEP and World Meteorological Organization (WMO) established the IPCC in 1990. The IPCC is tasked with presenting the state of climate science twice per decade by publishing so-called Assessment Reports. AR4 is the fourth Assessment Report, which was published in 2007, and AR5 the fifth Assessment Report, published in 2013/2014.

2.17 The IPCC reports also discuss the impact of climate change (in the report of Working Group II). Since the third IPCC report (Third Assessment Report, or TAR) from 2001, this impact study has been based on five Reasons for Concern. The current global warming at 1° C compared to pre-industrial times already shows significant and severe disruptions of the climate system, with serious consequences for ecosystems and extensive damage to societies. This was echoed by the IPCC's most recent report, AR5. An even more recent and even more alarming report is the WMO Statement on the State of the Global Climate 2016, published in 2017 by the WMO.[7]

2.18 The parties to the UNFCCC convene every year at a climate summit, where they also make decisions on the joint climate policy. In the Conference of the Parties (COP) decision[8] taken at

[7] **Exhibit 105**

[8] A COP decision is taken by the Conference of Parties, and is a (unanimous) decision of the parties to the treaty that have convened at a climate summit. The legal status of a COP decision can be described as follows: "Since most international bodies cannot make legally binding decisions, at least not 'binding' in the classic legal sense, extensive use is made of other instruments that fall in the category of 'soft law'. This relates to, for instance, decisions of COPs, of (…). It is argued in recent legal scholarschip that such decision are legally relevant and could be considered as developing international administrative law. (…)
COPs mainly take consensus-based decisions, often also when the rules of procedure provide the opportunity to take majority decisions (in various forms). COP decisions may not be legally binding in all cases, but can directly impact the obligations of the parties to the treaty." (*translation*) Goote and Hey, Inernationaal Milieurecht (*International Environmental Law*), Ch. 19 in: Handboek Internationaal Recht (*Handbook of International Law*), T.MC. Asser Institute, 2007, The Hague.
On COPs under Multilateral Environmental Agreements (MEAs), see also: "As with soft law, these regulations are not strictly speaking a formal source of international law, which in this case would be the constitutive treaty. They remain, nevertheless, a very important technique for the development of international standards. In international

the climate summit in Cancun (Mexico) in 2010, the parties to the treaty expressed the need, based on the findings of AR4, to limit global warming to 2 °C while also acknowledging the necessity to consider strengthening the long-term goal of the UNFCCC, including keeping global temperature rise to 1.5 °C.[9] The district court cited this decision in the so-called Cancun Agreement in paragraph 2.49 of its judgment. And this decision has been repeated in subsequent COP decisions.

2.19 Based on the findings of AR5, and mainly the Reasons for Concern, the Paris Agreement – a legally binding agreement – was concluded in 2015, building on the Cancun Agreement and later COP decisions. Where in Article 2 of the 1992 UNFCCC it was expressed that a dangerous climate change should be prevented, the parties to the treaty decided to elaborate on this stipulation in Article 2 of the Paris Agreement ofDecember 2015, specifying that in 2100 global warming must remain *well below* 2 °C and that the parties should strive *to limit* global warming to 1.5 °C as of the year 2100.[10]

2.20 Urgenda would like to point out that the agreed on temperature target not only concerns the degree of global warming (substantially lower than 2 °C or 1.5 °C) but also the rate at which it occurs. Global warming may only have reached the level of 'well below' 2 °C in 2100. The reason for this is that the rate of global warming should not exceed the adaptability of the earth's ecosystems, also in view of the key role ecosystems play in ensuring livelihood security for societies. This mainly relates to food production, which Article 2 of the UNFCCC identifies as an indicator of dangerous climate change. In this sense, it is relevant to repeat that at the current global emission levels, global warming will amount to 2 °C already around 2037 and not as late as 2100.

2.21 If global emissions are drastically reduced in the shortest possible term, it will not only slow down the rate of global warming, but also the rate of the depletion of the carbon budget for a two-degree warming. This budget will then be depleted much later than by 2037. This means that there will be more time to make the transition to a society without CO2 emissions and other greenhouse gases, also known as the transition to a fossil-free society. This process will demand the necessary effort and will not happen overnight. This development is known as the social inertia of climate change.

2.22 The fact that there is inertia in the climate system as well as in the social system adds a special dimension to the problem of climate change. Emissions released in the atmosphere today will have consequences the full extent of which will only become clear and apparent in the coming centuries. In other words, we do not see the full impact of our emissions. By the time we are able to see the grave consequences of climate change, so many more negative consequences

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environmental law, these regulations mainly take the form of decisions adopted by the COPs (or CMPs) on various subjects (…). "Dupuy and Vinuales, International Environmental law, Cambridge Univ. Press, 2015, p. 36.

[9] **Exhibit 31** to the summons

[10] **Exhibit 106**: Paris Agreement. The UNFCCC is a framework treaty, as is also apparent from its full name, the United Nations Framework Convention on Climate Change. The Kyoto Protocol is more of a treaty concluded in the framework of the UNFCCC.

will be 'in the pipeline' that we can no longer prevent from happening and to which we are already committed. Moreover, it is not possible to cease all emissions overnight. It requires a change in the way our society is structured, which will take several decades, during which time the problem of climate change will worsen.

2.23 Urgenda submitted the World Bank report 'Turn Down the Heat' to the district court in the proceedings in the first instance. The report attempts to describe what the world would look like in the event of a global temperature rise of 4 °C in 2100. While 4 °C may not sound like a lot, the effect of such a warming would be devastating. A warming of 4 °C would trigger consequences so massive that the earth would no longer be able to sustain a global population of nine billion, but substantially less than that numver.[11] Without drastic reductions of greenhouse gas emissions, and mainly of CO2, global warming will have reached the 4 °C mark by 2100.

2.24 The conclusion is: swift and drastic reductions in the shortest possible term delay the warming process and the depletion of the carbon budget, regardless of whether that is the budget for 2 °C or 1.5 °C, and create more time and opportunities to prevent dangerous climate change.

2.25 The window of opportunity for this social transition has become so small, due to the virtual absence of emission reduction effortss in the past two decades, that the task of preventing dangerous climate change through phasing out all emissions has become exceedingly challenging.

2.26 This is why scientific literature is increasingly taking into account that more CO2 will be emitted than is allowable under the available carbon budget for a warming of 2 °C by 2100, let alone under the carbon budget for a warming of 1.5 °C. Therefore, research has increasingly been done into the question whether it would be possible to remove previously emitted CO2 from the atmosphere. This would be done with Carbon Dioxide Removal techniques, or CDR techniques, which would be able to counter a temporary overrun of the carbon budget. Emission scenarios in which this option is explored are called overshoot scenarios.[12]

2.27 Most overshoot scenarios make use of BECCS, also known as BE-CCS. Forests and plants absorb and store a certain amount of CO2 from the atmosphere. The idea is to utilise forests and plants (instead of coal or gas) on a massive scale for fuelling power plants. The CO2 emitted by the power plants during combustion must be captured and stored underground; Carbon Capture and Storage (CCS). The forests used in this way for bioenergy (BE) must be replanted, and the new trees will absorb CO2 from the atmosphere before being used for

[11] A 4 °C warming may not seem like much, but if the earth were to be 5 °C – 7 °C colder we would have an ice age in which large parts of the planet would be covered in ice. Ergo, if the earth were to be 4 °C warmer, our planet would be similarly different from what we know today.

[12] In legal ground 2.32, the court copied a figure from the UNEP Emission Gap Report 2014 showing examples of two different overshoot scenarios and the attendant negative emissions (the coloured section under the zero line).

fuelling power plants. The abbreviation BECCS thus stands for: Bioenergy – Carbon Capture and Storage.

2.28 BECCS and CCS are currently still a pipe dream. It sounds great and promising in theory: energy generation that goes hand in hand with negative emissions, meaning that the process extracts CO2 from the atmosphere instead of adding CO2 to the atmosphere as is currently the case. But scientific literature has also warned about the considerable objections to these and all other forms of negative emissions that are currently being explored. All of the options are expensive and may be associated with extra risks while some require excessive energy and could create a situation of competition with the food production industry. Publications in scientific literature therefore seriously doubt whether the techniques will become available on a scale required to correct overshoot.[13] The bigger the overshoot, the less realistic it is that it can be reversed in time.

2.29 The IPCC's AR5 report explores, based on four representative scenarios (Representative Concentration Pathways – RCPs), how the global emission trend could develop in the future. The main drivers of emission growth are population growth and particularly economic growth. The RCP 8.5 scenario assumes that no or virtually no climate policy will be implemented. This scenario assumes that poor countries, which currently have virtually non-existent emission levels, will experience industrial development and will emit greater levels of greenhouse gases in the future. This scenario will lead to a warming of over 4 °C in the year 2100.

2.30 The RCP 2.6 scenario, on the other hand, assumes an ideal situation in which global reductions begin as soon as possible and that all countries participate and cooperate intensively to ensure that the reductions will be implemented as cost-effectively as possible. This requires one global price to be put on the emission of CO2. In this idealised RCP 2.6 scenario there is a more than 66% chance that global warming by 2100 will be limited to 2 °C (probability is connected to the ranges of scientific (un)certainty about the exact degree of climate sensitivity to atmospheric concentrations of CO2). The RCP 2.6 scenario therefore assumes a level of global cooperation that is far from a reality.

2.31 There is another problem associated with the realism of the RCP 2.6 scenario.
The RCP 2.6 scenario is representative of all 116 scenarios investigated by the IPCC that result in a global warming cap of 2 °C by 2100.[14] Most scenarios (101 in total, representing 87%) can

[13] See for instance: Fuss et.al. 'Betting on negative emissions' in: Nature Climate Change, 4, 850-853 (Oct. 2014); Vaughan et.al. 'Expert assessment concludes negative emissions may not deliver', in: Environmental Research Letters 11 (2016) 095003; PBL report 'Implications of long-term scenarios for medium-term targets (2050)', November 2015 of which Chapter 4 deals with the problems associated with negative emissions; PBL report 'A closer look at differences in estimates between carbon budgets', February 2016, Chapter 1 'Carbon budget is very limited', par. 1.1 'Swift transition of the economy', par.1.2 'With negative emissions'; Rogelj et.al. 'Paris Agreement climate proposals need a boost to keep warming well below 2° C in: Nature Vol.534 631-639 (June 2016).

[14] **Exhibit 108**: Smith et al., 'Biophysical and Economic limits to negative CO_2 emissions', Nature Climate Change 6, 42–50 (2016), p. 43. Co-authored by Van Vuuren, who also works at the PBL. Van Vuuren also co-authored the PBL reports mentioned in the previous footnote.

only reach that result by utilising BECCS on a massive scale or by incorporating other negative emissions in the calculations. As has been explained above: it remains to be seen whether such negative emission can actually be achieved. Scientific literature has warned that pinning hope on future negative emissions technologies (NETs) can never be a reason to refrain from taking drastic emission reductions as soon as possible.[15]

2.32 Where the State in its Statement of Appeal continues to emphasize that there are multiple scenarios to stay below 2 °C of warming, this is only true because those scenarios exist *in theory* buttheir level of realism, from a political and technological standpoint, is highly doubtful. Furthermore, insofar as they are realistic to begin with, *all* scenarios assume that drastic emission reductions will be set in motion immediately, which is something the State vehemently opposes in these proceedings, at least regarding its own emissions.

2.33 Besides RCP 8.5 and RCP 2.6, the IPCC's AR5 report also describesthe scenarios RCP 4.5 and RCP 6, which are intermediate scenarios.

2.34 Of the four IPCC AR5 scenarios, the RCP 2.6 scenario is the only one in which global warming will not only have been capped at 2 °C in 2100, but in which the temperature rise has been stopped on account of the absence of net-emissions ('net emissions' here means that any remaining emissions are compensated by negative emissions). In the three other scenarios, which each represent a much higher number of scenarios from the IPCC database, which contains over 1,000 scenarios, global warming will have exceeded the 2 °C mark in 2100 and will continue to rise after that year.

2.35 When looking at the current situation, global emission levels have been following the RCP 8.5 scenario closest for years, staying just below the level in that scenario, which will lead to global warming of over 4 °C in 2100. The national emission reductions pledged by the parties to the Paris Agreement will only change the emission levels slightly, and are expected to result in global warming of between 2.9 °C and 3.4 °C in the year 2100 if ambitions are not seriously boosted.[16] That is evidently more than 'well below' 2 °C with the objective of staying below 1.5 °C as laid down in the Paris Agreement.

2.36 This implies that the carbon budget available to prevent dangerous climate change is very limited.

2.37 The political problem is that each country wants to have as much of that carbon budget as possible. The economies and welfare of rich, developed countries are built on large-scale combustion of fossil fuels. Poor countries want to have the right to also attain prosperity and point out that the climate problem has been caused by developed countries and their emission since the pre-industrial era. These issues have proven to be the roadblock in concluding global agreements on a fair distribution of the available carbon budget for 25

[15] Ibid, p. 48
[16] UNEP, 'The emissions gap report 2016' (**Exhibit 117**)

years. The parties to the UNFCCC have given up hope that some form of global agreement on this matter can still be reached. Therefore, the Paris Agreement took a different approach: instead of a top-down approach in which agreements are concluded on a global level as regards the global distribution of necessary emission reductions, the parties to the treaty chose a bottom-up approach.

2.38 The Paris Agreement now calls each country separately to account regarding its individual sense of responsibility and each country is called upon to reduce its national emissions whith the highest level of ambition and within self-defined limits of fairness, in view of its responsibility as a contributor to global warming and its own financial, technological and institutional means.

2.39 The constantly repeated argument of the State that climate change can only be solved by concluding agreements on emission reductions in an international (top-down) context is therefore at odds with the bottom-up approach of the Paris Agreement, which has abandoned the idea of making global emission agreements between the parties to the treaty, which the State believes should be waited for.
The State has, in fact, explicitly chosen this bottom-up approach as well, and legally committed itself to this approach by signing the Paris Agreement.

2.40 In this section, Urgenda's aim was to provide a brief overview of the nature and scope of the problem of climate change, also in response to the introduction of the State's Statement of Appeal, and of the necessity and urgency of drastic and ambitious emission reductions by the State.

2.41 The emission reductions of 25%-40% in 2020 compared to 1990 claimed by Urgenda cannot be described as particularly ambitious. For years, Germany, Denmark and the United Kingdom have been pursuing a climate policy aimed at attaining reductions of 40%, 40% and 35%, respectively, by 2020.[17]

2.42 Until not too long ago (2011) the State itself also pursued a reduction policy aimed at a 30% reduction in 2020 (see paragraphs 2.71 - 2.73 of the judgment).
In the proceedings in the first instance, the State was unable to assert, let alone substantiate, that it had compelling reasons for nearly halving that earlier ambition. In the proceedings in the first instance, the State made it clear that it expects a 14%-17% reduction in 2020; see paragraphs 4.26 and 4.33).

2.43 These compelling reasons are also not presented in the appeal proceedings, although the State appears to want to use the small time frame available to it until 2020 (although the State is not clear about this) as a reason to object against the cost-effectiveness of the reductions by 2020, as claimed by Urgenda.

[17] Reply 585, **Exhibits 95, 96 and 86**

2.44 However, it must be borne in mind that back in November 2012, Urgenda notified the State (see paragraph 2.6) that it deemed an emission reduction of 25%-40% by 2020 necessary and desirable. The State could have and should have taken this into account, all the more so when considering that in the context of the UNFCCC suspicions had been raised (see paragraph 2.49 on the Cancun Agreements, discussed above) that global warming should possibly be limited to 1.5 °C instead of 2 °C, which in itself made the need for a stricter reduction policy plausible and, in fact, announced that need.
If due to stalling on the part of the State to meet is legal obligation of quicker and more reductions in the period up to 2020 such reductions have now become more expensive, the State cannot hold this against Urgenda. Incidentally, the Statement of Appeal reveals that the State is still able to implement the reduction order claimed by Urgenda.

3. Analysis

The IPCC

3.1 In its summons in the first instance (Chapters 3.2. and 3.3) Urgenda already extensively addressed the IPCC and the IPCC's Assessment Reports. Urgenda requests to regard as repeated and inserted here that which it argued there.

3.2 The main point of what Urgenda wrote and explained there was that the IPCC is not so much an entity as the name of a scientific project (albeit referred to as humanity's largest scientific project ever undertaken). A changing panel of climate scientists are asked to periodically (twice per decade) determine the state of climate science and to publish a report based on their findings so that (political) decision-makers – within countries or governmental organisations – have the best possible information on which to base their climate policy.

3.3 Drafting the findings of the state of climate science involves periodically identifying all scientific articles published in peer-reviewed scientific journals (meaning articles that are assessed by fellow scientists for scientific soundness regarding methodology, data usage, theory formation and conclusions) and determining whether there is scientific consensus, what the range of consensus is and on what degree of scientific certainty the consensus is based. Subsequently this information is used to create the IPCC Assessment Reports.

3.4 In the more recent Assessments Reports specific terms are used to express the degree of probability of conclusions or findings and the level of scientific community's confidence in the accuracy of its findings. These specific terms are stated at the beginning of each report.[18]

3.5 Each IPCC Assessment Report consists of three separate parts, each drafted by a separate working group. Working Group I (WGI) focuses on scientific knowledge of the functioning of all aspects of the climate system. Working Group II (WGII) focuses on climate change's impact on ecosystems, flora and fauna, as well as human society and focuses on the possibilities of adaptation. Working Group III (WGIII) focuses on the possibilities of mitigating climate change.

3.6 Each (part of an) Assessment Report decribes its content basically three times.

- Each part contains the main report, in which the available scientific literature is discussed per topic.
- Each part also begins with a Summary for Policymakers (SPM). This is a summary of the report that is as concise as possible with minimal use of scientific and technical terminology, making the report's compiled information accessible to decision-makers and policy-makers without a scientific background.

[18] For example, in the Introduction of AR5 WGI SPM, p.4 and particularly in the footnotes 1 to 3. A somewhat more detailed explanation of the definitions used is available in AR5, WG I, Technical Summary, Box TS.1 'treatment of uncertainty' p. 36.

- Each part has a Technical Summary (TS), sandwiched between the SPM and the main report, that is less detailed than the main report but is more technical than the SPM.

3.7 Once the three parts of WGI, WGII and WGIII of the Assessment Report have been adopted, a (much) shorter summary report is completed, the Synthesis Report (SYR; **Exhibit** 104).
The Synthesis Report consists of a main report and a Summary for Policymakers (SPM).

3.8 Drafting each Assessment Report is carried out by a team of authors, but is an open process allowing for commentary on draft versions during various stages of development, including commentary from governments.
The factsheet of the WGI contribution to AR5 (AR5 WGI – available on the IPCC website[19]) shows, for example, that this Working Group Assessment Report received 54,677 comments given by 1,089 experts from 55 countries and by 38 governments.

3.9 Writing and commenting on the IPCC reports is conducted in accordance with the 'Procedures for the preparation, review, acceptance, adoption, approval and publication of IPCC reports' described in Appendix A of 'the Principles governing IPCC work' (available on the IPCC website[20]).

3.10 'Acceptance' of (a part of) an IPCC report means that the text has not undergone a line-by-line discussion and approval, but nevertheless is a comprehensive, objective and balanced representation of the subject matter.
'Adoption' of IPCC reports involves a section-by-section agreement process (and therefore not a line-by-line agreement). This method is used particularly for the main report of the Synthesis Report.
'Approval' means that the material has undergone a detailed, line-by-line discussion and agreement.
All Summaries for Policymakers must undergo the approval process.

3.11 It must be concluded that Summaries for Policymakers are on the one hand highly condensed, accessibly written summaries of the findings, conclusions and implications of climate science in which many details are left out, *but that on the other hand every word of the Summary for Policymakers has been thoroughly discussed by scientists as well as government representatives and that all governments subsequently have committed themselves to the findings, conclusions and implications.*

3.12 The government of the Netherlands has therefore also committed to the AR5 SYR SPM (the Summary for Policymakers of the Synthesis Report of AR5) and the SPMs of AR5 WGI, AR5 WGII and AR5 WGIII; and to the larger Synthesis Report.

[19] http://www.ipcc.ch/report/ar5/wg1/
[20] https://www.ipcc.ch/pdf/ipcc-principles/ipcc-principles-appendix-a.pdf

3.13 This is important in part because the State (Statement of Appeal 5.3 to 5.8) suggests – although not in a ground for appeal, but still – that the judgment of the district court relies heavily on AR4, while AR5 was already available at the time the judgment was pronounced. The State suggests that the court relied on outdated information (Statement of Appeal 5.5) and that, partly as a result of the climate summit in Paris, other parameters are now being used (Statement of Appeal 5.7).

3.14 The accusation that the State appears to be making against the district court is unfair and factually incorrect. It is unfair insofar as the district court has been accused to have based its findings only on the facts that the parties had submitted to it. See paragraph 4.3:

'will base its assessment on that which the Parties have submitted and the facts admitted between them. This concerns both current scientific knowledge and (other) data the State has acknowledged or deems to be correct.'

If the State believes that the district court should have relied on other factual information, then the State should have presented those other facts to the court and if the State fails to do so, it cannot reproach the court for it. In this respect the accusation is unfair.

3.15 Furthermore, the accusation is factually incorrect. In the section of its judgment 'The Facts' the district court in paragraphs 2.18 through to 2.21 devoted great attention to and cited from the Summary for Policy Makers of the IPCC's AR5 WGI. Furthermore, the court in various other places in its judgment refers to AR5 or to responses to the AR5 from, for example, the government of the Netherlands (see, for example, paragraph 2.68 which references a European Commission announcement of 25 February 2015 that mentions the most recent findings of the IPCC and paragraph 2.78 in which the court refers to a letter from the government dated 24 February 2015).

3.16 The SPM of AR5 SYR consists of 31 pages. The text of the SPM is anchored by 19 Headline Statements that can be considered subsections in the SPM in which the statements are further developed and detailed.[21]

3.17 The authors of AR5 SYR have further summarised the SPM by listing these 19 Headline Statements in a two-page document. Urgenda is including this document below in its entirety in its defence on appeal.

[21] *"Headline Statements are the overarching highlighted conclusions of the approved Summary for the Policymakers which, taken together, provide a concise narrative. The four statements in Boxes here are those summarizing the assessment in the Summary Policymakers, sections 1-4".*

Headline statements from the Summary for Policymakers*

Observed Changes and their Causes

Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems.

Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen.

Anthropogenic greenhouse gas emissions have increased since the pre-industrial era, driven largely by economic and population growth, and are now higher than ever. This has led to atmospheric concentrations of carbon dioxide, methane and nitrous oxide that are unprecedented in at least the last 800,000 years. Their effects, together with those of other anthropogenic drivers, have been detected throughout the climate system and are *extremely likely* to have been the dominant cause of the observed warming since the mid-20th century.

In recent decades, changes in climate have caused impacts on natural and human systems on all continents and across oceans. Impacts are due to observed climate change, irrespective of its cause, indicating the sensitivity of natural and human systems to changing climate.
Changes in many extreme weather and climate events have been observed since about 1950. Some of these changes have been linked to human influences, including a decrease in cold temperature extremes, an increase in warm temperature extremes, an increase in extreme high sea levels and an increase in the number of heavy precipitation events in a number of regions.

Future Climate Changes, Risks and Impacts

Continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems. Limiting climate change would require substantial and sustained reductions in greenhouse gas emissions which, together with adaptation, can limit climate change risks.

Cumulative emissions of carbon dioxide largely determine global mean surface warming by the late 21st century and beyond. Projections of greenhouse gas emissions vary over a wide range, depending on both socio-economic development and climate policy.

Surface temperature is projected to rise over the 21st century under all assessed emission scenarios. It is *very likely* that heat waves will occur more often and last longer, and that extreme precipitation events will become more intense and frequent in many regions. The ocean will continue to warm and acidify, and global mean sea level to rise.

Climate change will amplify existing risks and create new risks for natural and human systems. Risks are unevenly distributed and are generally greater for disadvantaged people and communities in countries at all levels of development. Many aspects of climate change and associated impacts will continue for centuries, even if anthropogenic emissions of greenhouse gases are stopped. The risks of abrupt or irreversible changes increase as the magnitude of the warming increases.

Future Pathways for Adaptation, Mitigation and Sustainable Development

Adaptation and mitigation are complementary strategies for reducing and managing the risks of climate change. Substantial emissions reductions over the next few decades can reduce climate risks in the 21st century and beyond, increase prospects for effective adaptation, reduce the costs and challenges of mitigation in the longer term, and contribute to climate-resilient pathways for sustainable development.

Effective decision making to limit climate change and its effects can be informed by a wide range of analytical approaches for evaluating expected risks and benefits, recognizing the importance of governance, ethical dimensions, equity, value judgments, economic assessments and diverse perceptions and responses to risk and uncertainty.

Without additional mitigation efforts beyond those in place today, and even with adaptation, warming by the end of the 21st century will lead to high to very high risk of severe, widespread, and irreversible impacts globally *(high confidence)*. Mitigation involves some level of co-benefits and of risks due to adverse side-effects, but these risks do not involve the same possibility of severe, widespread, and irreversible impacts as risks from climate change, increasing the benefits from near-term mitigation efforts.

Adaptation can reduce the risks of climate change impacts, but there are limits to its effectiveness, especially with greater magnitudes and rates of climate change. Taking a longer-term perspective, in the context of sustainable development, increases the likelihood that more immediate adaptation actions will also enhance future options and preparedness.

There are multiple mitigation pathways that are likely to limit warming to below 2°C relative to pre-industrial levels. These pathways would require substantial emissions reductions over the next few decades and near zero emissions of carbon dioxide and other long-lived greenhouse gases by the end of the century. Implementing such reductions poses substantial technological, economic, social, and institutional challenges, which increase with delays in additional mitigation and if key technologies are not available. Limiting warming to lower or higher levels involves similar challenges, but on different timescales.

Adaptation and Mitigation

Many adaptation and mitigation options can help address climate change, but no single option is sufficient by itself. Effective implementation depends on policies and cooperation at all scales, and can be enhanced through integrated responses that link adaptation and mitigation with ether societal objectives.

Adaptation and mitigation responses are underpinned by common enabling factors. These include effective institutions and governance, innovation and investments in environmentally sound technologies and infrastructure, sustainable livelihoods, and behavioural and lifestyle choices.

Adaptation options exist in all sectors, but their context for implementation and potential to reduce climate-related risks differs across sectors and regions. Some adaptation responses involve significant co-benefits, synergies and trade-offs. Increasing climate change will increase challenges for many adaptation options.

Mitigation options are available in every major sector. Mitigation can be more cost-effective if using an integrated approach that combines measures to reduce energy use and the greenhouse gas intensity of end-use sectors, decarbonize energy supply, reduce net emissions and enhance carbon sinks in land-based sectors.

Effective adaptation and mitigation responses will depend on policies and measures across multiple scales: international, regional, national and sub-national. Policies across all scales supporting technology development. diffusion and transfer, as well as finance for responses to climate change, can complement and enhance the effectiveness of policies that directly promote adaptation and mitigation.
Climate change is a threat to sustainable development. Nonetheless, there are many opportunities to link mitigation, adaptation and the pursuit of other societal objectives through integrated responses *(high confidence).* Successful implementation relies on relevant tools, suitable governance structures and enhanced capacity to respond *(medium confidence).*

* *Headline statement are the overarching highlighted conclusions of the approved Summary for Policymakers which, taken together provide a concise narrative. The four statement in boxes here are those summarizing the assessment in the Summary for Policymakers, sections 1-4.*

Translation of the IPCC findings to the Paris Agreement: the Structured Expert Dialogue

3.18 A report that did not form part of the considerations of the district court, but is certainly imperative to these proceedings, is the 'Report on the structured expert dialogue on the 2013-2015 review', or the SED report.[22] This report originates from the decision taken during the 2010 climate summit in Cancun that the district court cited in paragraph 2.49 and that it referenced in paragraph 4.14 (1/CP.16, section 4). In this decision of the Conference of the Parties (COP) the parties to the UNFCCC established that global warming needs to be kept below 2 °C, also adding that further reducing this goal to 1.5 °C needs to be considered based on the 'best available scientific knowledge'. The relevant part of this COP decision refers to 138 in which the COP decides to establish the structured expert dialogue on the '2013-2015 review' of the long term goal.

3.19 The goal of the 'SED on the 2013-2015 review' was to determine if the long-term warming limit of 2 °C was sufficient in regard to the ultimate goal of the UNFCCC, as described in Article 2: 'to avoid dangerous anthropogenic climate change' and if this goal possibly needed to be reduced to 1.5 °C (see COP decision 1/CP.16, section 139 (a)(iv)).

3.20 The SED report implementing this COP decision was published on 4 May 2015, six months before the climate summit in Paris. During this climate summit a decision needed to be taken on, among other things, whether or not to modify the long-term warming limit that was established in the COP decision taken in Cancun (see 1/CP.16, section 139(b)). The SED report includes a Technical Summary of the SED report which provides 10 main messages for the parties to the UNFCCC, in addition to four annexes with summaries of the SED meetings. Because the SED meetings ran concurrent to the publication process of the AR5 reports, these annexes follow the various reports: Annex 2 deals with WG I, Annex 3 deals with WG II and Annex 4 deals with WG III and the Synthesis Report.

The key messages of the SED report are set out below.

[22] **Exhibit 109:** UNFCCC, Report on the structured expert dialogue on the 2013-2015 review, 2015

Message 4

Climate change impacts are hitting home

Significant climate impacts are already occurring at the current level of global warming and additional magnitudes of warming will only increase the risk of severe, pervasive and irreversible impacts. Therefore, the 'guardrail' concept, which implies a warming limit that guarantees full protection from dangerous anthropogenic interference, no longer works. This calls for a consideration of societally or otherwise acceptable risks of climate impacts.

Message 5

The 2 °C limit should be seen as a defence line

Limiting global warming to below 2 °C would significantly reduce the projected high and very high risks of climate impacts corresponding to 4 °C of warming, which is where we are headed under a 'business as usual' scenario. It would also allow a significantly greater potential for adaptation to reduce risks. However, many systems and people with limited adaptive capacity, notably the poor or otherwise disadvantaged, will still be at very high risk, and some risks, such as those from extreme weather events, will also remain high. Adaptation could reduce some risks (e.g. risks to food production could be reduced to 'medium') but the risks to crop yields and water availability are unevenly distributed. Moreover, the risks of global aggregated impacts and large-scale singular events will become moderate. The 'guardrail' concept, in which up to 2 °C of warming is considered safe, is inadequate and would therefore be better seen as an upper limit, a defence line that needs to be stringently defended, while less warming would be preferable.

Message 10

While science on the 1.5 °C warming limit is less robust, efforts should be made to push the defence line as low as possible

The science on the 1.5 °C warming limit is less robust than for the 2 °C warming limit or warming beyond this limit. Consequently, assessing the differences between the future impacts of climate risks for 1.5 °C and 2 °C of warming remains challenging. More scientific findings are likely to become available in the future, and considerations on strengthening the long-term global goal to 1.5 °C may therefore have to continue.

Nevertheless, limiting global warming to below 1.5 °C would come with several advantages in terms of coming closer to a safer 'guardrail'. It would avoid or reduce risks, for example, to food production or unique and threatened systems such as coral reefs or many parts of the cryosphere, including the risk of sea level rise. On the other hand, this implies a more pronounced reliance on negative emissions with associated risks, including those from land-use change, as well as increases in mitigation costs in comparison with the 2 °C warming limit, and requires a larger temperature overshoot, which also carries certain risks.

However, while it is unclear whether the difference between 2 °C and 1.5 °C of warming is really only a matter of a gradual increase in risks or also includes some non-linear effects, as some evidence from the palaeo-record indicates, Parties may wish to take a precautionary route by aiming for limiting global warming as far below 2 °C as possible, reaffirming the notion of a defence line or even a buffer zone keeping warming well below 2 °C.

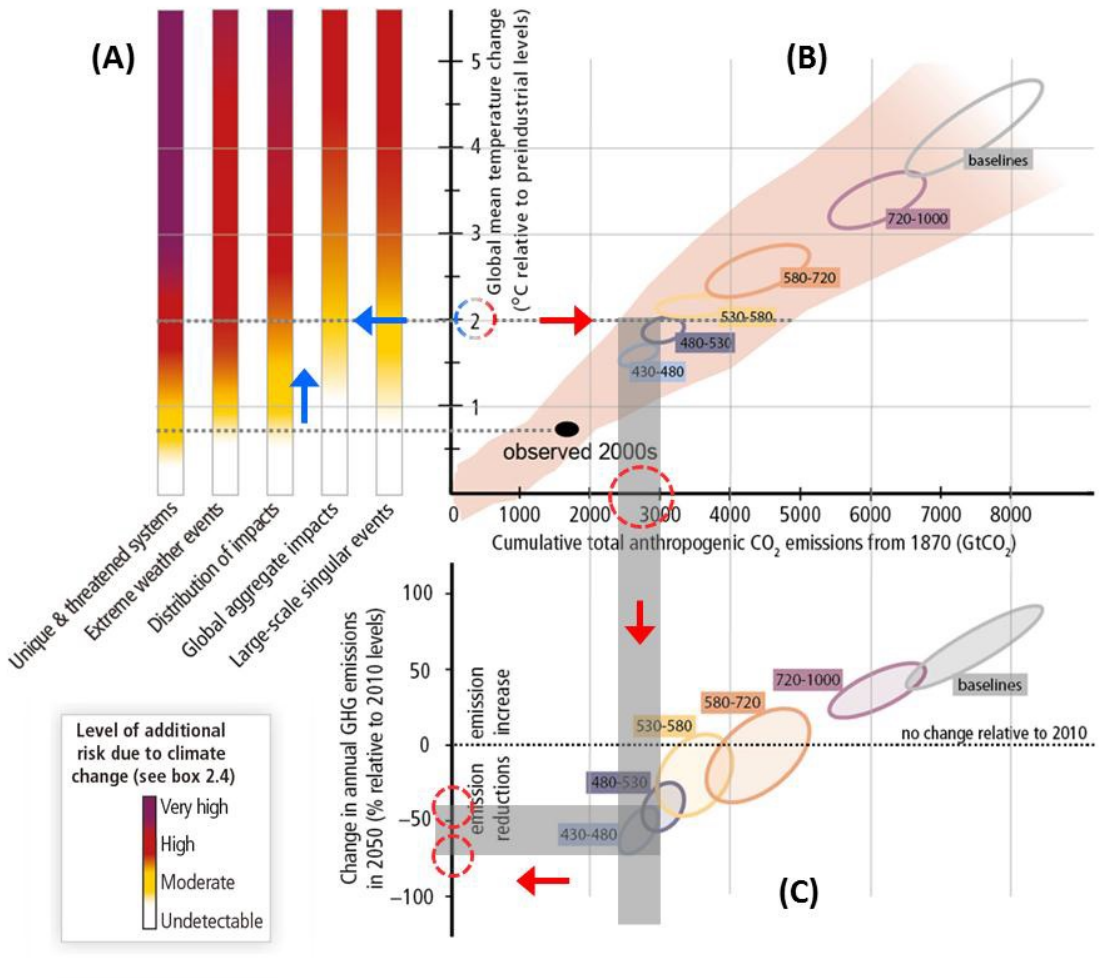
3.21 The SED report's importance to this procedure is that it provides an explanation of the IPCC's findings, by the IPCCC's authors, about the risks and dangers posed by climate change, whether these risks and dangers are possibly too high (unacceptably high) at a warming limit of 2 °C and if the warming limit therefore needs to be decreased. Moreover, the SED report also formed the basis for the decision in Paris following the announcement in Cancun in 2010, to also actually reduce the temperature target to '*well below 2 °C … and to pursue efforts to limit the temperature increase to 1.5 °C'* (**Exhibit 106**: Paris Agreement, Article 2).

3.22 It follows from the above that in terms of presenting the science the SED report is not of a higher order than the AR5, but that it gives the most authoritative interpretation of that report, to which the parties to the UNFCCC in Paris furthermore responded by lowering the warming limit.

The interconnection between dangers, global warming, cumulative emissions and emission reductions in the IPCC

3.23 Of importance in the findings of the SED report, particularly the conclusion that warming should be kept as far below 2 °C as possible (message 10), is figure SPM.10 on page 18 of the Synthesis Report, Summary for Policymakers, AR5 (SYR SPM AR5 – **Exhibit 104**).

3.24 Urgenda believes that this figure is the key figure in the entire AR5. While the figure is absent from the sub-reports of the AR5, it is really a synthesis of WGI, WGII and WGIII. The following figure of AR5 SYR SPM.10 is taken from the SED report (a number of clarifying lines and arrows have been added compared with the figure in the AR5).



3.25 The figure shows the relationship between mean global warming, the attendant risks, the cumulative CO_2 emissions that cause this degree of warming and lead to risks, and the reduction (in percentages) of all greenhouse gas emissions that must have been met in 2050 compared to 2010 levels in order to stay below a particular warming limit to be determined by politics. The figure illustrates that the risks of climate change, the 'Reasons for Concern' (RFC – panel A), are determined by global warming, which has a linear association with the amount of cumulative CO_2 emissions (Panel B), which in turn is dependent on the emissions reductions to be made in the coming decades (panel C). For a concise explanation of this diagram by the SED, see marginal numbers 21-23, on pp. 8-10 of the SED report.[23]

3.26 Panel A shows that higher global temperatures directly lead to an increase in the risks of climate change. A 2 °C increase in the global temperature relative to pre-industrial levels raises the level of additional risk of three of the five RFCs to 'high' (unique and threatened systems, extreme weather events and distribution of impacts) and for the other two categories (global

[23] Figure SPM.10 and the key risks associated with the Reasons for Concern and the necessary emission reductions to be deduced from this figure are explained in detail in the SED report on pp. 8-10 (marginal numbers 21-27), pp. 67-76 (particularly marginal numbers 30-33), 114-125 (particularly marginal numbers 35-37 and 58-63). Urgenda requests the court to particularly consider these parts of the SED report. Urgenda would not be able to provide a better explanation.

aggregated impacts and large-scale singular events) the level of additional risk increases to 'moderate' with a 2 °C increase in global temperature. Thus, the figure shows at a glance that a 2 °C warming cannot be seen as a 'safe' limit. This explains why the SED advised the parties to the UNFCCC to limit warming to well below 2 °C.

3.27 Panel B shows a direct proportional link between the cumulative anthropogenic CO_2 emissions and the temperature increase associated with it. From Panel B it can be determined that a limited cumulative CO_2 budget is available (the value in the grey band, the dotted circle on the x-axis of Panel B) for a warming of up to 2 °C (follow the red arrows) and that this limited CO_2 budget has the effect that by 2050 global emissions must have been reduced by 40%-70% compared to 2010 levels (Panel C). The coloured ellipses in Panels B and C correspond with the cost-efficient scenario categories presented in table SPM.1 (on page 22 of the SYR SPM). As can be deduced from that table, the light-blue ellipse (430-480) shows the chance of staying below 2 °C as *likely* (66%).

3.28 Both the proportional (linear) relationship between CO_2 emissions and temperature increase shown in Panel B and the risks associated with this warming are of great importance to these proceedings and will therefore be explained further below.

Linear relationship between cumulative emissions and carbon budget

3.29 Unlike in previous Assessment Reports, in AR5 the IPCC devotes considerable attention to the linear relationship between CO_2 emissions and global warming and the attendant implications, implying that for each chosen warming limit there is a corresponding carbon budget of the maximum amount of CO_2 emissions.

3.30 In the seventh Headline Statement of the SYR SPM IPCC writes (**Exhibit 104**, p.8):

"Cumulative emissions of carbon dioxide largely determine global mean surface warming by the late 21st century and beyond. Projections of greenhouse gas emissions vary over a wide range, depending on both socio-economic development and climate policy."

Following this Headline Statement the IPCC writes on the same page:

"*Multiple lines of evidence indicate a strong, consistent, almost linear relationship between cumulative CO2 emissions and projected global temperature change to the year 2100 in both the RCPs and the wider set of mitigation scenarios analysed in WGIII (Figure SPM.5b). Any given level of warming is associated with a range of cumulative CO2 emissions, and therefore, e.g., higher emissions in earlier decades imply lower emissions later. {2.2.5, Table 2.2}*"

3.31 The relationship between CO_2 emissions and warming is thus linear. Every unit of CO_2 emitted contributes equally to warming, regardless of when or where it is emitted.[24] This linear relationship between CO_2 emissions and warming has the effect that each level of warming associated with a limited amount of CO_2 emissions. This is also referred to as the carbon budget.

3.32 Two key effects are linked to this IPCC-determined relationship. First, in each temperature scenario CO_2 emissions will eventually need to decrease to zero, because as long as CO_2 emissions persist the temperature will continue to rise. The second effect of a limited carbon budget is that when previous years have high emissions (because the emissions do not decrease quickly enough) in future years less can be emitted and, potentially, CO_2 even needs to be removed from the atmosphere when the cumulative total of CO_2 emissions exceeds the carbon budget.

3.33 The last conclusion is also relevant to the emission reduction range of 40%-70% below 2010 levels in 2050, which is reflected in Panel C of SPM.10 explained above (the State also refers to this reduction range in section 5.17 of the Statement of Appeal). The above-mentioned table SPM.1 (on page 22 of the AR5 SYR SPM; **Exhibit 104**) reflects that this reduction range is linked to a reduction of 118%-78% below 2010 levels in 2100. If in 2050 the emissions have been reduced by only 40% below 2010 levels, this low level of emissions reduction will therefore need to be made up for after 2050 by reaching the level of -118%. This means that the post-2050 period will need to achieve a great amount of negative emissions, and it is extremely uncertain if that will prove to be possible.[25]

3.34 Concerning the available carbon budget for the 2 °C limit, the IPCC mentions in AR5 (**Exhibit 104, p. 10**):

> *"Multi-model results show that limiting total human-induced warming to less than 2°C relative to the period 1861–1880 with a probability of >66% would require cumulative CO2 emissions from all anthropogenic sources since 1870 to remain below about 2900 GtCO2 (with a range of 2550 to 3150 $GtCO_2$ depending on non-CO_2 drivers). About 1900 $GtCO_2$ had already been emitted by 2011. For additional context see Table 2.2. {2.2.5}"*

[24] See related **Exhibit 109:** UNFCCC, Report on the structured expert dialogue on the 2013-2015 review, 2015, Annex II, par. 58-60, which among other things states: '*Every ton of CO_2 causes about the same amount of warming, no matter when and where it is emitted.*'

[25] See related **Exhibit 109:** UNFCCC, Report on the structured expert dialogue on the 2013-2015 review, 2015, Annex III, par. 130-132, which among other things states: '*Scenarios where atmospheric concentration levels of about 450 ppm CO2 eq are reached by 2100, consistent with a likely probability of keeping temperature change below 2 °C, are characterized by emission reductions of 40–70 per cent below 2010 levels by 2050 and by reductions of 80–120 per cent by the end of the twenty-first century. He stressed the interdependence between emission levels in 2050 and 2100 for scenarios in a given category due to the cumulative budget constraint – a high-end emissions level in 2050 would require a low-end emissions level in 2100 and the use of CO_2 reduction technologies such as BECCS.*'

3.35 Table 2.2 on page 64 of the SYR (which the above text of the SYR SPM references) provides an overview of the carbon budgets for a 66%, 50% and 33% chance of remaining below warming levels of 1.5 °C, 2 °C and 3 °C. The table is provided below.[26]

Table 2.2 | Cumulative carbon dioxide (CO_2) emission consistent with limiting warming to less than stated temperature limits at different levels of probability, based on different lines of evidence. *{WGI 12.5.4, WGIII 6}*

Cumulative CO_2 emissions from 1870 in $GtCO_2$									
Net anthropogenic warming [a]	<1.5°C			<2°C			<3°C		
Fraction of simulations meeting goal [b]	66%	50%	33%	66%	50%	33%	66%	50%	33%
Complex models, RCP scenarios only [c]	2250	2250	2550	2900	3000	3300	4200	4500	4850
Simple model, WGIII scenarios [d]	No data	2300 to 2350	2400 to 2950	2550 to 3150	2900 to 3200	2950 to 3800	n.a. [e]	4150 to 5750	5250 to 6000
Cumulative CO_2 emissions from 2011 in $GtCO_2$									
Complex models, RCP scenarios only [c]	400	550	850	1000	1300	1500	2400	2800	3250
Simple model, WGIII scenarios [d]	No data	550 to 600	600 to 1150	750 to 1400	1150 to 1400	1150 to 2050	n.a. [e]	2350 to 4000	3500 to 4250
Total fossil carbon available in 2011 [f]: 3670 to 7100 $GtCO_2$ (reserves) and 31300 to 50050 $GtCO_2$ (resources)									

3.36 Both the above-mentioned text and Table 2.2 of the SYR show that to maintain a 66% chance of limiting warming to 2 °C, from 2011 onward emissions may not exceed 1000 $GtCO_2$ (see row 7 of column 5 of Table 2.2 SYR, 'Complex models, RCP scenarios only'). Table 2.2 SYR also shows (in the same row) that from 2011 onward the carbon budget is 400 $GtCO_2$ for a 66% chance of keeping warming under 1.5 °C, and 550 $GtCO_2$ for a 50% chance.

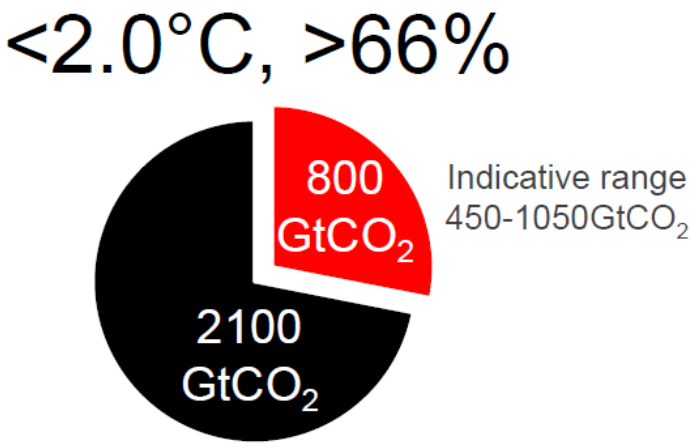
3.37 Global emissions are examined annually in a comprehensive global research project called the 'Global Carbon Project' in which Dutch institutes, such as the PBL and the KNMI, are also involved. The extensive, scientifically substantiated paper (Le Quéré et al 2016) and the list of authors of the 2016 report are available here: http://www.globalcarbonproject.org/carbonbudget/16/publications.htm.
Urgenda submits as **Exhibit 118** a PowerPoint presentation of the findings (the actual report is more than 200 pages). On slide 33 of this presentation the global amount of CO_2 emissions in 2015 is stated, which amounts to 41.9 ± 2.8 $GtCO_2$.

3.38 Urgenda wishes to insert a number of slides from this presentation (**Exhibit 118**) in this defence on appeal.

[26] Notes c and d under the table explain that per combination (for example 66% chance of staying below 2 °C) two different carbon budgets are given. The first (designated as 'complex models, RCP scenarios only' and explained in note c) comes from WGI. The second (designated as 'simpel Model WGIII scenarios) comes from WGIII. The difference is explained in notes c and d. In short, the practical difference means that the first category gives the carbon budget when the temperature limit is exceeded (also designated as the Threshold exceedance budget) and the second category gives the budget at the moment of 'peak warming' (also designated as the Treshold avoidance budget). For further details about the difference in carbon budgets see **Exhibit 110**: J. Rogelj, e.a., Differences between carbon budget estimates unravelled, Nature Climate Change, Vol 6, March 2016, pp. 245-252. This is the same article which the State references in section 12.43 of its Statement of Appeal.

Carbon quota for a >66% chance to keep below 2°C

For a >66% chance to keep global average temperature below 2°C above pre-industrial levels, society can emit 2900 billion tonnes CO_2 from 1870 or about 800 billion tonnes CO_2 from 2017



Historical emissions 1870-2016: 2100$GtCO_2$. All values rounded to the nearest 50 $GtCO_2$
The remaining quotas are indicative and vary depending on definition and methodology (Rogelj et al 2016).
Source: IPCC AR5 SYR (Table 2.2); Le Quéré et al 2016; Global Carbon Budget 2016

3.39 The first figure shows the carbon budget that is allowed to be emitted beginning in 1870 (more or less the start of the Industrial Revolution) for a 66% chance of a warming of 2 °C (2900 $GtCO_2$), and how much of this budget remains. As is stated underneath the figure, the information is partly based on Table 2.2 of the AR5 SYR shown above (paragraph 3.35). For a 66% chance of staying below 2 °C, 800 $GtCO_2$ remains from 2017 onward. Based on this budget it can easily be determined in which year the available carbon budget will be depleted. Current annual global emissions amount to approximately 40 $GtCO_2$ (41.9 ± 2.8 $GtCO_2$).[27] This means that at the current emissions level the carbon budget for a 66% chance of staying below a warming of 2 °C will be completely exhausted by 2037 and that from that point on, no more emissions would be allowed on a global scale.

3.40 Based on the information from Table 2.2 of AR5 SYR and the Global Carbon Budget 2016 the available budgets can also be determined for a >50% and a >66% chance of limiting warming to 1.5 °C. The total budget from 2011 amounts to 550 $GtCO_2$ for a >50% chance of 1.5 °C and 400 $GtCO_2$ for a >66% chance of 1.5 °C (Table 2.2 AR5 SYR). In late 2016 these budgets were decreased to 350 $GtCO_2$ and 200 $GtCO_2$, respectively. At a consistent annual emissions rate of 40 $GtCO_2$ per year the carbon budget will already be completely exhausted in 2026 for a 50%

[27] **Exhibit 118:** Global Carbon Project, 'Global Carbon Budget 2016', 14 November 2016. See also under 'Current developments'.

chance of staying below a warming of 1.5 °C, and that this moment of depletion will be reached by 2022 for a 66% chance.

3.41 Urgenda cannot give the State a more concrete illustration of the urgency of emissions reductions.

3.42 In reality, global emissions do not remain stable, and have risen on average by approximately 2% over the last 20 years.

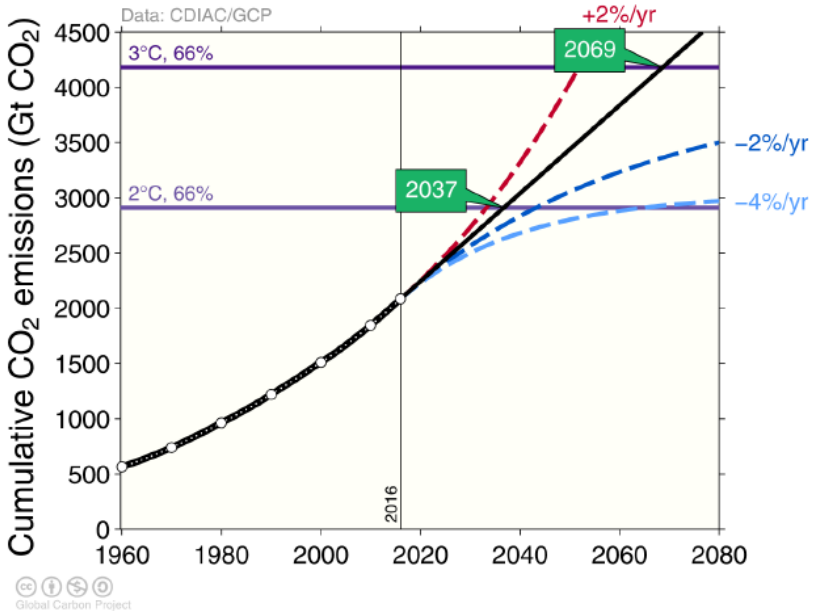
3.43 In its Statement of Appeal the State makes a point of stating that the climate problem will be resolved on account of the Paris Agreement and the voluntary contributions of the parties (Nationally Determined Contributions) under that agreement. The United Nations Environment Program (UNEP) has calculated in its Emissions Gap Report of 2016 (**Exhibit 117**) when the carbon budget will be depleted based on the current contributions under the Paris Agreement: as early as about 2030. The following is an excerpt from the Executive Summary of that report (page xviii):

"Under the Intended Nationally Determined Contribution scenarios, the carbon dioxide budget estimated by the Intergovernmental Panel on Climate Change for limiting warming to below 2°C with at least 66 per cent probability will be close to depleted by 2030, and the similar budget aligned with limiting warming to below 1.5°C with at least 50 per cent probability will already be well exceeded by 2030."

3.44 The foregoing is nicely summarised in the figure from the Global Carbon Budget 2016 presented below. It shows at what moment the various carbon budgets are exhausted and thus when the corresponding temperature limits are exceeded.

Cumulative global CO_2 emissions and temperature

Cumulative global CO_2 emissions from fossil fuels, industry, and land use change and four simplified future pathways compared to probability of exceeding different temperatures



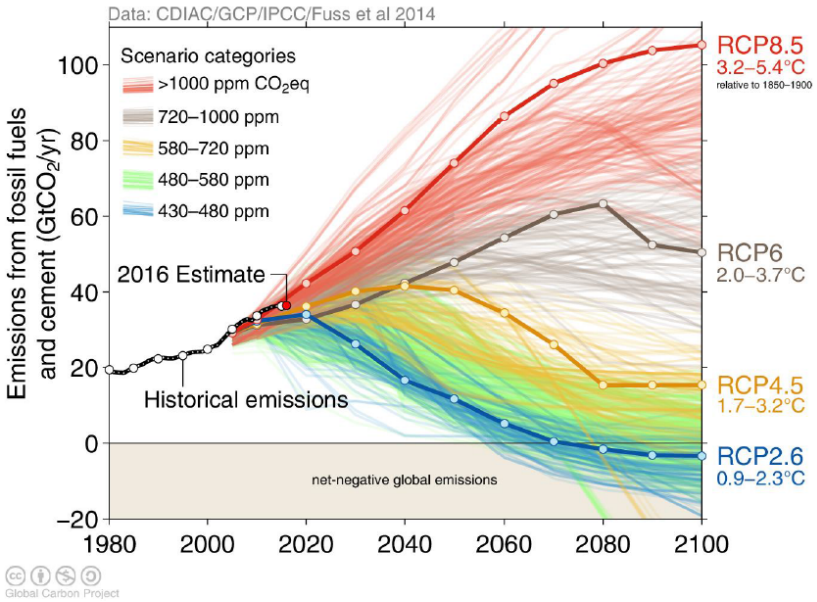
The green boxes show the year that the exceedance budgets are exceeded assuming constant 2016 emission levels
The years are indicative and vary depending on definition and methodology
Source: Jackson et al 2015b; Global Carbon Budget 2016

3.45 The figure shows with the black line that at the current emissions level the 66% chance of 2 °C warming will already be exceeded in 2037 (as calculated above), and also shows that the 66% chance of 3 °C warming will be exceeded in 2069. This is the development if global emissions remain at the current level and thus neither decrease nor increase. The red dotted line indicates what the implications are if global emissions continue to increase by 2% per year (approximately what the average has been in the last 20 years). The dark blue dotted line indicates the course if emissions are reduced by 2% per year as of now. In that case the 2 °C limit will be exceeded in approximately 2040. The light blue dotted line indicates what happens if emissions are reduced by 4% per year as of now. Even then the 2 °C limit will be exceeded in approximately 2070. Urgenda would like to remind the court its earlier comment: it is not only about the degree of warming, but also the pace, which should not exceed the adaptive and recovery capacities of ecosystems.

3.46 The third and last figure from the Global Carbon Budget 2016 which Urgenda wishes to present here shows the 4 Representative Concentration Pathways (RCP) scenarios up to the year 2100.

GLOBAL CARBON PROJECT **Observed emissions and emissions scenarios**

The emission pledges to the Paris Agreement avoid the worst effects of climate change (4-5°C)
Most studies suggest the pledges give a likely temperature increase of about 3°C in 2100



The IPCC Fifth Assessment Report assessed about 1200 scenarios with detailed climate modelling on four Representative Concentration Pathways (RCPs)
Source: Fuss et al 2014; CDIAC; IIASA AR5 Scenario Database; Global Carbon Budget 2016

3.47 The thick coloured lines show the RCP scenarios with corresponding concentration levels and corresponding temperature ranges. The figure also shows that each RCP scenario indeed represents a large number of scenarios (thin lines of the same colour). Underneath the figure it is stated that this involves more than 1200 scenarios in total. The figure is similar to the figure from the AR5 SYR on page 21 and that the State included in section 5.21 in its Statement of Appeal (see below section 6.33-6.34), but it is more detailed.
As is stated at the top of the figure: most studies suggest that the reduction targets for 2030 which have now been pledged by all parties to the Agreement (with a 66% chance) will lead to a warming of 3°C. The figure also shows the projected emissions for 2016. These roughly correspond with the red line that the RCP 8.5 scenario presents.

Intended Nationally Determined Contributions of Paris

3.48 In its grounds for appeal the State devotes a great deal of attention to the climate summit in Paris and the reduction pledges that were made by the parties to the UNFCCC, the Intended Nationally Determined Contributions (INDCs). The Secretariat of the UNFCCC compiled an extensive report, which analyses the implications of these pledges for the total global emissions in 2025 and 2030 (**Exhibit 125**). It states (p. 9, par. 34):

"The implementation of the communicated INDCs is estimated to result in aggregate global emission levels of 55.0 (51.4 to 57.3)9 $GtCO_2$ eq in 2025 and 56.2 (52.0 to 59.3) $GtCO_2$ eq in 2030."

3.49 In the already mentioned Emission Gap 2016 report (**Exhibit 117**) the UNEP states that emissions in 2030 need to be about 42GtCO2 eq for a 66% chance of limiting warming to under 2 °C and about 39GtCo2 eq for a 50% of 1.5 °C. [28]

3.50 It is also indicated in the UNEP 2016 report that the full implementation of the Paris INDCs will result in a temperature increase of 3.2°C (range: 2.9–3.4°C).[29]

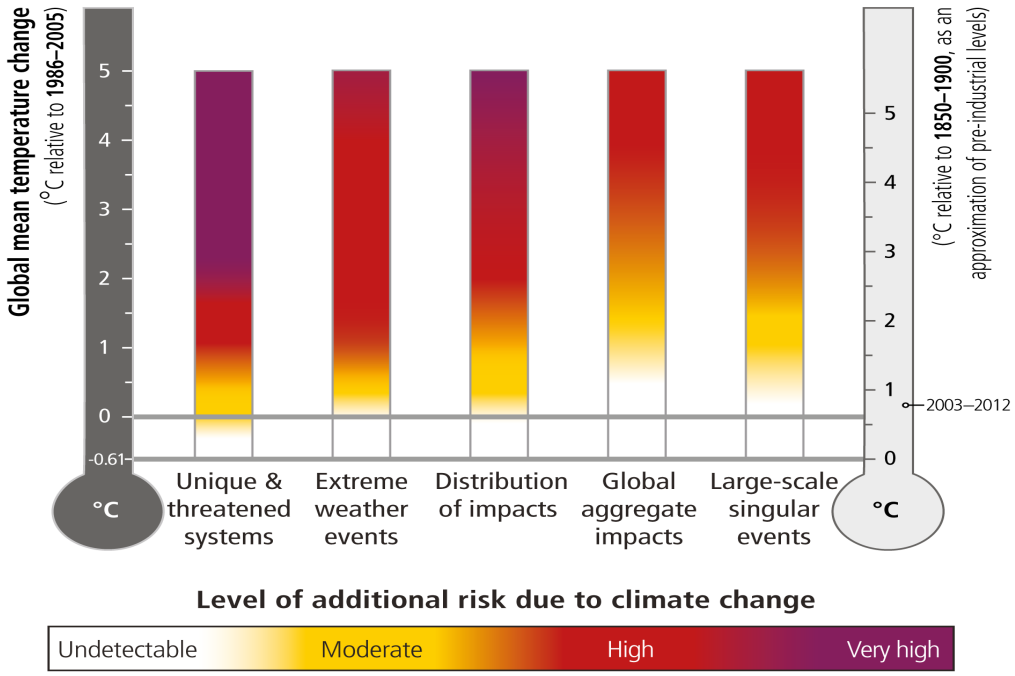
3.51 A more than 66% chance of warming between 2.9 °C and 3.4 °C corresponds with a concentration of 720-1000 ppm. Not only does this give a 97%-100 % chance of warming exceeding 2 °C,[30] but it also gives a 14%-39% chance of warming exceeding 4 °C in 2100. This concentration scenario could even lead to a temperature increase of 2.5 °C –5 .8 °C in 2100.[31]

3.52 Urgenda again references the World Bank report 'Turn Down the Heat' (**Exhibit 18**). Urgenda requests the court to carefully read what is written there (and which is not contested by the State). The report describes in great detail the implications of a world that is 4 °C warmer. A world that is 4 °C warmer can only provide living conditions to a global population that is substantially less than 9 billion. Even continuing at the same level of ambition laid out in the Paris Agreement by the parties gives a considerable chance of seeing the temperature rise more than 4 °C.

Reasons for Concern: risks and dangers of global warming

3.53 In figure SPM.10 of AR5 SYR SPM, which has already been extensively discussed in the version found in the SED report (paragraphs 3.23-3.27), the RFCs are shown in panel A. These RFCs are explained in detail in Box 2.4 of the AR5 SYR on pp. 72-73. Because of the figure's importance, the larger version, which is shown in Box 2.4, is presented below.

[28] UNEP, 'The emissions gap report 2016', Executive Summary, p. xvi (**Exhibit 117)**
[29] UNEP, 'The emissions gap report 2016', Executive Summary, p. xviii (**Exhibit 117)**
[30] See AR5 WGIII, Table 6.3 (http://www.ipcc.ch/report/ar5/wg3/)
[31] AR5 SYR SPM (**Exhibit 104**), Table SPM1, footnote b. The State uses this table in Statement of Appeal 5.21 although without the related footnotes.



3.54 Each of the five RFCs also has an accompanying description of which risks are associated with a rise in global temperature. This is what the IPCC describes under Extreme Weather events:

'*Climate change related risks from extreme events, such as heat waves, heavy precipitation and coastal flooding, are already moderate (high confidence). With 1°C additional warming, risks are high (medium confidence). Risks associated with some types of extreme events (e.g., extreme heat) increase progressively with further warming (high confidence).*'

3.55 The RFCs were first introduced by the IPCC in the Third Assessment Report (TAR) of 2001. They provide a summary of the key risks of climate change as identified by the IPCC and serve mainly as the key scientific input for the question of what needs to be regarded as 'dangerous climate change' within the meaning of Article 2 UNFCCC (see in this context the second paragraph at the top of p. 18 of the AR5 SYR SPM).

3.56 In paragraph 2.12 the district court cites one of the findings with respect to the RFC from AR4, on p. 64 of the AR Synthesis Report (**Exhibit 9** to the summons). The AR4 Synthesis Report states, among other things: "*The 'five reasons for concern' identified in the TAR are now assessed to be stronger with many risks identified with higher confidence. Some are projected to be larger or to occur at lower increases in temperature.*" In other words: in the period between 2001 and 2007 it transpired that risks associated with climate change are greater and occur at lower temperature rises than previously thought. The following will show that in AR5 the IPCC concluded that the risks and dangers in 2014 proved to be even greater than could be substantiated in 2007.

3.57 The AR5 SYR (**Exhibit 104**) describes on pp. 64-73 the key risks identified by the IPCC that form the basis for the five RFCs. Urgenda believes that this is one of the most important sections of the AR5 SYR because it describes which concrete dangers arise with an increase in mean global temperature. On p. 64 of the AR5 SYR the IPCC states:

"Key risks are potentially severe impacts relevant to understanding dangerous anthropogenic interference with the climate system. Risks are considered key due to high hazard or high vulnerability of societies and systems exposed, or both. Their identification is based on large magnitude or high probability of impacts; irreversibility or timing of impacts; persistent vulnerability or exposure; or limited potential to reduce risks."

3.58 Risks occurring on a regional scale are shown by the IPCC in Figure 2.4 on p. 65 of the AR5 SYR. Risks occurring on a global scale (such as food scarcity due to decreasing crop yields, water scarcity, forced migration due to extreme weather events, violent conflicts, declining labour productivity, a greater number of deaths caused by heat waves, and the extinction of animal species) are displayed and described in Table 2.3 on pp. 70-71 AR5 SYR.

3.59 In the Summary for Policymakers of WGII the IPCC provides a summary of a number of the most important key risks across sectors and regions.[32] The IPCC also indicates which of the RFCs these key risks affect. The numbering which the IPCC uses here (RFC1, RFC2, etc.), is the same as the numbering in Box 2.4 of the AR5 SYR mentioned above. The severity of the risks is expressed in the text below:

"The key risks that follow, all of which are identified with high confidence, span sectors and regions. Each of these risks contributes to one or more RFC's:
i) Risk of death, injury, ill-health, or disrupted livelihoods in low-lying coastal zones and small island developing states and other small islands, due to storm surges, coastal flooding, and sea level rise. [RFC 1-5]
ii) Risk of severe ill-health and disrupted livelihoods for large urban populations due to inland flooding in some regions.[RFC 2 and 3]
iii) Systemic risks due to extreme weather events leading to breakdown of infrastructure networks and critical services such as electricity, water supply, and health and emergency services. [RFC 2-4]
iv) Risk of mortality and morbidity during periods of extreme heat, particularly for vulnerable urban populations and those working outdoors in urban or rural areas. [RFC 2 and 3]
v) Risk of food insecurity and the breakdown of food systems linked to warming, drought, flooding, and precipitation variability and extremes, particularly for poorer populations in urban and rural settings. [RFC 2-4]
vi) Risk of loss of rural livelihoods and income due to insufficient access to drinking and irrigation water and reduced agricultural productivity, particularly for farmers and pastoralists with minimal capital in semi-arid regions.42 [RFC 2 and 3]

[32] Source: http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/ar5_wgII_spm_en.pdf

vii) Risk of loss of marine and coastal ecosystems, biodiversity, and the ecosystem goods, functions, and services they provide for coastal livelihoods, especially for fishing communities in the tropics and the Arctic.[RFC 1, 2, and 4]
viii) Risk of loss of terrestrial and inland water ecosystems, biodiversity, and the ecosystem goods, functions, and services they provide for livelihoods. [RFC 1, 3, and 4] [33]

Human dependence on ecosystem goods, functions and services

3.60 In outlining the above-mentioned key risks, the IPCC repeatedly establishes the link between the influence of climate change on the ecosystem and its effect on human systems, human welfare and on the ability to earn a livelihood.

3.61 The IPCC states in numerous places in AR5 that ecosystems supply basic needs, such as food, drinkable water, raw materials, atmospheric conditions necessary for living and so forth. Moreover, ecosystems play a critical role in limiting the spread of human and non-human diseases, they influence the weather and the climate (think for example of the absorption of CO_2 by forests) and thus also influence for example agriculture, food supply, flooding and physical human infrastructure. Changes in ecosystems also change the impact of the ecosystems on these matters. According to the IPCC this also affects human welfare and the welfare of millions of other species in a myriad of ways. The quicker and the more extensive climate influences the ecosystem, the more difficult is for humans and other species to adjust to these changes.

3.62 Ecosystem services that are already threatened by the current warming of 0.8 ˚C are pollination, pest management, disease regulation, climate-regulation services and (drinking) water supply. Increasing stress on ecosystems will continue to limit chances of adjusting to climate changes, which also has a direct influence on human adaptation abilities:

3.63 "*[S]uccessful adaptation will depend on our ability to allow and facilitate natural systems to adjust to a changing climate, thus maintaining the ecosystem services on which all life depends.* "

3.64 The major effect that a climate change-induced destruction of ecosystems will have on human life and welfare was the reason why it is clarified in Article 2 of the UNFCCC that climate change is dangerous as soon as ecosystems are no longer able to naturally adapt to those changes. For the same reason, the UNFCCC clarifies in its of 'adverse effects of climate change' (Article 1 UNFCCC, Exhibit 22) that adverse effects also means significant deleterious effects on the composition, resilience or the productivity of natural or managed ecosystems.

3.65 In short, human life and welfare are dependent on healthy and significantly vital ecosystems that are sufficiently reliable in providing the goods, functions and services necessary for human existence.

[33] IPCC AR5/2013, WGII, Summary for Policymakers, p.12 and 13, **Exhibit** 67 Urgenda

Climate risks proven to be greater since the AR4 report

3.66 AR5 establishes that the risks and vulnerabilities have proven to be even greater than in AR4. That applies to all of the five RFCs. Listed below are several examples described by the IPCC in Chapter 19 of WGII:

3.67 Concerning the risk from 'Unique and threatened systems' the IPCC writes:

'AR4 stated with high confidence that a warming of up to 2˚C above preindustrial levels would result in significant impacts on many unique and vulnerable systems and would increase the endangered status of many threatened species, with increasing adverse impacts (and increasing confidence in this conclusion) at higher temperatures […] Since AR4, there is a growing body of literature suggesting that the number of threatened systems and species is greater than previously thought.'

Concerning the risk from 'Extreme weather events' the IPCC states:

'Extreme weather events (e.g., heat waves, intense precipitation, drought, tropical cyclones) trigger impacts that can pose key risks to societies that are exposed and vulnerable […]With regard to the physical hazard aspect of risk, AR5 assesses a higher likelihood of attribution of heat waves and extreme hot days and nights to human activity than AR4 […] Based on the above assessments of the physical hazard alone, we find increased confidence in the AR4 assessment of the risks from extreme weather events.'

Concerning the risk from 'Distribution of Impacts' the IPCC states:

'AR4 concluded that there is high confidence that low-latitude, less-developed areas are generally at greater risk and found that, because vulnerability to climate change is also highly variable within countries, some population groups in developed countries are also highly vulnerable even to a warming of less than 2˚C above 1990-200 […] These conclusions remain valid […] Since AR4, new evidence has emerged highlighting the magnitude of risk for particular regions, for example, in relation to the potential for regional impacts on ecosystems […], megadeltas […] and agricultural systems […]'

Concerning the risk from 'Global Aggregate Impacts' the IPCC states:

'AR4 stated with medium confidence that approximately 20 to 30% of the plant and animal species assessed to date are likely at increasing risk of extinction as global mean temperatures exceed a warming of 2˚C to 3˚C above preindustrial levels […] There is high confidence that climate change will contribute to increased extinction risk for terrestrial, freshwater and marine species over the coming century […] Since AR4 a substantial amount of additional work has been

done […], strengthening the evidence of increasing risk of extinction with increasing temperature […]'

Concerning the risk from 'Large-scale singular events' the IPCC states:

'*Large-scale singular events (sometimes called 'tipping points', or critical thresholds) are abrupt and drastic changes in physical, ecological, or social systems in response to smooth variations in driving forces […] Combined with widespread vulnerability and exposure, they pose key risks because of the potential magnitude of the consequences; the rate at which they would occur; and, depending on this rate, the limited ability of society to cope with them.'*

3.68 After discussing several examples of potential tipping points, such as the large-scale release of methane gas if tundra areas thaw, drought and wildfire susceptibility in the Amazon rainforest and rising sea levels as a result of the deglaciation of the Greenland ice sheet and parts of Antarctica, AR5 concludes (AR5, WGII, Ch. 19, p. 1079):

'*Based on the weight of the above evidence, we judge that the overall risk from large-scale singular events is somewhat higher than assessed in AR4.'*

3.69 It is important to realise that in the IPCC's assessment of the key risks, the possibilities for and limits to adaptation were taken into account. See for example paragraph 96 on p. 130 of the SED report, which states: '*Another expert added that all RFCs take into account autonomous adaptation as well as limits to adaptation in the case of RFC1, RFC3 and RFC5, independent of the development pathway.*'

3.70 This last sentence is important: it means that the thus outlined risks persist <u>after</u> the adaptation measures have been taken.

Climate risks increase as the temperature continues to rise

3.71 As has been explained above, the IPCC has determined that with the continuing rise in temperature comes increasing risks in all categories of the RFCs. Furthermore, growing evidence has shown that the climate risks are greater than indicated in AR4/2007. The IPCC therefore concludes among other things (see also Reply section 133):

'*Human security will be progressively threatened as the climate changes (robust evidence, high agreement)'*

3.72 Moreover, the IPCC indicates in AR5 SYR (p.72) that the risks of 'tipping points' and thus irreversible dangers are currently already present (albeit on a moderate level) and these will increase as the temperature rises further (the risk associated with such tipping points is included in the column 'large-scale singular events', the fifth RFC as is described in Box 2.4 AR5 SYR), (see also Reply section 151):

'With increasing warming, some physical systems or ecosystems may be at risk of abrupt and irreversible changes. Risks associated with such tipping points become moderate between 0-1˚C additional warming, due to early warning signs that both warm-water coral reef and Arctic ecosystems are already experiencing irreversible regime shifts (medium confidence). Risks increase disproportionately as temperature increases between 1-2˚C additional warming and become high above 3˚C, due to the potential for a large and irreversible sea level rise from ice sheet loss.'

3.73 Among the 'early warning signs' the IPCC discusses are the major changes occurring in the Arctic Region at the current warming of 1.1 ˚C, and which possibly indicate a forthcoming tipping point (see Reply section 152).

3.74 The assessment of the district court, which was based on AR4, that a warming of 2˚C above the pre-industrial level creates the risk of dangerous, irreversible climate change is therefore correct and is only strengthened by the findings in AR5.

Paris Agreement

3.75 As has been noted above, the publication of AR5 was timed to coincide with the 2015 climate summit. The SED report (both documents are discussed in detail above) was also drafted and structured with that climate summit in mind.

3.76 In November/December 2015 the climate summit of the parties to the UNFCCC took place in Paris. On the agenda was, among other things, the question – introduced in the Cancun Agreements – whether it was necessary to lower the warming limit to 1.5 ˚C for a 66% chance of 2 ˚C in 2100, the focus of international climate policy since the Cancun Agreements. Also on the agenda was the conclusion of a new climate agreement, as a successor to the Kyoto Protocol, for the implementation and execution of the UNFCCC.

3.77 During this climate summit the COP decision 1/CP.21 was adopted (**Exhibit 107**). The key element of this COP decision was the inclusion (as an appendix) of a text establishing a new climate agreement, the Paris Agreement. Subsequently, this Paris Agreement was quickly put into force at an unprecedented rate because it had already been ratified by more than 55 countries, representing more than 55% of global emissions.

3.78 It is important to note that it was agreed and adopted in Article 2(1)(a) of the Paris Agreement, (partly) for the implementation and execution of Article 2 UNFCCC, that global warming must be limited to 'well below' 2 ˚C relevant to pre-industrial levels with the aim of achieving a 1.5 ˚C limitation.

3.79 This stricter temperature limit implies, as the foregoing will have made clear, that the remaining carbon budget is (significantly) smaller than previously assumed based on the 2 ˚C

goal. That means that the carbon budget will be depleted sooner and requires swifter reductions to be able to remain within that budget.

3.80 With this in mind it is noted with 'great concern' in 1/CP.21 par.17 that the aggregate of the (intended) Nationally Determined Contributions that had been submitted in the run-up to the climate summit do not fall within the range of cost-effective scenarios for achieving the 2 ˚C target, but rather lead to a projected global emission of 55Gt in 2030, while the level should be 40Gt in order to keep global warming below 2 ˚C (and an even lower level to be specified by the IPCC in 2018 to limit warming to 1.5 ˚C).

3.81 It is for this reason that the COP decision 1/CP.21 devotes a relatively considerable amount of attention to the period up to 2020. The Paris Agreement strongly urges intensifying and enhancing reduction efforts up to 2020 so as to achieve the goals for 2030.
See the preamble, and (particularly) Chapter IV, 'Enhanced action prior to 2020' par. 105-118. It (once again) illustrates that the agreement is not only about reaching a long-term reduction rate, but that it is also about the pathways leading to reduction. It once again shows the necessity and urgency of swift and drastic reductions.

3.82 The subsequent climate summit in Marrakech in 2016 also called for taking additional action before 2020, see the Marrakech Action Proclamation for our Climate and Sustainable Development (**Exhibit 143**):

'We call for urgently raising ambition and strengthening cooperation amongst ourselves to close the gap between current emissions trajectories and the pathway needed to meet the long-term temperature goals of the Paris Agreement.
[…]

We, unanimously, call for further climate action and support, <u>well in advance of 2020</u>, taking into account the specific needs and special circumstances of developing countries, the least developed countries and those particularly vulnerable to the adverse impacts of climate change.'
(underlining by lawyer)

3.83 This is all of course directly relevant to this procedure, the purpose of which is that in the period up to 2020 the State will need to reduce emissions in the Netherlands at a faster rate than it wishes.

PBL report on Dutch climate policy

3.84 In the Netherlands the PBL published a report on 18 November 2016, 'What does the Paris Agreement mean for the long-term climate policy of the Netherlands?' (**Exhibit 126**).
The report also adopts the carbon budget approach. Urgenda submits the entire report as an exhibit to the court, but considers the summary so insightful and astute, particularly as

these are not Urgenda's words but those of the PBL– that it is including the entire summary (slightly more than 2 pages) in this defence on appeal.

SUMMARY

A long-term perspective is essential for an effective climate policy.
By adopting the Paris Agreement, the Netherlands has committed itself to an ambitious climate policy. This policy can only be accomplished through a significant reduction of greenhouse gas emissions. The transformation of the energy system needed to accomplish this will take time, and the policy can only be effective with an effective long-term perspective (the point on the horizon). Currently, a clear long-term perspective is lacking, as was recently determined by The Netherlands Scientific Council for Government Policy (*Wetenschappelijke raad voor het regeringsbeleid* – WRR).

This kind of long-term perspective can be formulated based on a combination of recent climate science and societal choices.
For several years the international climate policy has been based on 'national efforts', where each country is responsible for creating and meeting its own goals. It also still applies that countries can assess each other on internationally agreed upon commitments. Moreover, the Netherlands is guided by European policy through the Emission Trading System (ETS) and the objectives for the other sectors. Within this framework this report delves further into the question of what the scientific knowledge of the climate system and the policy scenarios mean for the reduction target at the national level. Translating the objectives of the Paris Agreement into concrete goals for the Netherlands requires combining this knowledge with the choices that society could make. We use illustrative calculations to offer an indication of possible goals.

The Paris Agreement's climate objectives entail maximum cumulative emissions of about 250-400 $GtCO_2$ or 600-1200 $GtCO_2$ (from 2015 onward) for 1.5 ˚C and 2 ˚C respectively. Such a budget is so tight that its adherence requires a strict global climate policy. Such a policy also far surpasses the current policy of the countries involved.
The Paris Agreement defines the objective of international climate policy as limiting global warming to well below 2 ˚C, and to strive for a maximum warming of 1.5 ˚C. Research shows that cumulative global emissions of about 600-1200 $GtCO_2$ from 2015 onward give a probable chance (more than 66%) of staying below 2 ˚C. To stay below 1.5 ˚C emissions would need to be limited to 250-400 $GtCO_2$. The maximum amount of CO_2 emissions is also known as the carbon budget. In comparison: a carbon budget of 900 $GtCO_2$ would completely exhaust the budget within 25 years. The above-mentioned ranges are mainly linked to uncertainty about the climate system.

Societal choices crucial to global CO_2 reduction targets involve not only the above-mentioned temperature goals and the level of certainty with which they need to be met, but also the possible use of 'negative emissions'.

It is possible to temporarily exceed the carbon budget and later offset this by using 'net negative emissions'. Net negative emissions can be created among other things by large-scale reforestation and the combination of bioenergy and carbon capture and storage. Most IPCC scenarios use negative emissions, which typically varies between 0 and 350 GtCO2. Particularly the short-term reductions are strongly linked to these negative emissions.

A next step is to translate global reduction targets to national goals. Key components of this process are cost-effectiveness and principles of fairness.
Principles of fairness are often broken down into the categories equality, ability to cope and responsibility. A combination of cost-effectiveness considerations and these principles can be used to assess whether a country's contribution is consistent with the global objectives. There is certainly no consensus on how these principles are weighted. Scientific analyses often study a future situation (for example in 2050) involving equally distributed emissions per capita.

The reduction of CO2 emissions and the energy transition currently form the core of climate policy.
Besides CO2, greenhouse gases are made up of various other gases, such as methane and nitrous oxide. The Dutch climate policy assumes a multi-gas approach, which allows gases to possibly be exchanged for an equivalent. CO2 plays the most dominant role in long-term climate change, because of its long atmospheric lifetime as well as its contribution to total emissions. In the Netherlands CO2 is even more important: CO2 makes up 85% of the total emissions (almost entirely produced by the energy sector). This report's illustrative calculations are therefore focused on CO2.

Based on an assumption of equal global emissions per capita in 2050, an objective of the Netherlands for a goal of 2 ˚C should correspond with an approximately 85%-95% reduction of CO2 emissions in 2050. Likewise, the 1.5 ˚C goal corresponds with emissions reduction of over 100% in 2050. The consistent reductions before 2030 amount to about a 40%-50% reduction in CO2.
Roughly speaking this means a full decarbonisation of the energy supply in the Netherlands in 2050. For these illustrative calculations we assumed equal global emissions per capita, as well as three interpretations of the Paris Agreement objectives: limiting warming to 2 ˚C with negative emissions, limiting warming to 2 ˚C without negative emissions and limiting warming to 1.5 ˚C with negative emissions (the cumulative global CO2 emissions from 2020 to 2050 vary between 550 and 850 GtCO2).

The fixed and intended policy in the Netherlands does not meet the reduction targets of the Paris Agreement. According to the National Energy Study 2016 (*Nationale Energieverkenning 2016* – NEV 2016) the policy results in a 24% reduction of all greenhouse gases in 2030 and a 12% reduction in CO2.
The greenhouse gas emissions in the Netherlands are declining relatively gradually: emissions reductions in the last 10 years were roughly 0.7 percentage points per year for all the Kyoto Protocol greenhouse gases and were approximately 0.5 percentage points per year for CO2

alone (relative to 1990 emission levels). Reaching the targets for 2030 and 2050 given in the illustrative calculations would require annual reductions of 2.6-2.8 percentage points relative to 1990 emission levels. This is a far faster rate of reduction than the historical rate. If it is not possible to break the trend in the short term it is improbable that these targets will be met. However, anticipated reduction for 2030 based on the fixed and intended policy is also quite insufficient to meet the targets of the illustrative calculations (12% reduction in CO2 according to the NEV 2016 compared with 40%-50% for the Paris targets).

Compliance with the Paris Agreement thus calls for tightening policy in the Netherlands in the short term; drastic changes are necessary for an 85% - 100% emissions reduction.
Such reductions can partly be achieved through technical measures. Moreover, behavioural changes can also contribute to the corresponding reductions. If the Netherlands decides to implement a national climate policy in accordance with the Paris Agreement, the following are possible guiding principles:

- Set the policy target at a 40%-50% reduction of CO2 in 2030 relative to 1990 levels.
- Ensure that the current decisions contribute to the long-term target of a 85% - 100% reduction in 2050.
- Establish a transition policy focused on promptly meeting all infrastructural, technical and institutional prerequisites for the large-scale application of low-carbon technologies.
- Provide safeguards for all of the above points, to create stable conditions for investments in CO2-free energy supplies and engage the public in its implementation.

3.85 Below Urgenda repeats a few sentences from the summary of the report.

On the climate objectives of the Paris Agreement:

'Such a budget is so tight that its adherence requires a strict global climate policy. Such a policy also far surpasses the current policy of the countries involved.'

On the Netherlands reaching climate targets:

'The consistent reductions before 2030 amount to about a 40%-50% reduction in CO2 (..).The fixed and intended policy in the Netherlands does not meet the reduction targets of the Paris Agreement. According to the National Energy Study 2016 (*Nationale Energieverkenning 2016* – NEV 2016) the policy results in a 24% reduction of all greenhouse gases in 2030 and a 12% reduction in CO2. (..) Compliance with the Paris Agreement thus calls for tightening policy in the Netherlands in the short term; drastic changes are necessary for an 85% - 100% emissions reduction by 2050.

4. Current developments

4.1 Finally, Urgenda would like to call attention to a number of current developments relevant to the State's defence (mainly in ground for appeal 15) that measures in the national ETS sector are ineffective because they lead to more emissions in other EU member states, as well as to the State's defence in ground for appeal 28 that the reduction order claimed by Urgenda is a disguised order to legislate.

4.2 In the proceedings in the first instance Urgenda claimed, in short, a reduction order to the effect that the State must have reduced the Dutch emissions by 40% relative to 1990 levels in 2020, or alternatively by 25% in 2020, or further in the alternative by 40% in 2030.

4.3 In its judgment of 24 June 2015 the district court ordered a reduction level of 25% in 2020.

4.4 In the proceedings in the first instance both parties and the district court assumed that the State would accomplish a 17% emissions reduction in 2020 without the reduction order (see paragraphs 4.33, 4.70 and 4.84).

4.5 Following the pronouncement of the judgment in June 2015, the National Energy Study 2016 (*Nationale Energieverkenning 2016*, hereinafter: NEV 2016) **(Exhibit 112)** was published in October 2016 by the Energy Research Centre of the Netherlands (*Energie Centrum Nederland*, hereinafter: ECN), the Netherlands Environmental Assessment Agency (*Planbureau voor de leefomgeving*, hereinafter: PBL), Statistics Netherlands (*Centraal Bureau voor de Statistiek*, hereinafter: CBS) and the Netherlands Enterprise Agency (*Rijksdienst voor Ondernemend Nederland*, hereinafter: RVO).

4.6 Urgenda cites the following passage from the foreword of the NEV 2016:

"*Concerning developments in energy and climate policy, we have seen more long-term ambitions since the Paris Agreement, but also uncertainties about pursuing a policy to achieve these ambitions.*
(…)
Energy savings have picked up and the proportion of renewable energy options is rising after years of relative stagnation, while energy bills for regular citizens are estimated to remain virtually unchanged until 2020.
(…)
However, we are not there yet. This NEV shows the energy sector's tenacity. Without new efforts, the pace of energy conservation after 2020 will again dwindle, while further government support will be the only catalyst to keep the share of renewable energy rising. Greenhouse gas emissions will plummet until 2020 because of, among other things, the shutdowns of coal-fired power plants although mainly because of biomass and increased electricity imports. However, exports will overtake imports and emissions of coal-fired power plants will rise once again. Net

emissions will barely be reduced after 2020."

4.7 Urgenda cites the following passage from the summary of the NEV 2016:

"*Europe's political leaders have agreed to the targets to reduce European greenhouse gas emissions by 80%-95% of 1990 levels in 2050. In its 2015 Energy Report the Dutch government repeated its commitment to this agreement. This NEV shows that the Netherlands achieved a reduction of 12% in 2015. And while a rapid reduction to 23% [20%-26%] is expected until 2020, further reductions will slow thereafter based on the established and intended policy. In 2035 total greenhouse gas emissions will be 30% of 1990 levels."* (p.10).
(underlining by attorneys).

4.8 Table S.1 on pages 11 and 12 of the summary of the NEV 2016 contains several key figures. This table shows (p. 12) that compared to the greenhouse gas emissions in 1990,
in 2015 the reduction was only 12%, that
in 2020 a reduction of 23% is expected,
in 2030 a reduction of 24% is expected and that
in 2035 a reduction of 30% is expected.

4.9 A number of issues are striking in these figures.
First, with the current policy and even the current intended policy (!), in 2030 the State will still not have achieved the 25%-40% reduction level, which the Annex I countries should have already achieved in 2020; not even the minimum of 25% which the district court ordered the State to do.

4.10 Possibly even more striking is that these figures anticipate a reduction of 23% in 2020[34], while the State in the proceedings in the first instance had stated that this would be only 17%. That raises questions.

4.11 It has now become clear that the difference between the 17% in 2020, which was assumed by the parties in the proceedings in the first instance, and 23% in 2020 stated by the NEV 2016 is mainly a result of a different calculation method (it also retroactively recalculated the emission level of 1990, showing it to be *higher*).
The ECN (coordinator of the NEV 2016) published an explanation (**Exhibit 141)** on its website[35] of this noticeable 'leap' from 17% to 23%. The heading of the explanation: '*From a 17% to a 23% greenhouse gas reduction and still not good news for the climate*'.

[34] The PBL report, 'What does the Paris Agreement mean for the long-term climate policy of the Netherlands?' (**Exhibit 126**), which was already discussed in section 3.84, cites the figures in the NEV 2016. See also Urgenda's restatement of the report in section 3.85.
[35] Under the category news:
https://www.ecn.nl/nl/nieuws/item/column-van-17-naar-23-procent-broeikasgasreductie-en-toch-geen-goed-nieuws-voor-het-klimaat/ (retrieved on 8 April 2017)

4.12 The ECN's explanation clarifies that and why a new calculation method was used, the effects of that method, and differences it yielded compared with the previous calculations.

4.13 Urgenda cites the following passages:

"*These adjustments are certainly not good news for the climate, as the total past greenhouse gas emissions have now proven to be about 5% (more than 10 Mt CO2 equivalents more than was previously thought. The targets for greenhouse gas emissions that were based on previous insights now take on a different meaning, as this increase actually means that with the agreed upon reduction levels (whether 20%, 25% or 80%-95%) a greater degree of emissions remains than was previously thought. Using the old numbers the level of absolute (cumulative) emissions at a 25% reduction is, for example, achieved only with a 28% reduction using the new figures.*

(…)

Overall these changes result in a steeper relative reduction in greenhouse gas emissions than was previously anticipated. While that sounds like good news, upon closer inspection only a small portion of the changes prove to be positive. Total cumulative emissions from 1990 to 2020 are now greater than assumed in the NEV 2014 (….). At first glance the adjustments seem like good news, but for the climate the current situation with a 23% reduction is actually worse than the situation with a 17% reduction in the NEV 2014.'
(underlining by attorneys)

4.14 This leads to three conclusions:

1) According to the previous figures, the Netherlands already had relatively significant per capita emissions, but the emissions since 1990 are even greater than was previously thought (cumulatively that amounts to 10 *Mt CO2-eq* or 5% of the total emitted between 1990 and 2020[36]);
2) *Thanks to* the new calculation method it now seems easier for the State to meet the reduction order of 25% in 2020 which was ordered by the district court; after all, according to the prognoses in the NEV 2016, the State will have achieved a reduction of 23% in 2020;
3) *Despite* the new calculation method that is more favourable to the State, the State will *still not* achieve the minimum 25% reduction norm by 2030 with its current policy or its proposed policy. Climate science and international climate policy require Annex I countries to meet this minimum reduction norm already by 2020, a reduction percentage that was based on achieving the 2 °C target but since then has been so strictly tightened that the reduction efforts need to be significantly more ambitious (compare to the above summary of the PBL report 'What does the Paris Agreement mean for the long-term climate policy of the

[36] If in 1990 a fixed national carbon budget had been allocated to the Netherlands, a larger amount of it would already be used in 2017 than had been calculated up to now. In fact, if in 1992 the still available global carbon budget for a 66% chance of a 2 °C warming would have been distributed on an equal per capita basis (each country receives a part of the global carbon budget in proportion to its population), the Netherlands would have exhausted its carbon budget in 2014.

Netherlands' – **Exhibit 126**).

4.15 Urgenda interprets all of this as a confirmation of its assertion that when it comes to the dangers and risks of dangerous climate change the order claimed by Urgenda for the State to reduce emissions by at least 25% in 2020 is both strongly necessary and urgent.

4.16 A relativistic comment that could or even should be made about the NEV 2016 is that it is just a prediction, however one that is mainly based on the assumption that Dutch emissions will drastically decrease until 2020 but thereafter will possibly resume growth. That prognosis would incidentally run counter to the Paris Agreement, which requires increasingly ambitious reduction efforts.

4.17 Recent data on emissions do not indicate that Dutch emissions are currently on a strong decline.

On 3 April 2017 the Netherlands Emissions Auhority (*Nederlandse Emissie Autoriteit*, hereinafter: NEA) published a news report on its website about the CO2 emissions of the Dutch ETS sector (**Exhibit 139**).

4.18 In the news report the NEA shares that the CO2 emissions of the Dutch industry in 2016 were virtually identical to 2015 and were also once again the highest emissions since the EU ETS was launched in 2005.
The news report also contains an article by de Volkskrant, which states that the provisional emissions figures of the European Commission show that, in contrast, emissions for the entire European ETS sector decreased by 3.4% compared to 2015.

4.19 From 2005 to 2016 the developments in the Netherlands and the rest of the EU differed even more dramatically. According to the news report CO2 emissions of the European ETS sector declined by as much as 24% from 2005 to 2015, and by another 3.4% in 2016 compared to 2015. While the whole European ETS sector has achieved a 25% reduction since 2005, emissions of the Dutch ETS sector have actually increased by 2% in that time.

4.20 *De Volkskrant* picked up the story and reported that the Netherlands reconfirmed its reputation as the dirty man[37] of the EU, and had been doing so for years, and that following

[37] Urgenda has never pressed for a specific method to achieve the 25%-40% reduction and has wished to leave this completely to the State's discretionary power. It is striking however that in response the State itself has strongly resisted the closing of coal-fired power plants. In this light, it is perhaps interesting to report that on the list of greatest ETS CO2 emitters the *new* RWE coal-fired plant in Eemshaven comes in at number 1 (with 8.9% of the total Dutch ETS-emissions, **see Exhibit 140**), both of Uniper's *new* coal-fired plants on the Maasvlakte come in at 3 and 4 (6.3% and 5% of the total, respectively), the Nuon coal-fired plant at the Hemweg is at spot 6 (4.3%) and the Essent Amer power plant (also coal-fired) comes in at 8 (3.8%). In its reply Urgenda has already highlighted the State's pro-coal policy, that the State therefore has been going against the trend and that coal firing is much worse for the climate than gas-fired plants (per unit of generated electricity a coal-fired plant releases twice the emissions of a gas-fired plant; wind turbines and solar panels release no emissions).

an initial reduction Dutch ETS emissions have resumed an upsurge of 9% since 2010 (and thus net emissions have increased by 2% since 2005) (**Exhibit 139**).

Measures

4.21 These figures alone show that the waterbed effect defence of the State (p. 49-57 and 100-103 Statement of Appeal) does not hold up. In short, this defence argues that as a result of the waterbed effect, no reduction measure taken by the State in the Dutch ETS sector will be effective, because it will result in more emissions elsewhere in Europe. That is incorrect as the supporting policies of Germany, the UK, Italy and even Poland are successfully reducing national ETS emissions.[38] In those countries there have been no apparent complaints that their reductions have raised emissions in the Netherlands – as a consequence of the waterbed effect. Only the Netherlands, the state least entitled to do so, is employing that ad hoc argument so as not to be required to reign in emissions. The discussion of ground for appeal 15 (section 7.46-7.91) gives a more detailed analysis of the waterbed effect.

4.22 There are certainly numerous ways for the State to employ effective national reduction measures, including in the ETS sector, even without needing to take legal measures. That last point is relevant, as the State argues in its defence (in ground for appeal 28) that the reduction order claimed by Urgenda is a disguised order to legislate and is therefore not allowable.

4.23 In its statement of reply in the proceedings in the first instance, para. 90 and 561, Urgenda already stated – with a reference to the Paris Agreement – that the government can have a profound effect on national energy usage (and therefore national emissions) without needing to take legal measures, and that –apparently–the mere threat of legal measures is already clearly effective.

4.24 'The proof of the pudding is in the eating'.
On 6 April 2017 the Minister of Economic Affairs sent a letter (**Exhibit 138**) to the Parliament to report that the energy-intensive industry had agreed to the 'voluntary' substantial energy conservation requested by the Minister. The energy-intensive industry, which is part of the ETS sector, was willing to 'voluntarily' conserve energy because the Minister – in the context of the Paris Agreement – had threatened to otherwise take legal measures. This is what the Minister wrote in his letter, which it should be added mentioned nothing about the ineffectiveness of such a measure because of the waterbed effect.

4.25 Working within the framework of the Paris Agreement, the Minster had already previously effectively intervened in the ETS sector, simply by threatening legal measures. Regarding this see Urgenda's statement of reply in the proceedings in the first instance, para. 89 et seq. and

[38] *De Volkskrant* reported that since 2010 emissions in Germany have dropped by 13% (despite the unplanned closings of CO2-neutral nuclear power plants), in Italy by 22%, and that even Poland had some percentage of emissions reduction.

mainly para. 92.

4.26 The Minister can also employ other instruments to intervene without needing to resort to legal measures. Urgenda has also discussed this in the proceedings in the first instance. See Urgenda's summons sections 5.2.3. up to 5.3.6 and 5.3 (para. 294 – 309).

4.27 In its statement of reply in the proceedings in the first instance (para. 92) Urgenda therefore included the measures mentioned by the Minister of Economic Affairs in his letter of July 2014 (**Exhibit 56**). This letter also includes a number of measures that have an effect on ETS sector emissions without the need to take legal measures, including removing CO2 allowances from the market, agreements between the government and individual energy companies, consolidating the power plants under the umbrella of one company (a bad bank construction) and tightening environmental regulations.
Now in 2017 the energy-intensive industry is also prepared to switch – without the need for legal measures – to substantial energy conservation, which is obviously relevant for its CO2 emissions.

4.28 Another possible measure is subsidising sustainable energy, as is done in Germany. In fact, the State subsidises (to a lesser degree than Germany, but still) offshore wind energy. This energy results in lower energy production from coal-powered and gas-powered stations and therefore lower CO2 emissions in the ETS sector (which once again illustrates that the State is rather opportunistic in its use of the waterbed effect as an argument against taking additional reduction measures).

4.29 Another possibility could be to halt subsidies to coal-powered plants for co-firing biomass. A recent report (**Exhibit 137**) shows that Nuon's loss of a subsidy for co-firing biomass was reason for the company to consider shutting down the Hemweg power station. As **Exhibit 140** shows and as is explained in footnote 36, the Hemweg power station emits 4.3% of Dutch emissions, making it the sixth-largest source of emissions in the country.
The Amer power plant hopes to receive sufficient subsidies to run on 80% co-firing (**Exhibit 137**).
Whether a subsidy is granted is not a legal measure. Not granting extensions to expiring subsidy programmes for coal-powered plants or other ETS sectors is also not an act of legislation. These actions show that without taking legal measures the State has a major hold on the Dutch emission level, even within the ETS sector.

4.30 In its discussion of grounds for appeal 15 and 28, Urgenda will delve more deeply into the defence of the State that it cannot take effective measures because of the EU ETS system and that the claimed reduction amounts to an order to legislate. Urgenda already concludes here that the arguments are invalid and that the facts lead to different conclusions to what the State wants to present.

Part II: The State's grounds for appeal

5. Urgenda's standing; ground for appeal 1

Ground for appeal 1

5.1 In ground for appeal 1 (Statement of Appeal 11.1), the State complains that in paragraphs 4.7, 4.8, 4.9 and 4.89 of the judgment the district court wrongly considered that the Urgenda Foundation's claims are admissible to the fullest extent and that Urgenda may therefore protect the interests of current and future generations 'outside the Netherlands'. The State also reproaches the district court that it did not take into account that Urgenda failed to specify which future generations it wants to protect. The State argues that this means that Urgenda's interest is insufficiently defined and therefore insufficiently concrete to find its claims allowable. The State reproaches the district court that it failed to recognize this.

5.2 Urgenda responds to this ground for appeal as follows.

Urgenda's claims fall within the scope of Book 3 Section 305a of the Dutch Civil Code

5.3 Firstly, Urgenda notes that the State did not put forward a ground for appeal against the district court's decision in paragraph 4.6 of the judgment.

5.4 In paragraph 4.6, the district court – rightly – finds that Urgenda's claims belong to the type of claims the Dutch legislature deems allowable and has wanted to make possible with Book 3, Section 305a of the Dutch Civil Code. Referencing the Explanatory Memorandum to the legislative proposal for Book 3 Section 305a of the Dutch Civil Code – in a footnote – that a claim by an environmental organisation to protect the environment, without an identifiable group of persons needing protection being specified, would be allowable under the proposed scheme of Book 3 Section 305a of the Dutch Civil Code.

5.5 The district court probably had the following section of the Explanatory Memorandum in mind:

> *"After all, an organisation usually protect the interests 'that as a rule affect large groups of citizens, while the consequences of a potential violation of the interests of each of the citizens is often difficult to predict'; see Supreme Court 27 June 1986, NJ 1987, 743 (De Nieuwe Meer). In a case such as this, individual citizens' claims are usually not allowable on account of the absence of interest. An organisation's legal action, however, combines the diffuse interests of many citizens, meaning interests about which it is not clear beforehand whose interests will be damaged in case of a violation.*
> *The interests suitable for pooling in a collective claim may regard financial interests, but also interests of a more idealistic nature. In the legal action, the interests that affect people directly*

can be protected, or interests that people have chosen to protect from a particular conviction. In the case of idealistic interests, it is not relevant that not every member of society attaches equal importance to these interests. It is even possible that the interests people seek to protect in the legal action conflict with the ideas and opinions of other groups. This in and of itself does not stand in the way of a collective legal action. However, it should be noted that if a claim is deemed to be allowable, it may or may not be upheld.

(…)

The question is whether a claim for the protection of the environment without an identifiable group of people needing protection would be allowable under a scheme such as the one of the draft bill. Compared with the De Nieuwe Meer ruling the clock would be turned back, but this is in fact not the case. It does not have to concern the interests of a clearly defined group of others, but may also concern an undefined, very large group of people. The above considerations of the De Nieuwe Meer ruling make it clear that the Supreme Court also takes the interests of citizens protected by Section 1401 of the Dutch Civil Code as a starting point as regards a clean environment. The ruling reveals that this starting point does not constitute an obstacle for environmental organisation to bring a successful action for a clean environment."

5.6 See, in the same spirit as the district court, the ruling of the Supreme Court of 22 May 2015, ECLI:NL:HR:2015:1296 (Privacy First), particularly paragraph 3.3.5 referencing the same section from the Explanatory Memorandum to Book 3 Section 305a of the Dutch Civil Code:

"*Other than the considerations of the court of appeal, the considerations set out above in 3.3.4 also apply if an interest group protects not only the (combined) interests of a certain or determinable number of individuals, but also the general interest of protecting the rights of a much larger, but diffuse and undetermined, group of people. This case also concerns a pooling of interests within the meaning of Book 3 Section 305a subsection 1 of the Dutch Civil Code (cf. Parliamentary Papers II 1991/92, 22 486, no. 3, p. 3-7 and 19-23, in particular p. 21 at the bottom) and must therefore apply …*"

In the Clara Wichmann/SGP ruling (Supreme Court 9 April 2010), in paragraph 4.3.2, the Supreme Court also considers that Book 3 Section 305a of the Dutch Civil Code is also intended to make legal actions dealing with general interests possible.

5.7 Mainly where the State complains in its explanation of ground for appeal 1 that the group of stakeholders Urgenda claims to want to protect – 'future generations ad infinitum' in the Netherlands and across the world – is too undefined, the State appears to start from the idea that Book 3 Section 305a of the Dutch Civil Code only makes collective interest actions possible for the interests of an identified group of people. However, in view of the cited legislative history and jurisprudence of the Supreme Court, this idea is incorrect. Furthermore, the ground for appeal must be denied on account of the, correct, considerations of the district court – considering the legislative history and jurisprudence – in paragraph 4.6 of the

judgment, against which the State has not put forward a ground for appeal.
The fact that Urgenda protects the interests of a diffuse group of stakeholders that cannot or can hardly be defined, which incidentally is logical considering that Urgenda is acting against a problem with a global impact, is not in conflict with the allowability of Urgenda's claims.

The claims fall within the scope of Urgenda's objects formulated in its by-laws: (part 1) territorial scope

5.8 The question that remains to be answered is whether Urgenda's claims fall within the scope of the objects formulated in its by-laws. The district court found that this is the case. It appears that the State mainly wants to contest this assessment by the court in ground for appeal 1 and its complaints against paragraphs 4.7, 4.8 and 4.89 of the judgment. These complaints of the State also miss their mark.

5.9 As evidenced by article 2 of its by-laws, Urgenda has taken upon itself to promote the interests of a 'sustainable society', 'beginning in the Netherlands'.
In its summons for the proceedings in the first instance (summons 50-61), Urgenda explained what specifically falls under the term 'sustainable society' and further explicated the term in its reply nos. 445 through to 457. Urgenda expressly requests the court to regard those sections as repeated and inserted in their entirety here.

5.10 Urgenda believes that the district court rightly assessed that the term 'sustainable society' for which Urgenda ostensibly strives according to its by-laws has an inherent international and global dimension (paragraph 4.7). This as such is not contested by the State.

5.11 But the State does complain (Statement of Appeal 11.9) that the district court incorrectly interpreted Urgenda's objects clause, in particular the words 'beginning in the Netherlands' used therein, as not containing a statutory limitation of Urgenda's activities to Dutch territory, but merely a prioritisation.
The State's complaint must be dismissed on linguistic grounds alone. 'Beginning in the Netherlands' means something entirely different than 'limited to the Netherlands', and this difference in meaning was specifically made in the by-laws.

5.12 In this context, Urgenda wishes to point out that its website (www.urgenda.nl) is available both in Dutch and in English, the latter slightly more condensed and accessible via an icon in the top right corner on the homepage.
The Dutch-language website contains all court documents from the proceedings in the first instance, while Urgenda has also had its own court documents translated into English and published on its English-language website from the beginning of the proceedings. Following the judgment, Urgenda had additional documents drafted and translated, as well as had videos of judgment day in court subtitled.

5.13 The proceedings in the first instance drew considerable national and international attention, which explains why the court also had an English version of its judgment available on the day

it pronounced judgment, and which attracted worldwide publicity in a matter of hours. International attention for the case and particularly the day it pronounced judgment did not materialize spontaneously. It took fairly extensive and intense efforts and contacts between Urgenda and the foreign press beforehand.

5.14 Prior to the legal proceedings, Urgenda had furthermore contacted international climate scientists (Dr James Hansen, who then worked at NASA and probably the world's best-known climate scientist, attended the press conference – at the invitation of Urgenda – after the summons was issued, and also attended a round table conference organized by Urgenda with Dutch climate scientists of the PBL, KNMI and other organisations). After the judgment, Urgenda was invited to hold presentations and information meetings about the judgment in Australia, Norway, the United States, the United Kingdom and Belgium.

5.15 Insofar as the State wants to create the impression that Urgenda's activities are factually strictly limited to Dutch territory (see mainly Statement of Appeal 11.10 and 11.11), this would be incorrect and in doing so the State actually gives a somewhat misleading representation of the facts.

The claims fall within the scope of Urgenda's objects formulated in its by-laws: (part 2) the interests of future generations

5.16 Insofar as the State wants to complain that representing the interests of future generations, whose interests Urgenda states to also want to protect, does not fall within the scope of Urgenda's objects formulated in its by-laws, that complaint must also be dismissed.

5.17 The concept of 'sustainability' has a patent intergenerational dimension, as the district court rightly considered in paragraph 4.8. It aims to create a balance between the interests of current *and* of future generations.

5.18 The Urgenda Foundation's main purpose is 'to stimulate and accelerate the transition processes to a more sustainable society, beginning in the Netherlands'. Urgenda also explained in its summons what is meant by a sustainable society: a viable society, which is a society in which commerce and social life are organised in a viable manner, meaning in a way that does not cause an imminent depletion or pollution of natural resources and in which the availability of those natural resources is also ensured for the economic and other development of others, in particular for future generations.

5.19 Urgenda did not invent this interpretation of the word 'sustainability' or quickly came up with this interpretation for the purpose of these proceedings. In this context, economic development vs. natural resources and the environment, the concept of 'sustainability' has a specific and generally accepted meaning. In paragraph 4.8, the district court correctly looked to the accepted definition of the concept of 'sustainability', derived from the Brundtland

report: [39]

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

5.20 This definition clarifies that the concept of 'sustainability' is geared towards the durable ('viable') availability of natural resources with which humans and societies can meet their needs and which are indispensable for their continued existence, and that this entails both current and future generations. Earlier in this defence on appeal Urgenda explained that the continued availability of natural resources is an important element of the Reasons for Concern and also an indicator for the question of when there is 'dangerous' climate change within the meaning of Article 2 of the UNFCCC.

5.21 So the concept of a 'sustainable society' is essentially anthropocentric in nature. It acknowledges that humans and human societies depend on the planet's natural resources and ecosystems for their survival. The conclusion that can be drawn from this is that those resources and ecosystems should be used and managed in a way that ensures and does not jeopardise the survival of humans and society. A society in which economic activities are organised in such a way that they cause a 'dangerous' climate change that threatens the ecosystems and with it societies across the world (on a global scale) is by definition evidently not 'sustainable'.

5.22 Urgenda's claims therefore fit perfectly with the aim of creating a 'sustainable society', which is its object as formulated in its by-laws, and also with the aim of protecting collective interests that fall within the scope of Book 3 Section 305a of the Dutch Civil Code.

5.23 The most specific legal standard on which Urgenda relies in these proceedings for the implementation of the standard of due care in society, or the unwritten legal obligation the State has under Book 6 Section 162 of the Dutch Civil Code, are Articles 2, 3 and 4 of the UNFCCC.

5.24 The UNFCCC not only deals specifically with the emission of greenhouse gases, the subject of these proceedings, but also identifies in this specific context the concept of sustainability ('sustainable manner') several times.

5.25 Article 2 of the UNFCCC, the provision that stipulates the objective of the treaty, states that the parties to the treaty have the legal obligation to limit the concentration of greenhouse gases in the atmosphere to a level which prevents dangerous climate change, and also within a time frame that provides ample opportunity for ecosystems to naturally adjust to the climate change to prevent food production from becoming compromised and to allow economic development to continue *in a sustainable manner*.

[39] Cited by Urgenda before: see its summons, section 57.

In other words, the importance of a sustainable society, which Urgenda promotes under its by-laws, is specifically mentioned in the legal standard on which Urgenda relies.

5.26 Article 3 of the UNFCCC also identifies the interests of future generations ('for the benefit of present and future generations', in Article 3 paragraph 1) as a guiding principle.

5.27 Regarding the group of Annex I-countries, to which the Netherlands also belongs, Article 4 paragraph 2 of the UNFCCC states that the parties must take account of 'the need to maintain strong and sustainable economic growth' in the policy they pursue.

5.28 Articles 2 and 8 ECHR, as explicated by the European Court of Human Rights and which Urgenda also invokes, are similarly anthropocentric. The articles do not intend to protect the environment, but people from an unacceptable degradation of the environment in which they live and which determines their health and living conditions. These stipulations also seek to protect the interests Urgenda wants to defend. Since Urgenda promotes the interests of the individuals protected by these stipulations, it may directly invoke them (more information on this can be found below).

5.29 The direct link between on the one hand a 'sustainable society' which Urgenda wants to defend and climate change on the other hand moreover becomes apparent from the Resolution with which the 193 UN member states – which expressly includes the State – adopted the 2030 Agenda for Sustainable Development on 25 September 2015 (see **Exhibit 113**).
The Agenda contains 17 ambitious long-term goals for sustainable development. These sustainable development goals (SDGs), including 169 sub-goals, are intended to ensure that by 2030 the world is free from poverty, hunger and disease. SDG 13 is as follows: 'Take urgent action to combat climate change and its impacts'.
This also reveals that there is a close connection between climate change and sustainability.[40]

[40] In November 2016, the CBS produced an initial report (**Exhibit 114**) which examines the progress the Netherlands has made with the SDGs.
Page 26 of the report states: "*The overall picture that emerges from the SDG measurements is that the Netherlands is doing well in many aspects, mainly economically but also in terms of the rule of law and institutions, and in education and health care in some respects.*"
However (page 27): "*But there are also several major points for concern, in which a relatively low EU ranking is coupled with a trend that appears to go against the objective, or is progressing sluggishly: climate and energy. The Netherlands' emission of greenhouse gases per capita is relatively high (13.2), and the greenhouse gas intensity of the economy ranks merely average in a EU context (13.2 and 9.4). The Netherlands also consumes a lot of fossil fuels compared with other EU countries, and its share of renewable energy of the total Dutch energy consumption still remains extremely low (7.1-7.3).*"
And also (page 38): "*Greenhouse gas emissions (13.2): The Paris climate summit in December 2015 resulted in an agreement that is not legally binding but that does entail more political commitment. The urgency to quickly reduce the emission of greenhouse gases in the Netherlands declined steadily from 14.2 ton CO2 equivalent per capita in 2000 to 11.5 in 2014. But the historical CO2-emission per capita is still rising (from 6.8 ton CO2 per capita in 2000 to 7.4 in 2013). Internationally speaking, the Netherlands' level of greenhouse gas emissions per capita (in 2014) is relatively high, as is the historical CO2 emissions per capita (2013).*" The associated diagram in the report shows that the Netherlands ranks 25th in the EU (out of 28 Member States) when it comes to the emission of greenhouse gases, and therefore ranks very low on the sustainability index.

Conclusion regarding ground for appeal 1

5.30 Urgenda concludes that its claims are allowable 'to the fullest extent'.
Its claims belong to the group of claims the legislature has wanted to make possible with Book 3, Section 305a of the Dutch Civil Code.
Urgenda's claims seek to promote the interests it has taken upon itself to defend, according to its by-laws, and which it actively promotes.
The legal rules Urgenda relies on expressly refer to 'sustainability' as a frame of reference or guiding principle, and with it to Urgenda's objects clause.

5.31 Ground for appeal 1 of the State must therefore be denied.

Not only does this illustrate how much 'sustainability' and climate change and greenhouse gases are intertwined, but also the necessity of these proceedings.

6. IPCC reports and conclusions of the district court: grounds for appeal 2-8

Introduction

6.1 The overarching theme in Chapter 12 of the State's Statement of Appeal is 'IPCC findings and the conclusions the district court draws from them'. Related to this theme, the State puts forward seven grounds for appeal (ground for appeal 2 through to ground for appeal 8), which all express in different ways that the district court attached a particular significance to the report of the IPCC which it did not have (ground for appeal 2), for example because the district court used outdated information (ground for appeal 3), and in any case the IPCC reports do not make proposals about how countries should attain a warming limit of 2 °C or less (ground for appeal 4). The district court allegedly wrongly considered that a 450ppm scenario would lead to the 50% chance of reaching the 2 °C limit (ground for appeal 5). The district court allegedly disregarded that the difference between Annex I countries and non-Annex I countries no longer exists (ground for appeal 6), that the IPCC reports do not offer proposals for the emission levels of individual countries (ground for appeal 7), and that the district court wrongly assumed a direct relationship between greenhouse gas emissions, the temperature rise as a result of those emissions and dangerous consequences for humans and the environment, thereby disregarding scientific uncertainties (ground for appeal 8).

6.2 In fact the State is using many arguments to dispute that the district court could base a reduction norm of 25%-40% on the IPCC reports. Urgenda states first and foremost that the district court did not independently determine the reduction norm of 25%-40%, nor did it independently derive information from the IPCC reports. The district court factually determined that the reduction norm in the IPCC reports was proposed for Annex I countries, and that the norm has been subsequently adopted by the international community, has been repeated multiple times and has become a leading factor in the climate policy of the EU and the Dutch government. In short, the district court has factually determined that there is a broadly supported norm (at the international, European and national levels) that Annex I countries must reduce their greenhouse gas emissions by 25%-40% in 2020 because of the great dangers and risks such emissions pose to climate change. The district court attached significance to this general legal awareness in answering the question what, according to the Dutch legal awareness, is required of the State based on the standard of due care observed in society.

6.3 With a view to bring unity and consistency to its response to the State's grounds for appeal 2-8, Urgenda will first discuss the themes the State addresses, in relation to each other. Thereafter it will address the grounds for appeal individually.

6.4 The district court ruled that the State has a legal obligation to reduce greenhouse gas emissions by at least 25% of 1990 levels in 2020.

6.5 First, it is important to recognize on what the district court bases this reduction norm with that specific reduction percentage.

6.6 The district court did not come up with this norm on its own, just as Urgenda did not invented on its own that the State is required to achieve a minimum reduction of 25%-40% of 1990 levels, as it requested the State to do.[41]

6.7 In its judgment the district court carefully explained from where it had derived the reduction norm of 25%-40%.

6.8 In paragraph 2.13 the district court shows a nine-column table from the IPCC AR4 report, the sixth column of which shows the increasing warming in response to various greenhouse gas concentration levels given in the third column.

6.9 As this is about the scientifically established causal relationship, this table clearly shows that by a warming limited to 2.0 – 2.4 °C, concentrations of greenhouse gases should not exceed 445 – 490 ppmv.[42]
The table shows that the choice for a particular temperature 'standardises' which corresponding concentration levels cannot be exceeded, based on physical laws. The district court explicitly states this causal relationship again rather superfluously in paragraph 2.14 where, in summary, it cites from the IPCC report that limiting a temperature rise to no more than 2 °C can only be attained when the concentration of greenhouse gases in the atmosphere stabilises at approximately 450ppm.

6.10 In paragraph 2.15 the district court subsequently states that the IPCC assessed various scenarios[43] that would be necessary to also be able reach particular, politically-determined climate targets.
The district court establishes in paragraph 2.15 – based on Box 13.7 included in the legal consideration for this purpose and derived from the IPCC report – that the IPCC determined that to reach the concentration level goal of no more than 450 ppm (which corresponds with a warming of 2 °C), the Annex I countries, including the Netherlands, would need to attain an emission reduction of 25%-40% of 1990 levels in 2020.

6.11 In paragraph 2.16 the district court then cites a different passage in the IPCC report which similarly concludes that in order to achieve a concentration level of 450-550 ppm, Annex I

[41] The judgment shows that the district court assumed that the State has a legal obligation to reduce emissions by 25%-40%. Given the discretionary power entitled to the State, the district court required a minimum reduction of 25% by the State that was still legally acceptable and refused to enforce a greater reduction percentage as the district court considers this decision to be part of the State's discretionary power. It is therefore a political decision to potentially require more reductions than is required by law.
[42] The table contains several temperatures and the associated concentration levels and thus does not entail a choice of the IPCC for a particular temperature or concentration level.
[43] Such scenarios are associated outlook studies, based on assumptions about, for example, population growth, welfare growth, energy use, technological development and the related course of emissions. Unlike in AR4, AR5 uses new, more comprehensive scenarios, known as the RCP scenarios.

countries will have to have attained[44] a reduction of 10%-40% in 2020 '*under most equity interpretations*'. Note that this concentration level is more than the 450 ppm maximum discussed in paragraph 2.15. A concentration of 450 ppm corresponds to a warming of 2 °C, while a concentration of 450-550 ppm corresponds to a warming of 2.0 – 2.8 °C.

6.12 The IPCC reports do not dictate which climate policy should be carried out, but are intended to provide information relevant to political decision-making, which means they are policy-relevant but not policy-prescriptive.

6.13 Therefore, the international community's response to the information in the IPCC report is important, the facts of which are also stated by the district court.

6.14 In paragraph 2.48 the district court cites the Bali Action Plan 2007 (**Exhibit 23**). The COP decision adopted by the parties to the UNFCCC in Bali warns against delaying emissions reductions and recognises that drastic emission reductions are necessary to meet the treaty's goal (preventing dangerous climate change), given the information in the IPCC AR4 report. This COP decision also contains a footnote, which refers to the table in the AR4 report which the district court discussed in paragraph 2.15 and 2.16. This is the first time international politics cites a 25%-40% reduction norm for Annex I countries, which the district court announces in the concluding sentence of paragraph 2.16. However, according to the district court (paragraph 4.20) this does not show a preference for that specific reduction norm as the referenced table in the COP decision also contains other concentration levels and attendant reduction norms as alternative choices for international politics.

6.15 The definite choice of international politics for the reduction norm of 25%-40% for Annex I countries was made a few years later in 2010. In paragraphs 2.49 and 4.24 the district court cites the 2010 Cancun Agreements (1/CP.16). In that agreement the parties to the UNFCCC in the first place agreed that warming must be capped at 2 °C, but that limiting warming to 1.5 °C should also be considered. This choice of 2 °C as temperature target, with the prospect of tightening that to 1.5 °C, implies a choice for a global emissions scenario in which greenhouse gas concentrations cannot exceed 450 ppm (that follows from the table in paragraph 2.13 and the IPCC citation in paragraph 2.14). The chosen temperature target also norms the maximum concentration level allowed. Following this decision the Cancun Agreements call for urgent action to meet that target, which is consistent with scientific findings and on the basis of equity. For all of this see paragraph 2.49.

[44] The italicised words emphasise that there is a definite value judgement on what Annex I countries should do according to the IPCC and that the IPCC was aware of this and therefore noted that the suggested reduction standard is supported by what is generally considered fair and thus is an *objective* value judgment in that sense. Urgenda points out that the guiding principle of the UNFCCC is that countries have 'Common but Differentiated Responsibilities and Respective Capabilities' and that this implies that mainly Annex I countries are expected to lead the way in emission reductions. These countries have also caused the current increased concentrations and warming, and they continue to have the highest per capita emissions and they are more financially capable of taking the necessary measures.

6.16 In paragraph 2.50 the district court mentions the fact that in the Cancun Agreements the parties to the UNFCCC *recognised* that their choice for a 2 °C target and urgent action based on science and equity principles *would require* Annex I countries to reduce emissions by 25%-40% below 1990 levels by 2020.

6.17 Therefore the district court establishes the fact that in order to prevent 'dangerous climate change' as defined in Article 2 of the UNFCCC, international politics decided in 2010 that warming in 2100 should not exceed 2 °C and that Annex I countries therefore needed to reduce their emission levels by 25%-40% below 1990 levels in 2020. Therefore, it was not the district court that created the reduction norm of 25%-40% in 2020, nor did Urgenda.

6.18 On appeal Urgenda wishes to note that following the Cancun Agreements (1/CP.16) COP-decisions also repeatedly cited, and relied on, this 25%-40% reduction norm. The general message is that Annex I countries should step up their efforts leading up to 2020 and use the 25%-40% norm as a guide. In this context, Urgenda refers to the following decisions (all underlining by attorneys)

- 1/CMP.7, (Durban 2011; **Exhibit 119**):
  "The Conference of the Parties […] Aiming to ensure that the aggregate emissions of greenhouse gases by Parties included in Annex I are reduced by at least 25-40% per cent below 1990 levels by 2020, noting in this regard the relevance of the review referred to in chapter V of decision 1/CP.16 to be concluded by 2015."

- 1/CMP.8, (Doha 2012; **Exhibit 120**) amendment of the Kyoto Protocol[45]: par. 7 to 11. This decision contains an call to Annex I countries *'to revisit'* their specified reduction requirements in order to increase them by at least 25%-40%:
  "Decides that each Party included in Annex I will revisit its quantified emission limitation and reduction commitment for the second commitment period at the latest by 2014. In order to increase the ambition of its commitment , such Party may decrease the percentage inscribed in the third column of Annex B of its quantified emission limitation and reduction commitment, in line with an aggregate reduction of greenhouse gas emissions not controlled by the Montreal Protocol by Parties included in Annex I of at least 25 to 40 per cent below 1990 levels by 2020."

- 1/CP. 19, (Warsaw 2013; **Exhibit 121**), par. 3 and 4 (mainly par. 4 sub c). In par.3 there is an appeal *'to accelerate'* the cited pre-2020 efforts of Annex I countries and par. 4 states *'to enhance ambition in the pre-2020 period in order to ensure <u>the highest possible</u> mitigation effort […] Urging each developed country Party to revisit its quantified economy-wide*

[45] The Kyoto Protocol is a treaty agreed upon by a number of climate treaty parties within the wider scope of the UNFCCC. Their decisions have their own designations: CP decisions are decisions made by the parties to the UNFCCC and CMP decisions are decisions made by the parties to the UNFCC that are also parties to the Kyoto Protocol. The Netherlands is one of the Kyoto Protocol parties and as such was part of 1/CMP.9 which includes a call to Annex I countries to increase reduction requirements to 25%-40% in 2020 (the Kyoto Protocol includes legally binding reduction requirements).

emission reduction target under the Convention and, if it is also a Party to the Kyoto Protocol, its quantified emission limitation or reduction commitment for the second commitment period of the Kyoto Protocol, if applicable, in accordance with decision 1/CMP.8, paragraphs 7–11';

- 1/CP.20, December 2014, Lima, par. 18, refers to 1/CP.19, par. 3 and 4;

- 1/CP.21, December 2015, Paris, par. 106 c, which cites 1/CP.19, par. 3 and 4.

6.19 Thereafter the UNEP also started to adopt this 25%-40% reduction norm in its Emission Gap reports. The district court rightly establishes that in paragraph 2.31.

6.20 The same norms for international climate policy, namely the 2 °C target, the associated maximum concentration level of 450 ppm and its resulting reduction norm of 25%-40% for Annex I countries have subsequently been accepted and adopted by the EU as the norm and benchmark for EU climate policy. This is evidenced by the facts that the district court establishes in paragraph 2.56 et seq. and the facts that the district court derives from EU documents. See mainly paragraph 2.61 for an explicit reference to the 25%-40% reduction norm.

6.21 Even the State, at least previous cabinets, has adopted the 25%-40% reduction norm for Annex I countries as a benchmark and standard of the Dutch reduction policy. The district court also established this as established fact: see paragraphs 2.72 and 2.73.

6.22 On appeal the State has rightly not put forward any ground for appeal against that which the district court has established as fact.

6.23 Therefore the facts established by the district court can only lead to the conclusion that there is practically a universal consensus among the governments of all countries, at the international, European and Dutch national level, that Annex I countries including the Netherlands *ought* to reduce emissions by 25%-40% because it is *necessary* to avert or limit the great dangers of climate change, and also that this reduction percentage for Annex I countries is derived from the requirements of equity, capabilities, responsibility and fairness.

6.24 What all of this means for the extent of the duty of care and the societal standard of due care required of the State, is discussed elsewhere in this defence on appeal. For now, the State asserts that no legal significance can be attached to this general consensus in climate science, international politics and climate policy that Annex I countries *ought* to reduce their emissions by 25%-40%. The State essentially contends that no significance can be attached to the reduction norm of 25%-40% as long it is not included in any legal regulation that binds the State legally and which Urgenda could invoke.

6.25 Throughout its entire statement of appeal the State consistently puts forward the defence against the 25%-40% reduction that the 2 °C target can still be achieved if the State or even all of the Annex I countries make reductions of less than 25% in 2020 (as is the case); that achieving the 2 °C target does not even require following the 450 ppm scenario; and furthermore it has not been sufficiently proven that the reductions for 2020 claimed by Urgenda are more cost-effective than the delayed action preferred by the State (even though the district court apparently considers cost-effectiveness to be important, according to the State). The State appears to be accusing the district court in so many words of elevating the tool (a 25%-40% reduction) to the status of goal.

6.26 Urgenda will now further examine these arguments.

6.27 In paragraph 2.30 the district court extensively cited the UNEP Emissions Gap Report from 2013. This report shows that delaying action deviates from the most cost-effective route to achieve the 2 °C target, and therefore after 2020 it will be more difficult, more expensive and riskier to achieve that goal. Furthermore:

'*(..) this update concludes that so-called later-action scenarios have several implications compared to least cost scenarios, including: (i) much higher rates of global emission reductions in the medium term; (ii) greater lock-in of carbon-intensive infrastructure; (iii) greater dependence of certain technologies in the medium-term; (iv) greater costs of mitigation in the medium and long term, and greater risks of economic disruption; and (v) greater risks of failing to meet the 2°C target. For those reasons later-action scenarios may not be feasible in practise and, as a result, temperature targets could be missed.'* (quoted from paragraph 2.30)

6.28 In paragraph 4.73 the district court clearly considered and agreed with these findings.

6.29 Urgenda would like to point out that in the more recent IPCC AR5 report, the IPCC also repeatedly discussed the consequences of delaying reductions. The main reason probably being that the world did not follow the immediate and most cost-effective reduction scenarios that were proposed the AR4 in 2007.

6.30 Urgenda cites the following passages from AR5 WGIII[46]:

"*Research has consistently demonstrated that delaying near-term global mitigation as well as reducing the extent of international participation in mitigation can significantly affect aggregate economic costs of mitigation. (…). This represents one manifestation of not undertaking mitigation 'when' it is least expensive. In scenarios in which near-term global mitigation is limited, the increase in mitigation costs is significantly and positively related to the gap in short-term mitigation with respect to the idealized scenarios (Figure 6.25). Costs are lower in the near-term, but increase more rapidly in the transition period following the delayed mitigation, and are*

[46] **Exhibit 124**, p. 453-454.

also higher in the longer term. Future mitigation costs are higher because delays in near-term mitigation not only require deeper reductions in the long run to compensate for higher emissions in the short term, but also produce a larger lock-in carbon infrastructure, increasing the challenge of these accelerated emissions reductions rates..."
(p. 453-454)

6.31 Counter to what the State suggests (ground for appeal 4, Statement of Appeal 12.17), this is applicable to delays in reduction not only at the global level, but also at the national level:

"*Fragmented action or delayed participation by particular countries – that is, not taking mitigation 'where' it is least expensive' – has also been broadly shown to increase global mitigation costs.*
(...)
In general, when some countries act earlier than others, the increased costs of fragmented action fall on early actors. However, aggregate economic costs can also increase for late entrants, even taking into account their lower near-term mitigation. Late entrants benefit in early periods from lower mitigation: however, to meet long-term goals, they must then reduce emissions more quickly once they begin mitigation, in just the same way that global emissions must undergo a more rapid transition if they are delayed in total. The increased costs of this rapid and deep mitigation can be larger than the reduced costs from delaying near-term mitigation. (...)
Indeed, in the face of a future mitigation commitment it is optimal to anticipate emissions reductions, reducing the adjustment costs of confronting mitigation policy with a more carbon-intensive capital stock.
(pp.454-455)

6.32 Concerning the question of whether it is acceptable to delay necessary emission reductions to prevent dangerous climate change, Urgenda believes that cost-effectiveness is neither the only nor the main criterion.
First and foremost is the risk of not being able to reach the 2 °C target if reductions are delayed.

Is the 25%-40% reduction in 2020 necessary for reaching the 2 °C target?

6.33 The State argues (referencing in Statement of Appeal 5.17 et seq., the AR5 SPM 3.4, Synthesis Report) that several reduction scenarios result in the 2 °C goal and the State also refers to a figure on page 37 of its Statement of Appeal.
The State uses a figure from the AR5 Synthesis Report (**Exhibit 104**), p. 21, which indeed shows several reduction scenarios. The State implies that the figure proves that the 2 °C target can still be achieved through several reduction pathways, including those with delayed reductions.

6.34 However, the figure clearly shows that only emission scenarios within the light blue band attain a concentration of 430-480 ppm (see the figure's legend), and even some of the light-

blue scenarios still exceed the maximum allowance of 450 ppm to achieve the 2 °C target. Moreover the State recognises (Statement of Appeal 5.18) that the Paris Agreement actually set the limit at 430 ppm that can no longer be exceeded. The figure invoked by the State (obviously) shows that there are not several scenarios in which the target can still be achieved. To the contrary, none of the scenarios in the figure appear to meet the 430 ppm requirement. More importantly, according to the IPCC the concentration in 2011 was already about 430 ppm-eq (**Exhibit 104**: AR5 SYR SPM, p. 22, table SPM.1, note f).

6.35 Urgenda cites two passages from AR5 WGIII, Summary for Policy Makers, p. 15-17[47] (the same passages the district court cites in paragraph 2.19, p. 10) that clarify how difficult it has become to reach the 2 °C target as a result of the delay in necessary reductions, particularly when the hoped for negative emissions or CDR (Carbon Dioxide Removal) will not become available in the future. The possibilities of reaching the 1.5 °C target have even become extremely limited:

"*Delaying additional mitigation further increases mitigation costs in the medium- to long-term. Many models could not achieve atmospheric concentration levels of about 450 ppm CO_2eq by 2100 if additional mitigation is considerably delayed or under limited availability of key technologies, such as bioenergy, CCS, and their combination (BECCS).*"

"*Only a limited number of studies have explored scenarios that are more likely than not to bring temperature change back to below 1.5°C by 2100 relative to pre-industrial levels; these scenarios bring atmospheric concentrations to below430 ppm CO_2eq by 2100 (high confidence). Assessing this goal is currently difficult because no multi-models studies have explored these scenarios. Scenarios associated with the limited number of published studies exploring this goal are characterized by (1) immediate mitigation action; (2) the rapid upscaling of the full portfolio of mitigation technologies; and (3) development along a low-energy demand trajectory.* "
(underlining by attorneys)

(attorneys' comment: '*more likely than not*' means a chance of 50% or more; and the fact that '*back to below 1.5C*' is discussed clearly shows that 1.5 °C target can only still be achieved with overshoot scenarios, in which the warming is reversed by removing CO_2 from the atmosphere with techniques that do not exist yet).

6.36 Finally, Urgenda also cites the following passages from the AR5 Synthesis Report, Summary for Policy Makers (**Exhibit 104**), p. 23 and 24 which offers a concise summary of the topic. (For the sake of completeness, Urgenda reiterates that climate science experts and government representatives discuss each Summary for Policy Makers line-by-line during the 'Approval' process.):

[47] **Exhibit 91** in Urgenda's reply

"Mitigation scenarios reaching about 450 ppm CO_2eq (consistent with a likely chance to keep warming below 2°C relative to pre-industrial levels) typically involve temporary overshoot[48] of atmospheric concentrations, as do many scenarios reaching about 500 ppm CO_2eq to about 550 ppm CO_2eq in 2100. Depending on the level of overshoot, overshoot scenarios typically rely on the availability and widespread deployment of bioenergy with carbon dioxide capture and storage (BECCS) and afforestation in the second half of the century. The availability and scale of these and other CDR technologies and methods are uncertain and CDR technologies are, to varying degrees, associated with challenges and risks[49]. CDR is also prevalent in many scenarios without overshoot to compensate for residual emissions from sectors where mitigation is more expensive (high confidence)

(…)

Delaying additional mitigation to 2030 will substantially increase the challenges associated with limiting warming over the 21st century to below 2°C relative to pre-industrial levels. It will require substantially higher rates of emissions reductions from 2030 to 2050: a much more rapid scale-up of low-carbon energy over this period; a larger reliance on CDR in the long term: and higher transitional and long-term economic impacts. Estimated global emission levels in 2020 based on the Cancún Pledges are not consistent with cost-effective mitigation trajectories that are at least about as likely as not to limit warming to below 2°C relative to pre-industrial levels, but they do not preclude the option to meet this goal (high confidence)

Estimates of the aggregate economic costs of mitigation vary widely depending on methodologies and assumptions, but increase with the stringency of mitigation. Scenarios in which all countries of the world begin mitigation immediately, in which there is a single global carbon price, and in which all key technologies are available have been used as a cost-effective benchmark for estimation macro-economic mitigation costs .

In the absence or under limited availability of mitigation technologies (such as bioenergy, CCS and the combination BECCS, nuclear, wind/solar), mitigation costs can increase substantially depending on the technology considered. Delaying additional mitigation increases mitigation costs in the medium to long term. Many models could not limit likely warming to below 2°C over the 21st century relative to pre-industrial levels if additional mitigation is considerably delayed. Many models could not limit likely warming to below 2°C if bioenergy, CCS and their combination (BECCS) are limited (high confidence)

(References to other sections of the report have been removed, underlining has been added; attorneys)

[48] In concentration 'overshoot' scenarios, concentrations peak during the century and then decline.
[49] CDR methods have biogeochemical and technological limitations to their potential on the global scale. There is insufficient knowledge to quantify how much CO_2 emissions could be partially offset by CDR on a century timescale. CDR methods may carry side effects and long-term consequences on a global scale.

('*CO_2eq*' is 'greenhouse gases' expressed in CO2 equivalents and thus includes all greenhouse gases and not just CO2;
'*likely*' means a more than 66% chance; '*about as likely as not*' means a chance between 33% and 66%; attorneys).

6.37 In view of these findings, Urgenda points out that many scenarios for achieving even a concentration of 550 ppm in 2100 (a much greater concentration than the agreed upon 450 ppm that corresponds with a warming of 2 °C) already have to incorporate overshoot.
The table that the district court uses in paragraph 2.13 shows that a concentration of 550 ppm (535-590) corresponds with a warming of 2.8 - 3.2 °C in 2100.
That is drastically higher than the target of 'well below' 2 °C and the pursuit of limiting warming to 1.5°C that the UNFCCC parties, including the Netherlands, enshrined in the Paris Agreement.

6.38 Figure SPM.10 in the AR5 Synthesis Report, a figure Urgenda has already discussed at length, shows that a warming of 2.8 °C - 3.2 °C is dangerous and unacceptable for practically all 'Reasons for Concern'. Moreover, Urgenda already submitted to the court in the first instance the World Bank report 'Turn Down The Heat', which explains the catastrophic consequences at a global scale with a warming of 4 °C.

6.39 As a final perspective to assess the State's position that delaying reductions is not associated with negative consequences, Urgenda points out that all of the nationally determined contributions (NDCs) are now known. Each party to the UNFCCC determined its own NDC based on an 'ambitious and fair' reduction ambition and submitted it to the UNFCCC secretariat (in accordance with the Paris Agreement's 'bottom up' approach). According to the UNEP report 2016 (**Exhibit 117**), the aggregate 'unconditional' reduction efforts of the parties will only limit warming to 2.9 – 3.4 °C.

6.40 The State fails to mention all of this when stating that a delay in reductions is still a good consideration and seems to want to overlook these points. Rather, the State continues to suggest in its statement of appeal that all options are still on the table, that there are still plenty of ways to achieve the 2 °C target, that the Paris Agreement has a mechanism that can facilitate meeting that goal, and that the district court did not recognise or comprehend the entire issue and therefore wrongly did not allow the State a further delay in emission reductions.

6.41 Urgenda believes that the State's perspective is incorrect, and it hopes that its explanation has clarified how serious and urgent the reality of the climate problem is and which dangers result as a consequence of it; what role climate science plays and has played in tackling that problem; what political consensus has been reached on the approach and where political consensus is lacking in reaching an adequate global agreement; and how international climate policy has now pinned its hopes on the individual sense of responsibility of all states and

governments.

6.42 When it comes to the individual sense of responsibility of states and governments, it is certainly relevant to emphasise that the UNFCCC has established a number of principles for guiding the scope of reduction efforts that should be requested of the individual parties. Now that the 'top down' approach to global agreements has been side-lined, the principles take on more meaning as states and governments are now called to account for their individual responsibility ('bottom-up'). These principles found in the framework treaty, which is what the UNFCC is, fully apply to the implementation of the Paris Agreement, a document that simply specifies and details the UNFCCC *in accordance with the starting points and principles of that same treaty*.

6.43 The district court therefore rightly focused extensively on these principles in its judgment. These principles clearly convey that:

- countries that have been prolonged major emitters and are therefore responsible for the current severe increased concentration levels of greenhouse gases in the atmosphere;
- countries that currently have high per capita emission rates and therefore play a major role in continuing to cause and worsen the dangers of climate change;
- and countries that have the financial and technological resources to combat climate change,

have different and larger responsibilities in combatting climate change than other countries (in the UNFCCC described in the principle, 'Common but Differentiated Responsibilities and Respective Capabilities').

6.44 For the State the differences in responsibility directly derive from the principles found in the UNFCCC to which the State has committed itself, although according to Urgenda they also comply with fundamental concepts in Dutch and European law (including the ECHR) about responsibilities and duties. In light of this difference in responsibilities it is relevant to establish:

- that the Netherlands was one of the first countries to experience the Industrial Revolution and therefore it has a long history of emissions;
- that the Netherlands currently has one of the highest per capita emissions in the world;
- and that the Netherlands is one of the richest and most technologically advanced countries in the world.

Because of these facts (which in 1992 were substantiating reasons to classify the Netherlands as an Annex I country) the State has a great responsibility in tackling climate change. While the Netherlands is also relatively speaking one of the main driving forces of that problem, it also has all the resources to take the necessary actions to combat it.

6.45 For the sake of completeness: the State claims that the Paris Agreement let go of the formal differentiation between Annex I countries and non-Annex I countries. It is not completely clear to Urgenda whether the State wishes to suggest that for this reason the reduction norm

of 25%-40% is outdated and that the State therefore no longer needs to comply with it.

6.46 In fact the Paris Agreement's new regime only comes into effect in 2020 and Urgenda's main claim concerns the period up to 2020.

6.47 Furthermore, it is important to point out that relinquishing the classification of Annex I countries and non-Annex I countries, which was established in 1992, was purely because it was too rigid and did not take into account changing circumstances, such as China's economic development since 1992.
What has remained unchanged is that the UNFCCC is based on differentiated responsibilities, and the relevant criteria on the basis of which this differentiation needs to take place have not changed. Those criteria are also very similar to the district court's criteria for the hazardous negligence doctrine as the relevant framework for assessing the standard for the legal duty of care of the State. At the heart of these criteria evidently lie the fundamental concepts of fairness, justice, equity.

6.48 The 'Common but Differentiated Responsibilities and Respective Capabilities', which are responsibilities listed in the UNFCCC, mostly pertain to mitigation because, as the court rightly held, that is the only method of ending a rise in temperature that would otherwise continue along with a rise in the corresponding dangers and risks to ecosystems and human societies.

6.49 The UNFCCC makes it equally clear that solidarity is desired above all else, as is already imbedded in the word 'common' but can also be found in the various provisions of the UNFCCC. Urgenda believes that in this case the principle of solidarity 'within a generation' and 'between the generations' also in regard to sustainable development requires more than offering some financial support to vulnerable countries.
According to Urgenda, this means for the Netherlands that Dutch reduction policy must also be guided by care responsibility for the interests of countries and their citizens who are vulnerable to climate change – the climate change to which the Netherlands has greatly contributed in relative terms.

6.50 In this context Urgenda will now comment on the individual grounds for appeal put forward by the State.

Ground for appeal 2

6.51 The State argues in ground for appeal 2 that the district court wrongly assumed that the IPCC establishes norms, emission ceilings and emission reduction targets in its reports; that the court was wrong in assuming that the IPPC identifies and designates one scenario as the most cost-effective to achieve the 2 °C target, and that court was wrong in establishing that the 450 ppm scenario is necessary to attain the 2 °C target.

6.52 Urgenda's explanation of the origin of the 25%-40% reduction norm described above clearly shows that the district court did not attach legal significance to the reduction norm on its own.

6.53 The State cites paragraph 4.84 to argue that the district court directly derived a legal norm from the IPCC reports.

6.54 However, the State interprets that last passage differently than it is – clearly – intended.
The district court uses the word 'norm' to refer to the reduction norm of 25%-40%, which Annex I countries need to meet in order to reach the 2 °C target, according to climate science and international consensus.
Contrary to what the State alleges, the district court did not use the word 'norm' in the sense of 'legal norm' or legislative regulation.

6.55 However the word 'norm' has a much broader meaning than just a specific legal definition, namely: '*situation or manner of acting that one should approach as best as possible,* synonyms*: criterion, benchmark, rule, guideline, standard'* (dictionary Van Dalen handwoordenboek hedendaags Nederlands).
Given the structure of the judgment, it is clear that the district court did not consider the reduction norm as an international 'hard' legal statutory regulation, but as a guideline/benchmark/norm ('soft law') that the parties of the UNFCCC unanimously agreed to as a reduction percentage that Annex I countries *should* achieve in 2020.
Further in the judgment the district court attached significance to this accepted general norm/guideline/benchmark in answering the question Urgenda submitted to the court, namely: does the State have a legal obligation, under Dutch unwritten law, to meet its societal standard of due care to reduce emissions by 25%-40% in 2020?
The district court has said nothing more or otherwise, nor did it intend to.

6.56 Urgenda believes that the district court extended no other meaning to the work of the IPCC than what the State describes in Statement of Appeal 12.3 and Statement of Appeal 12.4.

6.57 The same applies, mutatis mutandis, to the State's claims in Statement of Appeal 12.5 – 12.12, in which the State contends that the IPCC describes several emission reduction scenarios for keeping the 2 °C target within reach, as well as the 450 ppm scenario. For this the State also refers to its remarks in its Statement of Appeal in 5.16 and further. To all these claims by the State, Urgenda has already responded in sections 6.1 – 6.32 above.

6.58 Moreover, Urgenda finds the arguments of the State as formulated in the final sentence of Statement of Appeal 12.12 to be in direct conflict with that which it seemingly argued in the preceding sections. Here the State cites the three criteria to which the most cost-effective reduction scenarios should adhere. These criteria however directly undermine the State's own defence.

6.59 In the IPCC reports (for this see the figure in section 3.46) the 'benchmark' for the most cost-effective scenarios are based on scenarios where i) all countries begin with reductions *immediately*, ii) there is a uniform global price for quantities of emitted greenhouse gases and iii) there are no limitations on the technological developments assumed in those modelled scenarios (see, among others, AR5 Synthesis Report, SPM p.24, 2nd paragraph, 2nd sentence and p.25, note b for Table SPM.2). Each deviation from these three conditions (the first of which, it should be noted is '*begin with reductions immediately*'!) causes increased costs and is therefore less cost-effective. In the AR5 Synthesis Report it is stated simply: delaying reductions causes reductions to be more expensive. With its own reference in the Statement of Appeal 12.2, the State therefore refutes its own defence that delaying reductions is not harmful and also its own subsequent defence that beginning sooner with reductions has a negative effect on the economy and the competitive position of Dutch business.

6.60 Ground for appeal 2 must be rejected.

Ground for appeal 3

6.61 In ground for appeal 3 the State argues that the district court mainly drew from the AR4 report from 2007, while there is a more recent AR5 report from 2014.

6.62 The defence is lacking in factual basis: on pages 9, 10, 11 and part of page 12 the district court cites exclusively from AR5/2013, and it also quotes the report several more times in the judgment. In paragraph 2.32 the district court cites the UNEP's 'Emissions Gap Report 2014', which was published only shortly before the hearing.

6.63 If the State believes that the AR5 contains insights that shed an entirely different light on the matters at hand, then the State should have submitted those insights to the district court. The State cannot accuse the district court of not sufficiently using information that was not submitted to it.

6.64 The State implies in this ground for appeal that the AR5 would lead to completely different conclusions than the conclusions the district court came to using AR4. The State fails to explain what would be so different in AR5 compared to AR4. The State's remarks seem to have no other goal than to sow doubt about the district court's judgment, or at least about the accuracy of the information on which the district court based its decision. The doubt is not justified, nor does the State fully substantiate it. Urgenda explains this below.

6.65 AR5 is a continuation of AR4.
AR5 expresses that based on more detailed information and better insight, science is even more certain that climate change is a major and urgent problem. Above all else AR5's message is that the situation is much graver than what could be established with sufficient scientific

certainty in AR4.[50] That AR5's message really is that the risks and dangers are greater than could be firmly established previously is illustrated in the fact that the Paris Agreement used the findings in AR5 to tighten the 2 °C target (which had been decided on the basis of AR4 at the Cancun Climate Change Conference in 2010) to 1.5 °C.

6.66 The State suggests in its defence on appeal that according to the AR5 only the degree of reduction in the period to 2030 is relevant, and not the degree of reduction before 2020, which is what the AR4 had assumed. This presumption is simply and definitely false, as Urgenda has already shown in its reference to the findings of AR5, cited above (sections 6.30-6.31).

Both AR4 and AR5 call for a swift and radical reduction of emissions

6.67 When the AR4 was published in 2007 the main concern was for major emission reductions to be carried out before 2020, and AR4 also developed cost-effective scenarios to that end. When the AR5 was published in 2014, it was already clear that very little was being done with AR4's advice. It is therefore no longer possible to meet the most cost-effective scenario as described by AR4. However, making maximum reductions as quickly as possible is still the most cost-effective approach. For the sake of being policy relevant and realistic, AR5 therefore assumes greater emissions in 2020 than the AR4 scenarios did and is compelled to focus on more drastic reductions to 2030. However, the most cost-effective scenario for reaching the 2 °C target described in the AR5 in 2014 is already more expensive and more difficult to reach than the most cost-effective scenarios for reaching the same goal advised by the AR4 in 2007. Taking action has simply been put off for too long, particularly by the Netherlands.[51]

6.68 Furthermore, the timing of the AR5's publication was expressly intended to be used as input for the climate summit scheduled for Paris in late 2015 whose goal included reaching a new climate agreement for the period after 2020. This is one of the reasons why the AR5 sets its sights on 2030 instead of 2020.
In this context, it is important that the COP-Decision 1/CP.21, which was taken in Paris and also adopted the text of the Paris Agreement, strongly urged all parties to the UNFCCC to intensify and boost their reduction efforts as much as possible before 2020, because these reductions are essential for keeping the reduction targets for 2030 within any sort of reach. See: COP

[50] The advantage of scientific publications is their reliability, which is founded on a scientific methodological approach to gather knowledge. However science's disadvantage, particularly when examining the complex systems involved in a transformation process, is that it is cautious and conservative in drawing conclusions or making emphatic statements and is therefore a step behind the changes.

[51] Urgenda references – and requests the court to take cognizance of -- numbers 140-146 of its summons, in which Urgenda discusses the report 'redrawing the energy-climate map' of the IEA. This report explains that delay can cause the costs to quadruple. Moreover, in its statement of reply para. 94-98 Urgenda discusses the IEA report from 2014 that exclusively covers Dutch policy of which it is highly critical and that concludes that Dutch CO_2 emissions continue to rise (indeed Dutch reduction of all greenhouse gases is achieved solely through the emission of non-CO_2 gases; however, CO_2 is the worst of all greenhouse gasses as it does not degrade. The State did not refute these findings of the IEA in the first instance or in the appeal proceedings.

decision 1/CP.21 (COP decision Paris) preamble, as well as par. 17, 73, 84, and mainly chapter IV 'enhanced action prior to 2020' par. 105- 132.

6.69 Urgenda concludes: based on the information submitted by the parties to the district court, the district court rightly concluded and was able to conclude that it is of the utmost importance to reduce emissions by as much as possible and as quickly as possible, and thus also before 2020. This information is also not obsolete but instead has been strengthened further; the State also does not use new information that would lead to a different conclusion. Ground for appeal 3 does not succeed.

Ground for appeal 4

6.70 In ground for appeal 4 the State argues (Statement of Appeal 12.17) that the district court appears to wrongly assume that the IPCC's considerations of cost-effectiveness also apply to individual states, including the Netherlands.

6.71 By referring to passages from the AR5 WGIII, which are also cited in section 6.30, Urgenda has already explained the 'benchmark' for cost-effective scenarios in the IPCC reports means, among other things, that reductions begin as soon as possible. In 6.31 Urgenda also cited a passage from AR5 WGIII, which shows that this does not just apply at a global level, but also at the national level. The State has no argument to support why something else should apply to the State other than what is written in a report which it has itself approved.

6.72 For the sake of clarity: the district court did *not* allow the reduction order claimed by Urgenda because it would be the most cost-effective scenario.

6.73 However, the district court did examine whether the State has a legal obligation to reduce Dutch emissions, given the great dangers and risks of climate change and given the Dutch emissions' role in causing dangerous climate change. The district court examined this based on the criteria of the hazardous negligence doctrine and also partly on the principles of international climate policy, to which the State has committed itself.
In *that* context the district court examined – as a sub-question of the legal obligation asserted by Urgenda – whether the reductions of 25%-40% in 2020 claimed by Urgenda were particularly onerous for the State. The district court also examined, in regard to cost-effectiveness for example, whether a delay in reductions such as the State wishes is preferable and whether the reductions claimed by Urgenda would be onerous, even exceptionally so.
The district court answered that questions negatively, citing the reports of the IPCC and the UNEP. These show that delaying reductions is actually more expensive and less cost-effective than the swiftest possible reductions, according to the best insights. As additional argument Urgenda cites the IEA reports referenced in the footnote of Urgenda's discussion of ground for appeal 3.

6.74 Ground for appeal 4 cannot succeed.

Ground for appeal 5

6.75 In ground for appeal 5 the State argues that the district court in paragraph 4.20 describes different figures or percentages than were used in AR5.

6.76 The State is correct in this. In paragraph 4.20 the district court discusses the findings from AR4. In paragraph 4.21 the district court however subsequently discusses AR5 and uses AR5's figures.

6.77 For this reason alone ground for appeal 5 must fail.

6.78 In the explanation of the ground for appeal, it seems as if the State wishes to continue arguing that now that the district court seems to attach so much value to the 450 ppm scenario, it disregards the fact that AR5 describes multiple reduction scenarios.

6.79 Urgenda considers this argument unsuitable in the context of a complaint against paragraph 4.20, but will nevertheless discuss it.

6.80 The district court has established – with the help of the IPCC reports and not challenged by the state on appeal – that in order to limit warming to 2 °C the concentration of greenhouse gases must remain below 450 ppm (see paragraphs 2.13 – 2.14 regarding AR4 and the citation from AR5 on page 10 of the judgment).
In doing so the district court established that according to scientific insights, the 2 °C target correlates, or corresponds, with the 450 ppm-scenario. While the district court does not stipulate that the 450 ppm scenarios must be followed, it does stipulate (see paragraphs 4.21 and 4.22) that scientific evidence shows that this scenario offers a (much) greater chance of attaining the 2°C target than scenarios with higher concentrations.

6.81 The State acknowledges (see Statement of Appeal 12.24 and 12.10) that the Paris Agreement has tightened the 2°C target to the extent that the current goal must be to keep the concentration below 430 ppm in 2100. In doing so the State actually confirms what the district court has said: namely that the temperature target or the tightening of it is inextricably linked to the concentration level or a reduction of that level, and it is also inextricably linked to the carbon budget or a reduction of that budget.

6.82 By tightening the temperature goal in the Paris Agreement, the necessity of making reductions as quickly as possible has therefore only become greater than what the court espoused. That conclusion directly follows from the State's own positions – and that conclusion also implies that achieving the required temperature goal has become more difficult and more urgent, and therefore also more expensive.

6.83 Concerning the argument of the State (Statement of Appeal 12.23-12.24) that numerous scenarios lead to achieving the temperature goal – and in that context the fact that there are almost no scenarios for achieving the 1.5 °C target – Urgenda has already discussed this in detail and refers to this (sections 3.35-3.52). It reiterates that the figure referenced by the State shows no scenarios are able to achieve the 1.5 °C target. Urgenda also reiterates that almost all scenarios that achieve the 2°C target are idealised scenarios that assume, among other things, that reductions begin immediately.

6.84 Ground for appeal 5 must therefore fail.

Ground for appeal 6

6.85 In ground for appeal 6 the State argues that the division of Annex I countries/non-Annex I countries and the reduction requirements linked to it are now outdated.

6.86 It is true that the difference between Annex I countries and non-Annex I countries has ceased for the period after 2020. The claims of Urgenda concern the period before 2020. Simply for that reason this argument bypasses the reason for these proceedings.

6.87 Furthermore, earlier in this defence on appeal (6.45-6.49) Urgenda has already explained that the difference between Annex I countries and non-Annex I countries was based on the fundamental principle of the UNFCCC of C*ommon But Differentiated Responsibilities*.
That principle of differentiated responsibilities has certainly not been abandoned nor have the criteria for those differentiations. What has been abandoned is simply the division of Annex I /non-Annex I because it was no longer sufficient to meet the principle because a more nuanced differentiation is now required.

6.88 Thus, nothing has changed for the responsibilities of the Netherlands. Given its historical responsibility, its current per capita emission level and its financial and institutional capabilities, the Netherlands continues to have a large responsibility in tackling climate change, particularly when it comes to emission reductions.

6.89 The State is also unable to cite any example showing consensus from climate science or international climate policy that the Netherlands, unlike the rest of the Annex I countries, does not need to reduce emissions by 25%-40% in 2020 but instead is allowed a much lower reduction requirement.

6.90 Ground for appeal 6 does not succeed for all of these reasons.

Ground for appeal 7

6.91 In ground for appeal 7 the State builds on its argument (in ground for appeal 6) that the Paris Agreement has dropped the division Annex I/non-Annex I, in order to argue that because of

this the reduction norm of 25%-40% has also been dropped. Moreover, according to the State the reduction norm of 25%-40% applied to the Annex I countries as a group and not to each individual country like the Netherlands.

6.92 As mentioned already, the Annex I countries/non-Annex I countries division was meant to denote a difference between developed countries and developing countries. In 1992 Parties were divided into one of the two categories but as the division is outdated this division will be dropped in 2020. What has not been dropped is the underlying principle that developed countries, like the Netherlands, have a large responsibility and need to take the lead with swift and drastic reductions.

6.93 There is no basis for the idea that the Netherlands would be allowed a reduction of less than 25%-40% in 2020 because the division Annex I/non-Annex I has been dropped. On the contrary, because of the Paris Agreement, there is actually a call to increase and intensify efforts before 2020, while according to the Paris Agreement the countries with the highest per capita emissions and large historical emissions still bear the majority of the responsibility (see mainly Article 4 paragraphs 3 and 4 of the Paris Agreement, also interpreted in the context of the UNFCCC of which the Agreement is a continuation).

6.94 In paragraphs 12.26 and 12.37 of its statement of appeal, the State asserts that the difference between Annex I countries and non-Annex I countries is allegedly being dropped because various non-Annex I countries emit considerable quantities of greenhouse gases and therefore play a large part in total global greenhouse gas emissions.

6.95 The determination that various non-Annex I countries are now major contributors to total global emissions is indeed correct. Logically it should be concluded, and the parties to the UNFCCC also conclude, that these countries will also need to make more efforts to reduce their emissions.[52] However, this does not mean that the original Annex I countries could suddenly do less. On the contrary, one only need consider the consequences how the global carbon budget is being affected now that countries like China (population 1.7 billion) and India (population 1.3 billion) have started up with emissions (although their per capita emissions are still substantially lower than the Netherlands) to realise that the Netherlands urgently needs to reduce its emissions to a more acceptable level.

6.96 There is even less basis for arguing for lower reduction requirements for the Annex I countries and thus also for the Netherlands (see the text in the 'emissions gap report 2013' cited by the district court in paragraph 2.31), now that the aggregate emissions of the Annex I countries in 2020 are expected to be 3%-16% lower than 1990 levels and thus fall far short of the 25%-40% reduction norm.

[52] See also the Marrakech Action Proclamation for our Climate and Sustainable Development, adopted at the climate summit in Marrakech (2016), **Exhibit 143**

6.97 As a 25%-40% reduction currently applies to Annex I countries 'as a group', it is difficult to see why the Netherlands, by way of an exception, would be allowed a reduction below this range. If each Annex I country believes that the collective norm does not apply to it individually, no country is then required to adhere to the norm and thus it is not achieved. There are no indications of a consensus in science or international climate policy that the Netherlands is an exception to the required 25%-40% reduction norm.

6.98 It is also important to recognise that the 25%-40% range is not drawn from a scientific margin of uncertainty for achieving the 2°C target, but pertains to the various levels of effort that have been asked of the various countries and regions based on the principle of Common But Differentiated Responsibilities and Respective Capabilities. In Note a of Box 13.7 , which the district court includes in paragraph 2.15 and parts of which the State includes in 12.29 of its statement of appeal, the IPCC explains that the ranges in the box are based on the various methods described in the scientific literature to apportion emissions between regions.[53]

6.99 Moreover, in paragraph 12.29 of statement of appeal the State implies that the table in Box 13.7 is the only source for the reduction norm of 25%-40% in 2020. This is obviously incorrect. As the district court correctly states in paragraph 2.50, the reduction norm was laid down by all parties to the UNFCCC in COP decision 1/CMP.6 (the Cancun Agreements), and repeated thereafter in numerous COP decisions (see section 6.18 above).

6.100 These proceedings are concerned with the question of whether according to national law the State has a legal obligation to reduce emissions by 25%-40% in 2020.
It is not relevant for *that* legal obligation that the State has committed itself to the EU's proposed reduction targets for 2030 and 2050.
The State is hiding behind the larger whole and is behaving like a 'free rider' profiting from the substantially larger reduction efforts of countries like Germany, Denmark and the United Kingdom.

6.101 The reduction efforts that the EU (a group of Annex I countries and as such all with a great deal of responsibility) pledged in the context of the Paris Agreement consist of a 40% reduction in 2030. The UNFCCC report 'Aggregate effect of the intended nationally determined contributions: an update' **(Exhibit 125)** shows that the pledged reduction efforts for 2030 are wholly inadequate to reach the 2 °C target, that the gap is only increasing between what reductions are needed and the reality of the reductions and that the 1.5 °C target is completely getting out of reach.

[53] In AR5 WGIII chapter 6.3.6.6, p. 456-462 (Exibit 124) the IPCC gives a comprehensive update on the findings laid down in Box 13.7 of AR5 WGIII. This also shows that countries such as the Netherlands must make far greater efforts than other less prosperous countries. Figure 6.29 on p. 460 indicates that for a 430 ppm scenario, which the State recognises as necessary to comply with the Paris Agreement (Statement of Appeal 12.10), all OECD-1990 countries (almost identical to the list of Annex I countries) must have reduced their emissions to less than zero in 2050.

6.102 Finally, Urgenda reiterates that at the national level, delaying reductions means an increase in climate risks and an increase in necessary future costs in order to still remain within the carbon budget regardless of the target temperature. Simply put, the longer you wait to put on the brakes, the harder you have to slam down to be able to stop in time.

6.103 It has now become clear that it is almost no longer possible to reach the 2 °C target without overshoot scenarios, let alone the tightened 'well below' 2 °C target. Moreover, overshoot scenarios possibly allowing for the 2 °C target are based on shaky and uncertain assumptions. Under those circumstances and while the Netherlands has one of the highest per capita emissions rates in the world, it cannot be justified to allow the State to keep its reduction efforts at a lower level than what the consensus of climate science and international policy find that Annex I countries should do.

6.104 Ground for appeal 7 should fail.

Ground for appeal 8

6.105 In ground for appeal 8 the State argues that the district court incorrectly assumes that there is an exact and clear relationship between greenhouse gas emission, the temperature increase resulting from it and the dangerous consequences for humans and the environment. The district court thus neglects the uncertainties about this problem as identified by the IPCC.

6.106 This argument is obviously incorrect.
Urgenda considers that it has sufficiently discussed (in sections 3.23-3.27 in this reply) figure SPM.10 from AR-5 SYR and the explanation of it in the Structured Expert Dialogue report. It shows the sound existence of the connection[54] disputed by the State and that this connection prompted the tightening of the temperature target in the Paris Agreement.
The AR5 SYR SPM went through the 'approval' process and was thus approved line-by-line by the State and all other parties to the UNFCCC.

6.107 The State also suggests that the impact of Dutch emissions on the total global amount is so small that how much or how little it reduces emissions in 2020 is a moot point. In fact the State says that because the population of the Netherlands is only 17 million we can allow ourselves to do what we want, because it is nothing compared to the global total. The position of the State indeed has very little to do with justice and lawfulness.

6.108 The fact is that Dutch per capita emissions are one of the highest in the world and thus the Netherlands contributes greatly to causing dangerous climate change. It is also clear that *each* emission further exhausts the carbon budget and *each* emission contributes to the dangers and risks of climate change.

[54] Unless the State means that scientific certainty still does not exist at the level of nanograms of emission. One can also attempt to magnify the margin of uncertainty *ad absurdum*. Moreover, Article 3, paragraph 3 of the UNFCCC determines that a lack of complete scientific certainty should not be a reason to forgo the necessary steps.

Because of those circumstances it is *legally* unacceptable for the State to reduce emissions by less than 25%-40% in 2020. That we 'only' have a population of 17 million in the Netherlands, is legally speaking not a relevant criterion.

6.109 Ground for appeal 8 cannot succeed.

7. Mitigation, adaptation and climate policy: grounds for appeal 9-20

Introduction

7.1 Chapter 13 of the State's Statement of Appeal consists of the grounds for appeal concerning the largely factual subjects of mitigation (with particular attention to the ETS waterbed effect), adaptation and climate policy in general. Urgenda will reply to each of the chapter's divergent subjects per ground for appeal.

Ground for appeal 9

7.2 In ground for appeal 9 the State complains (Statement of Appeal 13.1) that the district court in paragraph 4.15 wrongly fails to recognise that it is not true that greenhouse gas emissions are increasing instead of decreasing in the Netherlands (and the EU).

7.3 This complaint is irrelevant and is factually incorrect.

7.4 The complaint is irrelevant because the question at hand is to phase out global emissions as swiftly as possible. However, varying responsibilities apply to that process, which means that not every country is required to phase out emissions at the same tempo.

7.5 In the context of international climate policy, for example, there is consensus that a limit on emissions cannot be required of the poorest countries that have virtually no current or past per capita emissions but seek to combat poverty through development. Developed countries have been its main causers. It follows from this that developing countries should not be denied some increased emissions.

7.6 What applies to countries like the Netherlands, with a large historical level of emissions, a current high level of per capita emissions and large financial resources – known as Annex I countries until 2020 – is the requirement of achieving drastic reductions as quickly as possible. In that context it is irrelevant that the Netherlands or the EU (a group of Annex I countries), perhaps has been reducing emissions while the rest of the world has actually been increasing emissions. The State must not compare apples with oranges.

7.7 Moreover, the complaint is factually incorrect.

7.8 In 2016 the PBL published the report, 'Trends in global CO2 emissions' (**Exhibit 111**). At the beginning of the report, the Summary and Main Findings establishes that in 2015 the scope of global emissions either barely grew or did not grow at all for the third consecutive year, although no thanks to the EU. Of the total global emissions in 2015, emissions from China represented 29% of the total, from the US 14%, from the EU-28 10%, from India 7%, from the Russian Federation 5% and from Japan 3.5%.

7.9 In 2015 China's CO_2 emissions (29% of the global total) declined by 0.7%, and China's per capita emissions were reduced by 1.2%. These emissions reductions in 2015 were mainly the result of a 1.5% decrease in coal use and a 1% increase in the share of renewable energy (p.5).

7.10 The US (14% of the global total) also reduced emissions in 2015, namely by 2.6% and also by decreasing coal use by 13% (p.5).

7.11 However, after seeing a decrease in emissions in the four previous years, in 2015 the EU's emissions (10% of the global total) grew by 1.3% (p. 6).

7.12 Urgenda quotes the following paragraph from the report's Summary and Main Findings:

However, further mitigation of fossil-fuel use, and in particular of coal use, will be needed for large absolute decreases in global greenhouse emissions, which are necessary to substantially mitigate anthropogenic climate change, as was concluded in the Paris Agreement. Technically, these reductions are still feasible, but would need to be widely implemented very soon to be on a pathway under which global warming by the end of this century would remain limited to 2 degrees C above pre industrial global mean temperature".

7.13 Ground for appeal 9 is thus refuted and must fail.

Ground for appeal 10

7.14 In ground for appeal 10 the State argues that the district court wrongly assumed that the EU established a reduction target of 40% by 2030. According to the State this is not correct, because the EU established a reduction target of *at least* 40% by 2030.

7.15 The State is using this ground for appeal as an attempt to once again hide behind the actions of other countries. The State apparently takes the view that if the EU as a whole reduces emissions by at least 40% in 2030, the Dutch State is *no longer* required to fulfil the requirements of the reduction norm of 25%-40% in 2020, which is the generally accepted benchmark for Annex I countries like the Netherlands.

7.16 In fact the essence of the State's position is that it is allowed to free ride on the extra reduction efforts of other EU countries, which then must compensate for Dutch shortcomings. The State has in fact appropriated for itself part of the carbon budget of other countries.

7.17 The charts used by the district court in paragraph 4.32 clearly illustrate that delaying reductions causes larger quantities of cumulative emissions; it is not just about the starting point (the current level of emissions) and the end point (percentage of reduction in 2050), but also about which route to follow along the way.

7.18 Furthermore, the State once again ignores the subject of these proceedings.

7.19 To repeat, this case concerns the question of whether under Dutch law the State or the Dutch government has its own individual legal duty to achieve a reduction of 25%-40% of 1990 levels in 2020.
In order to answer *that* question, it is irrelevant whether the EU as a whole has established a reduction target in 2030 of 40% or of *at least* 40%.

7.20 As has already been explained elsewhere in this defence on appeal, based on the PBL report 'What does the Paris Agreement mean for the long-term climate policy of the Netherlands?' (**Exhibit 126**), in order to reach the 1.5 °C target all Dutch emissions will need to have been eliminated in 2030, or by 2040, in order to reach the 2 °C target in 2040.

7.21 Incidentally, Urgenda would like to point out that the district court clearly indicates that the EU target in 2030 is *at least* 40% (see paragraphs 2.68, 2.74 and 2.78). That the district court does not indicate this nuance each time does not detract from the fact that the district court was aware of it. The district court justifiably placed little value on this gradation (that Urgenda sees as nothing more than a discussion of semantics), because as so worded the EU target offers no guarantee or even just an indication of sufficient reductions by the Annex I countries as a group, or by the EU as a group.

7.22 For these reasons, ground for appeal 10 cannot succeed.

Ground for appeal 11

7.23 In its ground for appeal 11 (Statement of Appeal 13.5) the State argues that the district court wrongly considered that a 25%-40% reduction in 2020 by Annex I countries like the Netherlands is deemed necessary by climate science and international climate policy.

7.24 This ground for appeal, and also the explanation's detailed description of it, simply reiterates ground for appeal 2 and has been refuted earlier by that which Urgenda has already supplied elsewhere in this defence on appeal, particularly the discussion of the State's ground for appeal 2.

7.25 Ground for appeal 11 should fail.

Ground for appeal 12

7.26 In ground for appeal 12 the State complains that insofar as the district court based its considerations in the judgment on the tables and figures submitted by Urgenda and used in

paragraph 4.32, it is insufficiently clear how these tables and figures were established.

7.27 The charts the district court displays in paragraph 4.32 of the judgment were entered into evidence by Urgenda. Urgenda based the figure on information taken from the report published by the European Environment Agency (hereinafter: EEA) in 2014.

7.28 It is true, as the State already presumes based on the wording of its ground for appeal, that the district court did not utilise the underlying tables, because the judgment makes no mention of the figures and tables.

7.29 The district court uses the charts because they clearly illustrate and therefore clarify a mechanism, namely the mechanism that delaying short-term reductions leads to the need for even more aggressive reductions down the road in order to reach the same reduction percentage in 2050 (which is also more expensive even if it were technologically possible); but mostly it clearly illustrates that delaying reductions results in higher aggregate emissions than if emission reductions are started as quickly as possible. In other words, delays cause a swifter exhaustion of the carbon budget, even when the same 80%-95% reduction is ultimately achieved in 2050.

7.30 Urgenda uses the example of the chart on page 46 of the judgment that shows the three various reduction scenarios as a progression of three lines from point A in 2010 to point B in 2050: a 'concave' line, a straight line and a 'convex' line.
The concave line represents a scenario that starts with quick reductions and shows swift annual reductions in the beginning, followed by waning reductions at the end.
The convex line represents a delayed reduction scenario, beginning with only a slight decline in emissions but then later showing a sharper decline in annual emissions.
The straight line shows a steady decrease in annual emissions.
All of the scenarios reach the same reduction percentage in 2050.
The red field underneath the concave line represents the aggregate emissions (the total of all emissions) discharged in the quick reduction scenario between 2010 and 2050.
The red, blue and grey fields *altogether* represent the aggregate emissions discharged in the delayed reduction scenario between 2010 and 2050.
The quick reductions scenario and the delayed reductions scenario reach the same reduction percentage in 2050, but the graph makes it explicitly clear that delayed action leads to a substantially greater total amount of emissions – with all of the implications for the carbon budget and the exhaustion of it.

7.31 The chart illustrates the main point: it is not simply about achieving a reduction percentage of 80%-95% in 2050; *the path of reduction to reach the goal is at least as important.* This is evident in the chart in paragraph 4.32, which shows that three reduction routes with the same starting point and the same endpoint vary dramatically in the amount of aggregate emissions along the way.

7.32 As was already discussed previously in this reply, AR5 works with 4 reduction scenarios (emission scenarios) known as the 4 Representative Concentration Pathway scenarios (RCP scenarios). At the end of each AR5 report is a glossary, which states about RCP:

"*The word representative signifies that each RCP provides only one of many possible scenarios that would lead to the specific radiative forcing*[55] *characteristics.* ***The term pathway emphasizes that not only the long term concentration levels are of interest, but also the trajectory taken over time to reach that outcome".***
(footnote, underlining and bolded text by attorneys).

7.33 Therefore, even just the definition of RCP shows that the issue decidedly does not only concern the question of which emission level will be achieved in 2050, or even in 2030; the reduction path to reach that level is certainly just as vital and a delay in reductions increases the risks of climate change while leading to higher costs. There is a reason why the RCP 2.6 scenario, the only scenario in which the 2˚ C target can still be achieved, plunges as quickly as possible towards zero emissions or even negative emissions. This scenario is 'representative' of all scenarios that are still somewhat capable of achieving the 2˚ C target.

7.34 In Statement of Appeal 13.9 the State reiterates its complaint that the rest of the world must first take action before the State is required to do so. Urgenda has already sufficiently covered this argument.
Urgenda holds the State accountable for its joint responsibility in the Dutch contribution to causing dangerous climate change. The State cannot escape its own responsibility for its participation by pointing to what other countries do. That has been standard doctrine since the Potash Mines ruling, which Urgenda will discuss in detail later in this reply.

7.35 The charts used by the district court in paragraph 4.32 are therefore only meant to illustrate how a delay in reductions exacerbates the climate problem.

7.36 Ground for appeal 12 must fail.

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[55] Radiative forcing: the Earth absorbs the sun's thermal radiation and loses thermal radiation to space. If the incoming and outgoing radiation are equal, the radiation is in balance and the Earth neither warms up nor cools off. Greenhouse gases in the atmosphere block some of the outgoing thermal radiation; the Earth absorbs more heat than it loses, warms up and therefore gives off more thermal radiation until a new radiative balance has been reached (at a higher global temperature).
The degree to which CO_2 forces the Earth's radiative balance ('radiative forcing') thus determines the degree of warming. Scenario RCP 2.6, for example, represents a scenario in which greenhouse gases force the radiative balance to such a degree that in 2100 every square metre of the Earth will continuously absorb 2.6 watts more of energy than before the Industrial Revolution. This causes a sustained global warming of approximately 2 °C. Scenario RCP 8.5 represents a radiative forcing of 8.5 watts extra per square metre in 2100 and thus a warming of 4 °C. See the 'glossary' of the IPCC reports.

Ground for appeal 13

7.37 In ground for appeal 13 the State argues that if the paragraphs 4.43 and 4.44 must be understood to say that the district court finds that the State does not fulfil its obligations under international law, than this ruling is incorrect.

7.38 The ground for appeal lacks a factual basis and therefore cannot succeed. The district court did not come to this finding.

7.39 In the contested consideration, the district court ruled nothing more than this: that international law obligations and principles can *indirectly* affect the State's (specification of the) unwritten legal obligations which the State must observe under – in this respect -- Book 6 Section 162 of the Dutch Civil Code. This is the tenet of reflex effect, which Urgenda will discuss in detail in another ground for appeal.

Ground for appeal 14

7.40 In ground for appeal 14 the State complains that the district court ignores that even if the 'desired' reductions are delayed globally before 2030, '*it cannot be entirely excluded*' that there are still measures that '*could be taken*' to keep the rise in temperature under 2 °C.

7.41 The State recognises in these proceedings that climate changes has serious (according to Urgenda, catastrophic) global consequences, and that they can only be prevented by phasing out greenhouse gas emissions as quickly as possible. The State also recognises that the world is not close to being on schedule to achieve the 2 °C target, let alone the 1.5 °C target that is nearly impossible to still achieve.
The State also acknowledges that Dutch per capita emissions levels are one of the highest in the world.
And yet, according to this ground for appeal, the State should be allowed to delay Dutch reductions as long as it cannot be entirely excluded that measures 'could still be taken' to achieve a 2 °C target. Clearly the State believes that it can only be forced into action when it is too late. Urgenda believes that this is not responsible risk management.[56] According to Urgenda it is also not what is required of the State's due care in society, partially in light of the principles of international climate policy to which the State has committed itself, such as the prevention principle and the precautionary principle.

7.42 The State possibly derived the phrase 'cannot be entirely excluded' from the AR5 WGIII SPM, p. 12 from. It states that the Cancún pledges (the reduction commitments of several countries, including EU countries) which focus on actions until 2020, are *not* consistent with the cost-effective reduction scenarios with a 33%-66% chance of limiting warming to **2° C**, but 'do not

[56] Mitigation can eventually be adjusted if the costs and consequences so indicate. In contrast, climate change and its consequences are irreversible for centuries to come and therefore limit the possibilities for ad hoc learning and adjustments. For policymakers this asymmetry in irreversibility should be a reason to apply the precautionary principle, which means that drastic efforts in the short term can be softened at a later date if appropriate.

preclude the option' to achieve that goal. That goal requires substantial reductions after 2020. The Cancun pledges mostly comply with cost-effective scenarios that offer a 66% chance of limiting warming to **3° C**. That temperature target however falls far short of the Paris Agreement's goals.

7.43 According to AR5 WG III SPM p.12, delaying further reduction efforts until after 2030 is estimated to substantially increase the difficulty of reaching lower emissions levels in the long term and to decrease the number of options for limiting warming to 2 °C. Because of these increased difficulties several of the models with a global emission level in 2030 of more than 55 $GtCO_2eq$ can no longer produce scenarios reaching concentration levels that give a 33%-66% chance of limiting the temperature to 2 °C.

7.44 Urgenda has already cited the relevant passage in this defence on appeal and within the context of appropriately assessing its value; the district court has also done so in paragraphs 2.19, pp. 10-12, and regarding the Cancun pledges p. 11 at the top.

7.45 For the rest, ground for appeal 14 has no complaints that have not already been addressed in this defence on appeal. The ground for appeal must fail.

Ground for appeal 15: The waterbed effect and carbon leakage.

7.46 Ground for appeal 15 deals with the district court's considerations of the waterbed effect. The ground contests paragraphs 4.80 and 4.81 of the judgment, in which the district court considered that the State cannot maintain the claim that the introduction of national measures to supplement European policy for the ETS sector will have no substantial results because of the waterbed effect. Moreover, the State complains that the district court does not distinguish between the waterbed effect and carbon leakage.

7.47 In its statement of appeal, the State devotes a great deal of attention to the waterbed effect. According to the State, many of the measures that would reduce greenhouse gas emissions are useless due to the functioning of the Emissions Trading System (hereinafter: ETS).[57] The ETS covers a total of 11,000 companies: mainly power plants (coal-fired or gas-fired), energy-intensive industry sectors like refineries, the chemical industry, the metals sector and since a few years ago part of the aviation sector within the EU (see also Statement of Appeal 6.29). According to the State, Dutch emissions reductions in ETS sectors allegedly result in increased emissions in other EU countries. This means that despite extra Dutch efforts, total European and thus global emissions will remain mired at the exact same level and therefore such measures also have no effect on the prevention of climate change.

7.48 The State takes the view that its conduct cannot be unlawful because it has no 'effective control' over the ETS emissions (Statement of Appeal 14.128) and that measures enacted

[57] The State addresses these points in a general sense paragraphs 6.29 – 6.54 and also thereafter concerning cost effectiveness in paragraphs 9.19 – 9.24.

under the ETS have 'little effect' (Statement of Appeal 14.139) because they have 'little or no' impact on the global emissions level (Statement of Appeal 14.157-14.160). Even if that were the case, then as a result of the waterbed effect this unlawful conduct cannot be attributed to the State, since it cannot be held responsible for the contribution of Dutch greenhouse gas emissions to dangerous climate change (Statement of Appeal 14.175).

7.49 Urgenda will address the State's factual argument that measures relevant to the ETS sector have 'no' effect (Statement of Appeal 6.40) below. However, before addressing that, there is another question: is this defence by the State relevant to Urgenda's claim to reduce Dutch emissions by at least 25% below 1990 levels in 2020?

- *The Netherlands is only responsible for its own emissions*

7.50 The State is only responsible and liable for Dutch emissions and therefore cannot be held accountable for the emission level of other EU Member States. Therefore the flipside must be that the State cannot employ defences concerning the emission level of other EU Member States, for example as a consequence of a presumed waterbed effect.

7.51 Another Member State's emission level is the exclusive responsibility of that Member State's government. The emission level in another Member State has nothing to do with the Dutch State's own, individual and exclusive responsibility for the Dutch emission level. And this emission level, for which the Dutch state is solely responsible, is too high and is declining too slowly.

7.52 Concerning the lawfulness of the actions of the State, it does not matter whether its adopted measures are effective at the global level. The Dutch State has its own individual responsibility and its own legal obligation to do what is right, and must therefore not hide behind what others do or omit.

- *The State's defence is an ad hoc argument*

7.53 As has been explained in this defence on appeal (section 3.32 et seq.) worldwide emissions will need to fall to zero as quickly as possible. That is only possible if all countries, including the Netherlands, take measures to bring their own emissions to zero as swiftly as they can. Moreover, based on the principle 'Common But Differentiated Responsibilities and Respective Capabilities' laid down in the UNFCCC and the Paris Agreement, the Netherlands even has a greater responsibility to act more quickly and take more measures than other countries. From this perspective, the State poses a nearly absurd argument that reducing Dutch emissions would not have an effect on global emissions. All emissions across the globe should be reduced to zero as quickly as possible, and thus also Dutch emissions.

7.54 The State also recognises that, partly due to the urgency of the problem, it will need to act independently and not make its actions contingent upon the actions of other countries. Climate change is a global problem, as the State indicated in its rejoinder, and to add to that:

"The State is not suggesting with this that the Netherlands needs to wait to take action until other countries have made efforts [...]" (Rejoinder, marginal number 1.12)

And yet that is precisely what the State is doing. Compared to other EU countries the Netherlands has very high per capita emissions, so who is the State still waiting on?

7.55 The State now recognises that in order to satisfy the current European CO2 emission reduction target of 80%-90% in 2050, the Netherlands probably needs to take its own additional national measures beyond the ETS measures.

The following citation is taken from a letter from the Minister of Economic Affairs dated 26 January 2017, in which the Minister answers a number of questions concerning energy policy from the House of Representatives[58]:

"90
Could you indicate what alternative there is if the EU does not reach an agreement about an ambitious strengthening of the emissions trading system (ETS)?

Answer
The cabinet is working towards an ambitious strengthening of the ETS by tightening annual reduction percentages and by reducing the surplus of allowances (see also the answer to question 175). The ETS is a European-wide system and therefore strengthening preferably needs to be carried out at the European level. If agreements concerning the 2030 energy and climate policy, including the ETS, do not result in a timely transition, then the cabinet deems it advisable to take national additional measures or temporary additional measures to prevent negative shock effects and also to take advantage of the economic opportunities offered by the energy transition. This policy must then satisfy the European ambition of 80%-95% CO2 reduction in 2050."

7.56 The functioning (or disfunctioning) of the ETS will be further addressed below. For now, it is important to note two things:

1) Urgenda does not claims that the State needs to take measures in the ETS sector. The State is free to act on the claimed order as it sees fit: this can also be with measures outside the ETS sector, such as the introduction of a road charge for cars, a minimum energy performance standard for housing corporations, and most of the measures listed by the State in paragraph 9.7 of its statement of appeal.
2) The State itself is considering a national policy in the ETS sector (see the citation from the Minister's letter above). More importantly, the State is already pursuing this policy, as with the State-granted subsidies to coal-fired power plants for co-firing biomass (**Exhibit 137**:

[58] List of Questions and Answers, answers based on the letter from the Minister of Economic Affairs dated 26 January 2017, Parliamentary Papers II, 30196, no. 507

news reports). Moreover, the energy-intensive industry (part of the ETS sector) has recently agreed to 'voluntary' significant energy savings, because the Minister – in the context of the Energy Agreement – had threatened to otherwise take legal measures (**Exhibit 138**: article from the *NRC Handelsblad* and letter from the Minister to the House of Representatives).

7.57 Moreover, the State is inconsistent with what it communicates to its citizens. While the State calls for society to insulate houses, install solar panels, switch to transportation powered by electricity and engage in other activities in order to help combat climate change,[59] it also states, at least in these proceedings, that such efforts are useless because they are almost completely offset by the waterbed effect.

7.58 However, additional national measures certainly contribute to further reducing Dutch and European emissions and thus global emissions. As will be discussed below, there is no occurrence of the waterbed effect, or at any rate Dutch emission reductions do not result in emission increases in other countries.

- *Dutch emission reductions do not result in emission increases elsewhere*

7.59 The State's defence essentially argues that emissions in the EU will keep rising until they reach the emissions cap set by the ETS, and that there is therefore no point in taking additional measures to reduce emissions in one Member State outside of the ETS. The consequence of this claim, according to the State, is that the emissions cap set by the ETS is not just a limit but also an absolute floor under which emissions cannot further decrease. The State thus claims that regardless of the circumstances all of the allotted emission allowances under the ETS will be used in order to be able to emit greenhouse gases. The State suggests that EU Member States endeavour to emit as much as possible and will use, also selfishly, the emission allowances that will become available from the extra Dutch efforts, which Urgenda is requesting in these proceedings.

7.60 This situation described by the State does not match the reality. Contrary to what the State claims, emissions will not continue to rise to the emissions cap, and in fact emissions are decreasing more quickly than the ETS-defined cap. In fact, these emission reductions are being driven by national measures. The measures requested by Urgenda will therefore also directly contribute to further European, and thus global, emission reductions.

See **Exhibit 144**, which uses information from the EEA to explain that emissions are decreasing more quickly than the cap.

[59] This is how the government calls on its citizens to save energy with TV commercials: https://www.energiebesparendoejenu.nl/over-deze-campagne/. During the National Climate Summit 2016, the State asked companies, citizens and social organisations to take 'climate action' https://www.klimaattop2016.nl/over-de-klimaattop. The State also calls on home owners and renters to install solar panels themselves and is creating facilities for this purpose: https://www.rijksoverheid.nl/ministeries/ministerie-van-economische-zaken/nieuws/2014/02/14/duurzame-energie-aantrekkelijker-voor-huurders

7.61 In its annual report about the functioning of the ETS, the EEA determined that the ETS emissions in 2014 had already reached levels intended for 2020 (**Exhibit 127**).

"The cap on stationary installations to be achieved by 2020, set at 1818 Mt CO2-eq., was already reached in 2014." (EEA Trends and projections in the EU ETS in 2016, p. 24)

7.62 The cap of the ETS – and therefore the amount of the available emission allowances – is 'calibrated' to a total emission reduction of 21% in the period 2005-2020.[60] Because the ETS emissions are actually decreasing much more quickly than anticipated, that level was reached six years early in 2014. As explained in **Exhibit 144** the EEA anticipates that ETS emissions will have decreased by 23.2%-24.1% in 2020 compared with 2005. That is well below the anticipated ETS cap of 21%.

7.63 The State's claim that emissions will always rise to the level of the cap is therefore demonstrably incorrect. Emissions are actually decreasing much more quickly than the ETS anticipated cap, and the reductions claimed by Urgenda will directly contribute to the emission reductions. In fact, there is an abundance and not a scarcity of emission allowances.

7.64 The fact that emissions are decreasing more quickly than the number of annually allotted emission allowances under the ETS has contributed to the creation of a dramatic surplus of emission allowances, meaning they have been allocated but not yet used. That surplus had already increased in 2013 to more than 2 billion unused allowances.[61] Total ETS emissions in 2013 amounted to 1.9 billion tonne CO2-eq and in 2015 were 1.8 billion tonne CO2-eq.[62] Already in 2013 the total surplus of unused allowances was thus more than total emissions that year,[63] and since then the surplus has only increased more.

7.65 The scope of this surplus in unused emission allowances illustrates the shaky factual basis on which the State has built its defence. Every year since 2008 more emission allowances have been available to companies than the companies needed in order to account for their emissions. While every year since 2008 every company operating under the ETS could have released more emissions than it actually did because of the great number of available ETS allowances, this has not occurred.

7.66 The total surplus of created but unused allowances now amounts to, as has already been said, more than 2 billion ton CO2-eq: equal to more than a full year of emissions. It is entirely implausible (and the State has also offered no evidence of this) that the extra availability of emission allowances that would be created as a result of additional Dutch measures would

[60] See Article 9 of Directive 2003/87/EG concerning a regulation for greenhouse gas emission allowance trading within the Community, as amended. On its website the Commission gives a short explanation of the annual declining cap and the total emission decline between 2005 and 2020: https://ec.europa.eu/clima/policies/ets/cap_en

[61] This is reflected in, among other places, figure ES.1 on page 9 of the EEA report, 'Trends and projections in the EU ETS in 2016', submitted as **Exhibit 127**

[62] The EEA has made all emissions data of the ETS available to the public on the 'EU ETS Data Viewer', Historical Emissions, available at: http://www.eea.europa.eu/data-and-maps/data/data-viewers/emissions-trading-viewer-1

[63] An emission allowance in the ETS is equal to 1 ton CO2-eq of emissions.

lead to extra emissions anywhere in the EU. In reality, these additional allowances will be added to the existing surplus and become part of the surplus of unused allowances without having any effect on the actual emissions within the ETS.

7.67 The State's description of the waterbed effect is in itself a widely known part of emission trading systems like the ETS. However, the waterbed effect only occurs when there is a scarcity of emission allowances, meaning when the cap is so low that demand outpaces the scarcity of emission allowances. This is not the situation in the case of the ETS.

7.68 In AR5 the IPCC draws the same conclusion regarding the EU ETS:

"Summing up the experiences from the EU ETS, institutional feasibility was achieved by a structurally lenient allocation, which puts into doubt its environmental effectiveness. (IPCC AR5, WGIII, chapter 14, p. 1114)".[64]

7.69 In other words, the ETS is a useful system in theory, but in reality it does not work.

7.70 In its pleading submitted in the first instance, Urgenda already thoroughly discussed the countries that, unlike the Netherlands, have explicit additional policies above and beyond the ETS, such as Germany, Denmark, Finland, France, Ireland, Iceland, Norway, the United Kingdom and Sweden.[65] The district court also referenced this in paragraph 4.80. These additional national measures have directly contributed Europe's decrease in emissions to below the ETS cap. This is clear from, for example, the EEA's comments about the total amount of emission reductions under the ETS since its introduction in 2005. According to the EEA, the main causes of this have been the closing of coal-fired power plants and the production of sustainable energy sources:

"The decrease since 2005 was mostly driven by reductions in emissions related to power generation. The reduction in emissions was largely the result of changes in the combination of fuels used to produce heat and electricity, in particular a decrease in the use of hard coal and lignite fuels, and a substantial increase in electricity generation from renewables, which almost doubled over the period. Emissions from the other industrial activities covered by the EU ETS have also decreased since 2005, but remained stable in the current trading period (2013–2015)."[66]

- *Repairing the ETS will permanently counter the waterbed effect*

7.71 Fully at odds with these findings and factual information, the State asserts emphatically that the effects of Dutch measures under the ETS will be 'nearly zero' and it provides a number of reports to support this claim (Statement of Appeal 6.39). An excerpt from one of these reports clarifies the basis for this claim. In the IBO report 'Cost-efficiency of CO2 reduction measures' (Kostenefficiëntie CO2-reductiemaatregelen 2016 – Exhibit 53 of the State), the

[64] Available at: http://www.ipcc.ch/report/ar5/wg3/
[65] See Urgenda's pleadings (mr. Cox) marginal numbers 40-58.
[66] EEA, 'Trends and projections in Europe 2016 - Tracking progress towards Europe's climate and energy targets', 2016, p. 33-34, **Exhibit 128**

appendix drawn up by PBL and ECN answers the question why a certain policy is considered possibly not cost-optimal:

"Because of the waterbed effect in the ETS. The waterbed effect compensates for emission reductions in the ETS: in the ETS there are fixed emission allowances over the period of several years, and local emission reductions in the present allow for increased emissions elsewhere and/or at a later date in the ETS. Ultimately there is emission reduction only when emission allowances are scaled down."[67]

7.72 It is important to note that according to the PBL/ECN the possible extra emissions elsewhere, can occur later. Urgenda has already previously explained above that reductions in emissions occurring in the present do not lead to increased emissions elsewhere. However, the State's claim that the Dutch emission reductions will, at any rate, lead to increased emissions in the future, is based solely on a (model-based) assumption. This assumption contends that once emission allowances are created they will be used later, because somewhere far in the future the gradually decreasing ETS cap will reach a level at which emission allowances become scarce and the existing surplus of allowances will inevitably be used.

7.73 The State's assertion regarding the waterbed effect assumes that the currently created surplus of allowances will always remain, never to be cancelled by political measures. The State makes this claim assertion while at the same time recognising that the existence of that surplus is causing the ETS to malfunction and for that reason proposes to reduce the surplus by pulling ETS allowances from the market. See for example, the excerpt quoted above from the letter of the Minister of Economic Affairs to the House of Representatives, in which the Minister writes that the ETS can be repaired: '*by tightening annual reduction percentages and by reducing the surplus of allowances.*'[68]

The Minister subsequently elaborates:

"175
How can the ETS be further tightened up? How can the price level of emission allowances be increased? How can the demand for these emission allowances be increased?

Answer
The Netherlands is committed to further strengthening the ETS, giving preference to measures focused on curbing the amount of emission allowances. The surplus of emission allowances can be scaled back in various ways: an annual reduction of the ETS cap of more than 2.2% or European-level agreements to pull part of the surplus of allowances from the market. The latter, for example, can be accomplished by allocating more emission allowances to the market stability reserve or by cancelling some of the emission allowances."[69]

[67] Statement of Appeal, Exhibit 53, p. 16.
[68] Parliamentary Papers 30 196, nos. 507, p. 33
[69] Parliamentary Papers 30 196, nos. 507, p. 60

7.74 Different from what the State purports in these proceedings, the ETS is not a natural phenomenon. It is a policy tool focused on reducing emissions, albeit currently a tool that is demonstrably malfunctioning because the number of 'allowances' for emissions it creates amounts to more than the actual level of emissions. This means, most importantly, that emissions are not currently being reduced by the ETS, but instead allowances for future emissions are being created. In this respect, the current functioning of the ETS actually threatens future emission reductions. After all, the moment that the ETS could actually contribute to emission reductions, companies could use pre-existing ETS emission allowances and therefore not be forced, or be able to be forced, to reduce their emissions.

7.75 Policy tools like the ETS can be discontinued or adjusted, for example when they no longer contribute to their stated intended goal. Currently, it is fully uncertain whether the ETS will still exist in a few years or if it will be replaced by an alternative policy tool, such as a uniform price for CO2-eq emissions. In addition, the discontinuation of the ETS leads to the disappearance of the allowances it created for future emissions and therefore the waterbed effect does not occur.

Moreover the European Commission in fact considers pulling emission allowances from the market in the future a real possiblitity and aspect of the ETS:[70]

"The market stability reserve could also have benefits in the context of international negotiations. A market stability reserve could also allow predictable but quick changes to the EU ambition to match more ambitious commitments by other regions and countries, by committing to permanently retire an amount of allowances in the reserve. This way the EU could credibly signal a possible higher ambition level to the international community and this helps advance the international negotiations."

7.76 Entirely for the sake of completeness, Urgenda points out that when the State is really so deeply concerned about the emission allowances that would be made available because of extra reduction measures, it is completely free to buy up emission allowances and leave them unused *ad infinitum* in a bank account. This is also one of the possibilities mentioned in the IBO report 'Cost-efficiency of CO2 reduction measures' (Exhibit 53 of the State).[71]

- *In implementing the Paris Agreement, the waterbed effect will not occur*

7.77 For the implementation of the Paris Agreement, Dutch and European reduction targets will have to be tightened, a fact the State recognises. One of the options available, even mentioned by the State, is to adjust the ETS by lowering the cap. However, the already

[70] European Commission, Impact Assessment, Accompanying the document Proposal for a Decision of the European Parliament and of the Council concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading scheme and amending Directive 2003/87/EC; Com (2014) 20 final, p. 26

71 Exhibit 53 of the State, p. 32 under LESSON 1: *"However, when low CO2 prices are deemed to create risks, such as a lack of incentive to invest in CO2 reduction and innovation, then there are several options to work towards better pricing. For example, to allow a more rapid decline of the cap, removing the surplus of emission allowances from the market and buying up allowances." (underlining by attorneys)*

protracted negotiations to modify the ETS have so far been fruitless. As was already mentioned, various countries in the ETS (see section 7.70 above) have already taken it upon themselves, partly because of the absence of appropriate measures, to develop a national policy for the ETS sector. For example, the United Kingdom has introduced a carbon price floor of £18 per tonne of carbon dioxide until 2020, which has led to the closing of several coal-fired power plants.[72] Most of this situation occurred before the conclusion of the Paris Agreement, which requires individual Member States to take even more measures.

7.78 It must be concluded that by implementing the Paris Agreement through EU regulation or simply through national legislation, the current surplus will remain and possibly even grow, and the waterbed effect (displacing emissions instead of reducing them) will not occur. This scenario is also recognised in the above-mentioned IBO report appendix, which was written by the PBL and ECN (Exhibit 53 of the State). PBL and ECN note that if Member States implement further-reaching national policy in the ETS sector (as has been the case up to now) the waterbed effect will not occur. In the words of PBL and ECN, "that would, de facto, suspend the ETS, thus draining the waterbed."[73]

- *Under an unamended ETS, 'additional' allowances will not become available on the market before 2050*

7.79 Even in the bleakest scenario in which the EU and Member States do not implement adequate policies, the allowances that are created from the measures requested in these proceedings would not become available for use until at least 2050. The waterbed effect's lag time is more than 30 years, due to the introduction of the market stability reserve (hereinafter: MSR). The State outlines the MSR in Statement of Appeal 6.42 and 13.27.

7.80 Counter to what the State implies, the MSR is a fully automatic rule-based system, and as such the operation of the system is not under the influence of discretionary power.[74] The fully automated system was already established at the time the statement of appeal was filed by the State.

7.81 The functioning of the MSR can be described as follows. The majority of the currently existing surplus of emission allowances will be added to the MSR in approximately 2020, and

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72 See the explanation of this "Carbon Price Floor" on the website of the British parliament: http://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN05927

73 Exhibit 53 of the State, p. 17.

74 A clear explanation can be found in "Questions and answers on the proposed market stability reserve for the EU emissions trading system" (22 January 2014 MEMO/14/39) of the European Commission:
"10. Who decides when allowances are placed in the reserve and released from the market stability reserve?
The flow of allowances into and out of the reserve will occur on the basis of an automatic, fully rule-based process. When the thresholds and conditions outlined above (see questions 4 and 5) are met, the pre-determined amount of allowances will be placed in or released from the reserve through an operation in the Union registry. The final thresholds, conditions and amounts will be decided up front by EU decision makers when this proposal is agreed by the Council and the European Parliament. No further decisions would be needed and no margin of discretion would be left. Existing institutions established for implementing auctions suffice to implement the proposed rules."
Available at: http://europa.eu/rapid/press-release_MEMO-14-39_en.htm

thereafter the allowances will not be available to the market. As long as a surplus remains above a particular limit (833 million) the MSR will continue to add allowances from that surplus (12% of the total surplus). How long this will continue is therefore dependent on the scope of the surplus and as a result dependent or partly dependent on the measures Member States take above and beyond the ETS. The MSR keeps the stored allowances until the surplus dips below a particular threshold (400 million), and only then does the MSR make a set number of allowances available annually (100 million). It does this until such a time that all previously stored allowances have been returned to the market, unless the surplus again reaches a level above the previously mentioned threshold of 400 million. The duration of this process is thus dependent on several uncertainties that are all connected to the rate at which actual emissions will be reduced.

7.82 What is important is that emission allowances which might become available as a consequence of the reductions requested by Urgenda will be added to the currently existing surplus. This means that these 'additional' allowances will only return to the market after all current surplus allowances have been released from the MSR. Based on the EEA's current prognoses of emissions reductions to 2030, it can easily be established when the additional Dutch emission allowances will once again be available and therefore could allow for emissions 'elsewhere' (the cornerstone of the State's claim that extra measures in the ETS sector have no effect).

7.83 Based on the EEA's ETS 2016 report (**Exhibit 127**) it can be concluded that the MSR continues to absorb surplus allowances until at least 2029. That same report shows that (based on the current prognoses) in about 2030 approximately 2 billion emission allowances will have been absorbed by the MSR. Only from around 2030 will the MSR be able to release 100 million allowances to the market annually. In the improbable event that no surplus allowances are created and the MSR releases the allowances from the MSR in an uninterrupted series, it will take at least 20 years (2 billion in 2030 / 100 million per year = 20 years) from 2030 before all the existing surplus allowances have returned to the market. Only at that time, thus not before around 2050, would the allowances created as a result of the measures requested by Urgenda be released. The situation claimed by the State of the waterbed effect can therefore by no means occur before that date.

7.84 Three reports by Ecofys, Sandbag and the Danish Council on Climate Change came to similar conclusions, and these reports are entered into evidence as **Exhibits 129, 130 and 131**. These reports explain that the MSR dampens the waterbed effect over time and whether the waterbed effect will ever occur depends on political decisions about the allowances in the MSR. The Ecofys report states, as is described above, that the MSR will return allowances to the market only after 2030 (**Exhibit 129** p. 4). The Sandbag report (**Exhibit 130**) builds on the Ecofys reports and in chapters 2.4.2 and 2.4.3 analyses when 'additional' surplus allowances would once again become available to the market. The figures given in table 4 on page 15 show that based on several scenarios (which include adjustments to the ETS and national measures) additional allowances will not become available to the market before 2060. If

absolutely no adjustments are made to the ETS the allowances would not even become available before 2080.[75]

7.85 In March 2017 the Danish Council on Climate Change (**Exhibit 131**) published a report, which uses more advanced models than the Sandbag report to analyse the future of the waterbed effect. The report, 'Subsidies to Renewable Energy and the European Emissions Trading System: Is there really a Waterbed Effect?', concludes that the surplus of allowances until at least after 2050 is of such a size that the waterbed effect cannot occur. It also concludes that under these circumstances subsidising renewable energy is the most cost-efficient measure to reduce CO2 emissions. This report and the reports of Ecofys and Sandbag thus run counter to everything that the State has argued concerning this ground for appeal.

7.86 The State's claim that reducing Dutch emissions will automatically cause increased foreign emissions is therefore incorrect. The waterbed effect only occurs when there is a scarcity of emission allowances and that is absolutely not presently the case. Whether in the near or distant future a scarcity will materialise depends on political decisions. For Urgenda's claim, which has a time horizon to 2020, it is only relevant that measures the Dutch State could take will decrease Dutch emissions (the only relevant criterion), and furthermore would not cause increased emissions elsewhere. These measures are thus not only effective at the Dutch level, but also at the regional and global levels. The State's argument starts from the implausible assumption that EU policy makers will hold on to a dysfunctional policy tool, in which emission allowances that are created in the period before 2020 will not be cancelled and thus remain until after 2050.

- *The waterbed effect is a form of carbon leakage*

7.87 In conclusion, the State asserts that the district court incorrectly makes no distinction between the waterbed effect and carbon leakage (Statement of Appeal 13.29). This is a discussion of semantics. In the international framework, including in the IPCC reports, the waterbed effect is indicated as a sub-category of carbon leakage. In paragraph 4.81 the district court rightly cites the findings of the IPCC and uses the terminology used in that report. Reference is made to the text in WGIII, chapter 5, Box 5.4 on page 386 where the IPCC gives a number of examples of carbon leakage.[76] The third bullet point references the ETS and the possible occurrence of the waterbed effect under this regulation. On the same page (left column) the IPCC claims that the average 'leakage rate' amounts to 12%, which is the finding the district court references in paragraph 4.81. According to the IPCC, the waterbed effect is thus a form of carbon leakage.

[75] The top row of table 4 on page 15 of the report describes the 'Base Case' (see the furthest right column at the top). The description in the right column (under scenario) shows that this base case assumes an adjustment to the ETS that is described as 'rebasing of the cap'. This adjustment to the cap takes place around 2020 and is fully described in the report in chapter 2.2 on page 8. However, such a rebasing is not yet transposed into law. The scenario in which no adjustments are made to the ETS is described after 'no rebasing of the cap' in the third row.
[76] http://www.ipcc.ch/report/ar5/wg3/

7.88 However, the term ‘carbon leakage’ is sometimes used in the EU to highlight the risk that the ETS drives companies to move their production to countries outside of the EU. In order to limit this risk, certain companies are awarded emission allowances at no cost. In as far as the State intends to contest the fact that the district court did not adopt this EU meaning of ‘carbon leakage’, it is unclear what consequences the State wishes to attach to it and what interest the State has in its ground for appeal. The State has neither addressed nor substantiated that possible measures stemming from an implementation of the judgment could cause carbon leakage (as used in EU terminology). For the record, Urgenda notes that the State can take innumerable measures that do not lead to carbon leakage, such as the introduction of a kilometre-based charge for cars and minimum energy performance standards for housing corporations.

- *Conclusion regarding ground for appeal 15*

7.89 The State’s ground for appeal cannot succeed because the State is solely responsible for its own emissions and consequently also cannot derive any rights or defence from claimed emission increases in other Member States.

7.90 In addition, the waterbed effect posited by the State is currently not taking place at all. The State’s argument is based on the assumption that the surplus emission allowances currently present in the ETS will be used at some point in the future. The chances of this are slim and as such refutes the State’s claim that a reduction in Dutch emissions in the ETS sector would automatically lead to increased emissions outside of the Netherlands.

7.91 The issue here is that global emissions and thus also Dutch emissions need to be reduced as quickly as possible and that every Dutch reduction in emissions contributes to global emission reductions. Ground for appeal 15 must fail.

Ground for appeal 16

7.92 In ground for appeal 16 the State complains that in paragraph 4.82 the district court considered that the State failed to demonstrate that national measures in the ETS have an impact on the ‘level playing field’ of Dutch companies that fall under the EU-ETS and must compete with companies in the EU.

7.93 The State incorrectly cites the judgment. Only in paragraphs 4.80 and 4.81 does the district court specifically refer to the ETS.

7.94 The State contests paragraph 4.82, which deals with the competitive position of Dutch business *in general* and no longer of the Dutch ETS sector or exclusively that sector.

7.95 Concerning the competitive position of Dutch businesses as it relates to the reductions requested by Urgenda, the district court considers essentially this: it is agreed between the

parties that some of the surrounding countries already have a stricter or significantly stricter climate policy than the Netherlands (Germany and Denmark strive for reductions of 40% in 2020 and the United Kingdom strives for 34%), and it is unclear how the Dutch business sector is placed in a more unfavourable competitive position if the Netherlands achieves emission reductions of 25% in 2020.

7.96 On the contrary, Urgenda now adds, based on the State's own benchmarks Dutch business *continues* to be placed in a favourable or substantially more favourable competitive position compared to countries like Germany, Denmark and the United Kingdom. These countries continue to have considerably higher reduction percentages for 2020 (40%, 40%, 35%) than what Urgenda requests for the Netherlands, and it has not been proven (nor asserted by the State) that their competitive position has been damaged as a result. These reductions thus apply – for all of these countries – to all emission reductions in both the ETS sector and non-ETS sector. Moreover, the Dutch reduction claimed by Urgenda remains well below these percentages, so the Netherlands continues to have the competitive advantage (if the State's argument would have any merit).

7.97 On this basis the district court rightly held that it is the responsibility of the State to establish that the reduction claimed by Urgenda has such a negative effect on the Dutch competitive position that it overrides the extra dangers and risks of climate change and the increasing mitigation costs arising from a delay in emission reductions.

7.98 In order to explain its ground for appeal (Statement of Appeal 13.31 and 13.32) the State uses documents dating from 2008 that cover the organisation of the ETS and more specifically the further harmonisation of the ETS system. These documents do not support in any way the statement that Urgenda's claim will force Dutch business into a poor competitive position in 2020.

7.99 Furthermore, the harmonisation did not prevent the United Kingdom from making major changes in the national ETS sector, namely by implementing a Carbon Price Floor tax. With this tax the United Kingdom deliberately wanted to make the emission of CO2 more expensive for the country's ETS companies than the ETS system currently does. The United Kingdom is of the opinion (*everyone* is of the opinion) that the ETS does not work. The British government believes that the price incentive of the ETS inadequately stimulates the emission reductions the government deems necessary and urgent.[77] The British government, like the German government, believes that a country has its own national responsibility for *all* emissions in the national territory and must not hide behind the European ETS system. British business has not proven to suffer negative effects from this measure, and the same applies to the situation in Germany.

[77] See the explanation of this "Carbon Price Floor" on the website of the British parliament: http://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN05927

7.100 ETS measures meant to instigate harmonisation do not prevent Dutch coal-fired power plants – that fall under the ETS – from being heavily subsidised, and particularly from receiving large-scale subsidies for co-firing biomass in the national coal-fired power plants.

7.101 Urgenda further refers to sections 4.27-4.29 of this defence on appeal, in which it mentions a number of effective measures that the State can take in the ETS sector.

7.102 Ground for appeal 16 should fail.

Ground for appeal 17

7.103 In ground for appeal 17 the State complains that the district court failed to recognise that the negative effects of climate change are not felt to the same degree all over the world and that the State has taken and will continue to take adaptation measures in order to combat or limit the negative consequences of climate change on the Netherlands.

7.104 In paragraphs 4.71 and 4.72 the district court held that mitigation is the only actually effective means against climate change and provided substantiation for that opinion. In paragraph 4.75 the district court reiterated that opinion. Because the State contests precisely the same legal considerations of the district court in its ground for appeal 25, Urgenda will also address this complaint there. Urgenda asks the court of appeal to take cognizance of this.

7.105 For now, Urgenda would like to point out that, in fact, the State's ground for appeal says that as long as the State ensures adequate protection of Dutch territory and Dutch residents, it can continue contributing to causing climate change with global repercussions.

7.106 The State fails to acknowledge that while adaptation measures are necessary to cushion the worst consequences of climate change, they cannot replace mitigation measures. As long as emissions are not phased out through mitigation measures, warming will continue and reach levels where adaptation measures offer no help. Mopping the floor with the faucet on only helps as long as the mop can still soak up the water. For this, see the above sections of this defence on appeal 3.69-3.70 which state that in the IPCC's valuation of the key risks it also took into account the possibilities for and limits of adaptation.

7.107 Due to the nature of adaptation measures the State can only take them for its own territory. However, the State's responsibility for partly contributing to global climate change – the Dutch share of which is relatively large based on its per capita emissions – does not cease at its own borders.
Urgenda believes that a different view than this – in as far as the State would like to defend it – is incompatible with generally accepted legal standards of justice in the Netherlands. Moreover, it is incompatible with the principles and starting points of the UNFCCC, the recent Paris Agreement and international climate policy to which the State has committed itself.

7.108 The State's defence also completely overlooks that the interests Urgenda seeks to defend, which it is permitted to do and for which it is has a cause of action, these interests are not limited to Dutch territory. The adaptation measures the State discusses only benefit a small share of the interests that Urgenda wants to protect and for which it requests legal protection. As such these measures are unable to effectively protect the interests that Urgenda is defending.

7.109 Moreover, in the judgment the district court examines the various levels of impact brought about by climate change. The district court discusses several of climate change's consequences at a global level in legal consideration 4.16 and subsequently the consequences for the Netherlands in legal consideration 4.17. In connection, the district court also rightly points out that the Netherlands will experience the effects of climate change from elsewhere in the world. These effects clearly have consequences that adaptation measures cannot or can barely address.

7.110 Ground for appeal 17 should fail.

Ground for appeal 18

7.111 In ground for appeal 18 the State complains about the considerations of the district court in paragraphs 4.71 and 4.75.

7.112 As Urgenda has already noted in its discussion of the State's ground for appeal 17, the State also opposes paragraphs 4.71 and 4.75 in its ground for appeal 25. It is unclear to Urgenda why the State makes a separate argument in ground for appeal 18, and Urgenda does not see what it contributes to the State's argument in ground for appeal 25. Therefore, Urgenda in the first instance refers to its response to the State's ground for appeal 25 below.

7.113 Moreover, the State itself states (Statement of Appeal 13.38) that mitigation and adaptation are complementary strategies for limiting the risks of climate change. The State therefore recognises that both mitigation and adaptation are necessary. The fact that mitigation and adaptation are complementary strategies, meaning they enhance each other, implies that one cannot be substituted for the other.

7.114 The State probably derived the phrase about mitigation and adaptation as complementary strategies from AR 5 Synthesis Report, Summary for Policy Makers, SPM 3 (p. 17), but it wrongly fails to mention the entire passage:

'*Adaptation and mitigation are complementary strategies for reducing and managing risks of climate change. Substantial emissions reductions over the next few decades can reduce climate risks in the 21 century and beyond, increase prospects for effective adaptation, reduce the costs and challenges of mitigation in the longer term and contribute to climate-resilient pathways for*

sustainable development.' (underlining by attorneys)

7.115 Moreover it is useful to take cognizance of the following from the AR 5 Synthesis Report, Summary for Policy Makers SPM 3.3 (p. 19):

'*Adaptation can reduce the risks of climate change impacts, but there are limits to its effectiveness, especially with greater magnitudes and rates of climate change.*'
(underlining by attorneys)

7.116 For these reasons, which Urgenda asks also be taken into consideration in the assessment of the State's ground for appeal 25, Urgenda believes that ground for appeal 18 should fail.

Ground for appeal 19

7.117 In ground for appeal 19 the State complains that the district court attaches significance to the 30% reduction target, which the then Dutch government had established for 2020 in the work programme 'Clean and Efficient' (Schoon en Zuinig).

7.118 Urgenda is unable to deduce from the district court's considerations that it attached great significance to this reduction target.
What the district court concluded from this – and rightly so – is that at the time the State resolutely accepted the international consensus that Annex I countries like the Netherlands should have reduced their emissions by at least 25%-40% of 1990 levels in 2020. At the time, the State also adopted this as the standard for the national reduction policy.

7.119 The district court's conclusion that the State adopted the 25%-40% reduction norm as the norm for the Dutch reduction policy, is not based solely on that work programme. See also the district court's citations of the government documents in paragraphs 2.72 and 2.73. In paragraph 2.73 the district court cites a letter from the Minister of Housing, Spatial Planning and the Environment dated 12 October 2009 in which the Minister writes about the 25%-40% reduction target in 2020, '*which is necessary to stay on a feasible track to keep the 2 °C objective within reach (…)*'.

7.120 The State complains (Statement of Appeal 13.43) that the district court failed to recognise that the work programme 'Clean and Efficient' was created before the economic crisis and that subsequent governments made other choices thereafter.

7.121 In its discussion of ground for appeal 25 (see there the discussion of factor (v) *the onerousness of taking precautionary measures'*) Urgenda will further explain that the policy change was not based on new scientific insights about the dangers and risks of climate change, nor was it made because of economic or financial objections. In other words, the policy change did not arise from any compelling reasons that would also continue to be at odds with the emission

reductions sought by Urgenda. The State overlooks that aspect in ground for appeal 19.

7.122 In explaining its ground for appeal, the State offers no further motivation for briefly touching on many issues that have already been addressed or will be addressed (mainly grounds for appeal 15 - 18 and 25). Urgenda refers to its response there. Ground for appeal 19 should fail.

Ground for appeal 20

7.123 In ground for appeal 20 the State complains about paragraph 4.107 of the district court. In this paragraph the district court concludes and motivates its conclusion that a claim made by Urgenda is not allowable, namely the claim to order the State to inform the Dutch public in a manner dictated by Urgenda. In the operative part of the judgment the district court in question rejected the claim by Urgenda.

7.124 Urgenda concludes that the State has no interest in this ground for appeal.

Ground for appeal 20 should fail.

8. The unlawful act: grounds for appeal 21 – 27

Introduction

8.1 In chapter 2 of its Statement of Appeal (section 2.1 through to 2.39), the State describes how it believes the court's judgment is structured in a legal sense. Since its argument does not result in a concrete ground for appeal, at least not in that chapter, strictly speaking Urgenda does not have to respond to it. But the State formulates a number of grounds for appeal in chapter 14 of its Statement of Appeal in which it essentially asserts that the court incorrectly applied Book 6 Section 162 of the Dutch Civil Code. Some parts of those grounds for appeal draw on the State's argument in chapter 2.

8.2 Therefore, Urgenda deems it useful to also give a general introduction to outline its assertions in the proceedings in the first instance and their legal substantiation. Urgenda believes that this is useful for a correct interpretation of the court's substantiation, but also for valuing the, mainly legal-doctrinal, grounds for appeal put forward by the State against the judgment in chapter 14.

8.3 The court's judgment drew considerable national and international attention. One commentator wrote:

> "*While doctrine wrestled with seemingly insurmountable problems with regard to standing, wrongfulness, cause, and the separation of powers, this Court clears these hurdles rather straightforwardly and convincingly. The ruling stands firm and, despite the comments made, leaves the reader with appreciation and respect for a Court that not only mobilizes the intellectual strength to do such a thing, but also displays the moral courage to hand down a truly independent ruling. This ruling offers a loud and clear signal that governments have a duty of care for the safety of their citizens and that they share a wider responsibility for the development of a sustainable society. If they compromise those obligations, at the expense of their citizens and future generations, they may be called upon for action by not delivering on the obligations that they have taken upon themselves in international agreements and national policies. It is true that the Court has made far-reaching decisions, but it has reasoned extensively as to their justification.*"[78]

8.4 This comment goes to the heart of this legal action and Urgenda's reason for the proceedings. The case essentially centres on the question whether the State has a legal obligation toward its citizens regarding the dangers and risks of climate change and in particular a legal obligation not to (excessively) contribute to the causes of dangerous climate change.

[78] M. Loth, 'Climate change liability after all', in Tilburg Law Review: Journal on international and comparative law, 21(1) p. 5-30, mainly, p. 30 (2016)

8.5 The comment furthermore illustrates that legal doctrine had already pondered and written about[79] liability for climate change long before this Dutch climate case was even considered and that legal literature had already identified legal-doctrinal problems with respect to such a liability. Urgenda has also already pointed out the objections mentioned in the legal literature, mainly in section 5.3 in its Statement of Reply in the first instance (with literature references in the footnotes) (see Statement of Reply 179-184). In particular the requirement of causality has been identified in legal literature and doctrine as an insurmountable obstacle to climate change liability.

8.6 It is for this reason that the State constantly uses the requirement of causality in its Statement of Appeal – it forms the heart of its legal defence – to argue that the court wrongly assumed the State's liability for climate change.

8.7 In the proceedings in the first instance Urgenda already explained at length that the requirement of causality only plays a role in actions for damages arising from an unlawful act and not in preventative actions for an injunction or court order.
In the proceedings in the first instance, the State failed to formulate an adequate response to this assertion and Urgenda now notes that the State essentially repeats its initial defence, albeit in a more detailed manner.
Furthermore, in chapter 14 of its Statement of Appeal the State uses legal interpretations of both 'reflex effect'* and 'hazardous negligence', which Urgenda believes are at odds with prevailing doctrine and jurisprudence.
*[Explanatory note:
In Dutch liability law, it is unlawful to behave (= act or omit) in a manner that is in breach of 'the standard of care that is due in society'. Essentially, this general 'duty of care' in society comprises any factual situation and, accordingly, what the 'standard of care' is, varies with the situation. The degree of care demanded of a person in any given hazardous situation, depends to a significant degree on the balancing of the risks at stake and the onerousness of preventive measures (quite similar to the 'Learned Hand formula' and/or the 'negligence calculus' in English tort law). Professional standards or professional codes of conduct or professional protocols in the particular field in question, although not legally binding

[79] In fact, the amount of articles written on the subject is staggering and there are even legal journals that specialise in the subject, such as 'Climate Law' (Brill Nijhoff Publishers, Leiden). The abundance of legal literature and the rise of climate change litigation perhaps illustrates the urgency of the problem of climate change on the one hand and the inertia and failure of political channels to take adequate measures on the other hand. It is regularly stated in the relevant literature that climate change could still be solved from a technological and economic perspective, but that the solution is blocked by political reluctance and political impotence. See, for instance, the reflective argument cited by Urgenda in its Statement of Reply in first instance, paragraph 629 from Climate Change Liability, Transnational Law and Practice, eds. Brunee, Goldberg, Lord and Rajamani.
The abundance of recent legal literature on law and climate change could be a signal and warning sign for the role of the law and the courts to 'jump in' as co-equal branch of the government, from which position they are jointly responsible for a properly functioning government that carries out its task in the public interest for society as a whole. Incidentally, the State Advocate's office has also published a book on this subject: W. Braams, A. Van Rijn and M. Scheltema, Klimaat en recht (*translation: Climate and Law*), Deventer: Kluwer 2010, with the following passage taken from p. 5 of the book: *"As has been said above, it is conceivable that the government can be liable for not taking sufficient measures in connection with climate change."*

themselves, will very often be an important - but not necessarily decisive - consideration and inspiration for the judiciary in setting the 'standard of care' in the situation at hand. Similarly, general consensus in that particular field on what is 'standard (best) practice' will also be an important consideration for the judiciary in setting the 'standard of care' in the case at hand.
In a similar way, when the defendant is the State or one of its public bodies, the provisions of a relevant international treaty or relevant international agreement entered into by the State, may serve - even when these provisions are *not* legally binding the State - as an important although not necessarily decisive consideration and inspiration for the Dutch judiciary for setting the *national* 'standard of care' that is required of the State in the situation at hand (in the absence of national statutory regulations or standards).
The fact that a provison or standard was internationally agreed upon (even if parties stopped short of making it legally binding) implies that the said provision embodies an international consensus amongst States – including the Dutch State - on how the State *ought to* behave (but not: '*must* behave'). This international consensus, supported by the Dutch State as well, justifies that such international provisions and standards may be used by the judiciary as a point of reference for the 'standard of care' that *national* law requires of the Dutch State, whereas 'point of reference' implies that the Court may still decide to apply a different 'standard of care' on the merits of the arguments put forward by parties.
So, in short, the judiciary may set a 'standard of care' for a person that 'reflects' generally accepted standards of conduct that, although not legally binding for that situation, are particularly relevant and appropriate to review the conduct in question. In Dutch doctrine, this is known as the 'reflex effect'.

This reflex effect may be seen as an example of, or variation on, the principle of consistent interpretation. Consistent interpretation generally refers to the practice of national courts of interpreting national law in conformity with an international obligation (for a detailed discussion see A. Nollkeamper, 'National Courts and the International Rule of Law', Oxford University Press 2011, Chapter 7. The reflex effect as described above implies that the Dutch judiciary may interpret and set the 'standard of care' that Dutch *national* law requires of the Dutch State in the situation at hand, in the light of international treaties and their provisions (that the State concluded and accepted for itself). In doing so, the Dutch judiciary is *not* applying international law; it is merely using international (hard and soft) law as a source of inspiration for interpreting and applying national Dutch law..
The implications of the reflex effect in Dutch law are further elaborated upon at 8.69 to 8.77 below.]

8.8 In view of the foregoing, Urgenda sees reason for a general and, mainly, legal-doctrinal consideration of its claim, of the State's grounds for appeal and – in that light – the action arising from a unlawful act and the role played by the doctrine s of 'reflex effect' and 'hazardous negligence' in it.
This general argument will enable Urgenda to comment separately on the many separate complaints the State put forward against the judgment without having to digress or unnecessarily repeat itself too much.

Urgenda's claim

8.9 In essence, Urgenda asserts – like it also did in the proceedings in the first instance (paragraphs 3.2 and 4.1 of the judgment constitute an excellent summary of Urgenda's assertions) that the State has a legal obligation to reduce the annual emissions of greenhouse gases from the Dutch territory by at least 25%-40% in 2020 relative to 1990, and that the State acts contrary to its duty of care towards Urgenda if that reduction is lower.

8.10 Urgenda believes that this legal obligation ensues from the general duty of care of the State as laid down in Book 6 Section 162 of the Dutch Civil Code. Urgenda alleges that the current Dutch emissions are one of the causes of the occurrence of dangerous climate change which is associated with great risks of an unprecedented nature. Urgenda asserts that the Dutch emissions have contributed to this development at a level that is unacceptable and therefore unlawful.

The district court's judgment

8.11 The district court decided in Urgenda's favour and held that the State indeed has a legal obligation, as alleged by Urgenda.

8.12 The district court meticulously explained based on which standard of review and criteria it had reached the conclusion that the State has a duty of care, or legal obligation, as asserted by Urgenda.

8.13 The standard of review the district court applied (see paragraph 4.53) is firmly based on the doctrine of hazardous negligence developed in jurisprudence for situations in which a particular conduct causes a particular danger or risk.
The district court found this standard of review fitting and appropriate for its application (*per analogiam*) to the facts about which it had to formulate an opinion in this dispute. In addition to the usual criteria for hazardous negligence (as formulated by the Supreme Court in the cellar hatch case (*Kelderluik*), the district court added another criterion or viewpoint concerning the ample discretionary power[80] enjoyed by the State pursuant to its constitutional position. (However, the district court also promptly noted that the lines between duty of care and discretionary power are blurred and that the two concepts complement each other, and are therefore difficult to distinguish).

8.14 The district court furthermore attached significance to the objectives, obligations and principles of international climate policy, as laid down in the UNFCCC and the TFEU (paragraph

[80] The standard of review applied by the district court is virtually identical to the standard of review applied in the Wilnis case. In that case, also referred to as the first Dutch climate change case, the applicable Section 174 of Book 7 of the Dutch Civil Code was also applied based on the *Kelderluik* criteria and complemented with the discretionary power accorded to the government institution responsible for dike monitoring.

4.55), to specify and detail the State's duty of care and discretionary power. The district court did this because it believes that climate change is not only a national problem but also a global problem, and that the Dutch national climate policy is also intended to contribute to international risk management of this global problem, which adds a dimension to the national duty of care and discretionary power.
In paragraphs 4.56 through to 4.62, the district court specified which objectives, obligations and principles of international climate policy it had specifically taken into account. While the district court believes that those objectives, obligations and principles do not have a direct binding effect, they do reflect on (and help to substantiate) the national 'standard of care' (in itself an 'open' standard that needs to be concretized) that is required of the Dutch State. In accordance with the 'reflex-effect', those objective, obligations and principles determine to a great extent the framework for and the manner of the exercise of discretionary power by the State (see paragraphs 4.42 through to 4.44, and therefore constitute a prominent viewpoint in assessing whether the State has acted unlawfully towards Urgenda (according to the district court in paragraph 4.63). Also through the application of the 'reflex effect', the district court considered the protective scope of Articles 2 and 8 ECHR to flesh out and detail the State's duty of care and discretionary power (paragraph 4.46).

8.15 Urgenda believes that the district court applied the correct standard of review to evaluate the lawfulness or unlawfulness of the State's climate policy, or emission reduction policy.

The State, however, complains in grounds for appeal 21 through to 27 (in conjunction with chapter 14 of its Statement of Appeal), that the standard of review applied by the district court is incorrect.

Overview and analysis of the State's grounds for appeal 21 - 27

8.16 In ground for appeal 21, the State particularly complains that the district court was wrong to attach significance to the international climate policy and its various elements. The State complains that the district court applied a reasoning 'it has assumed' and which the district court described as 'reflex effect'. However, the State believes this reasoning is false and incorrect because through this application, provisions that – also according to the district court – do not have direct effect in the Dutch legal system are nonetheless used by the court as a framework to assess the legality of the State's conduct.

8.17 In ground for appeal 25, the State complains that the district court was also wrong to apply the hazardous negligence doctrine as a standard of review to assess the State's conduct. The State asserts that this doctrine was incorrectly applied as it is only intended for entirely different, more concrete, dangerous situations in which concrete damage has occurred within the meaning of Book 6 Section 95 of the Dutch Civil Code.

8.18 In ground for appeal 23, the State furthermore complains that the requirement of Book 6 Section 162 of the Dutch Civil Code, which stipulates that there has to be some form of

'damage', has not been met. The State does not view damage to the atmosphere and the atmospheric properties – a form of environmental damage – as damage covered by Book 6 Section 162 of the Dutch Civil Code. The State alleges that the Dutch emissions on their own do not cause damage - or at least not to a significant extent - within the meaning of Book 6 Section 95 of the Dutch Civil Code and that Urgenda failed to prove such damage has been caused. While it appears that the State does not deny that the atmosphere is damaged, so that further down the causal chain climate change will eventually cause damage within the meaning of Book 6 Section 95 of the Dutch Civil Code, the State appears to find this a (too) hypothetical situation since it cannot be pinpointed exactly who will suffer from said damage, where, when and how. Regarding the latter, Urgenda would like to note at this point that this applies to many forms of environmental damage and moreover that a collective legal action on the basis of Book 3 Section 305a of the Dutch Civil Code was designed by parliament (as legislator) to overcome or provide an exception to the requirement of having an individual interest that would otherwise hamper most public interest litigation. For this, Urgenda refers to its response to the State's ground for appeal 2.

8.19 Elaborating on the alleged lack of damage within the meaning of Book 6 Section 95 of the Dutch Civil Code ensuing from the Dutch emissions 'in on their own', the State complains in ground for appeal 24 that there is no 'causal link' between the Dutch emission 'on their own' on the one hand and the dangers and risks that are expected to arise from international climate change.

8.20 In ground for appeal 26, the State continues that the district court incorrectly assumed that it was within the power of the State to have the Dutch emissions reduced to the extent desired by Urgenda and the district court therefore wrongly ruled that any excess of Dutch emissions can be 'attributed' to the State as an unlawful act.

8.21 In ground for appeal 27, the State complains that the district court was wrong to determine that the 'relativity requirement' of Book 6 Section 163 of the Dutch Civil Code has been met. The State alleges that the standard of due care as formulated by the district court – exercising due care in combating dangerous climate change – was not designed and is not meant to protect against the kind of damage (within the meaning of Book 6 Section 95 of the Dutch Civil Code) that is suffered by Urgenda or by the persons whose interests Urgenda represents. The State thus alleges that an assumed breach of this standard would not be unlawful *with regard to* Urgenda *specifically*, as is required. The State complains in ground for appeal 22, which it uses as an umbrella ground for appeal, that Urgenda has not met any of the requirements for a successful claim based on Book 6 Section 162 of the Dutch Civil Code and that the district court wrongly determined that Urgenda had met these requirements.

8.22 From this it becomes apparent that while the State's grounds for appeal systematically cover all the requirements named in the doctrine concerning an action arising from an unlawful act, but that the grounds for appeal are mostly variations of the same theme, which in fact come up in virtually every ground for appeal in chapter 14.

8.23 That 'theme' is that Urgenda is unable to point out what damage, within the meaning of Book 6 Section 95 of the Dutch Civil Code, is caused by the Dutch emissions 'on their own' ('on their iown' is a phrase that the State has added, and which it constantly refers to and therefore is a key element in the State's causality theme). Insofar as Urgenda challenges the damage and dangers of international climate change, the State furthermore asserts that there is no sufficient causal link between that global damage and the Dutch emissions 'on their own'. The combination of these two defences raises the question, according to the State, why the Dutch emission level would be hazardous in an unlawful manner, if these emissions *on their own* do not cause any damage at all and the contributions of the Dutch emissions *on their own* to international climate change are negligible or non-existent (unmeasurably small) .

Causality, damage and the unlawful act in the context of climate change

8.24 With its defences, the State understandably tries to capitalise on the fact that from a legal-doctrinal point of view, the issue with climate change is that it is a consequence of billions of daily emissions *together* and therefore is caused by billions of causers jointly.

8.25 It is the *sum* of all emissions ('cumulative emissions') that is the cause of climate change. The many billions of daily emissions each on their own have an insignificant global effect, but *together* the cumulative emissions have a devastating global effect, first and foremost on the composition and properties of the atmosphere, but the climate change that will result from this will eventually cause major financial losses further down the causal chain.[81]

8.26 Liability law struggles to deal with these kinds of multiple causes and class actions as it is geared towards the conduct of individuals and (isolated) individual responsibility.
This focus on the responsibility of an individual who has individually caused harm particularly presents legal-doctrinal problems for harm that is inflicted by multiple causers. Because if an emission *on its own* is not a conditio sine qua non* for causing climate change, than responsibility for that emission does not justify responsibility and/or liability for climate change or its subsequent consequences. The dogma that one cannot be held liable for consequences that one did not cause (except for some statutory exceptions) stands in the way of liability.
The consequence of this focus on individual responsibility would in this case be that even if causing climate change was the biggest injustice ever committed by mankind, no single individual could be held liable for it and liability law could not provide any form of legal protection.

[81] This causal chain, which starts off with greenhouse gas emissions, proceeds to the atmosphere and ends in major global and even mass damages, may be long and complex but is sufficiently clear on the level that is required to assess the risks of climate change. For that certainty, it is not necessary to wait and see who will be the first actual victims and injured parties.

***** explanatory note: [the 'conditio sine qua non' requirement is the equivalent of the 'but for'-test]

8.27 The State also argues that only damage within the meaning of Book 6 Section 95 of the Dutch Civil Code falls under the protective scope of Book 6 Section 162 of the Dutch Civil Code and hazardous negligence.
While the State does not deny that climate change could lead to major financial losses in the future,[82] it believes that Urgenda has no way of knowing who will be the victims of that damage, where, when and how that damage will manifest itself exactly. The State argues that the doctrine of hazardous negligence on which Urgenda relies is not intended to provide protection against purely hypothetical damage.

8.28 'Harm', 'causal effect' and 'unlawfulness' (three elements of an action based on an unlawful act) are closely interrelated in the State's defence and appear in virtually every ground for appeal with slight changes in emphasis. Therefore, it is more fitting to discuss the State's grounds for appeal in concert than separately. And such an integrated assessment of grounds for appeal 22 through to 27 is exactly what the State requested from the court of appeal with ground for appeal 22, which itself does not contain an independent complaint.

8.29 The State's defence against the reduction order requested by Urgenda ties in closely with the usual context from which ideas on liability law and in particular tortious claims arise. This context is virtually always set by actions for compensation. When it comes to tort actions seeking financial compensation, the concepts of 'damage' and 'causal link' indeed take on a key role and meaning. This is reflected in the State's grounds for appeal. Urgenda's claim, however, is set in a different context since is does not claim compensation for damage but rather the prevention of that damage.

A more focused look at claims based on liability law

8.30 Contrary to what the State seems to think, Urgenda contends that the root of liability law, particularly tortious claims, is not to provide compensation for unlawfully inflicted financial damage, but rather to provide effective legal protection against wrongful actions.

8.31 Legal protection provided by a claim based on liability law can be preventative and future-oriented in the face of an imminent 'wrong', and for that purpose taking on the form of an injunction or court order. Legal protection may also take the form of judicial remedy after the fact, for instance in the form of financial compensation, if the wrong has already occurred and has caused financial loss.
Incidentally, 'inflicting a wrong' and 'inflicting financial loss' are not synonymous. As well as encompassing breach of statutory provisions and infringement of personal rights, committing

[82] The costs incurred by the State for raising the Dutch dikes on account of climate-related sea level rise is, in fact, an example of a financial loss that is currently sustained, albeit that this loss is suffered before the fact, in the form of prevention costs and harm reduction costs.

a 'wrong' also encompasses *any* infringement of rights and interests that is unacceptable according to the standards of care that is due in society: these are the three categories of 'unlawfulness', irrespective whether or not any actual damage was inflicted .[83]

8.32 This perspective on the scope of actions that flow from liability laws may at first glance appear more novel than it actually is. In reality, Urgenda has derived the perspective described above from handbooks and leading authors that describe the protective scope of Book 6 Section 162 of the Dutch Civil Code. This wider, but doctrinally more clear-cut and more fundamental, perspective is often forgotten, as the majority of claims based on liability law concern damages actions that have a different review framework than actions for an injunction or court order. The State fails to recognise this (again) in its grounds for appeal.

8.33 For these reasons, Urgenda chooses to first discuss – in a general sense – the protective scope of Book 6 Section 162 of the Dutch Civil Code and the associated role of injunctions and court orders.

The development of the action arising from an unlawful act: from 'damages action' to 'legal protection against wrongs'

8.34 In his dissertation 'Het rechterlijk verbod en bevel' (*translation: The injunction and the court order*) from 1978, C.J.J.C. van Nispen wrote on p. 19:

"*The first and actually the principal task of law enforcement is the fight against potential wrongs; prevention is better than cure.*"

8.35 When Dutch civil law was codified in 1838, the legislature did not include the injunction and court order in the law text. In 1838, the legislature believed that the courts could only impose financial penalties and that the enforcement of judgments was only aimed at financial redress. This explains why for a long time claims for compliance with contracts, , whether or not through a court order, were rejected or declared inadmissible.[84] Actions arising from an unlawful act therefore were always intended to obtain compensation. As a consequence the entire doctrine relating to actions arising from an unlawful act (in particular the doctrine of causality) was also developed in relation to actions that aim to obtain compensation. In the summary of his dissertation, Van Nispen wrote the following:[85]

"*The significant practical relevance assigned to the doctrine of actions arising from an unlawful act over this past century, tends to be ascribed to the recognition of unwritten legal standards in the Supreme Court case of 31 January 1919, NJ 1919, 161. Another prominent fact is often overlooked. I am referring to the expansion of the law of protection against unlawful acts which*

[83] Whether the unlawful infringement has caused financial loss is only relevant for the question whether there is entitlement to compensation, and is not decisive for the unlawfulness in itself. The fact that unlawfulness and concrete damages are two separate and independent criteria has implications for cases with multiple causers.
[84] Van Nispen, 'Het rechterlijk verbod en bevel' (*translation: The injunction and court order*), diss, 1978, Kluwer, no. 20
[85] Van Nispen, op. cit. p. 1

took place outside of codified legislation. While strictly speaking Section 1401 of the Dutch Civil Code (now Section 162 Book 6) *only affords entitlement to compensation after the wrong has been committed, the courts have gradually started to allow claims for taking 'preventative measures in the case of a serious threat that a wrong is about to occur': actions to impose an injunction to stop a defendant from committing certain unlawful acts in the future or a court order to make a defendant commit an act whose omission would constitute an unlawful act. Allowing such preventative actions (…) has had an effect on jurisprudence in the past 50 years that cannot be overestimated. But this development has not been the focus of much attention in the literature. While the doctrine has significantly expanded and refined the concept of Section 1401 of the Dutch Civil Code, legal thinking has continued to associate the legal concept of the unlawful act with claims for compensation."* [86]

8.36 Van Nispen describes (nos. 20-32) how up until the Kieft/Otjes ruling in 1914[87], court orders and injunctions had consistently been rejected, but that they gradually entered jurisprudence starting with the aforementioned ruling until 1944 when the Supreme Court (Supreme Court 18 August 1944, NJ 1944/45, 598) clearly determined that the protection provided by Section 1401 of the Dutch Civil Code also covers "*preventative measures in the case of a serious threat that a wrong is about to occur*".

8.37 Although the wording of Section 1401 of the Dutch Civil Code (old) and also of the current Book 6 Section 162 of the Dutch Civil Code still suggests that an unlawful act can only lead to compensation, jurisprudence since the case law of the Supreme Court referred to above[88] has consistently been centred on the fact that Book 6 Section 162 of the Dutch Civil Code contains an unwritten legal obligation or unwritten standard for lawfulness.

8.38 According to this jurisprudence, a court order or injunction based on the provision in Book 6 Section 162 of the Dutch Civil Code seeks to enforce compliance with this unwritten legal obligation/unwritten standard of lawfulness/unwritten standard of due care.
Such a court order or injunction can be awarded preventatively if the other party is in danger of a future violation of that legal obligation/standard of lawfulness . The availability of a preventative court order or injunction for legal remedy, created in jurisprudence by the courts,[89] was then codified by the legislature as late as 1992 in Book 3 Section 296 of the Dutch Civil Code.
If a violation of the legal obligation contained in Book 6 Section 162 of the Dutch Civil Code has *already* occurred and *if* that violation has resulted in financial loss, Book 6 Section 162 of the Dutch Civil Code *also* allows for instituting an action for damages; such a legal action would be remedial and aimed at *restoring* rather than *preventing* the wrong..

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[86] See in the same sentence regarding the significance of court orders and injunctions: T.E. Deurvorst, GS Onrechtmatige Daad (*translation: The Unlawful Act*), II.1, note 46
[87] Supreme Council 13 November 1914, NJ 1915, 98, W. 9810 (E.M.M.)
[88] See Deurvorst, op. cit., note 46
[89] Van Nispen, op. cit., p. 1

8.39 Court orders and injunctions and actions for damages are essentially intended to provide *legal* protection; the court orders and injunctions are more future-oriented and seek to prevent an (imminent) unlawful infringement of rights and interests; while actions for damages are remedial in nature and are intended to remedy an infringement of rights and interests after the fact, doing so by means of financial compensation or (see Book 6 Section 103 of the Dutch Civil Code) in another way.

8.40 See also Asser-Hartkamp&Sieburgh, 6-IV, 2015/153 regarding the legal basis and the role of court orders and injunctions in Dutch liability law:

"One can also request the court to prohibit a defendant from committing a particular unlawful act in the future. This competence ensues from Book 3 Section 296 of the Dutch Civil Code (in conjunction with the statutory provisions on which the material rights of the claimant rely, such as Book 6 Section 162 of the Dutch Civil Code), the provision of which not only applies to contractual obligations but also to other legal duties. (…)
Court orders and injunctions have taken up a central position in legal practice. According to Dubbink (…) this position is so significant that the prevention of unlawful acts rather than compensation for damages can be considered the cornerstone of our law. Yet, such an order can also be requested when the defendant has not yet committed an unlawful act, but an unlawful act is at risk of being committed. (...) This can be linked with the idea that a legal obligation exists prior to the commission of an unlawful act, namely to refrain from committing that act. (…)
Competency to issue a court order does not require the claimant to already have suffered damage from the unlawful act or that he will suffer damage because of the imminent unlawful act."[90]
(underlining by attorneys)

8.41 These quotations make it clear that the essence of actions arising from an unlawful act is: 'protection against wrongful acts' and not just 'financial compensation for unlawfully inflicted financial loss'.
In assessing an action arising from an unlawful act the court should first and foremost focus attention on the qualification of the conduct brought up for discussion *as such* (is the conduct *as such* unlawful or lawful?), and not on the question whether the conduct has caused damage.

8.42 In other words: unlawfulness and damage do not coincide[91] and actions arising from an unlawful act essentially centre on the question whether a wrong is about to be committed or

[90] Asser-Hartkamp&Sieburgh, 6-IV, 2015/153.
[91] Urgenda would like to point out damage cases in sports and games or bad luck in and around the house; it is damage, but not unlawful. Conversely, also think of the unauthorised entry of other people's property; no damage but still unlawful. In both examples, unlawfulness and damage do not coincide, which makes it clear that unlawfulness and damage must be clearly distinguished from each other.

has been committed, and not whether damage has been inflicted.[92]
The question whether damage has been inflicted is actually only relevant for the question which remedy can be obtained. But that question becomes relevant only if and after the unlawfulness of the conduct has been established. The remedies available against unlawful conduct are a court order or injunctions, a declaratory decision or compensation for damages. Those who seek compensation therefore have to make a reasonable case that there is 'damage' and that there is a 'causal link' between the damage and the unlawful conduct. The latter two criteria do not apply in the case of a preventative court order or injunction.

8.43 Sieburgh[93] also alleges that answering the question whether a particular conduct is unlawful, requires assessing the propriety of the conduct as such, separate from the question whether the conduct has caused damage:

"For a number of authors, the unlawfulness of a particular conduct depends on the damage ensuing from the conduct. When no damage has occurred, no liability for compensation ensues, which leads to the conclusion that the conduct was not unlawful. This approach is incorrect. Unlawfulness and damage are independent requirements for liability. The qualification of the action is separate from the damage caused. (…) That means that an unlawful act can also have consequences even in the absence of damage. It is possible to request an injunction or court order when a stakeholder fears detrimental consequences of an unlawful act. (…) The wording of Book 6 Section 162 subsection 1 and subsection 2 of the Dutch Civil Code fit in with this. This distinction between damage and unlawfulness, or between the qualification of the act and the consequence of the act is of crucial importance (…)".

8.44 By making a clear distinction between 'unlawfulness' and 'damage', it also becomes clearer that an action arising from an unlawful act not only offers a remedy against (imminent) financial loss, but also seeks to offer a remedy against *any* unlawful infringement of rights and *interests*. These could also cover immaterial interests (such as personality rights, or rights protected by the fundamental rights) or general interests (such as environmental interests; cf. De Nieuwe Meer jurisprudence; see also the Clara Wichmans/SGP ruling), whose infringement does not automatically lead to financial loss but sometimes only leads to emotional damage (for instance, privacy violation).[94]

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[92] Incidentally, the State itself explicitly took the position in an international context that the damage requirement does not form a constituent element of an unlawful act with regard to international state liability. See Horbach and Lefeber, State liability, in: Handboek Internationaal Recht (*translation: International Law Handbook*), T.M.C. Asser Institute, The Hague, 2007, Chapter 10, p. 5, and in particular footnote 10.
[93] Sieburgh, Attribution of an unlawful act, diss, Kluwer, 2000, p. 57/58.
[94] According to some authors (see mainly A. Akkermans, 'Requiem voor het Jeffrey-arrest' (*translation: Requiem for the Jeffrey ruling*) in M. Faure & T.H. Hartlief (red), 'De Spier-bundel. De agenda van het aansprakelijkheidsrecht' (*translation: Liber amoricum for Spier. The agenda of liability law*), Deventer, 2016, p.91-102 with further references there) in its ruling of 27 March 2015, ECLI: NL:HR:2015:760 (AIG Europe/M) the Supreme Court reversed on previous jurisprudence which disallowed granting a 'naked' declaratory judgement, precisely because of the requirement that an 'effective remedy' or 'legal rehabilitation' must also exist for an infringement that does not consist of financial loss.. J. Uzman wrote in his dissertation 'Constitutionele remedies bij schending van grondrechten' (*translation: Constitutional remedies for fundamental rights infringements*), 2013 (p. 97 and footnote 176) that he believes that that development,

8.45 In the same context, see Asser-Hartkamp&Sieburgh:

"*With regard to the protective scope of standards of due care, the Supreme Court has expressed in its rulings regarding the State's right of recourse in soil pollution cases (…) that the standards of due care only serve to protect the interests to which the perpetrator must be alert – unlike with written legal rules. See Supreme Court 30 September 1994, NJ 1996/196 (State/Shell) and 199 (Van den Brink/State). (…) standards of due care are therefore not intended solely for the prevention of damage to someone's person or property but also for the protection of other interests whose infringement a perpetrator must be alert to. This is in line with the fact that the protection of non-property law interests have been given more prominence, as evidenced by the 'fundamental rights lists' in human rights conventions and in the Constitution, which has an increasing impact on private law through 'the horizontal effect of the fundamental rights'. The unlawfulness of an infringement of these rights may in some cases be directly founded on a violation of a constitutional or convention rule (…). But in practice it is generally decisive whether the infringement of the interest protected by the Constitution is negligent, as seen against the backdrop of the concrete private-law relationship and in conjunction with the other interests involved.*" [95]
(underlining by attorneys)

8.46 Also Asser/Hartkamp&Sieburgh:

"*In establishing standards of due care, interests are generally weighed up. This is based on the idea that life in a societal context automatically causes a conflict of interests. (…) The weighing of interests sometimes takes the form of a consideration of opposing social or general interests (enshrined in fundamental rights or not). Book 6 Section 12 furnishes a legal basis for this form of weighing of interests.*" [96]
(underlining by attorneys)

and also, in similar wording: Sieburgh, Toerekening van een onrechtmatige daad (*translation: Attributability of an unlawful act*), diss. Kluwer 2009, par. 5.6.1 (p.73-76); as well as K.J.O. Jansen, GS Onrechtmatige daad (*translation: The unlawful act*), Book 6 Section 163 of the Dutch Civil Code, note 4.3.2.

8.47 Urgenda would like to add to the passage from Asser/Hartkamp&Sieburgh referenced in the previous section that the legislature assigned discretionary power to the court – not only with Book 3 Section 12 of the Dutch Civil Code but particularly and perhaps even more so with Book 6 Section 168 of the Dutch Civil Code – to not only consider the parties' personal interests in particular cases, but also compelling general and societal interests and to attach the importance to these interests that the court deems fitting.

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allowing for 'naked' declaratory judgements, had already commenced with the Supreme Court ruling of 24 June 2011, NJ 2011/390.
[95] Asser/Hartkamp&Sieburg, 6-IV, 2015/74
[96] Asser/Hartkamp&Sieburgh, 6-IV, 2015/75

8.48 The legislature furthermore sought to make 'general interest' legal actions instituted by civilian organisations possible by introducing and embedding Section 305a in Book 3 of the Dutch Civil Code. In doing so, the legislature designated general interests as a subject about which the civil court is competent to judge. Urgenda would like to recall and refer to its earlier comments on the State's ground for appeal 2, which deals with the admissibility of Urgenda's claims. Urgenda adds to those earlier comments the following, in light of what falls under the protective scope of Book 6 Section 162 of the Dutch Civil Code.

8.49 Considering Book 3 Section 305a of the Dutch Civil Code, the legislature believed that general, societal interests form as much a part of the sphere of activity of the courts as the sphere of activitiy of politics. The fact that Section 305a prohibits claims for financial damages in 'general interest' actions (and not even a declaratory decision that the defendant must pay damages[97]), but allows for a court order, injunction or declaratory relief underlines the message Urgenda wants to convey, namely that actions arising from an unlawful act are not intended to only protect against financial losses, but are intended to protect against *any* type of unlawful infringement of rights and interests, including compelling societal interests and/or public interests.[98]

8.50 The forgoing could raise the question of whether Dutch law acknowledges the protection of the interests of future generations. Urgenda believes it does;[99] and believes that these interests are essentially an aspect of the 'general interest' issue discussed above.

8.51 Urgenda is of the opinion that 'the interests of future generations' mainly have a conceptual meaning, similar to the concept of 'sustainable development' or 'the public domain' or what is known in Anglo-Saxon legal systems as 'the public trust doctrine'.
All of these concepts are attempts at expressing – with the help of current and accepted legal concepts and doctrines, and thereby creating a legal basis – that 'nature' and 'the environment' and 'ecosystems' are values that can be protected in law, and that they cannot be privately owned providing their private owner with unlimited access to them as if they were his exclusive property. They are values that are the 'property' of the public[100] and which

[97] Supreme Court 13 October 2006, ECLI:NL:HR:2006:AW2080 (Vie d'Or)
[98] Urgenda naturally wants to stress this issue because of the State's ground for appeal 28, in which the State complains that the district court was wrong to intrude on the political arena, because in the matter at hand various general interests are weighed against each other, which the State believes is the exclusive right of politics and does not form part of the court's sphere of activity.
[99] If Dutch law did not, it would imply that the current generation has the legal right to destroy the planet and its ecosystems and natural resources to meet the needs of the current generations, thus making the planet uninhabitable for generations to be born in 150 years or more. This consequence is not acceptable in any way to Urgenda and is contrary to the general sense of justice, according to Urgenda.
[100] In an international context, reference is also made to 'common concern', 'common concern of mankind' and 'common concern for humankind'. The term 'mankind' or 'the human race' implicitly also includes future generations. See below in this Reply 8.152.

have to remain accessible, available and be preserved for the public.[101]

8.52 Nieuwenhuis states *"that the interests of future generations form part of the general interest, such as is viewed as determinant of the law by the current generation."*[102]
In this perspective, the interests of future generations are indeed an aspect of the general (= public) interest and are thus designated as interests that are protected in law and that must be protected in law.

8.53 Section 4.3 subsection 2 of the Environmental Management Act stipulates that once every four years, the government must adopt a National Environmental Policy Plan *"that is particularly aimed at a development that seeks to meet the needs of the current generation, without compromising the options of future generations to meet their needs, as well as to protect the environment as much as possible and as can reasonably be expected."*
The interests of future generations are specifically named here as interests that must form part of the government's policy.

8.54 Moreover, the Netherlands is party to the Convention on access to information, public participation in decision-making and access to justice in environmental issues in the EU, usually referred to as the Aarhus Convention. It was signed on 25 June 1998 (Treaty Series 2001, no. 73) and entered into force in the Netherlands on 29 March 2005.

8.55 Article 1 of the Aarhus Convention states the convention's objective:

"In order to contribute to the protection of the right of every person of present and future generations to live in an environment adequate to his or her health and well-being, each Party shall guarantee the rights of access to information, public participation in decision-making, and access to justice in environmental matters in accordance with the provisions of this Convention."
(underlining by attorney)

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[101] Van Wijmen refers to 'values' that supersede 'interests', basically because it concerns 'bearers of life', meaning the living conditions for mankind. (Urgenda believes that Van Wijmen's thoughts dovetail with the fact that the protection of the environment has been incorporated in Article 21 of the Constitution.)
See P.C.E. van Wijmen, first in: Bescherming van milieu- en natuurwaarden in rechte; de verdediging van collectieve goederen (*translation: The protection of environmental and nature values in law; the protection of collective goods*), 199 (September) Milieu & Recht (*translation: The Environment & The Law*), 1994, 9 (September) p. 234 and later in: Van het land van Ooit naar het land van nergens (*translation: From Neverland to the Never Land*), Agrarisch Recht (*translation: Agricultural Law*), 1996, 56 p.54. Urgenda derived both sources from L.F. Wiggers-Rust, Belang, belanghebbende en relativiteit in bestuursrecht en privaatrecht (*translation: Interest, interested party and relativity in administrative law and private law*), diss. Boom, 2011, p. 40, who also makes comparisons to soil pollution jurisprudence of the Supreme Court, see p.31. In that jurisprudence, the Supreme Court found that a landowner can act unlawfully even if he only contaminates the soil of his plot; the landowner's private ownership right is essentially made subordinate to the public interest that the soil is suitable and must remain suitable for normal public use. According to this jurisprudence, the landowner had acted unlawfully toward the government, namely from the moment the landowner should have known that the government started to take up the cause of contaminated soil and would (have to) incur costs to achieve this.
[102] J.H. Nieuwenhuis, Zij die geboren worden groeten u (*translation: They who are about to be born salute thee*), in: Confrontatie en Compromis (*translation: Confrontation and Compromise*), p. 91 Kluwer, 1992.

8.56 The Dutch legal order has thereby accepted and acknowledged the interests of future generations as interests to be protected by law and for which access to justice must be available.
As an aside, Urgenda would like to point out that the Aarhus Convention actually uses the definition for 'sustainable development' from the Brundtland report, and therefore also has relevance for Urgenda's objects clause and its claims in these proceedings.

8.57 In her dissertation, Wiggers-Rust concludes[103] that according to Dutch law future generations do not have legal subjectivity, but "*that this does not mean that their interests in law are irrelevant; these interests in connection with their living environment are internationally recognised.*" She believes that an unwritten legal standard to also take account of the interests of future generations is acceptable, but that for it to be recognisable further specification is needed to make the unwritten standard enforceable at law.[104] The implementation of that legal standard will initially be in the hands of the government, she believes, but "*environmental organisations could also play a role – particularly in a preventative sense.*"

8.58 Urgenda concludes that 'sustainable development' and 'the interests of future generations' are interests that Dutch law recognises as (general) interests to be protected by law and about which the court's opinion can be requested.

8.59 In this context, see – remarkably – the following.

8.60 The fact that Book 3 Section 305a of the Dutch Civil Code gives general interest organisations such as Urgenda the option and power to institute proceedings against *climate change* was already written about years ago by C.J.J.M. Stolker in Tekst & Commentaar Burgerlijk Wetboek (*translation: Texts & Commentary on the Dutch Civil Code*) (8th edition, 2009), Book 3 Section 305a, note 1:

"*The option of launching a class action against activities that contribute to climate change is not unthinkable. In principle, Book 3 Section 305a of the Dutch Civil Code does not appear to contain an obstacle for such actions, including a claim for an order to prohibit excessive emissions and an court order to take measures to prevent such emissions;*"

8.61 The fact that Book 6 Section 162 of the Dutch Civil Code, and in particular the unwritten legal rules of societal due care, provides a sound legal basis for legal action that seeks a court order

[103] L.F. Wiggers-Rust, Belang, belanghebbende en relativiteit in bestuursrecht en privaatrecht (*translation: Interest, interested party and relativity in administrative law and private law*), diss. Boom, 2011, p. 33.
[104] In these proceedings, there is a further, recognised specification accepted by the State, namely in the 25%-40% reduction norm for Annex I countries for 2020 agreed on by the parties to the UNFCCC, including the State, and reconfirmed in numerous COP decisions.

for taking measures against *climate change*, has been written about by C.H.M. Jansen[105] in 'Onrechtmatige daad: algemene bepalingen' (*translation: The unlawful act: general provisions*), Mon. BW, B45, 3rd edition, Kluwer 2009, p. 21:

"What if, for instance, in the future legal measures in connection with climate change will be taken. There is no doubt that such measures could be enforced in court under Book 6 Section 162 of the Dutch Civil Code. Similar measures based on unwritten law could also be brought before the court. Regarding the rights and interests of civilians in connection with the aforementioned climate change, I refer to the special issue 'Klimaatverandering als uitdaging voor juristen' (translation: Climate change as a challenge to jurists) *in NJB 2007-45/46, particularly the article therein by Chr.H. van Dijk, 'Privaatrechtelijke aansprakelijkheid voor opwarming van de aarde'* (translation: Private-law liability for global warming), *NJB 2007, p.2861-2871. The provision of book 6 Section 162 can therefore cope with all future events."*

8.62 In order to conclude this general section, Urgenda would like to quote Van Dam who opens his book Aansprakelijkheidsrecht (*translation: Liability law*) as follows:

"Everybody is entitled to effective legal protection. The goal of liability law is not to compensate damages, but to establish the extent of the rights and duties, and to provide judicial remedy in case of infringement. Liability law therefore forms part of the constitutional system of the rule of law. […] There is no rule of law without liability law. Liability law protects the rights and interests of individuals toward other individuals, companies and the State. It thus forms an indispensable part of the constitutional system of rule of law, both in vertical and horizontal relationships."[106]

Conclusion regarding the protective scope of Book 6 Section 162 of the Dutch Civil Code and the associated remedies

8.63 Book 6 Section 162 of the Dutch Civil Code provides legal protection against an unlawful infringement of rights and interests, including general interests such as the protection of environmental interest and the protection of fundamental rights and human rights.
The legal protection can have a preventative and a future-oriented effect, and in the latter case seeks to prevent an imminent wrong. Legal protection can also be provided after the fact, when it then takes the form of a reparatory judicial remedy, mainly in the form of damages (but also in the form of a declaratory decision).

About the specification of the standard of due care of Book 6 Section 162 of the Dutch Civil Code

[105] Jansen – Urgenda quotes from the back flap – was not only editor of the loose-leaf publication 'Onrechtmatige Daad' (translation: The Unlawful Act) until 2006, but was also a judge in The Hague district court and court of appeal as well as in Supreme Court's Civil Division.
[106] C.C. van Dam, Liability law, Part 1, Rechtsbescherming, rechtsmiddel en rechtsherstel (*translation: Legal protection, legal remedy and legal rehabilitation*), 2nd ed, 2015, p.17.

- *General*

8.64 Now that the protective scope of Book 6 Section 162 of the Dutch Civil Code has been discussed, Urgenda wishes to discuss in more detail the standard of due care in that provision.

8.65 The standard of due care in Book 6 Section 162 of the Dutch Civil Code is an 'open standard', meaning that there is no written legal norm on which the court can rely. From this it follows that the court must use it's 'reasoned judgement' to determine what in the specific case at hand is 'legally' required by the standard of due care (societal propriety) which must be observed in society..

8.66 Verheij[107] states the following about this:

"Negligence is a vague concept and gives little in the way of concrete indications for how people are supposed to behave to avoid liability. Therefore, this unlawfulness category does not constitute a standard in the proper sense of the word. Rather, there is an assignment of competence to the court *to declare conduct unlawful apart from cases of violation of a right or breach of a statutory duty.[108] In that sense, this unlawfulness category not only addresses persons with legal rights, but particularly the courts.*
The chosen terminology, 'societal propriety', appears to refer to the opinions on that matter prevalent in society. But this does not mean that the court must exclusively rely on juridical views prevalent in the Netherlands to implement the standard.

Whether something is societally negligent is a normative and not a factual assessment. A standing practice (in a particular sector or professional group, for instance) can indeed be societally negligent. Nor can the causer hide behind government regulations, as they do not detract from personal responsibility […].

(…)

The lack of statutory standards to stipulate what is societally negligent does not mean that the courts can formulate opinion at random. The courts have not been given a "carte blanche". In the course of the 20th century, the courts have created a framework of jurisprudence based on an unwritten standard of due care. Those who want to determine whether a particular conduct is societally negligent cannot rely on their own legal consciousness, but have to look for similar cases. They are helped somewhat by the fact that in the context of the standard of due care different groups of cases can be discerned, such as: unfair competition, nuisance, injuries incurred in sports and games, incitement to be in breach of a contract, etc."

[107] A.J. Verheij, Onrechtmatige daad (*translation: The unlawful act*) (Monographs of Private law no. 4) 2015/16
[108] Urgenda has underlined this phrase as it clearly expresses that the court has its own separate responsibility as creator of the national legal order, alongside and as co-equal of the legislature. The fact that the legislature has specifically assigned this power to the courts furthermore gives democratic legitimacy to this form of finding of law by the courts. This is also a relevant point in view of the State's ground for appeal 28 (the separation of powers or trias politica).

(underlining by attorneys).

8.67 In the same sense as Verheij: see Asser/Hartkamp&Sieburgh 6-IV 2015/76:

"*The court that must specify an open standard such as the standard of due care of Book 6 Section 162 subsection 2 of the Dutch Civil Code will feel the need to find as many objective reference points as possible for its judgment. These include provisions from conventions, directives and statutory provisions relating to specific conduct which has a connection to the conduct for which unlawfulness is invoked; general legal principles and juridical views; customs or regulations based on codes, rules of honour and the like that apply in a particular sector in society: and the comparison with related cases, in which a decision has been made earlier in jurisprudence.*"
(underlining by attorneys)

8.68 Urgenda has noted earlier in this defence on appeal that for specifying the standard of due care, the district court used – via the principle of consistent interpretation/'reflex-effect' – on the one hand obligations, targets and principles of international climate policy[109] as they apply to the State and as laid down in conventions and, on the other hand, the hazardous negligence doctrine, which has been used for decades to assess conduct that is conducive to dangers and risks. To specify the standard of due care the district court in this case focused on objective reference points that are actually proposed in the doctrine.

The State has formulated complaints about both ways in which the district court specified the standard of due care. Urgenda first generally discusses the doctrine of the reflex effect.

- *'Reflex effect' as a means to specify the 'open' standard of due care*

8.69 The State consistently complains (mainly in ground for appeal 21) about the same issue, namely that the State asserts that the district court on the one hand – and according to the State: correctly – determined that the international provisions on which Urgenda relied do not have a direct effect so that Urgenda cannot directly invoke them; but that on the other hand the district court did use those provisions indirectly as an assessment tool. The State holds that this is contradictory, confusing and incorrect.

8.70 But the State fails to recognise in its complaint that when an international-law provision does not have a direct effect, this does not imply that the provision has no significance whatsoever in the relationship between the state and its citizens. To the contrary, the court can indeed attach significance to the international provision in determining the obligations of the State for which citizens may hold the State to account. If an international-law provision has a direct

[109] International climate policy should at least be viewed as the whole of international climate change codes and regulations that are generally accepted within their 'own' circle and in the legal community of states of which the State also forms part and which describe the desired situation. Later on in this text it will become apparent that the legal status of the principles and objectives used by the district court of the international climate policy are more robust than they appear.

effect, it follows from Article 94 of the Constitution that this international provision has legal force in the Netherlands and that citizens can directly invoke that international provision in a court of law to protect their rights and interests, if necessary even setting aside a national statutory provision that is not consistent with that international provision.
But an international-law provision that does not have a direct effect nevertheless binds the State and its bodies, as the State is expected to bring the national legal system in line with the international obligations that arise out of international treaties that the State entered into. That is also, rightly, the opinion of the government:

"*In any event, the legislature is bound to treaty obligations, regardless of the system of effect of international and European law. To this extent, Article 94 of the Constitution is not relevant for the legislature.*"[110]

In relation to the effect of the ECHR, see also in particular Article 1 ECHR: "*The High Contracting Parties shall secure to everyone within their jurisdiction the rights and freedoms defined in Section I of this Convention.*"

The State and its bodies are therefore bound to international law 'in any event', whether it concerns a provision with direct effect or not. This binding force implies that the State can be expected to act in accordance with the international-law provisions.[111]
So, whether an international provision has direct effect or not is irrelevant to the question of whether the State *ought to* act in accordance with that provision.

8.71 When an international-law provision does not have a direct effect, the State must act in accordance with that provision, but compliance with that provision cannot be directly enforced at law with a *direct* invocation by Dutch citizens of that provision .
This lack of direct enforceability does not mean that the international-law provision concerned does not have any relevance for that which citizens can expect from the State under national law.
The State's 'due care' required by society under national law is still *partially* determined and influenced by that which the State is rightfully *expected* to do to meet its international-law obligations. The word 'partially' reveals the major and principal difference with a provision that does have direct effect.

8.72 In other words: when an international-law provision has direct effect, the international-law provision demands implementation. The court *must* apply it. Its effect on the Dutch legal

[110] According to the then government, as is apparent from its government memorandum in its letter dated 21 September 2007 to the House of Representatives regarding the effect of international and European law in the Dutch legal system and regarding the consequences for the Dutch legislature. House of Representatives, session year 2007-2008, 29 861, no. 19 (**Exhibit 115**)
[111] A 'synchronisation' of national legal obligations and international legal obligations furthermore promotes the unity and consistency in the legal system and also prevents the State from being confronted with conflicting legal obligations. In this context, and in response to the district court's Urgenda judgment but placed in broader context, see: Rob van Gestel and Marc Loth, 'Urgenda: roekeloze rechtspraak of rechtsvinding 3.0?' (*translation: Urgenda: reckless administration of justice or finding of law 3.0?*) in NJB 30 October 2015, issue 37, p. 2598-2605 (**Exhibit 116**).

system is the consequence of its international-law legal effect.
However, the 'reflex effect' of an international-law provision on the Dutch legal system solely relies on the willingness of the Dutch legal system to attach significance to the international provision in implementing and detailing an open national standard.

8.73 An international-law provision with direct effect is *always* decisive and *always* has an effect on the Dutch legal system. When applying the reflex effect to an international-law provision without direct effect, the extent of impact of effect varies per case. The provision is a factor that must be taken into account and which may or may not be awarded a decisive influence, depending on the situation,[112] depending on the weight of the other factors in the case at hand.

8.74 See in particular J. W. A. Fleuren[113]:

"2. *International law has always formed part of the law that applies in the Kingdom of the Netherlands. Until the present time, the effect of unwritten international law on the Kingdom's legal system is based on constitutional customary law and jurisprudence.*
(…)
11. (...) This means that the international law as it applies in the Kingdom is binding for regulatory, administrative and judicial offices, regardless of whether it also binding for 'one and all'. (…)
(…)
13. There is international law-compliant (treaty-compliant) interpretation if with an international-law standard (treaty standard) in mind, a national legislative provision is interpreted in such a way that it is compatible with the standard (also known as the 'principle of consistent interpretation'). The Dutch doctrine also has the term 'reflex effect'. This effect occurs when the administration or the court takes account of treaty law when applying open standards and concepts in national law, such as societal propriety, reasonableness and fairness, the general interest or legal principles. The reflex effect is based on the idea that a treaty that has been approved by the States General and to which the Kingdom is bound through an act of the government, can have significance in determining the notions of fairness and justice prevalent in the Netherlands. (…)
The international law-compliant, or in a narrower sense of the term, treaty-compliant

[112] The 'reflex effect' is actually used in *any* situation in which the open standard of due care which must be applied in society (as stipulated in Book 6 Section 162 of the Dutch Civil Code) is 'influenced' by another provision. So the reflex effect is not reserved for international-law provisions. One example of the reflex effect without the presence of international law is in case of directors' liability. In these cases the standard of due care from Book 6 Section 162 of the Dutch Civil Code is detailed and influenced by the liability standards from Book 2 Section 9 of the Dutch Civil Code and Book 7 Section 661 of the Dutch Civil Code, so that the threshold of liability for directors is higher than that of a 'normal person'; see also Asser/Hartkamp&Sieburgh 6-IV, 2015/69 and 2015/335 and, for instance, (the heading) above Supreme Court 2 March 2007 in NJ 2007, 240. Regarding the reflex effect, see also Asser/Hartkamp&Sieburg 6-II, 2013/116.
[113] J.W.A. Fleuren, Directe en indirecte toepassing van internationaal recht door de Nederlandse rechter (*translation: Direct and indirect application of international law by the Dutch courts*), in: De nationale rechter en het internationale recht (*translation: The national courts and international law*), November 2005, recommendations from the Dutch International Law Society, November 2005

interpretation on the one hand and the reflex effect on the other hand are closely related. When the court interprets a legal provision that contains an open standard or concept against a treaty, this can be referred to as a treaty-compliant interpretation and as a reflex effect. In a more general sense, both involve treaty-compliant or international law-compliant interpretation and application of national law. This must not be confused with the application of provisions that are binding on all persons. It is incorrect, although it does occasionally happen, to automatically draw the conclusion that the court (implicitly) views the relevant treaty provision as binding 'on all persons' when it makes a treaty-compliant interpretation or application of national law. This is supported by the fact that in states where provisions determined under or pursuant to a treaty generally do not have application in the national legal order, it is very much possible that the administration and the courts consider these provision in interpreting and applying national law. (…) The question whether a provision is binding on all persons, is relevant if the administration or the courts are considering to apply the provision itself (i.e. to derive a direct legal effect or an actual act (act not intended to have legal effect)) or to exclude application of a legal provision on account of this provision. In a treaty-compliant interpretation and application, the provision is merely an argument or motive for a particular interpretation or application of a national law standard. In this context, some authors speak of indirect application (or indirect effect) of the treaty provision. This is because the national judicial standard, not the treaty provision, is (directly) applied."*
(underlining by attorneys)
*[Explanatory note: Article 94 of the Dutch Constitution states that: "Statutory regulations in force within the Kingdom shall not be applicable if such application is in conflict with provisions of treaties or of resolutions by international institutions that are binding on all persons."]

8.75 Asser/Hartkamp&Sieburgh 6-IV 2015/79 also point out that professional standards or other standards of conduct that used to 'interpret' the open standard of due care are not by themselves (directly) the judicial standard which the court uses to check against, but are 'merely a factor' in interpreting the standard of due care:

"(…) *because, as has been noted above, the system of standards referred to earlier do not* eo ipso *constitute law within the meaning of Book 6 Section 162 of the Dutch Civil Code, but are merely factors in assessing whether there have been acts in breach of unwritten law (or, if you prefer, the standard of due care which is expected in society). Cf. also Hirsch-Ballin, in: De plaats van de Hoge Raad in het huidige staatsbestel* (translation: The place of the Supreme Court in the current constitution) *(1988), p. 228 ff."*

8.76 For these reasons, Urgenda concludes that ground for appeal 21 of the State is generally incorrect and cannot succeed insofar as the State complains about the fact that the district court applied the doctrine of reflex effect as well as how it was applied. The district court did not incorrectly apply said doctrine.

8.77 Incidentally, Urgenda notes that – contrary to the considerations of the district court in paragraph 4.45 – it can rely directly on Articles 2 and 8 ECHR, so that the district court need not have applied the reflex effect doctrine with respect to these provisions. Articles 2 and 8 ECHR have direct effect on the Dutch legal system through Articles 93 and 94 of the Constitution. With Book 3 Section 305a of the Dutch Civil Code, the legislature has created the option for Urgenda (as a legal entity specifically intending to protect the interests of individuals) to institute legal actions. This means that Urgenda can rely on the substantive norms of Articles 2 and 8 ECHR, which have become part of the Dutch legal system. The fact that Urgenda might not have a standing at the ECHR does not affect this: it does have a standing in this court. For this reason, Urgenda lodges a cross-appeal against the relevant paragraph of the district court's verdict. Urgenda explains this matter in more detail in its discussion of the cross-appeal.

The hazardous negligence doctrine as a means to specify the 'open' standard of due care

8.78 In order to specify the standard of due care which the State's climate policy must *at least* satisfy, the district court also considered and took inspiration from the hazardous negligence doctrine, which was developed in jurisprudence to assess the lawfulness or unlawfulness of conduct that is associated with dangers and risks.
In paragraph 4.63 the district court specified in more detail which viewpoints or criteria it had used to assess the State's climate policy.

8.79 The district court was aware that the hazardous negligence doctrine, as explicated in the literature, differs slightly from the dangers of the current case. But the district court determined that the current issues are so closely related that the hazardous negligence doctrine could also be used to interpret the standard of due care (societal propriety) in the current case (see paragraph 4.54 of the judgment).

8.80 In ground for appeal 25, the State complains (Statement of Appeal 14.97 through to 14.111) that the district court incorrectly applied the hazardous negligence doctrine as the standard of review and furthermore that the district court did not apply the 'actual' hazardous negligence doctrine.

8.81 It is striking – and telling – that the State then fails to mention what the correct standard of review should be in this case. The State presents no alternative whatsoever, let alone a better alternative.

8.82 The idea that the State's climate policy can evade *any* judicial review under *all* circumstances, is naturally unacceptable in a state under rule of law that takes the fundamental rights and interests and rights of its citizens seriously. There is a reason why Article 21 and Article 22 paragraph 1 of the Constitution have imposed a duty of care on the State to protect the environment and public health. The rule that Acts of Parliament cannot be checked against the Constitution does not alter the fact that government policy (the policies of the Executive)

can be checked against the Constitution.
Based on this, there has to be *some* standard of review.

8.83 The district court meticulously explained which standard of review it used and why it deemed that standard fitting. While the State complains that it disagrees with it, the State fails to name a better standard of review. Under such circumstances – in view of the fact that there *must* be a standard of review– Urgenda believes that the State's complaint about the standard of review used by the district court is insufficiently substantiated, so that this complaint must fail for this reason alone.

8.84 However, Urgenda will deal with the State's arguments in support of its complaint in more detail.

- *The hazardous negligence doctrine: (1) the hazardous negligence doctrine and the criteria contained therein have a more general meaning than contended by the State*

8.85 The State alleges that the 'real' hazardous negligence doctrine exclusively applies to concrete situations in which there is a direct causal link between the damage and the conduct alleged to have taken place, and that this standard of review is therefore drawn strongly from individual cases, and that the conduct alleged to have taken place must be assessed in its context (Statement of Appeal 14.101 and 14.102).

8.86 Urgenda is of the opinion that by doing so the State attaches a much too narrow sense to the hazardous negligence doctrine and has taken up a standpoint that is in conflict with the prevailing doctrine.

8.87 The criteria/elements of the hazardous negligence doctrine (usually referred to as the '*Kelderluik*' criteria) are criteria that the doctrine considers pre-eminently fit for *general* application to specify the standard of due care which must be observed in society. Their application is expressly *not* limited to the typical hazardous negligence situations in the narrow sense argued by the State.

8.88 For a more detailed discussion, see Verheij:

The Kelderluik ruling […] revolved around the question whether employee Sjouwerman of Coca-Cola, who had opened a hatch when bringing supplies to the Amsterdam café De Munt, had acted unlawfully toward cafegoer Duchateau, who while making his way to the restrooms fell down the hatch and sustained injuries. The Supreme Court held that this question needed to be answered on the basis of the following viewpoints:

1. The chance that others do not pay attention,
2. the chance that accidents may happen as a result,
3. the severity of the consequences that may arise (property or bodily injury),

4. the extent to which taking security measures is onerous.

After weighing these viewpoints, the Supreme Court – like the court of appeal – found that there was liability. That makes sense. Falling down a hatch can cause serious injuries, while the chances of an accident occurring are easily reduced to zero by closing the hatch. It is furthermore plausible that cafegoers do not take into account that a hatch might be opened in front of the restrooms.

These viewpoints are very similar to the viewpoints formulated by the American courts in 1947, better known as the Learned Hand (United States v Caroll Towing co; 159 F.2d 169 (2nd cir. 1947)).

The first and second viewpoints can be combined into one: the chances (or probability) that damage is caused as a result of the conduct in question. The four viewpoints are not restrictive. The circumstances of the case remain decisive. In this context, the nature of the conduct is important.
(…)

These viewpoints (also known as the Kelderluik factors or the Kelderluik criteria) are mainly tailored to situations of 'hazardous negligence', meaning situations in which a person creates a danger to persons and things. Nevertheless, these viewpoints constitute the most general test of unlawfulness whose essence can also provide some form of guidance apart from such cases […]. But the courts do not always explicitly check cases against these viewpoints. Even the Supreme Court has seldomly fallen back on this ruling throughout the years, although a change has recently been observed. […].
All this does not change the fact that no one has created an alternative for the Kelderluik criteria which has made them undisputed in this sense. Without these criteria, the debate on unlawfulness due to a violation of the unwritten concept of due care would become rudderless. Courts and lawyers are therefore advised to explicitly include the Kelderluik criteria in their considerations.

Although the Kelderluik criteria can appear somewhat formal, it is important to remember that the risk assessment made in that context is very similar to the risk assessments people make nearly every day and which have become so normal that people do not always realise they are doing it. For instance, picture a man who has not yet reached his tram stop, but sees the tram approaching. Does he decide to run to catch his tram, or not? But what if it has been raining and the streets are wet and he is carrying two heavy shopping bags with a couple of bottles of wine in them. […]

The Kelderluik criteria provide a starting point to the courts in specifying the concept of the standard of due care which must be observed in society (see, among others, Van Dam 1989, no.77-79). The test essentially boils down to a risk assessment. If the risks are great, unlawfulness

is assumed.[114]
(underlining by attorneys)

8.89 Van Dam[115], referenced at the end of Verheij's aforementioned quotation, distinguishes four unlawfulness factors for determining the unlawfulness of conduct and has established that the scope of 'due care' must be weighed against the extent of 'the risk'.

8.90 Van Dam believes that due care and risk can each be divided into two factors: risk in the sense of both the extent of the damage and the probability of damage, and care in the sense of nature and benefit of the conduct as well as the onerousness of precautionary measures. Van Dam, like Verheij, makes a link to the general assessment process of the American courts' Learned Hand, which was already applied in 1947.[116]

8.91 Van Dam names the *Kelderluik* ruling as the prime Dutch example of the use of these assessment factors in order to answer the unlawfulness question,[117] which illustrates the general nature of these criteria.

8.92 Loth[118] also observed in his comment on the judgment of the district court (cited above) that the standard of review used by the district court corresponds closely to the formula used by Learned Hand and the very similar Caparo test used in English law. These observations underline the 'validity and usability' of the standard of review applied by the district court.

8.93 Jansen[119] also writes that the category of the *Kelderluik* hazardous negligence standards or safety norms *"has a general significance for the doctrine of the entirety of the standard of due care which must be observed in society."*

8.94 Hartkamp and Sieburgh[120] also refer to Van Dam in this context.

8.95 For these reasons, Urgenda believes that the State is wrong to complain that the district court used the hazardous negligence doctrine as a standard of review. Urgenda is of the opinion that the standard is the correct standard. In the words of Verheij and contrary to what the State has asserted, that standard of review is undisputed as a standard to assess the standard of due care, and other jurisdictions apply a similar standard (Learned Hand – assessment process; Caparo test).

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[114] A.J. Verheij, Onrechtmatige daad (*translation: The unlawful act*) (Monographs of Private law no. 4) 2015/16, no. 16
[115] C.C. van Dam, Aansprakelijkheidsrecht een grensoverschrijdend handbook (*translation: Liability law, a cross-border handbook*), Boom 2000, p. 173 ff.
[116] Van Dam, 2000 op. cit. p. 174.
[117] Van Dam, 2000 op. cit. p. 175.
[118] M. Loth, *Climate change liability after all: a Dutch landmark case*, Tilburg Law Review: Journal on international and comparative law, 21 (2016), no. 1, pp 5-30, see p.16
[119] K.J.O. Jansen, GS Onrechtmatige daad (*translation: The unlawful act*), Book 6 Section 162 of the Dutch Civil Code, note 85.6.3
[120] Asser/Hartkamp&Sieburgh 6-IV 2015/75

Urgenda feels supported by the fact that the State has failed to present another, let alone a better standard of review.

8.96 These considerations about the more general nature of the hazardous negligence doctrine and the '*Kelderluik* criteria' must not be allowed to overshadow the fact that the extreme *dangers and risks* of climate change gave cause for Urgenda to institute these proceedings. For this reason alone, the hazardous negligence doctrine is relevant here: the entire case revolves around hazards and legal protection against dangers.
The dangers and risks are so great that the governments of 195 countries pledged (recently again in the Paris Agreement) that the emission of greenhouse gases must be phased out globally as soon as reasonably possible. They have expressed this realising full well that this is a major challenge of unprecedented proportions that requires a comprehensive and worldwide change in economies and societies that comes at a great expense. Nonetheless they agreed that this is what is necessary. This tells us something about the severity and extent of the dangers feared from a dangerous climate change.
The problem is that these pledges are not backed up by action, resulting in increasingly greater and inescapable dangers and risks, which applies all the more so to the Netherlands. This explains why Urgenda launched these proceedings.

- *The hazardous negligence doctrine: (2) climate change as a problem resulting from 'multiple causes' (the issue of 'the many hands') of dangers and risks*

8.97 As indicated by Urgenda earlier in this defence on appeal, liability law is tailored to the assessment of individual responsibility in one-on-one relationships, in which the cause and effect of conduct is clear-cut. Urgenda has also stated above that liability law therefore is not set up for 'class actions' and struggles with 'mass issues' and that climate change is the perfect example of an issue of mass causation, or put in more legal terms, a problem of multiple causes.

8.98 At those points in its defence on appeal, Urgenda also pointed out that the State has used this 'blind spot' in liability law to argue that Urgenda's action arising from an unlawful act does not meet the requirement of (demonstrable) damage within the meaning of Book 6 Section 95 of the Dutch Civil Code and does not meet the requirement of causality, and that this raises the question why the Dutch emissions would be unlawful at all if the Dutch emission level '*on its own' does* not cause any demonstrable damage and any '*sine qua non*' connection to global climate change is absent.
This concerns the heart of the State's defence against the State's legal obligation, as asserted by Urgenda, and against the accusation of 'hazardous negligence' that Urgenda puts forward against the State.

8.99 Urgenda will now discuss in more detail the issue of multiple causation, and the criteria damage, causality and unlawfulness in that context. Urgenda's argument not only relates to ground for appeal 25 of the State (in which the State complains about the application of the

hazardous negligence doctrine) but also to the State's other grounds for appeal in which the State complains that the damage requirement has not been met (ground for appeal 23) or the requirement of causality (ground for appeal 24).

8.100 From a legal point of view, climate change is a problem of the 'many hands', or of 'multiple causers'.

8.101 'Multiple causes' are deemed to exist when it is clear that an unlawful situation has arisen, for instance unlawfully caused damage or an unlawful infringement of interests, but it is unclear who *exactly* has caused the unlawful situation.
Which of the two shooters fired the deadly shot? At which of the three possible employers did the exposure to asbestos occur causing mesothelioma? Who is responsible for the bike theft: the custodian who left the bike outside unattended and/or the thief who stole the bike? A victim used unsound DES medication but cannot remember the name of the manufacturer: which of the many DES pharmaceutical manufacturers can be held liable for damage after the fact?

8.102 In all of these examples, the sine qua non causal link cannot be proven. But adhering to that requirement means that in these types of situations a victim of an unlawful violation of his rights and interests is barred from any form of judicial remedy or legal protection for no other reason than that legal protection in these situations did not fit in a legal doctrine that was created a long time ago and was developed in a time when society was simple and clear, without today's mass production and economies of scale.

8.103 In his conclusion (paragraph 18) in the DES ruling, Advocate General Hartkamp lamented the fact that private law,[121] geared as it is towards 'individual claim settlements' is poor at handling cases with multiple causes and/or multiple potential perpetrators.[122]

8.104 Advocate General Hartkamp proceeds to list in his conclusion[123] eight different forms (letters a to h) of multiple causation, in which the sine qua non causal link between the established damage on the one hand and the established unlawful conduct on the other hand, required for compensation, cannot be proven.
Hartkamp asserts that it would be unacceptable in society and it would harm the notions of fairness and justice that are prevalent in Dutch society if in such situations victims would be left empty-handed and the wrong-doers would get away scot-free with their unlawful conduct. In his conclusion in the DES ruling, Hartkamp shows that jurisprudence indeed does not accept that consequence, and that in cases such as these the sine qua non requirement must not be applied.

[121] Urgenda would like to point out what it has written earlier in this defence on appeal about the development of liability law: it was originally only tailored to damages and not judicial remedy.
[122] Supreme Court 9 October 1992, NJ 1994, 535
[123] Legal ground 20

One of those cases involving multiple causes that Hartkamp discerns in his conclusion, under the letter h., is that of multiple cooperative/cumulative causes and he uses the Supreme Court's Potash Mines (Kalimijnen) ruling as an example (Supreme Court 23 September 1988, NJ 1989, 743).

- *The hazardous negligence doctrine: (3) multiple cooperative/cumulative causes and the Potash Mines ruling*

8.105 'Multiple cooperative/cumulative causes' are deemed to exist when several parties each make small contributions to the damage, but all of the contributions put together inflict one major form of damage on the victim.[124]

8.106 The problem with multiple, cooperative causes is the fact that there are multiple causers. More specifically, the problem is that the contributions, each *on their own* insignificant, add up and cause very significant *total* damage when added together ('many a little makes a mickle'). From the perspective of the individual causer he has done little wrong[125]; from the perspective of the victim he has suffered great damage by the overwhelming number of causers who have each disregarded his interests.

8.107 Earlier on in this defence on appeal, Urgenda has explained in great detail – mainly based on the AR5 Synthesis Report – that the billions of daily emissions of greenhouse gases worldwide add up and that the issue of climate change is the sum total of these (cumulative) emissions. Therefore, from a legal perspective, climate change is a case of 'multiple cumulative/cooperative causes'.

8.108 A similar situation of 'multiple cumulative causes' occurred in the potash mines case. A great number of different parties, and furthermore located in several countries, discharged salt in the environment, namely in the river Rhine, thereby increasing its salt levels. It was established that there was a proportional relationship (in the words of the Supreme Court: [126] 'linear'), which meant that the salt levels of the Rhine increased in proportion to the amount of salt discharged, and – one step further in the causal chain – so did the crop damage of the Dutch farmers who used water from the Rhine to irrigate their crops.
In response to the high salt levels, the farmers decided to buy a desalination installation and they submitted a claim to one of the dumping parties, the French potash mines, to recover the costs of the installation.

8.109 At first glance it is already obvious that there are great similarities with the current Urgenda case.

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[124] Strictly speaking, there is no uncertainty about the causal link and this is therefore not a case of 'risk liability', which has started to play a significant role in mesothelioma jurisprudence.
[125] This is the perspective that the State constantly pushes: the State keeps hammering on the assertion that the Dutch emissions 'in on its own', compared to the worldwide total, are negligible and have virtually no effect, and that the State, alone, has done hardly any wrong.
[126] The court of appeal had explained in the preceding ruling (in legal ground 6.3) that it interpreted linear connection as proportional relationship.

In the Urgenda case, likewise, there is also a great number of dischargers, located in several countries, that discharge substances in the environment, namely greenhouse gases in the atmosphere, raising the concentration of greenhouse gases in the atmosphere.
As in the Potash Mines ruling, there is a proportional/linear relationship in the Urgenda case. After all, the concentration of CO_2 in the atmosphere increases in proportion to CO_2 emissions, and so – proportionally - increases global warming and – proportionally – increases the global damage as well as the risk of such damage – in the form of loss of lives, ecosystems, property, living environments and damage to other major interests. [127]

8.110 The French potash mines put forward the defence that the costs of the desalination installation would have been incurred without their dumping, because they asserted that the other parties' discharges alone would have raised the concentration of salt so much that acquiring a desalination plant would have been inevitable.
The State has put forward a virtually identical defence against Urgenda, namely that dangerous climate change will occur even without the Dutch emissions and that because of the emissions of the other countries alone, the CO_2 concentration would become so high that dangerous climate change is inevitable.

8.111 In his conclusion in the Potash Mines ruling, the Advocate General concluded in paragraph 8.8 that it appeared that the potash mines wanted to rely on the sine qua non doctrine, but

"*that it does not apply in cases of concurrent ('cooperative' cumulative) causes. (…) The intended defence could, after all, lead to the <u>unacceptable</u> consequence that no salt dumper would be held liable (…)*"
(underlining by attorneys)[128]

8.112 The Supreme Court held the following opinion.

- The Supreme Court noted in paragraph 3.3.1 of its ruling that the court of appeal had established that the Potash Mines case involved conflicting financial-economic interests (which suggests that when safety interests are at issue this influences the weighing of interests: see also below);
- The Supreme Court rules in paragraph 3.3.2 that the (due) care that has to be observed with regard to a discharge of substances depends on the nature, duration and extent of the damage inflicted on third parties and on the further circumstances of the case, including the nature of the interests involved; but that special importance is attached to

[127] Urgenda refers to the figure from the Summary for Policymakers from the AR5 Synthesis Report, discussed in great detail earlier in this defence on appeal, in which the proportional linear connection is established that exists between a) the cumulative total of emissions, b) the degree of warming and c) the increase in risks or damage ('Reasons for Concern').
[128] Nieuwenhuis, in an example in which two 'extra' people enter a lift, thereby exceeding the maximum permitted weight and causing an accident that would have not occurred if 'the other' had not also entered the lift, uses the same firm language: "*The outcome that neither of them is liable can, of course, not be defended.*" J.H. Nieuwenhuis, Onrechtmatige daden, Délits, Unerlaubte Handlungen, Torts, 2008, Kluwer, p.42

the fact that downstream users should generally be able to expect that a river is not excessively polluted by significant dumping.

- The Supreme Court continues that the court of appeal had not failed to correctly apply this standard of review when establishing that the potash mines acted unlawfully towards the farmers (paragraph 3.3.3).
- Regarding the causality defence of the potash mines, the Supreme Court notes in paragraph 3.5.1 that the farmers' damage was the foreseeable result of the *total* salt pollution; that the potash mines – in view of the proportional ('linear') connection between the discharges and salt concentration – partly contributed to the total salt pollution and that the potash mines therefore are liable *pro rata* for their part in the total damage inflicted on the farmers.

- *The hazardous negligence doctrine: (4) the significance of the Potash Mines ruling for Urgenda's action arising from an unlawful act against climate change*

8.113 Urgenda wants to clarify the relevance of the Potash Mines ruling to the outcome of the Urgenda case on the basis of four comments.

8.114 Firstly, Urgenda notes that the Supreme Court has ruled that according to *Dutch* law, a discharging party is also responsible and liable for the consequences of the discharges *outside* that discharging party's jurisdiction.

8.115 This implies that Urgenda is entitled to also allege the 'foreign' consequences of the Dutch emission level (the consequences of these emissions outside the Netherlands) against the State,[129] and that these 'foreign' consequences are taken into consideration in the assessment of the lawfulness or unlawfulness of the Dutch emission level.

8.116 The arguments the State wants to derive from the fact that it is already sufficiently protecting the Dutch interests against climate change with its adaptation measures – if correct in the first place, because adaptation goes hand in hand with mitigation – ignore that the State's responsibility and duty of due care do not stop at the national borders, but that it is a global responsibility and a 'common concern for mankind'.[130]

8.117 Secondly, regarding the question of lawfulness of the discharges that are challenged for judicial review, the Supreme Court questions first and foremost *whether the river as such* is

[129] National law thus is in step with the international-law principle of 'no harm', which requires the State to ensure that no activities are launched from its territory that result in serious consequences outside its jurisdiction.
[130] Regarding 'common concern' see further: N.J. Schrijver, Internationaal publiekrecht als wereldrecht (*translation: International public law as a world law*), 2nd edition, Kluwer 2014, p. 59. See also: J. Brunnée, Common areas, common heritage and common concern, in: The Oxford Handbook of International Environmental Law, Bodansky, Brunnée, Hey, (eds) Oxford University Press 2007, p. 550-573, in particular 564-567 with a specific reference to climate change. In the same sense also: P-M Dupuy, J. Viñuales, International Environmental Law, 2015, Cambridge University Press, p.84/85 who discuss the 'common concern for mankind' and the 'common concern of humankind'.

excessively polluted (this concerns the *total* salt pollution). If yes, it eo ipso[131] follows from this that the discharges that contributed to the *total* salt pollution are unlawful and that therefore the discharging party is liable.

8.118 Urgenda believes that the interest or legal right at stake here is indeed the integrity of the river (or the atmosphere) and its ensuing availability and suitability for 'normal' public use. If that integrity is violated by a cumulative sum of minor discharges, then *every* discharging party acts unlawful and is liable for that violation. Such an outcome is in accordance with the common sense of justice, also because the only alternative would have the "*unacceptable consequence*" that *no one* is liable.

8.119 So, regarding the *lawfulness* of the discharges, it is irrelevant whether the discharge *on its own* causes little damage (after all 'unlawfulness' and 'damage' do not coincide). What is important, however, is whether the discharge is socially unacceptable, in view of the context ('the further circumstances of the case'). That context is – both in the Potash Mines case and in the current climate change case – that *every* additional discharge <u>*by its very nature*</u> causes additional damage to an interest that is protected by law and that has already been seriously and unacceptably violated by similar discharges; a fact the discharging party knows or should have realised. *This* context makes the discharging unlawful and negligent and establishes liabity on account of contributing to causing considerable total damage.
The *conduct* can therefore be qualified as unlawful and that unlawfulness creates/establishes liability. The extent of the damage caused by the unlawful conduct '*of its own*' is irrelevant for *creating/establishing* liability.

8.120 Regarding the *extent* of the liability however, it was decided to be relevant that the dumping of the potash mines *on its own*caused merely a minor part of the total damage.
The Supreme Court ruled that in this case - that was characterised by multiple causation where every individual discharge had a linear/proportional causal effect on the magnitude of the total damage - every discharger is liable only for the share in the total damage that is equal to his share in causing the total damage.
The consequence of this is that a party is only liable for the damage it has caused, thus proportional liability, which is furthermore in accordance with the conditio sine qua non requirement.

8.121 <u>Thirdly</u>:
The Supreme Court considered in paragraph 3.5.1, almost casually, that the need for a desalination installation was a foreseeable ('to be expected') form of damage resulting from excessive (total) pollution of the river Rhine, so that proportional liability also covers this loss item.

[131] At least pparently so, because the Supreme Court does not elaborate on this further in the form of ideas or considerations.

8.122 The Supreme Court extended the proportional liability for excessive pollution of the river Rhine to proportional liability for *all* foreseeable consequences further down the causal chain of that excessive pollution of the Rhine. In doing so, the Supreme Court appears to apply the adequacy theory or the doctrine of reasonable foreseeability/attribution.

8.123 In view of this, it is relevant in the current case that the State knows, and also acknowledges, that a dangerous concentration of greenhouse gases in the atmosphere will certainly lead to dangerous climate change. While such a dangerous climate change will manifest itself in many damaging forms, the exact nature, place and time of these manifestations cannot be predicted yet. However, these dangers are considered to be so severe and potentially catastrophic on a global scale that amongst States and their governments universal consensus exists that a dangerous climate change has to be prevented. It is not just about (somewhat abstract or diffuse) interest of the atmosphere's integrity against degradation caused by emissions (even though Urgenda is entitled to protect this, too). It also (and mainly) concerns the protection against the dangers such a worldwide degradation of the atmosphere poses to mankind's living conditions; to safety and the conservation of his living environment; for the protection of humans and human society. For a more detailed discussion, see sections 3.53 – 3.65 in this defence on appeal.
For *all* of these – *by their very nature foreseeable* – consequences of dangerous climate change, regardless of the how, where, when and who, the State as co-causer therefore carries co-responsibility and liability. The serious consequences that by their very nature can be expected from dangerous climate change are taken into account in the weighing of interests and application of the *Kelderluik* criteria.

8.124 In the same context, Urgenda furthermore notes that the State is also liable for (as yet) unknown dangers resulting from climate change:

> *"he who fails to fulfil his obligations to take safety measures to avoid dangers known to him (…), is in principle also liable if the danger manifests itself in a manner or resulting in consequences he was unaware of. (…) For a broader context regarding the due care that can be expected in dealing with uncertain risks, see A.Ch.H. Franken, AV&S 2010/25."* [132]

8.125 All of this is relevant to the Urgenda case, because the State puts forward the defence that Urgenda fails to state and is also unable to state the *concrete* damage, within the meaning of Book 6 Section 95 of the Dutch Civil Code, caused by the Dutch emission policy. This defence fails to recognise that 'unlawfulness' and 'damage' do not coincide and that Urgenda has not claimed compensation. This defence therefore does not hold water.

8.126 Fourthly:
The proportional liability the Supreme Court has assumed in the Potash Mine ruling implies

[132] Asser/Hartkamp&Sieburgh, 6-IV, 2015/60, (p.66/67). The article by Franken referred to (AV&S 2010.25) in the quotation was extensively discussed by Urgenda in its Statement of Reply in the first instance (nos. 185-190) (pp 66-68). Urgenda requests the court of appeal to taken cognizance of those passages.

that every co-causer can be held liable for his share in the total damage caused, individually and proportionally.

8.127 The judicial protection of the aggrieved party against the co-causer could then consist of:

1) *compensation for damages after the fact* - at least, *if* damage has been incurred. The allowable compensation would concern a proportion of the total inflicted damage that is proportional to the share in the damage caused (this is the Potash Mines case);
2) a *preventative order or prohibition* - in case of an *imminent* infringement of interests, the aggrieved party/interested party could claim that the co-causer cease his proportional share in the infringement of the interests or mitigate it to acceptable proportions. The legislative starting point is that a claim against an imminent wrong must be allowed – see the wording of Book 3 Section 296 of the Dutch Civil Code.
   Such a preventative order that seeks to provide judicial protection against an imminent wrong is exactly what Urgenda claims in these proceedings.
   Urgenda also believes that such an order is the only effective tool for providing judicial protection. The damage associated with dangerous climate change is such that it must be prevented with *every* effort (every *little* bit helps). Compensation is not a suitable alternative for such damage, apart from the fact that such compensation will exceed anyone's financial capacity;[133]
3) a *declaratory decision* - the interested party may request a declaratory decision that the co-causer acts unlawfully towards him on account of his share in the unlawful infringement of his (the interested party's) interests.
   In these proceedings, Urgenda views such a declaratory decision as a remedy of last resort if constitutional objections against the reduction order requested by Urgenda dictate otherwise, which has been argued by the State. Urgenda would then only have the moral high ground – which is not its goal – and will have to wait and see if the political branches of the government authority will do what they *should* do *by law*, according to the judicial branch of government authority.
   Urgenda believes that the interests in this case require a higher and more effective level of judicial protection than a mere declaratory decision.

The Potash Mines ruling has shown: in cases of collective, cumulative causes, one must not hide behind the actions or omissions of others. One remains individually responsible

[133] Regarding the insufficiency of compensation, see for more details Urgenda's Statement of Reply in the first instance, nos. 179-184 (pp 63-66). Urgenda requests the court of appeal to take cognizance of these passages, which moreover focus attention on the fact that in issues regarding climate-related damage, the requirement of causality stands in the way of actions for damages. The consequence of this is that if an action for a court order or injunction against climate change were not allowable, the courts would not be able to provide any judicial protection against the Dutch government's failing and unlawful climate policy. Urgenda would therefore like to remind the court of the writings of Van Dam: everyone is entitled to an effective judicial protection of his rights and interests, also against the government – and in in this sense liability law forms part of the constitutional fabric of a state under the rule of law.
What sluggish government intervention to take timely preventative measures against risks and dangers that are known can lead to is already convincingly (and poignantly) clear from the asbestos issues. See L. Enneking and E. De Jong, Regulering van onzekere risico's via public interest litigation (*translation: Regulation of uncertain risks via public interest litigation*), in NJB, 2014, issue 23, p. 1542: "A ban on asbestos in 1965 – instead of in 1993 – would have saved 41 billion Dutch guilders and 34,000 victims."

for one's own actions and omissions.

8.128 The four comments on the relevance of the Potash Mines ruling to the current climate case lead Urgenda to the following conclusion.

8.129 Where the district court considered in paragraph 4.79:

"After all, it has been established that any anthropogenic greenhouse gas emission, no matter how minor, contributes to an increase of CO_2 levels in the atmosphere and therefore to hazardous climate change. Emission reduction therefore concerns both a joint and individual responsibility of the signatories to the UNFCCC. In view of the fact that the Dutch emission reduction is determined by the State, it may not reject possible liability by stating that its contribution is minor, as was also adjudicated, mutatis mutandis, in the Potash Mines ruling of the Dutch Supreme Court (HR 23 September 1988, NJ 1989, 743). The rules given in that ruling also apply, by analogy, to the obligation to take precautionary measures in order to avert a danger, which is also the subject of this case. Therefore, the court arrives at the opinion that the single circumstance that the Dutch emissions only constitute a minor contribution to global emissions does not affect the State's obligation to exercise care towards third parties."

it touches on the heart of the matter in this case: the State's individual responsibility for the Dutch contribution to causing unacceptable and dangerous climate change. Urgenda believes that this opinion of the district court is not only desirable and needed from the standpoint of effective judicial protection, but also is in accordance with the prevailing doctrine and established case law.

8.130 Urgenda would like to briefly explain below – hopefully superfluously – that the opinion of the district court is in accordance with the doctrine.

8.131 Prior to the Potash Mines ruling it was assumed – and this is also codified in Book 6 Section 102 of the Dutch Civil Code – that if damage has been caused by multiple causers, a regime of joint and several liability applies to each individual causer.[134] Particularly as a result to the Potash Mines ruling, most authors concluded that joint and several liability went too far in these types of cases. From a doctrinal point of view, the option of pro rata liability or proportional liability instead of joint and several liability is defended because in such situations not all parties involved have caused the 'same (total) damage', as is required in Book 6 Section 102 of the Dutch Civil Code, but merely a portion of the damage, so that each party is (only) liable for their individual contribution to the total damage caused.

8.132 Proportional liability has become generally accepted in doctrine and case law since the Potash Mines ruling, see Boonekamp, GS Schadevergoeding (*translation: Damages*), Book 6 Section

[134] See, for instance, Supreme Court 4 November 1955, NJ 1956/1 (collision). The idea of joint and several liability is based on victim protection: the victim can suffice with challenging one injuring party for all of the damage; the liable parties have to resolve among themselves who is liable for which part; the victim is not burdened with that trouble.

102 of the Dutch Civil Code, note 6.2.3. with an extensive literature review, and note 6.2.4. with jurisprudence. Regarding proportional liability in these cases, see also extensive information from Akkermans[135], who adds that neighbouring countries have reached the same solution.

8.133 The Potash Mines ruling therefore shows that in cases of collective, cumulative causes one cannot hide behind the actions and omissions of others, but remains individually responsible for their own actions or omissions.

Individual responsibility for contributing to climate change: the opinion of the US Supreme Court in Massachusetts v EPA

8.134 In this context, Urgenda also wishes to quote (again, [136] but now more extensively) from the considerations of the US Supreme Court in the (famous) Massachusetts v. Environmental Protection Agency (EPA) ruling of 2 April 2007 (**Exhibit 49**) in which the Supreme Court rigorously and in a principled manner brushed aside the defence 'my individual actions don't matter, because my contributions are minor':

"But EPA overstates its case. Its argument rests on the erroneous assumption that a small incremental step, because it is incremental, can never be attacked in a federal judicial forum. Yet accepting that premise would doom most challenges to regulatory action. Agencies, like legislatures, do not generally resolve massive problems in one fell regulatory swoop. ….. They instead whittle away at them over time, refining their preferred approach as circumstances change and as they develop a more nuanced understanding of best how to proceed. <u>That a first step might be tentative does not by itself support the notion that federal courts lack jurisdiction to determine whether that step conforms to law</u>. While it may be true that regulating motor-vehicle emissions will not by itself reverse global warming, it by no means follows that we lack jurisdiction to decide whether EPA <u>has a duty to take steps to slow or reduce it</u>… <u>Because of the enormity of the potential consequences associated with man-made climate change, the fact that the effectiveness of a remedy might be delayed (...) is essentially irrelevant</u>. Nor is it dispositive that developing countries like China and India are poised to increase greenhouse gas emissions substantially over the next century: <u>A reduction in domestic emissions would slow the pace of global emissions increases, no matter what happens elsewhere</u>."
(underlining by attorneys)

This means the US Supreme Court also tests the lawfulness of government policy[137] *as such*, and does so separately from the question if the claimed policy measure is effective worldwide.

[135] A.J. Akkermans, Veroorzaking van deelschade (*translation: Causing proportional damage*), WPNR (1992) 6043, p.249 et seq.
[136] See Urgenda's summons in the proceedings in the first instance, section 394
[137] EPA is a governmental agency and in the Dutch context would be an independent government body with regulatory powers. In the Massachusetts v. EPA case, EPA was reproached for failing to adopt adequate regulations ('failure to regulate' – which in the Dutch context would boil down to requesting a law-making order).

According to the US Supreme Court, it is even 'essentially' irrelevant that the measure claimed from EPA was alleged to be hardly effective in the fight against climate change (or, as the State formulated in its Statement of Appeal: there is no relevant causal link between the Dutch emissions and the development of dangerous climate change). The enormity of the risks of climate change convinced the US Supreme Court that *every* little bit helps. It is about the legal obligation to do the right thing.

8.135 In fact, there is no real difference, not in approach nor in the outcome, between the cited considerations of the US Supreme Court and paragraph 4.79 of the district court, cited above.

8.136 Both courts state that the government cannot hide behind the actions or omissions of other parties, and that the government has individual responsibility, and a legal obligation 'to do the right thing'.
Urgenda believes that this is such a fundamental and also self-evident notion of 'what is right' and 'just' that the decisions of both courts strongly appeal to a fundamental sense of justice. Urgenda is of the opinion that both judicial decisions fit in closely with a general shared and fundamental sense of justice of what the State or EPA as the responsible government body *should* do according to the law when it comes to the special dangers of climate change.
It is this underlying fundamental sense of justice which enabled the district court – and the same can be said about the ruling of the US Supreme Court – in the eyes of Loth[138] to clear the doctrinal hurdles '*rather straightforwardly and convincingly*'.

8.137 In this context, Urgenda wishes to note that virtually all objections raised in the media and literature against the district court's judgment were almost exclusively doctrinal in nature and concerned the separation of powers. But as far as Urgenda can tell, hardly any criticism has been published about the outcome of the district court's judgment as such, namely that the

[138] Loth is not alone in this. The judgment attracted so much attention not only because the issue of climate change is so serious and urgent and therefore receives plenty of attention – although this does play a role – but mainly because the district court based its judgment on doctrines, notions and legal principles that are not specifically Dutch, but are well-known in every modern legal system and therefore can also be applied elsewhere. According to some commentators, the judgment's relevance can hardly be overstated.
Michael B. Gerrard, Andrew Sabin Professor of Professional Practice, Director, Sabin Center for Climate Change Law, Columbia Law School, USA and in that capacity administrator of a database that attempts to map out climate change litigation across the world (in late 2013, more than 420 US rulings and 173 from the rest of the world) has written: "*Outside of the United States, the volume of climate-related litigation is much smaller, and it has tended to involve only particular projects or the administration of emission trading systems: there have been very few cases that have broad significance to GHG regulation. However, a decision was issued by a Dutch court in June 2015, which, if it survives appeal and is followed elsewhere, will have major importance.*" See Michael B. Gerrard, Meredith Wilensky, The role of national courts in GHG emissions reductions, in 'Climate Change Law', Elgar Encyclopedia of Environmental Law, Eds Daniel A. Farber, Marjan Peeters, p. 359, Edward Elgar Publishing, Cheltenham UK, 2016.
In the same publication, Christina Voigt, Professor University of Oslo, Department of Public and international law (and involved in the Paris Agreement as negotiator representing the Norwegian government) also names the Urgenda judgment as an example of a 'standard of care' for states or governments, which the ICJ could arrange on an international level. See Christina Voigt, 'The potential role of the ICJ in climate change related claims' in the cited publication, p. 164.
Both editors wrote in the concluding contribution, 'The emergence of global climate law' p. 694-695: "*However, a few court decisions from different jurisdictions stand out for their consequences for more ambitious governmental policies. (…) Another example may turn out to be the 2015 civil court decision in the Netherlands ordering the state to cut Dutch annual GHG emissions by 25 per cent to 40 percent of 1990 levels at the end of 2020.* "

State should reduce more than it currently does; on the contrary. This should be recognised as noteworthy for answering the question whether the district court was right in ruling that the State has a legal obligation to reduce the Dutch emission more than it currently does and intended to.

*Ground for appeal 21: 'Reflex effect'**
**[See also the explanatory note at 8.7 above]*

General

8.138 In its ground for appeal 21, the State complains (Statement of Appeal 14.7 – 14.22) that the district court consistently used a reasoning its considerations 4.43, 4.44, 4.46. 4.52 and 4.55 through to 4.63 of the judgment which the district court dubbed 'the reflex effect' to nonetheless use provisions and standards to specify the open standard of societal propriety from Book 6 Section 162 of the Dutch Civil Code, even though they do not have a direct effect within the meaning of Article 93 of the Constitution. The State opposes this 'reflex effect' and alleges that the district court thus used an incorrect legal review framework.

8.139 Urgenda refers to the section in this defence on appeal in which it has extensively discussed the doctrine of the reflex effect to specify the standard of due care from Book 6 Section 162 of the Dutch Civil Code. Urgenda concludes that insofar as the State complains that the district court incorrectly applied that doctrine or created its own version of it (the wording of the State and the deliberate usage of inverted commas with the word 'reflex effect' appears to suggest the latter – see Statement of Appeal 14.14), that that complaint is incorrect.

8.140 In Statement of Appeal 14.17, the State complains that the reflex effect assumed by the district court of international-law provisions without a direct effect could discourage the State as well as other states from entering into treaties.
This remarkable comment is not substantiated by the State in any way, and Urgenda finds it not very credible.

8.141 After all, states – also the Dutch State – are expected to harmonise their national legal systems with the international legal system according to applicable national and international law, regardless of whether they hold directly applicable provisions ('provisions binding on all'). It is the express *intention* to have international law extend to the Dutch legal system: that is an international law axiom.
It is self-evident that a Dutch court would rule that significance should be attached to this international obligation in the process of determining what the State should do according to the Dutch legal system. Again, it is also completely in accordance with the intention of international law to bring national law into compliance with international law.
Why the State alleges that the latter is not the intention, and why it would deter the State from entering into future treaties, or why this would deter other states from concluding treaties with the Netherlands, is incomprehensible without a further explanation, which the State did not submit.

The elements of international climate policy to which the district court attached significance in assessing the State's climate policy.

8.142 In ground for appeal 21, the State not only opposes the doctrine of the reflex effect as such, but also the separate elements of international climate policy which the district court included – via the reflex effect – in specifying the standard of due care in society which the State must observe. Urgenda will now discuss those separate elements.

Article 2 UNFCCC

8.143 In Statement of Appeal 14.23 through to 14.27, the State argues that Article 2 UNFCCC does not have a reflex effect.

8.144 Judging by its arguments, the State appears to assume that the reflex effect is a feature that an international provision has or does not have.
But as Urgenda has set out above, this assumption is incorrect. Whether and to what extent an international provision has 'a reflex effect' and affects the Dutch legal system is expressly not a feature of such a provision.
The Dutch court decides whether an international law provision has a reflex effect in a specific case. The Court must decide whether and if so, how much, authority and meaning it attaches to that provision when being called upon to set the 'standard of care' that is required of the Dutch State with regard to Dutch emissions.

8.145 The State then complains that the wording of Article 2 UNFCCC is too general and contains too few specific obligations for it to be applied as a legal standard. This complaint fails solely on the ground that the State obviously wants to use the same criteria for 'reflex effect' and 'direct effect', which is incorrect considering what has been previously mentioned regarding the functioning of the 'reflex effect'.

8.146 More generally speaking, the State disregards in ground for appeal 21 that a concrete (legal) standard is not required for its application in the Dutch legal system (compare to, for instance, the application of the not very specific ECHR concepts of freedom of expression and the right to own property). In addition, (less specific) legal principles (generally formulated ethical beliefs) play a major role in the national legal system. The legal principles laid down in international legal instruments specify the standard of due care for government activities. The provisions also express what society considers desirable or due care.
It is in the latter sense that the district court, bearing in mind the decision it had to take in these proceedings, attached significance to – and was right for doing so – the principles and objectives of international climate policy identified by the court.
The district court did nothing more or less and insofar as the State argues that this is not the case, its complaint lacks the appropriate factual substantiation.

Article 3 UNFCCC

8.147 That which Urgenda has stated in the preceding three sections also applies, mutatis mutandis, to the State's complaint that the district court incorrectly assigned reflex effect to Article 3 UNFCCC and to the general legal principles that have been 'codified' in that provision so that they now form part of the international legal system regarding climate change.

8.148 In the same context, the State complains (Statement of Appeal 14.31) that the district court fails to indicate how it arrived at its clarification of the principles in Article 3 UNFCCC (the principle of fairness, the precautionary principle and the sustainability principle).

8.149 Urgenda is of the opinion that the meaning of the principles from the UNFCCC are made sufficiently clear by their wording. Not only this, the same principles have been named and applied for decades in other international law sources and are discussed in all handbooks. Moreover, principles are *generally* formulated – as has been stated above – ethical beliefs whose legal relevance is determined by their inclinations and their relevance, and do not centre or depend on dogmatic commas or legal quibbling in their exact formulation. Urgenda cannot understand what the district court should have explained further.

8.150 Insofar as the State wants to argue that the district court's interpretation is incorrect, the State should have at least explained how those principles should be interpreted. However, since the State has failed to do so, which is significant enough, it has insufficiently substantiated this complaint.

8.151 For the sake of completeness, Urgenda will nonetheless enter into evidence the 'Legal Principles relating to climate change' of the International Law Association, which were adopted by Resolution 2/2014 during the 76^{the} Conference of the International Law Association (7-11 April 2014) in Washington (**Exhibit 132**). Urgenda will submit both the adopted version of the text and the (official) version with commentary.

8.152 The ILA-Legal Principles are authoritative[139] and can be helpful with correctly interpreting the legal principles stated in Article 3 UNFCCC and to which the court has attached significance. The ILA Climate Change Principles deal with, among other things:

- in Article 3: the relationship between the 'sustainability principle' and 'climate change' (as a 'common concern for humankind', which according to the commentary covers the current and future generations);
- in Article 4: the relationship between 'equity' (including expressly – in paragraph 2 – the interest of future generations) and 'climate change';
- in Article 5: the principle of 'Common but Differentiated Responsibilities and Respective Capabilities' in the context of climate change;
- in Article 7: the relationship between the 'No Harm' principle and the 'prevention principle'.

[139] Article 38 of the Statute of the International Court of Justice (hereinafter: the ICJ Statute) identifies as tool of international finding of law 'the teachings of the most highly qualified publicists'. The work of the ILA is considered (highly) authoritative. See N.J. Schrijver, Internationaal publiekrecht als wereldrecht (*translation: International public law as a world law*), 2nd edition, Boom, 2016, p.46/47. In the same context: P-M. Dupuy, J.E. Vinuales, International Environmental Law, 2015, Cambridge Univ.Press, p. 35

'No Harm' principle

8.153 The State also complains (Statement of Appeal 14.40 through to 14.46) that the district court incorrectly assigned reflex effect to the 'no harm' principle. Urgenda refers to that which it has previously noted about the reflexeffect in general and believes that this is sufficient.

8.154 The State furthermore disputes that it allegedly acted in violation of the no harm principle. But the State does not deny that the Dutch emissions are also spreading beyond Dutch territory, nor that the Dutch emissions contribute to climate change, which will have a devastating impact globally if all emissions – this includes the Dutch emissions – are not urgently and drastically phased out to zero. This proves the relevance of the no harm principle as a standard to assess the Dutch emission level.

8.155 Incidentally, the State appears to assign a too limited scope to the no harm principle. In Statement of Appeal 14.43, the State implies that the starting point of this principle is that no significant damage must be inflicted on the territory of another state. This is incorrect. As Urgenda has set out in section 164 ff. in the summons in the proceedings in the first instance, Principle 21 of the Declaration of Stockholm 1972[140] contains the obligation, as a corollary of the no harm principle, that a state must not cause damage outside its territory, which also includes 'environmental damage' beyond its national jurisdiction (so that this is not limited to damage to property in another state's territory):

"*States have, in accordance with the Chart of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction.*"

8.156 This principle was then endorsed as a basic rule of liability by the General Assembly of the United Nations.[141] The rule was also detailed further in various conventions, such as Principle 2 of the Declaration of Rio regarding the environment and development.

8.157 Although the no harm principle initially was only intended for damage caused to the territory of another state, it has since developed into an international prevention principle. For instance, in its "Advisory opinion on the legality of nuclear weapons" and with a reference to Principle 21 of the Declaration of Stockholm, the ICJ ruled as follows:

"*The existence of the general obligation of states to ensure that activities within their jurisdiction and control respect the environment of other states or of areas beyond national control is now part of the corpus of international law relating to the environment.*"
(underlining by attorneys)

[140] Declaration of Stockholm of 6 July 1972, UN Dock A/Conf. 48/14.
[141] International responsibility of states in regard to the environment, UNGA Res. 2996 (XXVII).

8.158 The ICJ also confirmed the prevention principle in the Pulp-Mills case, which the State itself quotes, explaining that it is founded on the no harm principle.[142]

Article 191 TFEU, the ETS Directive and the 'Effort-Sharing Decision'

8.159 In 14.47 through to 14.54 of its Statement of Appeal, the State complains that the district court factored in to its assessment of the case Article 191 TFEU, the ETS Directive and the Effort-sharing Decision.
The State's argument reveals that it is not concerned with the content of these elements of Community law, but with the district court's application of the doctrine of reflex effect. Urgenda refers to that which it has set out above regarding this.

Articles 2 and 8 ECHR

8.160 The same applies to the significance the district court attached to the doctrine of the reflexeffect regarding Articles 2 and 8 ECHR, which is the subject of the State's complaints in Statement of Appeal 14.55 through to 14.60. The State does not complain about what the district court discussed regarding the content of these provisions in relation to climate change, but merely about the fact that the district court attached significance to these provisions (through the reflex effect) in order to establish the legal obligations of the State and what its duty of care is in the specific case at hand.

8.161 As has been stated above, Urgenda is of the opinion that the district court incorrectly held that Urgenda cannot rely directly on Articles 2 and 8 ECHR, for which Urgenda refers to its cross-appeal.

8.162 Urgenda arrives at the conclusion, based on all of the above, that the State's ground for appeal 21 was presented incorrectly and is unsuccessful in all elements.

Ground for appeal 25: Hazardous negligence doctrine

- *General*

8.163 In answering the question whether the State has a legal obligation to more strongly reduce the Dutch emissions, or ensure they are reduced more strongly, the district court not only specified the standard of due care which can be required from the State based on international climate policy, to which the State has committed, and based on the starting points and principles stated therein –via the doctrine of the reflex effect, but also specified the standard of due care which can be required from the State based on the hazardous negligence doctrine as has been developed in jurisprudence, while making use of six factors,

[142] The passage the State quotes (Statement of Appeal 14.43) as the relevant consideration of the ICJ was not intended by the ICJ as a generally applicable legal ruling that limits the protective scope of the no harm principle to damage to the territory of another state.
Insofar as the State wants to imply such a thing, this would be incorrect. In its ruling, the ICJ only wanted to explain the meaning of the prevention principle ('as a customary rule' which is based on the no harm principle) in the context of the specific case about which the ICJ formulated a decision and which entailed actual damage being inflicted on the territory of another state.

which are discussed in more detail in the judgment.

8.164 The State complains (Statement of Appeal 14.97 through to 14.113) that the hazardous negligence doctrine and the six factors that the district court used in that context are an incorrect standard of review. The State believes that the 'real' hazardous negligence doctrine exclusively covers cases of concrete damage within the meaning of Book 6 Section 95 of the Dutch Civil Code, and not the 'hypothetical' damage to which Urgenda objects. Furthermore, so argues the State, the hazardous negligence doctrine is not the right standard of review because the Dutch share in the cause of global climate change is limited and *by itself* does not lead to dangers or risks.

8.165 Urgenda has already extensively discussed all of these arguments earlier in this defence on appeal. Referencing these discussions, it is of the opinion that it has proved the State's arguments incorrect.

8.166 Not only does the State complain that the district court applied the hazardous negligence doctrine as an review framework, but also about its application based on the six factors set by the district court. Urgenda will now discuss these numerous separate complaints of the State.

- *Factors (i-iii): the nature and scope of the damage resulting from climate change, the knowledge and foreseeability of the damage and the likelihood that dangerous climate change will materialise*

8.167 In paragraph 4.65, the district court considered that, in brief, since the parties agree that the current global emissions and reduction targets are insufficient to reach the 2 °C target, the State has a duty of care to take measures in its territory to prevent dangerous climate change. The district court ruled that far-reaching reduction measures are therefore necessary and also urgent, because drastic changes to social systems are implemented very slowly and that without such far-reaching and urgent reduction measures it will become impossible in several years, around 2030, to achieve the 2 °C target. On account of these factors and in view of the severe risks of dangerous climate change and also because the State has known of these risks since 1992 but definitely since 2007, the district court found that the State (currently) has a compelling duty of care to prevent dangerous climate change.

8.168 The State has put forward several complaints against this.

* The State complains (Statement of Appeal 14.116 - 14.117) that the district court failed to specifically explain what 'dangerous climate change' is.

8.169 This complaint can hardly be taken seriously. The district court clearly reference the 2 °C target that must be obtained in order to prevent dangerous climate change.

8.170 In determining the meaning of 'dangerous' climate change, the district court has used the definition that has been agreed on and used by the State and the 194 other parties to the UNFCCC for decades. Dangerous climate change, in the sense of Article 2 UNFCCC, has long since been taken to mean – by climate scientists and international, European and national

politicians – climate change that involves a (global mean) warming of more than 2 °C in the year 2100.

8.171 That the district court has joined this international consensus is apparent from the many sources the district court stated in part 2 'The facts' of its judgment (see paragraph 2.49 (Cancun Agreements 2010), paragraphs 2.50, 2.51, 2.56, 2.60, 2.61, 2.62, 2.63, 2.64, 2.68, 2.72, 2.73, 2.74 and 2.78).

8.172 But this consensus has changed since the judgment, but not in a way that benefits the State. Urgenda will discuss this below.

8.173 Urgenda believes that the State's complaint that it is unclear what the district court means by 'dangerous' climate change is invalid.

* The State also complains (Statement of Appeal 14.118 and 14.121) that the Dutch emissions are hardly relevant to global warming and in respect to which 'far from decisive'. Based on the Potash Mines ruling, Urgenda has explained why this is irrelevant to the State's individual responsibility and duty of care. In Massachusetts v EPA, the US Supreme Court came to a similar conclusion, which Urgenda has already shown.

* The State complains (Statement of Appeal 14.119 – 14.121) that several reduction scenarios can be implemented – including scenarios in which the Netherlands reduces less than 25%-40% by 2020 relative to 1990 – with which to keep the 2 °C target within reach. The State infers from that that 'it is not an absolute necessity for the Netherlands' to achieve this 25%-40% reduction.

8.174 This argument of the State is correct when for instance – by way of such an alternative reduction scenario – all other countries in the world will cease all of their emissions as of tomorrow so that the 2 °C target stays within easy reach, even if the Dutch emission were to only rise from now until 2020 rather than decrease by 25%-40% relative to 1990.
Aside from the question if this is a realistic scenario, this argument comes down to the fact that when all the other countries will do their utmost and double their efforts (or even more), the Netherlands can sit back and do nothing while keeping the 2 °C target within reach.[143] When viewed from this angle, it is indeed not '*an absolute necessity*' for the Netherlands to achieve a 25%-40% reduction by 2020.

8.175 But the relevant criterion is not whether there is an *absolute necessity* to reduce Dutch emissions by 25%-40% in 2020 and it was not the criterion applied by the district court. The relevant criterion, which the district court used, is whether the State has an *individual* legal

[143] Urgenda does not overstate this. Earlier in this reply Urgenda referred to – in a footnote – the CBS report of November 2016 which evaluates the progress of the Netherlands regarding the Sustainable Development Goals. Urgenda stated that according to the report, the Netherlands ranks 25th (of 28 EU countries) in the area of combating climate change and reducing CO2 emissions. The Netherlands is 'the dirty man' of the EU and contributes excessively to the development of dangerous climate change. Whenever the State claims that from an international point of view, the EU is the frontrunner in the area of climate policy, it effectively is adorning itself with borrowed plumes. The State acts like a free rider profiting from the efforts of other countries.

obligation to achieve a minimum reduction of 25%-40% in 2020.

8.176 In paragraphs 4.64 and 4.65, the district court explained it believes the State has an *individual*, compelling duty of care to take measures against dangerous climate change.

8.177 Such an individual legal obligation does not alter the fact that the global 2 °C target might remain achievable if the State refrains from taking any action at all, for instance because other countries will put in extra reduction efforts enabling the State to 'free ride'.

8.178 The State's defence that the 2 °C target can also remain within reach if the State reduces less than 25% in 2020 ignores the crux of the matter: what the State's *individual* legal obligation is in preventing dangerous climate change is a separate issue from the efforts other countries put in and the effectiveness of those efforts.

8.179 The State's legal obligations cannot be seen as being separate from the *consequences* for the efforts of other countries. If the Netherlands does not have to make any effort because all other countries supposedly do more than enough, this would reward free-rider behaviour. Such an attitude could persuade other countries from evading their responsibility, especially if more countries would adopt such an attitude. Why would they devote more time and make (substantial) investments if the Netherlands does not?

8.180 Earlier, Urgenda announced that it would revisit the Paris Agreement and what it means for the definition of 'dangerous' climate change. It will do so below.

8.181 Up until the Paris Agreement, the universal consensus was that 'dangerous' climate change was one in which the planet would have warmed by more than 2 °C in the year 2100 relative to the pre-industrial era.

8.182 Based on evolving scientific knowledge, as laid down in the AR5 report and particularly in the AR5 Synthesis Report (**Exhibit 104**), virtually all countries concluded, and in December 2015 entered into a legally binding treaty – the Paris Agreement, that global warming must stay 'well below' 2 °C until 2100 in order prevent 'dangerous climate change' within the meaning of Article 2 UNFCCC, and to even strive to limit warming to 1.5 °C.

8.183 This lower temperature goal agreed on in Paris implies that the available carbon budget that can still be emitted 'safely' is smaller than previously assumed.
This also implies that the reduction efforts required to stay within the 2 °C budget are insufficient to stay 'well below' the 2 °C budget, let alone within the 1.5 °C budget. Under the current global emissions, the 1.5 °C budget will be depleted in eight years, so that global emissions after that period would have to be and remain zero.
Such a reduction scenario is, of course, entirely unfeasible, but it is the perspective that should be adopted when looking at Urgenda's claim that the State must have reduced the Dutch emissions (per capita one of the highest in the world) by at least 25%-40% in 2020.

8.184 The Paris Agreement and the 'tightened' danger norm contained therein forces all countries to (substantially) intensify and accelerate their reduction efforts.

Not only does this apply to their reduction efforts after 2020, but also expressly in preceding years. It is literally stated in the COP decision with which (the text of) the Agreement was adopted, and not just in the preamble but in the COP decision itself. Chapter IV 'Enhanced action prior to 2020' is even entirely devoted to the subject: see 1/CP.21 (**Exhibit 107**). This call was repeated one year later at the climate summit in Marrakech (**Exhibit 143**).

8.185 The Paris Agreement thus reinforces and enhances the cogency of the district court's decision that the Dutch State has an individual, national legal obligation to have reduced the Dutch emissions by at least 25% in 2020 relative to 1990; the necessity and urgency of this legal obligation has become even more relevant following the delivery of the judgment.

- *Factor (iv): the nature of the actions (or omissions) of the government*

8.186 The district court held (paragraph 4.66) that the State has the capacity to control the collective Dutch emission level and, in fact, actually exercises that control. In an international setting, especially the UNFCCC, the State furthermore knowingly and wilfully accepted this responsibility for the collective emission level from Dutch territory and the obligation to reduce the Dutch emission level to prevent dangerous climate change. Moreover, under Article 21 of the Constitution, the State has a duty of care towards protecting the environment. These facts and circumstances provided the district court with the substantiation to assume that the State has a major obligation and responsibility to reduce the Dutch emissions.

***** The State complains (Statement of Appeal 14.124 – 14.126) that the hazardous negligence doctrine only applies to those who actually cause the concrete danger.

8.187 Urgenda believes that the State interprets the hazardous negligence doctrine too narrowly and refers to what it has put forward, in general terms, about the hazardous negligence doctrine. By way of illustration, Urgenda points out that in the Enschede fireworks disaster case, a possible liability of the State as a potentially failing supervising authority was also checked against the hazardous negligence doctrine.[144]

8.188 The crux of the matter is: the question whether the State is the one that has produced emissions itself is only relevant for the question whether the State, even if it does not produce the emissions itself, nevertheless has a special responsibility and duty of care for the total amount of emissions produced in the territory under its control.
The district court ruled, correctly and on valid grounds, that the State does indeed have such a responsibility and major duty of care.
Regarding the question whether the State is failing in exercising *this* responsibility and *this* duty of care vis-à-vis the total amount of emissions produced by another party in its territory, it is irrelevant that the State itself does not produce these emissions. The State fails to recognise this.

***** The State complains that the district court was wrong to assume that it has control over *all* greenhouse gas emissions (Statement of Appeal 14.128, 2nd line: italics by the State) produced

[144] Supreme Court 9 July 2010, ECLI:NL:HR:2010:BL3262

in the Netherlands.

8.189 This complaint lacks a factual basis, because this is not what the district court stated. The district court stated that the State has the capacity to exercise control over the collective Dutch emission level.

8.190 The fact that the State *is capable* of exercising control over *the entirety* of emissions, as determined by the district court in paragraph 4.66, is not the same as 'exercising *effective* control over *all* emissions' and '*actual* control over the *specific* conduct of *all* individuals and companies in the Netherlands'. The State attempts to distort the words and intentions of the district court.

8.191 What the district court meant is that the State has sufficient control over the collective Dutch emission level to justify considering the State liable for failure to meet the 25% reduction in 2020. This intention is apparent from paragraph 4.87 in the judgment, in which the district court discusses the attribution requirement and refers to '*the aforementioned considerations regarding the nature of the act (which includes the omission) of the government*', which can only refer to paragraph 4.66 which is being discussed. In paragraph 4.87, the district court considered the following:

"*From the aforementioned considerations regarding the nature of the act (which includes the omission) of the government it ensues that excess greenhouse gas emission in the Netherlands that will occur between the present time and 2020 without further measures, can be attributed to the State.*"

The district court therefore held that the State has sufficient control over the total volume of Dutch emissions to be able to achieve the 25% reduction of that volume, as requested by Urgenda, and to be held liable for emissions in excess of that amount. Urgenda believes that this opinion is correct and, by way of illustration, refers to the examples of measures that the State could take, see section 4.21-4.30 of this defence on appeal. The State has also not convincingly argued why this opinion is incorrect. The State's defence that it does not control *all* Dutch emissions misses the mark completely.

8.192 The fact that the State knowingly and wilfully accedes to an international treaty in which it accepts responsibility for the collective Dutch emission level and also accepts responsibility to reduce these emissions by as much as is needed to prevent dangerous climate change (in 1992 it acceded to the UNFCCC and in 2016 again when it signed the Paris Agreement, *after* the district court's judgment) makes the State's complaint even more implausible. The State's objection (Statement of Appeal 14.130) that it only accepted this responsibility and liability towards other countries and not towards parties such as Urgenda misses the main point, namely: that the State has accepted liability or responsibility for the collective Dutch emission level, which presupposes that the State itself believes that it has sufficient power and control over the collective Dutch emission level to be able to meet this responsibility and liability.

8.193 Urgenda understands that the State mainly attempts to hide behind the emissions that fall under the ETS in its ground for appeal. But this would be wrong.

The State has acknowledged that the ETS does not function properly (incidentally, is the State not partially responsible for this?) because the systems has created a great surplus of emission allowances.
Due to this surplus, there is no actual limitation on emissions for companies in the European ETS sector. Nonetheless, emission reductions have been achieved in the ETS sector in Europe in the past few years thanks to targeted national government policy. Reducing emissions is possible, unlike what the State implies.

- *Factor (v): the onerousness of taking precautionary measures*

8.194 In paragraphs 4.67 through to 4.73, the district court discussed 'the onerousness of taking precautionary measures' as a factor that is 'also' relevant in answering the question whether the State has a legal obligation to achieve the 25%-40% emission reduction requested by Urgenda.

8.195 This might be a good time to refocus on the precise point of dispute between the parties.

8.196 The district court considered in paragraph 4.64: the parties do not dispute that the State has to take precautionary measures for its citizens. The point of dispute is "*the extent of the reduction measures the State should take as of 2020.*"
More specifically, the point of dispute between the parties is (paragraph 4.34):

"*The final target for 2050 and the required intermediate target for 2030 is not disputed between the Parties. The State concurs with Urgenda's argument that CO_2 emissions will have to have been reduced by 80%-95% in 2050, compared to 1990. Their dispute concentrates on the question whether the State is falling short – as argued by Urgenda – in its duty of care by pursuing a reduction target for 2020 that is lower than 25%-40%, compared to 1990, which is the standard accepted in climate science and the international climate policy. (...) Second, the State contests Urgenda's argument that it is failing to meets its duty of care by pursuing the proposed lower target for 2020.*"

8.197 The parties' dispute revolves around the question (see also paragraph 4.69) whether the State's reduction trajectory for 2050, which aims for an 80%-95% emission reduction, is obligated to meet the intermediate target of 25%-40% reduction in emissions by 2020, as requested by Urgenda; or whether it is acceptable if the State achieves a lower reduction target (14%-17%, see paragraph 4.84), which it desires. The State wants to opt for delayed reductions.

8.198 Urgenda finds it relevant to refer to the three charts in paragraph 4.32 of the judgment. The first two charts in particular use three reduction trajectories to show that the focus should not solely lie on reaching the end goal (80%-95% reduction in 2050) but that it matters which reduction trajectory towards that end goal is chosen.
In both charts, delaying reductions result in a 'convex' reduction trajectory. The other two reduction trajectories in those charts are straight lines (which signifies a linear reduction in which each year the same extra reduction is achieved) and a 'concave' line (which signifies a very ambitious programme of reductions, with the reduction tempo tapering off later).

Compared to the other two reduction trajectories, a delayed reduction results in a significantly higher amount of emissions, between 2013 and 2050, than in the other two reduction trajectories; the area underneath the 'convex' line is significantly larger than the area underneath the other two lines.

8.199 Both charts clearly show that a substantially greater carbon budget is used with a delayed reduction than in the ambitious or linear scenarios, even though reductions begin at the same time and the end goal is reached at the same time (namely a reduction of 80%-95% in 2050). So, delayed reductions result in a greater total amount of emissions and thus result in more warming and greater risks of dangerous climate change. When reductions are delayed, the carbon budget is depleted earlier and therefore the 2 °C limit is reached sooner and even exceeded in a shorter term.

8.200 It is therefore not just about reaching the long-term goal of an 80%-89% reduction in 2050; the path towards reaching that goal is also relevant.
A trajectory with delayed reductions in any case leads to greater dangers and more risks of dangerous climate change. This has been discussed earlier in this defence on appeal (in Chapter 3: Analysis as well as in sections 6.25-6.41, 8.216-8.218).

8.201 Urgenda is of the opinion that the State should present compelling arguments for its preferred trajectory of delayed reductions. But these arguments are lacking, also in the appeal proceedings.

8.202 But the State has failed to argue that, for instance, a delayed reductions trajectory would be significantly more cost-effective to obtain the 80%-95% target in 2050. And for good reason: because it is not a more cost-effective trajectory, which is also easy to discern with both charts.

8.203 The two charts clearly show that with delayed reductions the decrease in emissions is initially less steep than with the other two reduction trajectories, but that the steepest drop of all trajectories must be achieved in precisely this trajectory of delayed reductions, namely in order to still achieve the end goal of 80%-95% in 2050.
The steep drop in reductions that must be met in the delayed reductions scenario requires significant efforts and costs – if it even is possible to achieve such reductions so quickly because there is a limit to what can be achieved technologically, financially and socially. The delayed reductions scenario is cheaper and easier to implement for the current generation of politicians, but it will be at the expense of future generations, which will incur a disproportionate financial burden. Urgenda deems such a disproportionate financial burden between the generations as being in conflict with the sustainability principle.

8.204 In its judgment, the district court also refers to IPCC and UNEP reports (paragraph 4.71) which prove that immediate action is more cost-effective than delayed reductions. The State complains (Statement of Appeal 14.137) that these reports only pertain to global emission scenarios, but it fails to explain why an entirely different mechanism would apply to national emission scenarios. The mechanism remains the same – both diagrams apply to *all* reduction

scenarios, both global and national schemes.

8.205 The following is also relevant. The preamble to the COP decision 1/CP.21 of December 2015 (**Exhibit 107**), in which all parties to the UNFCCC *unanimously* agreed on and adopted the text of the Paris Agreement, emphasises – giving some 'guidance' to the Agreement, as it were – the necessity of swift reductions, partly to serve as a foundation on which to proceed with the Paris Agreement. The cost-effectiveness of swift reductions is expressly noted:

"Also emphasizing that enhanced pre-2020 ambition can lay a solid foundation for enhanced post-2020 ambition;
(…)
Emphasizing the enduring benefits of ambitious and early action, including major reductions in the cost of future mitigation and adaptation efforts"

To be clear: the Paris Agreement has let go of the idea of globally coordinated reduction scheme and has left it up to the States to proceed as ambitiously as possible. The statement in COP decision 1/CP.21 that swift reductions are the most cost-effective option also expressly applies to national reduction policies.

8.206 Against this backdrop, Urgenda will currently discuss the considerations of the district court and the grounds for appeal the State put forward against them.

8.207 The district court started by considering (see paragraph 4.70) the how and the why behind the long-held and generally accepted idea that a reduction target for Annex I countries of 25%-40% as of 2020 was necessary for achieving the climate goal; and therefore as something the State 'ought' to do. The State held the same view.
With this consideration, the district court took as a starting point that in principle (and for reasons extensively outlined earlier in the judgment) the State has a duty of care to achieve a 25%-40% reduction by 2020. The district court then examined whether there were well-founded reasons for relinquishing this starting point and to not assume a duty of care.

8.208 The fact that the State later eased that target of 25%-40% for itself was – judging by what both parties have stated in this context– not based on improved scientific insights into the necessity of the earlier agreed on reduction effort and was also not motivated by the fact that such reduction efforts would be economically unsound, according to the district court[145] (paragraph 4.70).

8.209 The district court proceeded to state that the State also failed to provide concrete details to prove that attaining the 25%-40% reduction in 2020 would lead to disproportionately high costs, or would not be cost-effective compared to slower reduction schemes (paragraph 4.70). Urgenda would like to add that the State still has not provided such concrete details in the appeal proceedings.

[145] The district court's finding is correct. The policy amendment was initiated by the First cabinet of prime minister Rutte (VVD/CDA) that based on its politico-ideological views did not 'believe' in climate change and was only prepared to do the absolute minimum, meaning only the actions that 'Brussels' instructed the Netherlands to do.

8.210 This brings the district court to the conclusion (paragraph 4.70, last full sentence) *"that there is no serious obstacle from a cost consideration point of view to adhere to a stricter reduction target."*

8.211 To this the court added (paragraph 4.71-4.73) that the relevant IPCC reports indicate that immediate action would be even more cost-effective than delayed reductions.

8.212 The State failed to provide an assertion, in the proceedings in the first instance as well as in the appeal proceedings, let alone substantiate it with concrete facts, that implies that these considerations of the district court and the reasoning employed by the district court are incorrect so that its conclusion cannot be upheld.

8.213 In view of the apparent lack of compelling counter-arguments, the district court concluded that there was no reason not to hold the State to what it *ought* to do, which is apparent from the district court's earlier considerations. The district court concluded (paragraph 4.73) that the State has a duty of due care *"to mitigate as quickly and as much as possible"*.

***** In these appeal proceedings (Statement of Appeal 14.136) the State complains that the district court should have substantiated why the emission trajectory proposed by Urgenda is more cost-effective than the one endorsed by the State.

8.214 With this complaint, the State ignores the role of the district court. If the State opposes the swifter reductions requested by Urgenda, it is on the State to prove and if need be to substantiate what the compelling objections against these reductions are. This is not the duty of the district court and in fact would have overstepped the boundaries of the legal dispute between the parties if it had provided such substantiation. Even if the district court had responsibility for this, it has fulfilled its task properly by basing its judgment on the findings in the reports of the IPCC and UNEP regarding the cost-effectiveness of swift reductions.

***** The State implies (Statement of Appeal 14.141 – 14.142) that in the future new technologies for capturing and storing CO_2 (CCS = Carbon Capture and Storage) will become available allowing for the achievement of major reductions. The State complains that the district court was wrong in assessing that the State failed to argue convincingly that those techniques will be available in time and on the scale required.

8.215 This complaint also fails. The fact that the CCS technique named by the State already exists and is being applied elsewhere – very incidentally – does not mean that it will be available in time and on the scale required. In the appeal proceedings, the State also fails to make a plausible case for or substantiate it. The availability of such techniques on the scale required thus remains a hypothetical matter. Such hypothetical and desired solutions that are not yet available do not qualify as a tool for responsible risk management, especially when it concerns major risks and dangers of climate change, nor do they justify the decision to adopt a wait-and-see approach to the Dutch emissions.

8.216 This is all the more cogent given that the IPCC reports (see p. 11 of the judgment, where the district court quotes from AR5/2013 about this subject) but especially the scientific literature

that was published later, warn not put off swift reductions, hoping that new mitigation techniques and even negative emissions will be possible in the future. There are objections and risks and also substantial costs associated with all techniques that are currently being investigated. If CO2 capture and storage was more feasible commercially speaking, every coal-fired power station would have adopted it years ago. But in reality, increasingly more coal-fired power plants are closing because of their climatological impact (but not in the Netherlands).

8.217 For instance, Van Vuuren (who works for the PBL and plays a crucial role in developing RCP emission scenarios for the IPCC reports), Rogelj and Peters and several other scientists wrote an article in the January 2016 edition of renowned scientific journal Nature Climate Change (**Exhibit 108**), "Biophysical and Economic limits to negative CO_2 emissions"[146], about the risks associated with relying on future techniques, particularly negative emissions (NET = Negative Emission Technologies). Their conclusion is self-evident. Urgenda quotes the following opening and closing passages from their article:

"To have a > 50% chance of limiting warming below two degrees Celsius, most recent scenarios from integrated assessment models (IAMs) require large-scale deployment of negative emission technologies (NETs). These are technologies that result in the net removal of greenhouse gases from the atmosphere.

(…)

"The Fifth Assessment Report (AR5) by the Intergovernmental Panel on Climate Change (IPCC) database includes 116 scenarios that are consistent with a >66% probability of limiting warming below 2 °C (that is, with atmospheric concentration levels of 430-480 ppm CO_2eq in 2100). Of these, 101 (87%) apply global NETS in the second half of this century, as do many scenarios that allow CO_2 concentrations to grow between 480 and 720 ppm CO_2eq by 2100 (501/653 apply BECCS; with 235/653 (36%) delivering net negative emissions globally [..]."

(…)

Addressing climate change remains a fundamental challenge for humanity, but there are risks associated with relying heavily on any technology that has adverse impacts on other aspects of regional or planetary sustainability.
Although deep and rapid decarbonisation may yet allow us to meet the <2 degrees climate goals through emission reduction alone, this window of opportunity is rapidly closing and so there is likely to be some need for NETs in the future.
Our analysis indicates that there are numerous resource implications associated with the widespread implementation of NETs that vary between technologies and that need to be satisfactorily addressed before NETs can play a significant role in achieving climate change goals. Although some NETs could offer added environmental benefits (for example, improved soil carbon storage), heavy reliance on NETs in the future, if used as a means to allow continued use of fossil fuels in the present, is extremely risky, as our ability to stabilize the climate at < 2 degrees Celsius declines as cumulative emissions increase. A failure of NETs to deliver expected mitigation

[146] Smith et al., 'Biophysical and Economic limits to negative CO2 emissions', Nature Climate Change 6, 42–50 (2016)

in the future, due to any combination of biophysical and economic limits examined here, leaves us with no "plan B". As this studies shows, there is no NET (or combination of NETs) currently available that could be implemented to meet the <2 degrees Celsius target without significant impact on either land, energy, water, nutrient, albedo or costs, and so ***"plan A" must be to immediately and aggressively reduce GHG emissions.****".*
(underlining and highlighting by attorneys)

8.218 The cited passage is representative[147] of the general view in scientific literature that swift reductions should have priority, that delayed reductions pose the risk of not being able to attain the 2 °C target, and that from the viewpoint of responsible risk management, also considering the serious dangers of climate change, we should no longer rely or gamble on what the future might bring in terms of technological developments.

8.219 In light of this all, Urgenda concludes that the State's complaint against this part of the judgment is simply a complaint that the district court should have provided more substantiation for why the ambitious reduction scheme for 2020, proposed by Urgenda, is more cost-effective than the delayed reduction trajectory supported by the State.
With this complaint, the State fails to recognise that it is the State's responsibility, not of the district court, to submit and substantiate such objections. The fact that the State is unable to name these objections, also in the appeal proceedings, is telling but in complete accordance with all literature on this subject: the literature states that the most cost-effective and safest option is to start reductions as soon as possible.
Furthermore, delayed reductions increase the risks and dangers of climate change. After all, on balance delayed reductions lead to more emissions and a swifter depletion of the available carbon budget and thus to a swifter attainment of the 2 °C limit. In that light, there have to be very compelling objections to justify delayed reductions proposed by the State. But the State has not put forward such objections, nor have they become apparent.

8.220 Urgenda concludes that the State's ground for appeal against this part of the judgment also fails.

- *Factor (vi): the discretionary power accorded to the State in the performance of its public duty – with due regard to the principles of public law*

8.221 In brief, the district court considered in paragraph 4.74 that in assessing the question whether the State has sufficiently met its duty of care, it should be considered that the State has (ample) discretionary power in fulfilling its duty of care. The district court, however, noted that the State's discretionary power is not limitless. Referencing the ruling of the ECHR, the

[147] See for instance: Fuss et al. 'Betting on negative emissions' in: Nature Climate Change, 4, 850-853 (October 2014); Vaughan et al. 'Expert assessment concludes negative emissions may not deliver', in: Environmental Research Letters 11 (2016) 095003 ; PBL report 'Implications of long-term scenarios for medium-term targets (2050)', November 2015 of which Chapter 4 discusses the problems associated with negative emissions; PBL report 'Verschillen in schattingen tussen koolstofbudgetten nader bekeken' (*translation: A closer look at differences in carbon budgets estimates*), February 2016, Chapter 1 'Koolstofbudget is heel beperkt' (*translation: Carbon budget is very limited*), par. 1.1 'Snelle omslag van de economie' (*translation: Quick transition of the economy*), par.1.2 'Met negatieve emissies' (*translation: With negative emissions*); Rogelj et al. 'Paris Agreement climate proposals need a boost to keep warming well below 2 °C in: Nature Vol.534 631-639 (June 2016).

district court found that when considering cases with serious and life-threatening consequences for mankind or their living environment – such as is the case with climate change – the State's duty of care entails taking appropriate and effective measures.

8.222 In the proceedings in the first instance, the State had pointed out the adaptation measures it is already taking. The district court ruled (see paragraph 4.75 which is a repetition of paragraphs 4.71 and 4.72 in that respect) that the concern is also and mainly on mitigation measures, because adaptation measures can only provide protection up to a point. As long as greenhouse gases keep being emitted, the earth will continue to warm up and the associated consequences will increase in severity, extent and danger: adaptation will only offer temporary protection, but it will eventually be insufficient and will also become increasingly disproportionally more expensive. This limits the State's discretionary power in shaping its climate policy, according to – in brief – the district court.

***** This is the subject of the State's complaint (Statement of Appeal 14.143) and it refers to its assertions in Statement of Appeal 7.1-7.6 to substantiate its complaint).

8.223 The complaint must fail, because the district court's assessment is correct.

8.224 Earlier in this defence on appeal, Urgenda explained (mainly based on fig. SPM.10 from the Summary for Policy Makers to the AR5/2014 Synthesis Report) that there is a proportional and linear relationship between:
a) the total amount of all CO_2 emissions ('cumulative'),
b) the concentration of CO_2 in the atmosphere,
c) the extent of global warming
d) the seriousness and extent of the dangers to ecosystems, living environments and human societies and economies.
This linear relationship implies that as long as emissions keep increasing, climate dangers will continue to rise. Adaptation means always 'staying one step behind'.

8.225 Mitigation and adaptation are expressly not mutually exchangeable methods of approach, even if the State appears to imply that.

8.226 The problem is that there is a delay in the response of the climate system *as a whole* to a change in the CO_2 concentration in the atmosphere.
If all greenhouse gas emissions were to stop tomorrow, global warming would also be halted virtually immediately and the temperature would stabilise (no increase, no decrease); but the sea levels, for instance, will continue to rise for centuries as the seas adapt to this new temperature level. About ceasing all emissions followed by temperature stabilisation, see: AR5/2013 WG I Frequently Asked Questions 12.3 , p.1106-1107, as well as the Executive Summary of Chapter 12, under the heading 'Climate Stabilization', p. 1033 where there is also the addition that the climate system *as a whole* will continue to change for centuries.[148]

[148] The AR5/WG I report is not submitted in its entirety because of its size (over 1,500 pages). It can be consulted on http://www.ipcc.ch/report/ar5/wg1/. Chapter 5 is submitted as **Exhibit 133** and pages 1033 and 1106-1107 are submitted as **Exhibit 134**, to which reference is made in this defence on appeal.

8.227 This delay thus also masks the consequences of climate change that have become inevitable with the *current* concentrations.

8.228 In that context, Urgenda finds it useful to refer to AR5/2013, WG I Chapter 5 'Information from Paleoclimate Archives', where it is explained what the earth's climate was like in the (very distant) past, insofar as that is known or can be derived from (mainly) geological data. Such historical reconstructions are useful, because they can provide insight into the degree of response from the earth's climate to changes in the CO_2 concentrations. The following refers to Chapter 5 of AR5/2013 WG I.

8.229 Urgenda particularly wants to point out the Mid-Pliocene Warming Period (MPWP), which was between 3.3 million and 3 million years ago (**Exhibit 133**: Table 5.1, p. 389).
That period is relevant because it was the last time in the history of the planet that the CO_2 concentration was higher than in pre-industrial times (280 ppm). In the MPWP, the CO_2 concentration was between **350 – 450 ppm** (see Chapter 5.2.2.2, Figure 5.2, p.394-395 as well as p.399). The current concentration is 401 ppm and highly comparable with that of the MPWP. After the climate system stabilised, the associated temperature (SAT=Surface Air Temperature) in the MPWP was **1.9 °C – 3.6°C** higher than now (Chapter 5.3.1., p.399).
It is estimated that in the MPWP the sea level at that temperature eventually rose to 10m – 30m above current levels, with a high confidence that the sea level was higher than today but by not more than **20 metres** (Chapter 5.6.1., p.425).

8.230 It is clear that no amount of adaptation can contend with this effect and that raising the dikes would be futile.

8.231 Based on this historical comparison, it is also clear that temperature changes that appear relatively small have a large impact. This is because it is a global mean temperature, which averages and evens out the major regional differences and extremes. Another example: the last Ice Age (LGM=Last Glacial Maximum) took place between 21,000 years and 19,000 years ago (Table 5.2, p.389), but the difference in temperature with today is relatively small: estimates range from a temperature that was 3 °C to 8°C lower than today (Table 5.2, p.404-405). A relatively small temperature difference results in an entirely different planet with a mostly ice-covered northern hemisphere.

8.232 The earth's climate has been exceptionally stable in the past 12,000 years. During this stable phase, humans 'invented' agriculture and settlements, heralding the beginning of human civilisation. This unusually stable climatological balance is now being disrupted by humans due to the large-scale emission of greenhouse gases into the atmosphere, whereby the CO_2 concentration – which acts as 'the thermostat' of the earth's temperature – is changing at a rate that is unprecedented in geological time scales. The atmosphere currently has a CO_2 concentration of 401 ppm, which modern humans (who appeared about 200,000 years ago) have never seen before. It is expected that the concentration will lead to climatological circumstances on earth that are unprecedented in human history and to which the current ecosystems are not adjusted. It is the rate that is specifically detrimental and outpaces the adaptation capacity of ecological and human systems.

8.233 A 3 °C warming (the current pathway for 2100) also does not mean that the earth will be 3 °C warmer all over. Rather, the world will experience changing weather patterns. While the annual precipitation in a certain area will remain that same, it will go hand in hand with extreme downpours with heavy rainfall that will flood rivers and streets, but that will occur sporadically in between prolonged periods of drought. This could have major consequences for food production, especially in regions where the food production already has difficulties with the current climatological circumstances.

8.234 Moreover, it is expected that global warming will be accompanied by more unpredictable and turbulent and (much more) extreme weather. An increase in the number of local/regional disruptive weather extremes means substantial socio-economic damage for the local population. So a relatively modest global temperature increase, in which all weather extremes are averaged out, may mask substantial changes and huge regional consequences. Houghton cited as an example of such weather extremes the exceptional heat in 2003 that France, Italy, the Netherlands, Portugal and Spain experienced and which brought about the death of over 20,000 people and possibly 35,000. In a business-as-usual scenario, in which little is done for mitigation (and global emissions have been close to that scenario for years) such a summer will become the new 'normal' in 2050 and in 2100 will even be a 'cool' summer, according to Houghton.[149]

8.235 Adaptation to changing conditions of this magnitude is no longer possible, will require disproportional high costs and will certainly have major humanitarian consequences.

8.236 All of the above makes it abundantly clear that mitigation is necessary and very urgent and furthermore the only effective way to combat climate change. See also Urgenda's reply, Chapter, 10.5, sections 511 – 527. Adaptation is not an equivalent alternative or surrogate for mitigation, which the State appears to imply, and mitigation and adaptation are certainly not mutually exchangeable concepts in the area of combating climate change.

8.237 And with a view to the longer term: how could the State in international panels 'rightly' require other countries – India, for instance, with a population of 1.3 billion that emits 2.4 tons of CO_2 per capita and that wants to accelerate industrialisation to overcome severe poverty – to emit nothing more and preferably even less, just because the Netherlands is highly vulnerable to a climate change-induced sea level rise, while the Netherlands with a per capita emission of 10 tons of CO_2 is not willing to make reductions even though it has the appropriate means, and as an Annex I-country it is actually agreed to take the lead in this matter? Delaying reductions, as advocated by the State, focuses too much on easy, short-term interests that serve the Netherlands alone and not enough on the long term and individual responsibility.

8.238 So the district court was right in ruling that in terms of specifying the State's duty of care it boils down to mitigation, and that only mitigation is effective. This is also the only effective approach for the Netherlands.

[149] See J. Hougthon, Global Warming, the complete briefing, 5th ed., p.200 (**Exhibit 135**), 2015, Cambridge University Press. Houghton is a British atmospheric chemist and a former chairman of the IPCC Working Group I from 1988 to 1992 and co-chairman from 1992 to 2001, in which capacity he edited the first three IPCC Assessment Reports.

8.239 The State's complaint fails.

8.240 The district court considered in paragraph 4.76 that the State's discretionary power in climate policy is further restricted by the public-law principles that apply to it, and which have been discussed in this defence on appeal when the reflex effect doctrine was analysed. The district court considered in paragraph 4.77 that if the State believes that deviating from those principles is justified, it is up to the State to allege and prove that justification. The district court adds to this that it has not learned of unsurmountable financial or macroeconomic restrictions to the swift reductions necessary and that at an earlier stage the State itself in fact deemed those reductions necessary.

* The State also complains about this. The State alleges (Statement of Appeal 14.146) that it is under no obligation to put forward a justification ground because it has not committed a breach of any legal obligation.

8.241 The latter is the point at issue and in that context the question was raised whether the State – the logical party to provide this – could present a justification to deviate from the international climate policy principles that apply to it and to which it has committed in formulating its climate policy. Urgenda concludes that the State has also failed to provide such a justification in the appeal proceedings. The mere enumeration (Statement of Appeal 14.147), without any explanation, that the State not only pursues a climate policy, but also policy in the area of employment, health care, etc. cannot be construed as such a justification, in the opinion of Urgenda; after all, the same applies to all states, even states that do have and implement an ambitious climate policy. The complaint must therefore fail.

8.242 In paragraphs 4.78 – 4.79, the district court elaborately substantiated, with a reference to the Potash Mines ruling, why the fact that the Dutch emissions have an insignificant contribution in global emissions is irrelevant for the State's legal obligation.

* The State also complains about this (Statement of Appeal 14.148 – 14.151), but Urgenda believes that this complaint must also fail, and for the following reasons.

8.243 Earlier in this defence on appeal Urgenda extensively discussed the relevance of the Potash Mines ruling and its implications for co-causers who together, jointly and thus cumulatively, cause great damage. Urgenda refers to that analysis and believes it makes it sufficiently clear that the district court's opinion is correct according to the law and the State's complaint is incorrect. For this reason, Urgenda will now suffice with a few brief comments.

8.244 The State attempts to sow confusion in Statement of Appeal 14.149 by talking about 'risk liability' (comparable to the mesothelioma jurisprudence of the Supreme Court) instead of proportional liability (such as in the Potash Mines ruling). The State's argument is a repeat of an argument that has already been refuted: Urgenda discussed this issue at length in the proceedings in the first instance (Reply 292 and mostly footnote 115).
In short: for *risk liability* to apply in this case, there should be uncertainty about who of several potential emitters has caused damage to the atmosphere (and all consequential damage).

In the current case, there is *proportional liability*, because there is certainty about the causers: each emitter caused damage to the atmosphere for a part that is proportionate to the scope of its emission, and each emitter can be called to account for this damage and consequential damage.

8.245 Another issue discussed earlier (see Urgenda's Statement of Reply in the first instance 297 – 300) is the repeated complaint of the State that the Dutch emissions hardly make a dent in the total global emissions. This has also already been thoroughly analysed earlier in this defence on appeal (cf. the quotation of the US Supreme Court in Massachusetts v EPA; **Exhibit 49**). The following is also relevant for this.

8.246 Compared to the total amount of global emissions, it is true that the Dutch emissions are negligible. Therefore, the Netherlands is only requested to make minor reductions, compared to what must be reduced on a global scale. The Netherlands only has to tackle its own share in the problem and the State argues that that share is very minor: that cannot be that difficult. If the State wants to complain that the Netherlands is asked to make major per capita reduction efforts – the veracity of which remains to be seen – then this is only because the Netherlands apparently has huge per capita emissions and thus contributes disproportionately to the climate problem, which warrants the great reduction efforts required of the Netherlands.
The 'fairness' of proportional liability is that parties are liable for their own share, nothing more and nothing less, in causing an unacceptable, unlawful situation.
But the State's argument is that the Netherlands – despite its extremely high per capita emission – should not reduce at all, because the Netherlands has a small population and thus has a virtually non-existent impact on the global aggregate. 'Why not require a country such as India, with its 1.3 billion inhabitants, to do something first? That would be more efficient, despite their extremely low per capita emissions'. Mathematically speaking, this assertion is not incorrect; legally speaking it is evidently unacceptable and therefore, in the words of the US Supreme Court, *"essentially irrelevant".* Measured against legal standards, it is not about the extent of the damage caused by acts, but whether those acts themselves are unacceptable according to the standards of due care. The State constantly attempts to ignore this.

***** The State also complains (Statement of Appeal 14.152 – 14.163) about the considerations of the district court regarding the irrelevance of the ETS system and the related waterbed effect to the State's duty of care.

8.247 Urgenda has extensively discussed the ETS system elsewhere in this defence on appeal. Urgenda refers the court to those passages and believes it is sufficient to make two remarks about this subject.

8.248 Urgenda wants 'extra' Dutch reductions on top of what the State wants to commit to.

8.249 However, the State's defence (Statement of Appeal 14.156) is that the 'extra' Dutch reductions requested by Urgenda are not very effective, because they will lead to an increase in emissions abroad as a result of the waterbed effect. This essentially comes down to a 'shift'

of emissions to elsewhere, so that the Dutch reductions will have no effect at all on a European or global level (Statement of Appeal 14.160).

8.250 This defence ignores several vital starting points.

8.251 This case revolves around the State's legal obligation to reduce greenhouse gas emissions from Dutch territory. The State is obviously not responsible for emissions from the territory of another state.
Even *if* it were true that 'extra' Dutch national reductions lead to corresponding 'extra' emissions in Germany, as suggested by the State (but note the comments hereafter), this would be a problem for the German government – that pursues a policy that focuses on reducing emissions from German territory. The same applies to other EU Member States.
The emissions in other EU Member States is principally not the responsibility of the Dutch government, and the Dutch government can never be called to account for those emissions. But the reverse also applies: the emissions in another state are not something the State can hide behind to try and avoid its national responsibility and legal duty to reduce the Dutch emissions.

8.252 The State's argument that it should not be forced to ensure extra reductions because emissions in another EU country may increase sits uneasy, now that the Dutch per capita emissions are among the highest in Europe. One of the main polluters claims that he must not be forced to pollute less, because otherwise the smaller polluters will pollute more, which 'is something we could not possibly wish for'.
If you follow this line of reasoning consistently, it is not right to stimulate energy saving and wind energy, because that would 'release' the Dutch ETS emission allowances and, via the waterbed effect, result in extra emissions abroad. The State's reasoning essentially boils down to this: the Netherlands is best left to emit as much as possible, otherwise other countries will do the same and that would be bad for the climate. It is not a very appealing line of reasoning.

8.253 It is also a line of reasoning that is incompatible with the Paris Agreement.
The Paris Agreement specifically starts from the individual responsibility of all states for the emissions from their respective territories, and it requests all states to be as ambitious as possible with their national emission reductions. The State's reasoning that it should not be asked to do more than is required because otherwise other countries will emit more undermines the approach of the agreement, while the ink has not even dried yet. The State's argument is therefore in breach of Article 3 paragraph 3 of the Paris Agreement, in which the treaty parties agreed that their reduction efforts should be as ambitious as possible.

8.254 Urgenda reiterates: delaying reductions – for whatever reason the State comes up with – is riskier and less cost-effective according to the literature.

8.255 Another issue is that the State's argument regarding the waterbed effect is factually incorrect.

8.256 The State's line of reasoning would be correct if there was a great scarcity of emission allowances. In that scenario, extra Dutch reductions would 'release' emission allowances, which would enter the market, and which in theory could be used for 'extra' emissions in

another EU Member State.
Urgenda believes that even in this scenario the following would still be true: that is not the problem of the Dutch government and does not justify an insufficient Dutch reduction policy.

8.257 In reality, there *is* no scarcity of emission allowances. On the contrary, there is huge surplus of 2 billion unused emission allowances on the market. This is why the ETS system does not function at all – friends and foes agree on that.
Because of this surplus, any party interested in emitting more can cheaply acquire as many emission allowances as they desire. A spattering of 'extra released' Dutch emission allowances added to the sea of 2 billion unused emission allowances are unneeded for that cause; literally no one is eagerly awaiting the few extra 'Dutch' emission allowances to be able to emit more. This situation of a great surplus of emission allowances will incidentally not change before 2021, the period covered by Urgenda's claim.[150]
The 'extra' Dutch reductions that Urgenda is requiring the State to make will therefore not lead to corresponding extra ETS emissions elsewhere in Europe, and the State is wrong to imply such a thing. For the rest, Urgenda refers to its extensive discussion of the ETS in its response to ground for appeal 15.

***** The State also implies (Statement of Appeal 14.162) that the emission reductions required by Urgenda will lead to unfair competitive conditions in the EU to the detriment of Dutch companies. The State has provided no substantiation for this assertion, and for this reason alone cannot be accepted.

8.258 The fact is that our neighbouring countries have achieved significantly more ambitious emission reductions and continue to strive to do more (for years Germany, Denmark, the United Kingdom have pursued a climate policy that is aimed at attaining reductions of 40%, 40% and 35% in 2020, respectively). [151]

There is no indication whatsoever that their competitive edge has been affected in any way, let alone to the extent from which the State would be able to derive justification for ignoring the reductions claimed by Urgenda.
It must be kept in mind when reading all of the State's defences that no one is assuming that phasing out all greenhouse gases will be easy or free of charge. The fact that there are costs associated with the 'extra' reductions claimed by Urgenda does not in itself make those requested 'extra' reductions disproportional or unacceptable. Those costs have to be viewed in the right perspective, which the State fails to do.

[150] The EU will possibly decide to remove a substantial number of emission allowances 'from the market' after 2020 in order to create a scarcity in an attempt to turn the ETS into an effective instrument. In any case, this is the ambition of the German government. In that scenario, the 'extra' emission allowance that will be released up to 2020 as a result of Urgenda's requested 'extra' reductions will be definitively removed from the market and could never be used again for emissions elsewhere in the EU. So, the State's line of reasoning that the extra Dutch reductions could be used elsewhere in Europe for extra emissions is also false for this reason.
[151] Reply 585, **Exhibits 95, 96 and 86**. The targets for 2050 are reductions of 100% (Denmark), 80%-95% (Germany) and 80% (United Kingdom), see: PBL, 'Germany, Denmark and the United Kingdom: lessons to be learnt for the Netherlands?', source: http://www.pbl.nl/sites/default/files/cms/publicaties/PBL-2013-germany-denmark-and-the-united-kingdom-lessons-to-be-learnt-for-the-netherlands-1150.pdf

* The State complains (Statement of Appeal 14.163) that the district court has taken cognizance of very limited information only put forward by Urgenda that Germany, Denmark and the United Kingdom are allegedly pursuing a more ambitious climate policy.

8.259 The information the State is referring to are the reports of the PBL, a centre of knowledge and advice, specifically set up by the State for its national climate policy. The reports were drawn up and published at the initiative of the PBL and (naturally) without any involvement by Urgenda.[152] Urgenda only made use of existing information from public, authoritative sources of an advisor appointed by the State. On appeal, the State furthermore fails to put forward any arguments proving that the information is incorrect or incomplete.

8.260 Unlike what the State implies in this context, the Netherlands has a particularly large and therefore advantageous potential for wind energy; mainly at sea but also elsewhere. There are also numerous other, untapped options for reductions. Several reports have been drawn up about this, including the IBO report on which the State itself relies.

* The State notes at the end of ground for appeal (Statement of Appeal 14.166), more or less as a general complaint and not against a specific consideration of the district court, that the reductions claimed by Urgenda will also have major consequences for third parties.

8.261 That is not incorrect per se, but that non-parties can be affected is inherent in all collective interest actions and (mainly) in general interest actions that are instituted pursuant to Book 6 Section 305a of the Dutch Civil Code; the legislature has knowingly accepted that consequence.

8.262 What the State fails to see is that dangerous climate change becomes unavoidable if all countries adopted the same attitude as the State: the consequences of this will also affect third parties, but much more seriously than when Urgenda's claims are allowed.

8.263 Furthermore, Urgenda wishes to stress that under Urgenda's claims the State is completely free to choose the means and instruments to achieve the reduction target requested by Urgenda. Urgenda cannot be faulted for this since the State will have complete control over who will be affected.

- *Conclusion*

8.264 Urgenda concludes that in ground for appeal 25 the State put forward numerous objections against the legal obligation asserted by Urgenda that the State must reduce the Dutch greenhouse gas emissions by 25%-40% in 2020 relative to 1990.

8.265 Urgenda has attempted to do justice to those objections – as proven by the length of its response – but believes that they should fail. Urgenda thinks that the judgment and considerations of the district court, which the State contested in ground for appeal 25, are correct and must be confirmed on appeal.

[152] Reply 585, **Exhibits 95, 96 and 86**

8.266 Urgenda concludes that ground for appeal 25 must also fail.

Ground for appeal 23 Damage; and
Ground for appeal 24 Causal link

8.267 Grounds for appeal 23 and 24 can be handled in concert.

8.268 In ground for appeal 23, the State complains that Urgenda has failed to argue convincingly that Urgenda *itself* has incurred damage from the Dutch emission level within the meaning of Book 6 Section 95 of the Dutch Civil Code. The State asserts that Urgenda thus does not meet the requirements for a successful invocation of Book 6 Section 162 of the Dutch Civil Code.

8.269 In ground for appeal 24, the State complains that Urgenda has failed to argue convincingly that there is a (relevant) (sine qua non) causal link between the Dutch emission level in itself and dangerous climate change, which Urgenda is combatting. According to the State, Urgenda fails to meet the requirements for a successful invocation of Book 6 Section 162 of the Dutch Civil Code.

8.270 Both complaints fail. Urgenda does not seek compensation, so the requirement of the existence of damage and the requirement that there must be a causal link between the alleged damage and the contested conduct are not relevant here. Both requirements do not apply to actions for a court order or injunction.
In this context, Urgenda also refers to Deurvorst[153] (who does not even mention the causality requirement, apparently because it is self-evident that the causality requirement does not apply if the damage requirement does not apply):

"An action for a court order or injunction against an unlawful act under Book 3 Section 296 subsection 1 of the Dutch Civil Code is eligible for award if:
a. the defendant has engaged in unlawful conduct towards claimant;
b. this conduct will likely be displayed or there is a fear of repetition; and
c. the claimant has sufficient interest in what is claimed.

No damage. It is not required that damage has been incurred for imposing a court order or injunction under Book 3 Section 296 subsection 1 of the Dutch Civil Code.
Nevertheless, the existence of damage, even the possibility of the existence of damage, could be relevant for answering the question whether the claimant has sufficient interest in what is claimed. (…) The existence and possibility of existence of damage could also influence the decision that unlawfulness has occurred. (…)

No attributability. (…)

No unlawful act committed. Nor is it required for an order to perform a legal obligation that an unlawful act has been committed, which is required for awarding damages."

[153] T.E. Deurvorst, GS Onrechtmatige Daad (*translation: The Unlawful Act*), note 96

(underlining by attorneys)

8.271 Deurvorst rightfully notes[154] that damage or the likelihood of damage can be relevant for assessing the lawfulness of conduct.
Urgenda has already discussed this at length earlier in this defence on appeal, particularly when it discussed the place of actions for a court order or injunction in liability law, the protective scope of Book 6 Section 162 of the Dutch Civil Code and the Potash Mines ruling and the doctrine of shared liability. A reference to these passages suffices.

8.272 With this legal-doctrinal defence Urgenda by no means wants to argue that there is no actual damage, or that damage is not caused by the emission of greenhouse gases, or that these proceedings revolve solely around theoretical problems and dangers. On the contrary, see earlier in this defence on appeal in section 8.123 with a reference there to section 3.52-3.65. Also see sections 8.290-296 below, where reference is made to Exhibits 135 and 136, which prove that extra deaths are occurring in the Netherlands now as a result of climate change, and that a multi-billion dike protection programme is needed to protect people against climate change.

8.273 Urgenda concludes that grounds for appeal 23 and 24 must fail.

Ground for appeal 26 Attribution

8.274 In paragraph 4.87 of the judgment, the district court assessed that the State has the power to effectuate the reductions claimed by Urgenda, so that any excess of emissions that exceed the emission volume requested by Urgenda can also be actually attributed to the State.

8.275 This is the tenor of ground for appeal 26 of the State.

8.276 The question (Statement of Appeal 14.175) to what extent the State has the power to achieve the reductions claimed by Urgenda has already been discussed in analysing ground for appeal 25 (particularly under 'factor (v) : the onerousness of taking precautionary measures'). Urgenda refers to that analysis (section 8.194 et seq.). Urgenda repeats and concludes that the State has sufficient authority over the national emission level to be able to achieve the 25%-40% reduction claimed by Urgenda. Therefore, any excess of emissions can be attributed to the State.

8.277 Urgenda would also like to note the following.

8.278 Most of the complaints the State puts forward under this ground for appeal are not about attribution. For instance, the State complains that it is not committing an unlawful act and that it cannot be held liable (Statement of Appeal 14.171, 14.172). That ignores the heart of the matter: the attribution requirement is about the question whether the Dutch emission level

[154] In a similar sense, in response to the district court's judgment, M. Loth, Climate change liability after all, in: Tilburg Law Review: Journal on international and comparative law 21 (2016) p. 5-30, mainly p.27-28 and footnotes 61 and 62 on the (possibly changing) role of the requirement of causality in preventative actions.

can be attributed to the State. Whether the emission level is unlawful, is a separate matter.

8.279 The State also complains that there is a converging point with trias politica. Therefore, Urgenda will discuss this point in its analysis of ground for appeal 28, which deals specifically with the separation of powers. Urgenda also wants to add – in response to the State's comments on the closure of coal-fired power plants – a number of exhibits (**Exhibits 137**) which prove that the subsidy for co-firing biomass is basically a form of subsidy for coal-fired power plants. The operator of the Hemweg plant has already indicated that he is willing to talk about closing down the plant and that he does not want compensation for lost income, but prefers compensation for redundancy costs. The idea comes to mind that closing down coal-fired power plants is not only good for the climate, but could also be much cheaper than the State suggests and that it could save significant subsidies for co-firing biomass.

8.280 Urgenda concludes that this ground for appeal was also submitted incorrectly by the State.

Ground for appeal 27 Relativity

8.281 In ground for appeal 27, the State complains that the district court incorrectly ruled that the relativity requirement was met.

8.282 The relativity requirement means that a standard only seeks to protect a particular group of stakeholders and against a particular form of damage. Those who do not fall within the scope of people covered by the protective scope of the standard, or those who have suffered damage that is not covered by the protective scope of the norm standard cannot successfully rely on Book 6 Section 162 of the Dutch Civil Code.

8.283 The district court ruled that the State has a legal obligation of societal propriety to not cause (or contribute to the cause of) dangerous climate change and therefore must make sufficient contributions to the prevention of dangerous climate change.
In the words of the district court (paragraph 4.91) the State has violated a safety standard: "*exercising due care in combating climate change*".

8.284 The district court ruled (paragraph 4.91) that this standard of due care extends to the interests of persons on Dutch territory and that Urgenda has taken up the defence of those interests and is entitled to defend them. The relativity requirements has therefore been met. Because of this the district court did not deem it relevant whether Urgenda could also rely on this standard on behalf of the rights and interests of current and future generations in other countries.

8.285 The State complains (Statement of Appeal 14.179 – 14.183) that this opinion was wrong. The State's objection is that the standard of due care, as defined by the district court, seeks to protect in principle an unlimited group of third parties and also to protect them against damage that may arise in a manner that cannot be anticipated beforehand. The State argues that such interests are not eligible for protection and refers to the Duwbak Linda ruling

(Supreme Court 7 May 2004, NJ 2006/281).

8.286 The State wrongly seeks to find substantiation for its complaint in the Duwbak Linda ruling and has interpreted the ruling incorrectly.
The (specific) legal standard that was breached in *that* case did not intend to protect financial interest of an in principle unlimited group of third parties, according to the Supreme Court. Other legal standards were not mentioned.
On the contrary, in its Duwbak Linda ruling the Supreme Court considered in a more general sense that in answering the question whether the relativity requirement has been met, it *comes down to the purpose and object of the breached standard*, and that *based on that* it must be assessed which people, which damage and which manners in which the damage is caused are covered by that standard's legal protection.

8.287 The legal standard that was breached in the Duwbak Linda case is incomparable with the legal standard that the district court believed was breached which is the subject of the current proceedings. The interests and persons Urgenda seeks to protect do indeed fall within the protective scope of that legal standard, which the district court believes has been breached in this case.

8.288 The district court was correct in ruling that the relativity requirement has been met. Ground for appeal 27 is unfounded.

Ground for appeal 22 The criteria establishing an unlawful act have not been met

8.289 Ground for appeal 22 of the State is not a complaint in its own right. In it, the State complains that Urgenda's claims do not meet all requirements for a successful action arising from a unlawful act (as is apparent from Statement of Appeal 14.66 the State believes that none of the requirements are met) and that the district court wrongly allowed the claims.
If all requirements for an action arising from a unlawfull act have been met – and Urgenda believes to have proved they have – ground for appeal 22 fails on account of a lack of factual basis; further discussion is not necessary.

Final remark: the possible relevance of Book 6 Section 166 of the Dutch Civil Code and Book 6 Section 99 of the Dutch Civil Code for the State's liability

8.290 With regard to the unlawful act, there is another subject that was difficult to incorporate into the arguments of Urgenda, but must be named.

8.291 Elsewhere in this defence on appeal, Urgenda has explicated that the anthropogenic emissions of greenhouse gases are harming the composition of the atmosphere and therefore the function the atmosphere serves for the earth's temperature and climate: the earth is warming.
It is certain that the disturbance of the atmosphere has major dangers and risks that directly impact the earth's human systems but also the natural systems (ecosystems) which are the planetary boundaries within which human societies can exist. Humans not only live on this planet, they live off of it and its natural resources. Every drastic change or deterioration of

those resources has immediate consequences for human societies; particularly if the food production is no longer sufficient to meet needs due to periods of drought or increasing weather extremes.

8.292 In the summons in the first instance, Urgenda elaborately discussed the consequences of climate change, which were already noticeable with a warming of (then) less than 1 °C. Urgenda refers to pages 41-58 of that summons and expressly requests the court to consider them repeated and inserted here.

8.293 In its Statement of Reply in the first instance (sections 128 – 165) Urgenda again focused attention on the dangers of climate change to humans, also specifically for the Netherlands. Urgenda requests the court to also consider those passages as repeated and inserted here.

8.294 In its Statement of Reply (142), Urgenda pointed out a report which proves that without additional mitigation and adaptation around 88,000 people in Europe will die every year as a result of heat in 2050; around 2080 this will be around 126,000 fatalities. The welfare costs in 2050 and 2080 will be about €102 billion and €146 billion, respectively; that around the year 2050 about 55,000 people per year will be affected by flooding and in 2080 that number will be between 121,000 and 425,000 people, with another 438,000 people who need to move; etc.
For proof of the great consequences today of global warming, Urgenda would like to point out the weather extremes, large-scale population movements, unprecedented wildfires that burn down entire villages from the WMO Statement on the State of the Global Climate 2016, published in 2017, **Exhibit 105.**

8.295 The Netherlands will not be able to escape those consequences. Particularly in view of the danger of flooding for the inhabitants of the Netherlands, the State has felt compelled to implement a sizeable dike reinforcement programme with a long duration and extremely high associated costs. Urgenda would also like to point out the documents it has submitted to the court as **Exhibits 135 and 136**, which prove that in the Netherlands in 2003 and 2015, for instance, global warming caused deaths ('strongly increased mortality' – **Exhibit 136, p. 205**).

8.296 The deterioration of the atmosphere due to large-scale emissions of greenhouse gases not only results in damage to the atmosphere itself, but also to what the scientific community as a whole has included as a finding in the IPCC reports, in a direct and severe infringement of the rights and interests of those whom Urgenda seeks to defend at law.
This deterioration qualifies as damage for which Urgenda is entitled to request a court order. In this case, Urgenda does not seek damages, but a court order that is aimed at limiting that damage, insofar as the State has it in its power and – according to current scientific knowledge and the general international consensus – is necessary and can be required of it.

8.297 The heart of Urgenda's accusation against the State is that the State has an individual responsibility to tackle climate change. Urgenda calls the State to account for contributing to the cause of that problem and its share in causing it.

8.298 The overarching theme in the State's defence is that climate change is a *collective* problem that can and must only be resolved on a collective level – see for instance Statement of Appeal 3.3, 4.15, 4.16 and 4.17.
This theme shines through every time the State alleges that the Dutch contribution to the climate problem is negligible and that therefore collective agreements must be concluded on the international level in order to effectively combat climate change, and that the Netherlands has met all collective agreements (Kyoto protocol).

8.299 The State believes that it has no other, individual responsibilities or legal obligations that go beyond the obligations under international, collective agreements. Urgenda believes that this standpoint is incorrect and cannot be accepted.
The fact that under the Paris Agreement the treaty parties have ceased pursuing a global, collective agreement, instead opting for an appeal to the individual responsibilities of all treaty states, is viewed by Urgenda as further support for its standpoint.

8.300 Since the State persists in its assertion that climate change concerns a collective responsibility of all states together and since it reiterates the agreements on climate change that have to be made on a collective level, and furthermore insists it has no individual responsibility, Urgenda invokes that in that case the State has joint and several liability under Book 6 Section 166 of the Dutch Civil Code for polluting the atmosphere and for (all) negative consequences for the rights and interests which Urgenda seeks to defend and that are inextricably linked to the pollution.

8.301 Insofar as the State wants to rely on the fact that its contribution to the damage of the atmosphere and thus also its share in causing the consequential damage is negligible, Urgenda would like to point out that in cases of group liability – and the State constantly argues that climate change concerns collective responsibility – there is joint and several liability and that the size of its contribution is irrelevant for the State's liability to Urgenda as the aggrieved party (or at least: as the one who acts on behalf of the aggrieved parties). Furthermore, the more general equity rule of Book 6 Section 99 of the Dutch Civil Code opposes that a liable party could rely on the assertion that even without its acts or omissions, this 'degradation' or damage would have arisen anyway. The fact that everybody is pointing fingers at each other and rejects every form of individual responsibility is strongly reinforced by the State's standpoint that there is only group responsibility and group liability instead of individual responsibility and individual liability.

9. The system of the separation of powers; ground for appeal 28

9.1 In ground for appeal 28 the State complains about the district court's consideration in paragraphs 4.94 through to 4.102 that the system of the separation of powers does not preclude awarding Urgenda's claims and 'in particular' the reduction order requested by Urgenda.

9.2 From the outset Urgenda has realised that this is a point that would be used against it, which is why Urgenda covered this topic extensively in its summons for the proceedings in the first instance (under the heading 'discretionary power': paragraphs 404-421) and in its reply (chapter 12, under the heading 'Trias Politica', paragraphs 595-632). Urgenda refers to those still applicable arguments and adds the following below.

9.3 Urgenda acknowledges that the awarding of its claims has political as well as societal consequences.

9.4 But the ruling of the US Supreme Court in Brown v Board of Education in 1954, in which it was decided to discontinue legally established race-based school segregation, also had its consequences and to a much greater extent.
Moreover, in the Netherlands, the Supreme Court's decisions on issues like the right to strike, abortion and euthanasia were also politically controversial and had societal consequences.

9.5 The same applies to the Supreme Court ruling in Noordwijkerhout/Guldemond in 1915, in which the Supreme Court found that civil courts are also competent to rule on the unlawfulness of government actions. The primacy of politics had to give way for the primacy of the law.

9.6 The consequences were also great for the famous Lindenbaum/Cohen ruling in 1919, in which the Supreme Court ruled that 'unlawful' not only concerns an action that infringes on other people's subjective rights or that conflicts with rules laid down by the legislature, but that it also concerns each action that *the court finds on its own authority* and not on the authority of the legislature to be in conflict with that which an individual *ought* to do in society.
In Lindenbaum/Cohen the civil court positioned itself beside the legislature as an equal co-designer of the legal system; law is not only defined by the legislature but also by the court.
The ruling in Lindenbaum/Cohen has had an important constitutional meaning[155] that has significantly determined how Dutch liability law has been able to develop in the Dutch legal system.

[155] In his note underneath the Lindenbaum/Cohen ruling, Molengraaff recognises this constitutional dimension as he writes that 'law' is more than what is written in the laws, and that it is an illusion that the legislature provides a full description of the law.

9.7 It ought to be clear why Urgenda is citing these rulings, Guldemond/Noordwijkerhout and Lindenbaum/Cohen, here.

9.8 Another factor is that in all of the above-mentioned situations the politically or socially controversial nature of the question at hand did not prevent the judicial authority from taking decisions that politics could not take, did not want to take or did not dare take. The Dutch court is not allowed to 'ignore the law' if legal protection is asked of it – no matter how sensitive or controversial the case.

9.9 Furthermore, the fact that a ruling has major political implications does not mean that the court 'usurps the role of politics' in those cases. In the proceedings in the first instance Urgenda substantiated this with a consideration from a ruling in the US **(Exhibit 49)**.

9.10 The consideration was part of a climate case in which legislation had been requested to limit CO_2 emissions because of the dangers of global warming. The counter-arguments in that case should sound very familiar after reading the State's Statement of Appeal. In the proceedings in the first instance the US court had found that this did indeed concern a 'political question', but the court of appeals disagreed. It determined that the claimants had based their claims on unlawful nuisance ('nuisance claim') and that the courts had been delivering judgments on this type of claim for more than a century. Concerning the political implications:

"Certainly, the political implications of any decision involving possible limits on carbon emissions are important in the context of global warming, but not every case with political overtones is non-justiciable. It is error to equate a political question with a political case.
(…) Given the checks and balances among the three branches of our government, the judiciary can no more usurp executive and legislated prerogatives than it can decline to decide on matters within its jurisdiction simply because such matters may have political ramifications." (underlining by attorneys)

9.11 Essentially the US court stated that it is a mistake to think that a political question is the same as a political case. The fact that a court ruling in a case perhaps has political implications, even major ones, does not mean that the question the court must answer is a political question that is restricted to politics. A legal question falls within the competence of the court, even if that question has political connections and overtones.

9.12 The question should not be whether Urgenda's claims possibly have major political implications, but whether a political decision is requested of the court.
This is understood to mean that the court is asked to make a decision, for which the court has no legal standard or norm to 'underpin' its ruling.

9.13 Urgenda has submitted a case to the Dutch civil court that is an action arising from an unlawful act, specifically 'hazardous negligence'. Standards of review for this type of case were already developed and fully formulated long ago in the jurisprudence of the civil court.

Take into account the fact that this is a situation of cumulative, cooperative causers causing damage *to* the environment (damaging the composition and functioning of the atmosphere), which global climate science says with great certainty will, in turn, lead to truly *disruptive* effects (causal relationship) on the planet and on the socioeconomic security of a massive amount of people (damage *by* the environment); in the legal sense these are all familiar elements and well-known legal questions, not political questions.

9.14 The question if an activity is 'too' dangerous or 'unacceptably' risky implies a value judgment. However, that does not mean a case with such a value judgment is a political case. The courts take these types of value judgments on a daily basis and for which the hazardous negligence doctrine, the set standard, has been developed. Politics surely does not have the exclusive right to value judgments.

9.15 In this case the court has ruled that the State has a legal obligation to reduce Dutch emissions by 25% in 2020 relative to 1990 because a smaller reduction is 'unacceptably' dangerous, given the dangers and risks of climate change, and therefore unlawful.
That reduction percentage, as already explained in this defence on appeal, was not randomly or arbitrarily chosen by the court as if it could have just as easily chosen another percentage. Had that been the case then that would have meant that Urgenda had submitted a 'political question' to the court.

9.16 In its judgment the district court carefully motivated how the legal standard of review it used was derived from and based on the 25%-40% reduction standard, which since 2010 is considered the minimum of what Annex I countries like the Netherlands *ought* to do according to climate science and international, European and national politics, given the great risks and dangers of climate change if they do not.
The district court therefore followed a pre-existing, objective and generally accepted standard (a 'judicial standard') to use it as a legal standard to measure the State's duty of care and legal obligation.

9.17 In this context, Urgenda references a judgment by the The Hague district court on 9 November 2015, given five months after its Urgenda judgment. It involved another dispute against the State in which Stichting Rookpreventie Jeugd (*translation: Youth smoking prevention foundation)* invoked the Urgenda judgment.[156] The district court dismissed it with the following consideration (paragraph 4.17):

"For the following reason alone, the present case differentiates itself from the Urgenda case, as in that case a concrete standard (expressed in percentages) to reduce greenhouse gas emissions guided the district court's decision that the societal standard of due care was violated. Climate science and international climate policy consider this concrete standard to reduce greenhouse

[156] The Hague district court, 9 November 2015, ECLI:NL:RBDHA:2015:12746

emissions necessary for industrialised countries like the Netherlands in order to combat dangerous climate change. Article 5 (3) of the FCTC currently lacks such a clear standard as this."

9.18 That there is indeed a generally accepted reduction standard of 25%-40% as the district court writes, was even confirmed by the State in the letter then State Secretary for Infrastructure and the Environment Mansveld wrote to Urgenda on 11 December 2012 and which was also cited by the district court in paragraph 2.7.

9.19 The State's accusation (Statement of Appeal 15.13) that the district court took a decision about the emissions reduction that the district court itself considers the most appropriate is therefore incorrect.
On the contrary, the district court measured the State's duty of care against the benchmark that the international community and climate science hold and – until recently – the State also held as its own prevailing norm for its reduction standard, namely a reduction of at least 25%-40%.

9.20 The district court ordered the State to the (absolute) minimum of the 25%-40% standard, because it held that it needed to be left to the discretionary power of the State (and its political bodies) to decide to reduce more than what is legally required; the district court considered anything more than what is legally required to be 'political' and thus was not something it could determine. Urgenda understands that conclusion, even if it had preferred a greater reduction percentage. However, regarding the question of the minimum percentage demanded by law, the district court deemed itself competent to rule and Urgenda deems that to be correct.

9.21 It is striking that the State chooses to complain that the district court's decision is not compatible with the system of the separation of powers. But the State does not or barely substantiates the complaint and, particularly, it in no way addresses the content of the considerations the district court devoted to this topic.

9.22 In its judgment the district court devotes an exceptional amount of attention to the question: how does the reduction order requested by Urgenda and a potential awarding of that order by the district court relate to the Dutch system of the separation of powers?

9.23 For instance, in paragraph 4.98 the district court discusses the fact that allowing Urgenda's claim could possibly have political consequences and in that regard can impact political decision making. The district court holds that in a state under the rule of law this is inherent in the role of the court with respect to political bodies.
Urgenda believes that this conclusion is correct. The State opposes this consideration but does not explain at all why this opinion would be incorrect.

9.24 In paragraph 4.96 the district court discusses the fact that the awarding of Urgenda's requested reduction order could also have consequences for third parties which are not

parties to the proceedings. The district court found that this is an indication to exercise restraint, but not to exercise judicial abstinence. The State does not explain why that opinion would be incorrect. Incidentally, exercising judicial abstinence because non-parties could possibly experience consequences of a public interest action pursuant to Book 3 Section 305a of the Dutch Civil Code would have rendered Book 3 Section 305a of the Dutch Civil Code an empty provision.

9.25 The State complains (Statement of Appeal 15.10) that it is important that its democratically legitimated political bodies carry out the decision-making process regarding Dutch climate policy. The implication here is that the district court is not democratically legitimated.

9.26 However, the State does not respond at all to paragraph 4.97, in which the district court explains that even the judge, while not elected and therefore in that sense without democratic legitimacy, has democratic legitimacy in another – but vital – respect.
The judge's authority and ensuing 'power' are based on democratically established legislation, whether national or international, which has assigned him with the task of settling legal disputes. This task also extends to cases in which citizens, individually or collectively, have opposed government authorities. The task of providing legal protection from government authorities, such as the State, pre-eminently belongs to the domain of a court and is also enshrined in legislation. Such is explained by district court in paragraph 4.97 concerning the democratic legitimacy of a potential reduction order awarded by the district court.

9.27 The State does not address this at all.

9.28 At this point, Urgenda sees reason to make a few comments here about 'the democratic legitimacy of its [the State's] climate policy' which the State invokes and which the State also believes signifies that the district court should not have interfered with that policy.

9.29 At the heart of the concept behind the state under the rule of law is not primarily the idea of a separation of powers[157] but more so – as the word indicates – the idea that within a state *the primacy of the law* applies.
What this means is that in a *state under the rule of law* the exercise of government authority by the government must be based on the law, and that this law *institutionalises* how the government is allowed to exercise state authority.

[157] Incidentally, all constitutional law handbooks make the critical assessment that separation of powers is actually meant to prevent an undesired concentration of power, which no longer exists in the Netherlands, and that legislative power and executive power are practically blended together to the benefit of the executive power. The parliament is still the legislature in name only, and the government coalition partners mainly behave as the government's 'voting fodder' (C.A.J.M. Kortmann, Constitutioneel recht (*translation: Constitutional Law*), Deventer 2012, p.150) or as its prisoners (Van der Pot Handboek van het Nederlands staatsrecht (*translation: Handbook of Dutch Constitutional Law*), 16e edition, Kluwer 2014, p.531). The question then is whether this disruption of the separation of powers in the Trias Politica should impact the monitoring function and legal protection function of the court: the primacy of politics or the primacy of law? Asser/Hartkam&Sieburgh 6 IV, 2015/352 remark 'There is a clear link between the progressive exercise of power by the administration and the willingness of the court to assess government activities (…) in order to protect citizens from a violation of their rights and from arbitrariness.'

In a *democratic* state under the rule of law, furthermore, 'the law' is laid down in laws that are made by elected representatives of the people. These laws guide the court in its judgment in legal disputes.
The *primacy of law* in a state under the rule of law entails that just like the court, the State's political bodies are also bound to the law: the law rules over everyone. The task of the court is to supervise compliance with the law, including compliance by the political government bodies, see Guldemond/Noordwijkerhout.

9.30 In the Netherlands there is no climate law or another legal regulation originating from the Dutch legislature that sets the standard for the climate policy or the reduction policy of the government.
The government is entirely free to pursue a climate policy it prefers at any moment. Until 2011 the State pursued a climate policy that focused on a 30% reduction in 2020; when a new government came to power in 2011 the reduction target was cut in half without the need for legislative change. No convincing reasons or objections have been presented in the proceedings in the first instance nor in the appeal proceedings that would negate the suspicion of arbitrariness, particularly of a political nature. The Scientific Council for Government Policy[158] also recently advised establishing a climate act 'to provide focus, cohesion and stability to policy choices' and thus 'a stronger institutional grounding of the Dutch climate policy'.

9.31 It is the constitutional task of the court to provide legal protection where needed and to those who are entitled to it.
Urgenda has asked the district court to provide legal protection against the government's reduction policy.

9.32 Because the legislature has not created any standardisation of the government's reduction policy, the district court bridged that gap, or needed to do so, in order to be able to judge whether Urgenda is entitled to its requested legal protection.
The district court draws its authority to do so from the task entrusted to it by the constitution and Book 6 Section 162 of the Dutch Civil Code. As noted, that authority goes back to Lindenbaum/Cohen. The standard of care from that ruling which the legislature adopted and enshrined in Book 6 Section 162 of the Dutch Civil Code does not so much entail[159] a legal standard as an '*allocation of authority to the court to declare behaviour unlawful besides cases of infringement of a right or failure to perform a statutory duty'.*

9.33 Apart from the fact that the district court can also rely on the democratic, legally established legitimacy of its opinion, the State's complaint that the district court's judgment thwarts 'the

[158] Faber, De Goede and Weijnen, (2016), 'Klimaatbeleid voor de lange termijn: van vrijblijvend naar verankerd (*translation Climate policy for the long term: from nonbinding to embedded*)', WRR Policy Brief 5, The Hague, WRR, October 2016
[159] A.J. Verheij, Onrechtmatige daad (*translation: Unlawful act*) (monografieën Privaatrecht (*translation: monographs Private Law*) no 4) 2015/16

political decision-making of its democratically authorised bodies', a somewhat tendentious representation of the facts.
The district court merely provided a standardisation of the reduction policy of the government *because* – and *for as long as* – there is no standardisation of that policy by the legislature. For the standard it used, the district court followed what climate science and international, European and also Dutch politics have long considered and accepted as the reduction standard for countries like the Netherlands. Moreover, the district court applied this generally accepted legal consideration within the framework of the hazardous negligence doctrine, which the civil court has already been applying for decades to assess dangerous or risky behaviour. The State does not explain what would be incorrect with all of this.

9.34 Furthermore, nothing is stopping the State (and its legislative body) from establishing a national statutory regulation to now provide a 'democratically authorised' basis of jurisdiction for the government's reduction policy, a national statutory regulation that also *standardises* that policy.
By establishing such a national statutory regulation after all, the State if it so chooses can bypass the legal ruling[160] and still pursue the reduction policy it wants, if the State believes that it is possible within the applicable (international law) framework. Such a statutory regulation would after all also become a guiding principle for the court and be used by the court as a framework for review of the Dutch reduction policy – that is also the core concept of the state under the rule of law. It is unclear to Urgenda why the State does not wish to choose this 'royal' route.

9.35 In the current situation, the legislature has not standardised Dutch reduction policy at all and furthermore the court is allegedly not allowed to examine the legitimacy at all of that policy, which means that there is no legal protection against that policy – exactly what the State argues, in fact. Urgenda believes that the current situation is not compatible with the concept of the state under the rule of law, the design of the Dutch form of government and the requirements for effective legal protection laid down in Article 13 ECHR.
That objection of absent legal protection is all the more compelling where the State recognises (Statement of Appeal 15.8) that the issue concerns risks and dangers of great public interest, also affecting future generations; this means that a lack of legal protection is unacceptable.

9.36 Political motions like the one the State references (Statement of Appeal 15.11) clearly show that climate change is apparently an object of political disagreements, but they do not

[160] Corstens sees the fact that the legislature can readjust the law following a judicial decision as a fundamental element of the balance between the three state authorities and thus also sees a reason for wanting nothing to do with the primacy of politics. See Geert Corstens, De rechtsstaat moet je leren, de President van de Hoge Raad over de rol van de rechter (*translation: The rule of law is something that you have to learn, the President of the Supreme Court on the role of the court)*, 2015, Amsterdam, p.76-77. See also p. 63 about the role of the court when the law is silent on the 'difficult questions' like euthanasia and assisted suicide.

constitute 'the law'.

9.37 With its legal ruling the district court did not fail to recognise that the State is entitled to a large degree of discretionary power: see for example paragraph 4.55 and even more importantly paragraph 4.74. However, the district court comes to the conclusion that that discretionary power is not unbounded: there is a lower limit to the State's discretionary power, meaning a minimum amount of effort for which its citizens can hold the State accountable[161] and, when necessary, which the Dutch court enforces. The district court held, rightly in Urgenda's opinion, that the State's climate policy falls below that lower limit, Such a legal ruling is the pre-eminent field of the court in the Dutch system of the separation of powers.

9.38 The particularly major dangers and damages for ecosystems and thus for humans caused by climate change which are thoroughly discussed elsewhere in this defence on appeal, are unique, unprecedented and unequalled.
These dangers and damages warrant a drastic intervention[162] by the court when the State's political bodies withdraw from their responsibilities. There is no need to fear the creation of an undesirable precedent, as climate change is in a league of its own.

9.39 In this regard Urgenda would like to point out that the Dutch civil court has a long tradition of providing 'legal protection' against dangers and threats to physical safety. The civil court has previously recognised that for the protection of such interests there is a justification for placing limits even on the greatest possible discretionary power of the State.
For example Molengraaff writes in his note underneath Lindenbaum/Cohen that even in its strict legalistic period the Supreme Court handed down rulings, for example in 1883, in which it assumed a legal duty not based on any existing law concerning the right to life and personal safety of residents.
Moreover, in 1950 the State did not want to bring a few thousand former KNIL (Royal Netherlands East Indies Army) soldiers to the Netherlands but instead wanted to evacuate them and move them to Ambon. The Supreme Court took into consideration that while the State admittedly has a great deal of latitude in its foreign policy, the dangers for the Ambonese were so grave that the proposed government policy was unlawful.[163]
In the 2013 Srebrenica case the State's rather broad discretionary power for military decisions, as the Supreme Court described it, does not preclude the liability of the State for a policy decision that results in extreme danger for those involved.[164]

[161] The wording of Article 21 of the Constitution is too general to be able to deduce a concrete reduction standard from it, but that does not mean that citizens cannot invoke the provision against the State if such an 'operational' minimum necessary reduction standard is certainly available in other bases. Thus, Urgenda also partly relies on Article 21 of the Constitution as the basis for its claims.
[162] Strictly speaking the court itself has no 'authority', as the court's state 'authority' is limited to issuing a judgment that is independent, objective and based on rational arguments about that which ought to take place. The authority of the court is the authority of the independent judgment.
[163] Supreme Court 2 March 1951, NJ 1951, 2017
[164] Supreme Court 6 September 2013, ECLI: NL:HR2013:BZ9225, legal ground 3.18.3

9.40 Urgenda believes that the climate judgment of The Hague district court also belongs to that tradition of legal intervention when it concerns great dangers.

9.41 However, too often the State makes it seem as if this case concerns a political struggle, 'a' policy question like any other, as if the climate problem does not differ substantially from the question whether we are allowed to drive 130 km/hr in the Netherlands (Statement of Appeal 9.10, and also in Statement of Appeal 15.17). Instead, the State acts as a party that has been told by the EU or the international community that it has to meet certain policy measures, rather than as the party that realises that a major and serious danger requires its urgent attention and urgent, drastic measures.

9.42 The State complains (Statement of Appeal 15.19) that the district court allegedly disregarded that the Paris Agreement uses other parameters as its starting point. Apart from the fact that the Paris Agreement was concluded after the district court's verdict, as well as the fact that the judgment is concerned with 2020 while the Paris Agreement focuses on the period thereafter, the State fails to indicate exactly what those other parameters are and, particularly, how that would work in its favour. After all, the Paris Agreement proceeds from the position of the individual responsibility of the states for their national reductions, as is explained elsewhere in this defence on appeal. This undermines the State's key defence, that national measures are not effective and a global agreement about emission reductions should be awaited.

9.43 The State furthermore complains (Statement of Appeal 15.14) that the emission reduction ordered by the district court can only be attained through formal legislation.

9.44 Urgenda disputes this statement, just as it has disputed this statement in the proceedings in the first instance. Then and now, the State has been unable to refute the arguments of Urgenda in this respect.

9.45 Urgenda therefore expressly refers to sections 4.21-4.30 and 7.56 of this defence on appeal where it has already explained how the State effectively has a major hold on Dutch emission policy and actually exercises that hold without needing to take legal measures.

9.46 Ground for appeal 28 must fail.

10. Ground for appeal 29 (catch-all ground for appeal)

10.1 Ground for appeal 29 has no independent complaint different from that which the State already put forward in its other grounds for appeal and must therefore fail.

Part III: The cross-appeal

11. Ground for appeal in cross-appeal: direct invocation of Articles 2 and 8 ECHR

11.1 It was particularly important to Urgenda that the State reduces its emissions more than it does, and that the State can be called to account for this action by its citizens whose interests are entrusted to it and whom it should protect.

11.2 From the foregoing it ought to be clear that Urgenda was deeply satisfied with and grateful for the district court's judgment. The criticisms by some of the judgment have mainly been of a constitutional nature, however Urgenda has found no criticism of its outcome, namely the conclusion that the Netherlands must step up reductions. On the contrary, the judgment has been seen worldwide as a symbol of hope that when it comes to protecting the planet from the dangers of climate change, the inertia of politics and political decision-making is not unshakable. The judgment also confirms, primarily, the value and the power of the concept of the state under the rule of law with an independent authority that reaches a decision independently, based on facts and rational argument, which compels other state authorities to be accountable for the performance of their duties.

11.3 If the State had not appealed, Urgenda would also not have made a cross-appeal. Now that the State has actually appealed, Urgenda will also submit a ground for appeal against one conclusion of the district court. The ground for appeal is intended to further strengthen the legal basis of Urgenda's claim.

Urgenda believes that the district court wrongly held that Urgenda cannot directly invoke Articles 2 and 8 ECHR. As **Exhibits** 135 and 136 show that climate change is already causing increased mortality, also in the Netherlands, the importance of Articles 2 and 8 ECHR for Urgenda's claim has therefore been underlined.

11.4 Urgenda's ground for appeal in the cross-appeal focuses on legal ground 4.45 of the judgment, which states:

"*In assessing the question whether or not the State with its current climate policy is breaching one of Urgenda's personal rights, the court considers that Urgenda itself cannot be designated as a direct or indirect victim, within the meaning of Article 34 ECHR, of a violation of Articles 2 and 8 ECHR. After all, unlike with a natural person, a legal person's physical integrity cannot be violated nor can a legal person's privacy be interfered with (cf. ECtHR 12 May 2015, Identoba et al./Georgia, no. 73235/12). Even if Urgenda's objectives, formulated in its by-laws, are explained in such a way as to also include the protection of national and international society from a violation of Article 2 and 8 ECHR, this does not give Urgenda the status of a potential victim within the sense of Article 34 ECHR (cf. ECtHR 29 September 2009, Van Melle et al./Netherlands, no. 19221/08). Therefore, Urgenda itself cannot directly rely on Articles 2 and 8 ECHR.*"

11.5 Urgenda cannot accept the opinion of the district court that it is not entitled to directly invoke Articles 2 and 8 ECHR in these proceedings.

11.6 Article 34 ECHR merely determines the admissibility of individual applications to the European Court of Human Rights (ECtHR). According to this article, accessibility is limited to individuals, non-governmental organisations and groups of individuals who are directly or indirectly the victim or a potential victim of a violation of ECHR. Article 34 thus contains a procedural rule or law which is solely applicable to the admissibility of proceedings at the ECtHR. Contrary to what the district court seems to consider, this procedural rule of law cannot have the effect that in its proceedings before the Dutch court Urgenda is not entitled to invoke the substantive legal rules from Articles 2 and 8 ECHR.

11.7 The very nature of the substantive legal protection that the ECHR aims to offer under Articles 2 (right to life) and 8 (right to private life), limits it to natural persons.
A natural person who believes he/she is the victim or potential victim of a violation of one or both of these basic rights can invoke the legal protection or substantive legal protection conferred on him/her by these provisions in court.

11.8 The basic rule is that only the "victim" itself can lodge an application before the court; see Article 34 ECHR for proceedings before the ECtHR, and Book 3 Section303 of the Dutch Civil Code for proceedings before the Dutch court.

11.9 However, there is an exception to this basic rule under Dutch law. When it concerns the infringement or imminent infringement of such interests of several individuals or groups of individuals, each victim or potential victim can individually request legal protection from the court, but associations or foundations can also collectively make the request on their behalf when they meet the conditions set out in Book 3 Section 305a of the Dutch Civil Code. This legal provision was deemed necessary by the Dutch legislature to ensure effective legal protection.[165]

11.10 This 'effective legal protection' sought by the legislature would cease to exist when the large groups of natural persons, whose interests Urgenda seeks to protect, would be allowed to individually invoke Articles 2 and 8 ECHR because there is an imminent violation of their interests protected under those articles, and if Urgenda is also allowed to represent those interests in court proceedings, but Urgenda is not allowed to rely on the substantive right that protects those interests.

11.11 As the district court rightly concluded in legal ground 4.9, Urgenda's claims are admissible under Book 3 Section305a of the Dutch Legal Code.

11.12 Articles 2 and 8 ECHR have direct effect in the Dutch legal system via Articles 93 and 94 of the Dutch Constitution. Natural persons or legal entities that have standing in a Dutch court to lodge a claim, are therefore entitled to invoke the provisions in these articles. The question whether a natural person or legal entity has standing according to procedural rules of law is separate from the question regarding which substantive legal rules can be invoked.

[165] Explanatory Memorandum, Parliamentary Papers II, 1991-1992, 22486, no. 3, p. 3

The legislature clarifies in the Explanatory Notes to the legislative proposal for Book 3 Section 305a of the Dutch Civil Code that these two questions are separate matters:

"However, it must be borne in mind that the legislative proposal does not introduce new substantive liability standards. Only the procedural possibility to hold someone liable for a violation of existing standards is improved."[166]

11.13 As opposed to what the district court considered, the question whether Urgenda would have standing at the ECtHR has no impact on the question whether it can invoke Articles 2 and 8 ECHR in Dutch proceedings. Now that Urgenda can institute proceedings against the State under Book 3 Section 305a of the Dutch Civil Code, it is also permitted to directly rely upon these articles.

[166] Explanatory Memorandum, Parliamentary Papers, 1991-1992, 22486, no. 3, p. 19

CONCLUSION AND CLAIM

Urgenda respectfully requests the court of appeal to deliver a ruling on the judgment of The Hague District Court, pronounced on 24 June 2015 in the case with case number/cause list number C/09/456689/HA ZA 13-1396, provisionally enforceable as far as possible:

1. declaring the grounds for appeal of the appellant in the principal appeal unfounded;
2. declaring the ground for appeal of the appellant in the cross-appeal well-founded and to overturn the judgment regarding the point identified in the cross-appeal in accordance with this declaration;
3. upholding the judgment on all other points;
4. ordering the appellant in the principal appeal and respondent in the cross-appeal to pay the costs in both instances, stipulating that it owes statutory interest on the costs of the proceedings as from fourteen days following the day on which this ruling has been delivered or notice of the ruling has been served.

Attorney

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