

Republic of the Philippines Commission on Human Rights**CHR-NI-2016-0001 In Re: National inquiry on the impact of climate change on the human rights of the Filipino People****Statement of Resource Person, Sophie Marjanac****1) Preliminary Matters**

1. My name is Sophie Jelena Marjanac. I qualified as an Australian legal practitioner in 2011 and currently hold a practicing certificate issued by the State of Victoria, Australia.
2. I am presently employed by ClientEarth as a Lawyer (Climate Programme) and have been in that role since November 2015, based in London. ClientEarth is a global environmental legal charity with offices in London, Brussels, Beijing, Warsaw and New York. Our charitable objectives include the following:
 - a. to promote and encourage the enhancement, restoration, conservation and protection of the environment, including the protection of human health, for the public benefit;
 - b. to advance the education of the public in all matters relating to the law, practice and administration of justice in connection with the environment;
 - c. to relieve poverty through the provision of legal services to those who cannot otherwise afford them; and
 - d. to promote, assist, undertake and commission research into the law, practice and administration of justice in connection with the environment and matters relating thereto, including the impact, direct or indirect, of any human activity on the environment and to disseminate the useful results of such research.
3. A copy of my current *Curriculum Vitae* is attached to this statement. My professional expertise is in the area of environmental law and corporate law, and as part of my role at ClientEarth I have undertaken research on climate change litigation around the world, and have published analysis and opinion articles on this topic.
4. I would like the Commission to note that I am not a scientist, nor do I profess to have any scientific expertise in the discipline of climate change science or event attribution science. My technical expertise is in the area of environmental law, corporate law and climate change litigation specifically, and it is not in climate change science or event attribution science. The section of this statement relating to science is based on my review of scientific

publications that are in the public domain and this statement reflects my understanding of the findings of those documents cited herein.

5. I was invited by Ms. Desiree Llanos Dee, Climate Justice Campaigner of Greenpeace Southeast Asia (Philippines), one of the petitioners in this national inquiry, to be a witness and resource person for the petitioners on 29-30 August 2018 public hearings in the Philippines to present the findings of two publications, as well as other matters that may be of relevance to this national inquiry. The first article is entitled, “*Acts of God, Human Influence and Litigation*,” which was authored by Lindene Patton, James Thornton, and I and published in *Nature Geoscience* on 28 August 2017. The second article is entitled, “*Extreme weather event attribution science and climate change litigation: an essential step in the causal chain?*,” which was authored by Lindene Patton and I and published online in the *Journal of Energy & Natural Resources Law* on 19 April 2018.
6. I agreed to be a resource person for the petitioners. On 26 June 2018, one of the legal representatives for the petitioners, Attorney Hasminah Paudac, spoke with me via Skype and discussed with me the process of Statement-taking. Attorney Kristin Casper, Greenpeace Canada’s litigation counsel and international legal coordinator, was also on the call. On 07 July 2018, the legal representatives for the petitioners, Attorney Hasminah Paudac and Attorney Grizelda Mayo-Anda, through their legal liaison, Ms. Anna Dominique Esmeralda, sent questions relating to the above articles I co-authored, which I personally answered in the form of this statement. I am submitting this Profile and Statement, along with my *Curriculum Vitae* and PowerPoint presentation, to the Philippine Commission on Human Rights. I commit to elaborate and clarify this Statement in the public hearing through the aid of a PowerPoint Presentation.
7. As requested by the Petitioners this statement also contains some updated and additional information and references that were not part of either of these two articles. It also refers to submissions made in the amicus curiae brief of ClientEarth, which was submitted to the Commission on 21 November 2016. This statement is intended to assist the Commission by shedding light on the facts surrounding the investigation. It therefore collates and presents information from secondary sources relating to event attribution science, and then describes the conclusions of research and analysis that myself and my organisation have undertaken regarding global trends in climate change litigation and the implications of climate change-related risk for corporations.¹

2) **Substantive Matters**

¹ In particular, through ClientEarth’s participation in the Commonwealth Climate and Law Initiative, <https://ccli.ouce.ox.ac.uk/>

8. In 2016 my co-authors and I started writing an article about event attribution science and climate change litigation. The objective was to explain this relatively new scientific method to lawyers, and to consider its potential relevance to a range of legal actions falling within the broad definition of ‘climate change litigation’. This draft eventually became two articles, essentially, a short version (published in *Nature Geoscience* in September 2017) and a long version (published in the *Journal of Energy and Natural Resources Law* in April 2018 (the JENRL article)). Both articles contain similar arguments and conclusions, but as they were drafted for different audiences and publications, they are different lengths and contain differing levels of detail and complexity. Although the JENRL article contains more analysis and references, the conclusions of the *Nature Geoscience* article are based on the same research and analysis. Both articles were co-authored with Lindene Patton, an experienced US Attorney and expert on climate change and insurance, with whom I collaborated closely on the drafting of both articles.²
9. I have been asked to provide a summary of the contents of those two articles in this witness statement. I have also been asked to provide any additional information that may be relevant to this national inquiry. I propose to do so in two parts, following the structure of the articles. The first part will provide a summary of my understanding of the science of extreme weather event attribution, and the second part will address how data derived from event attribution science could become a driver of litigation arising from failures to adapt to extreme weather events, including the implications of climate change-related risk for corporations and their directors. I will conclude by discussing the growing concerns among investors and financial market regulators regarding climate-related risks to the financial system, and will discuss how increased disclosure of these risks from investors is also leading to calls for the mitigation of emissions by many of the major shareholders of the respondent companies to this Petition.

a) Event Attribution Science

10. The Intergovernmental Panel on Climate Change (IPCC), the intergovernmental body that produces synthesis reports of the latest consensus on climate change science, is certain that the observed trend of increasing global temperatures is caused by human activity.³ The science of studying climatic change at the global scale is called detection and attribution science, and it studies phenomena at a global scale. To illustrate this, a common measure used to express global warming is the increase in Global Mean Surface Temperature (GMST). Indeed, this is the measure that is referred to

² Lindene Patton is a member at Earth and Water Law Group LLC, Washington DC.

³ IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)

in the Paris Agreement temperature goal, which commits States to keep the global average temperature rise to well below 2-degrees Celsius above pre-industrial levels, and to pursue efforts to limit it to 1.5 degrees.⁴

11. The IPCC's 5th Assessment Report makes it clear that temperature increases are not evenly distributed, and that some parts of the globe will experience higher temperature increases than others, due to the way that the earth's weather systems operate. For example, the Arctic is particularly susceptible to global warming and has been shown to be warming at a faster rate than other regions.⁵ The UK's Met Office's analysis shows that some regions may experience increases of between 8 to 16 degrees if the GMST rises by 4 degrees.⁶
12. Event attribution was an attempt from scientists to respond to questions from the public about whether human caused climate change had caused or worsened extreme weather.⁷ Event attribution science relies on the same models used in detection and attribution science; however, it studies extreme weather events occurring at the local and regional scale. As it provides more specific information about how climate change is changing the expected patterns of extreme weather events in a particular region or locality, it may be useful in assisting various actors to adapt to the impacts of climate change. In our JENRL article, we suggested that event attribution science studies the way that many people will actually experience climate change in the real world.⁸ Therefore, this science may be of interest to this national inquiry because the extreme weather that is predicted to increase as a result of global warming, including heatwaves, droughts, floods and storms, will have direct and indirect effects that will impact the enjoyment of human rights by people around the globe.
13. The first event attribution study in the context of climate change was published in 2004, and studied the influence of human greenhouse gas emissions on the 2003 European heatwave, an extreme event that led to widespread heat related deaths across Europe.⁹
14. The technical definition of attribution is 'the process of evaluating the relative contributions of multiple causal factors to a change or event with an

⁴ Article 2, Paris Agreement, United Nations Document No FCCC/CP/2015/L.9/Rev.1, 12 December 2015.

⁵ See Hausfather, Zeke, (2 July 2018) 'Analysis: Global warming varies greatly depending on where you live' in Carbon Brief, available at <https://www.carbonbrief.org/analysis-global-warming-varies-greatly-depending-where-you-live> accessed 30 July 2018.

⁶ <https://www.metoffice.gov.uk/climate-guide/climate-change/impacts/four-degree-rise/map>

⁷ As noted in this recent article in Nature, interest from the public in event attribution studies is at an all-time high, and scientists are working toward issuing even faster attribution studies, see Schiermeier, Q, 'Droughts, heatwaves and floods: How to tell when climate change is to blame' (30 July 2018) *Nature* available at <https://www.nature.com/articles/d41586-018-05849-9> accessed 31 July 2018.

⁸ Marjanac and Patton, (2018) 'Extreme weather event attribution science and climate change litigation: an essential step in the causal chain?' *Journal of Energy and Natural Resources Law* 36:3 265-298, at p 268.

⁹ See Peter A Stott, DA Stone and MR Allen, 'Human Contribution to the European Heatwave of 2003' (2004) 432 *Nature* 610.

assignment of statistical confidence'.¹⁰ Therefore, both weather-related events (such as short-term heavy rainfall) or climate-related events (such as a high average summer temperature), could be the subject of an attribution study. Tropical storms have also been the subject of attribution studies.¹¹ Studies attempt to determine whether human greenhouse gas emissions have made an extreme event more intense (ie, caused more rainfall, or made temperatures hotter), or more likely to occur (ie, increased the chance or likelihood of the extreme event).

15. In 2012, the Bulletin of the American Meteorological Society started publishing a special supplement to its annual report, collating event attribution studies from the previous year.¹² *Explaining Extreme Events from a Climate Perspective* is published annually and brings together a number of studies in the field. The number of studies has been increasing steadily since the supplement commenced publication, as has the confidence in methodologies and results.¹³ In 2016, the United States National Academy of Sciences produced a report analysing the methodology and techniques of the field of event attribution studies, validating their robustness.¹⁴

16. Event attribution relies on existing climate models which simulate processes in the earth's atmosphere. Although there are several approaches to event attribution, the primary approach is to compare the changes in the observable record over time with climate models to assess whether atmospheric greenhouse gas concentrations can be correlated with the changing trends in the observation records. The 'real world', defined through observations and models, is compared to the 'counterfactual world' (or, the world without humans) modelled without human influence (human caused emissions of gasses into the atmosphere) which allows the scientists to isolate and analyse human influence.

17. It should be noted that results are expressed probabilistically,¹⁵ in the same way that risk factors in health are measured, because, in theory, any extreme event is possible in the counterfactual world (because it is impossible to objectively measure the counterfactual world). Scientists have therefore said

¹⁰ Gabriele C. C Hegerl and others, 'Good Practice Guidance Paper on Detection and Attribution Related to Anthropogenic Climate Change' in Thomas Stocker and others (eds), Meeting Report of the Intergovernmental Panel on Climate Change Expert Meeting on Detection and Attribution of Anthropogenic Climate Change (IPCC Working Group I Technical Support Unit, University of Bern 2010) 2.

¹¹ Carbon Brief (6 July 2017) 'Mapped: How climate change affects extreme weather around the world', available at <https://www.carbonbrief.org/mapped-how-climate-change-affects-extreme-weather-around-the-world> accessed 30 July 2018.

¹² All editions of the BAMS special reports are available at <https://www.ametsoc.org/ams/index.cfm/publications/bulletin-of-the-american-meteorological-society-bams/explaining-extreme-events-from-a-climate-perspective/>

¹³ See note 8.

¹⁴ National Academies of Sciences, Engineering, and Medicine, Report, *Attribution of Extreme Weather Events in the Context of Climate Change* (The National Academies Press 2016), available at <https://www.nap.edu/catalog/21852/attribution-of-extreme-weather-events-in-the-context-of-climate-change>

¹⁵ That is, as a statistical risk factor.

that it is not possible to give a simple yes or no answer to the question of whether a particular event was caused by climate change, rather what can be measured is how global warming made the event more intense¹⁶, or likely to occur¹⁷. However, this methodology does not imply that there is no relationship between cause and effect, simply because the relationship is a statistical one. As US based scientist Michael Mann noted in a recent news article, global warming caused by greenhouse gas emissions is a significant risk factor for extreme weather, and event attribution implies a causal relationship in the same way that statistical evidence proves that smoking cigarettes increases the risk of lung cancer.¹⁸

18. As we noted in the JENRL article, there is a long history of cases in the England and Wales and US accepting probabilistic statistical evidence of risk in toxic tort contexts.¹⁹ However, some recent event attribution studies have shown that some heat events have become so extreme that they are not simulated in the world without human influence, meaning that they are entirely human caused.²⁰ This shows that climate change is pushing certain heat-related events beyond the bounds of what is possible through natural variability²¹ alone.²²

19. To take some examples to illustrate the probabilistic nature of the inquiry, after Hurricane Harvey hit the south of the United States in September 2017, an event attribution study was undertaken, analysing the record high rainfall generated by the storm.²³ The conclusions of that study were that global warming made the heaviest 3-day rainfall about 15% more intense, and the event itself about three times more likely. In relation to the extreme heat of 2018 currently being experienced in Northern Europe, a rapid event attribution study published on 27 July 2018 found that human influence had made the event at least twice and up to 5 times as likely.²⁴ In another recent study of the current drought in the Western Cape region of South Africa,

¹⁶ Affecting its magnitude or strength.

¹⁷ Affecting the probability or chance of it occurring.

¹⁸ <https://www.theguardian.com/environment/2018/jul/27/extreme-global-weather-climate-change-michael-mann>

¹⁹ See note 8 at pages 280-282.

²⁰ Three studies in *Explaining Extreme Events of 2017 from a Climate Perspective* contained this finding, examining the 2016 global heat record, an oceanic heatwave off the coast of Alaska and a heatwave in Asia.

²¹ The normal and natural variation in climate and weather that is not caused by human influence.

²² As noted in Stephanie C. Herring and others (eds), 'Explaining Extreme Events of 2016 from a Climate Perspective' (2018) 99(1) Bull Amer Meteor Soc S1-S157 www.ametsoc.net/eee/2016/2016_bams_eee_low_res.pdf accessed 22 March 2018.

²³ Van Oldenborgh et al, 'Attribution of extreme rainfall from Hurricane Harvey, August 2017' (13 December 2017) *Environmental Research Letters* 12(12) available at <http://iopscience.iop.org/article/10.1088/1748-9326/aa9ef2>

²⁴ <https://www.worldweatherattribution.org/analyses/attribution-of-the-2018-heat-in-northern-europe/>

researchers found that humans have increased the chances of this rare event (return time²⁵ of greater than 100 years) by a factor of 3.²⁶

20. It should be noted that not all attribution studies find a climate signal.²⁷ Some studies return results that show that the particular event falls within the range of natural variability. The uncertainty surrounding some kinds of methodologies and events can also mean that researchers cannot come to a definitive conclusion about the certain events.²⁸
21. There also remains uncertainty in many attribution studies that analyse tropical cyclones, given the complex drivers of these kinds of storms. Although scientists say that they are confident in the finding that tropical storms will become more *intense* with global warming, the United States National Academy of Sciences Report referred to in paragraph 15 found that event attribution studies of tropical storms had not yet untangled the complex relationships driving these events.²⁹
22. Nevertheless, scientists have studied some of the most destructive elements of tropical storms, such as heavy rainfall (such as in the study of Hurricane Harvey mentioned earlier), or storm surges (which will be worsened by rising sea levels). In 2015, a group of scientists studied the impact of climate change on the storm surge occurring with Typhoon Haiyan, calculating that maximum storm surges in the Gulf of Letye may be worse by up to 20% as a result of human greenhouse gas emissions.³⁰
23. This reference brings the concept of impact attribution or of socio-economic impact to the fore – because certain extreme weather events, such as a severe storm, may have greater impacts on a particular region or city because of its vulnerability to the event. Interest in these kinds of impact attribution studies is high, because they may provide actionable information to emergency managers and a range of stakeholders.³¹ One of the first such studies was conducted on the heat-related deaths arising from the 2003 European

²⁵ A return time or return period is a statistical measure of how likely a rare event is to occur. For example, a 10-year flood has a $1/10 = 0.1$ or 10% chance of being exceeded in any one year and a 50-year flood has a 0.02 or 2% chance of being exceeded in any one year. It should be noted that this does not mean that a 100-year flood will happen regularly every 100 years, or only once in 100 years. In any *given* 100-year period, a 100-year event may occur once, twice, more, or not at all. The return time is an expression of how rare an event is, and is often used by engineers when designing the resilience of structures.

²⁶ <https://www.worldweatherattribution.org/analyses/the-role-of-climate-change-in-the-2015-2017-drought-in-the-western-cape-of-south-africa/>

²⁷ Meaning, the elements of statistical data that are deterministic (ie, imply a relationship between cause and effect) as opposed to ‘noise’ which is data that rendered meaningless by the existence of too much variation.

²⁸ Such as, for example, in this study of Hurricane Gonzalo, Feser et al, (2015) Bull. Amer. Meteor. Soc., 96 (12), S51-55.

²⁹ See note 14.

³⁰ Takayabu et al, ‘Climate change effects on the worst-case storm surge: a case study of Typhoon Haiyan’ in (June 2015) *Environmental Research Letters*, 10(6) available at <http://iopscience.iop.org/article/10.1088/1748-9326/10/6/064011/meta> accessed 2 August 2018.

³¹ As noted in Stephanie C. Herring and others (eds), ‘Explaining Extreme Events of 2016 from a Climate Perspective’ (2018) 99(1) Bull Amer Meteor Soc S1–S157 www.ametsoc.net/eee/2016/2016_bams_eee_low_res.pdf

heatwave, in which researchers used epidemiological and other statistical techniques to link heat-related mortality to high temperatures in Paris and London. They found that human-caused climate change increased the risk of heat-related mortality in central Paris by ~70 per cent and directly contributed to approximately 506 (± 51) deaths.³²

b) Event Attribution Science and the Law

24. The increased knowledge of the causes and drivers of extreme weather provided by event attribution studies and other predictive climate studies is important for the law, because these studies provide information about the specific ways in which global warming is changing expected weather patterns around the world, which is and will continue to impact the effective enjoyment of human rights. A finding of increased frequency or intensity of a particular event or class of events at different levels of greenhouse gas concentrations in the atmosphere means that the *foreseeability* of certain kinds of extreme weather events is improving.
25. Event attribution science can tell us how global warming is increasing the chances of specific kinds of extreme weather, and in the process could provide important information about how to prepare for and adapt to such a future. In both articles, we concluded that the information generated by event attribution studies will therefore be important to governments, companies and others charged with protecting people from the physical impacts of climate change.
26. Specifically, the predictive information generated by event attribution studies could be relevant to liability arising from failures to adapt to climate change in the future. This is because foreseeability is an important element in the establishment of liability in a number of legal systems around the world. As we noted in the JENRL Article,

“[t]he state of attribution science will be influential in evaluating causation issues in such lawsuits and for establishing the foreseeability of weather events that were previously regarded as unpredictable. By identifying and quantifying the human influence on the extreme weather events that are increasingly causing more severe and widespread loss, damage and human suffering, this branch of science should prompt consideration of the legal implications of a world where more frequent and severe extreme weather events are not only preventable, but demonstrably reasonably foreseeable. The techniques developed in event attribution science can also provide valuable information about the future risks of such events to emergency managers, regional planners and policy-makers at all levels of government, and this is likely to have implications for the planning and management of

³² Daniel Mitchell and others, ‘Attributing Human Mortality During Extreme Heat Waves to Anthropogenic Climate Change’ (2016) 11 Environ Res Lett, Article 074006 <https://doi.org/10.1088/1748-9326/11/7/074006>

building codes, land use, water, health and food management, insurance and transportation networks.”³³

27. Climate change litigation is a broad term and covers a wide range of lawsuits under a number of different legal theories. In the Nature Geoscience article, we drew general conclusions regarding the implications of event attribution science and better predictive information about extreme weather for claims against those with responsibilities for keeping people and assets safe. Essentially, we noted that as foreseeability of specific events increases, those with duties of care may face liability risk if they do not adequately prepare for the climate of the future. Specifically, we noted that governments, professionals and companies may owe duties of care and diligence in respect of extreme weather related impacts arising from climate change.

28. Firstly, governments may owe duties to citizens under constitutional rights, human rights obligations, or the public trust doctrine. Many governments and their agencies also manage and operate emergency management systems, as well as a wide range of public services and physical assets, all of which will be impacted by increasing extreme weather events. Data generated by event attribution science may be of particular importance to sub-national governments such as cities in the context of making spatial planning decisions that impact, for example, local flood management systems. Failure to take climate-related impacts into account in these decisions may expose these entities to liability risk.³⁴

29. Professionals and companies that manage people *and* physical assets that are exposed to climate-related risk are also likely to be under legal duties to assess and integrate up-to-date climate science into their management decisions. For professionals and companies that design, construct, manage own or operate physical assets, a failure to consider climate-related impacts could lead to charges of negligence, through a failure to meet the standard expected of a reasonably prudent professional. As we noted in the Nature Geoscience article:

*“where old and arguably out of date building codes and standards are applied automatically by architects, engineers, planners and builders, or where standards are not updated based on the best available climate science these construction professionals may expose themselves to litigation”.*³⁵

³³ JENRL Article at page 266, see reference at note 8.

³⁴ For example, this may arise from a failure to adequately prepare for increased heatwave and wildfire risks, leading to impacts on persons within the care of the State, or to whom it owes protective obligations. After Hurricane Katrina suits were brought against the United States Army Corps of Engineers, who were responsible for maintaining the failed levees that caused widespread flooding and devastation in New Orleans: *Re Katrina Canal Breaches Litig.* 696 F 3d 436, 441 (5th Cir 2012)

³⁵ Marjanac, Patton and Thornton, ‘Acts of God human influence and litigation’ *Nature Geoscience* Vol 10, September 2017, 617-618.

30. In respect of company directors, in many jurisdictions around the world, company directors have fiduciary legal duties to act in the best interests of their company, with a requisite level of care, due diligence and skill. The prudent management of foreseeable risk is a key element of this duty.³⁶ Recent Australian legal opinion concluded that:

“[i]f the country is to experience more frequent and intense storms, for example, of the type that might cause flooding and power outages, then directors of companies exposed to such risks should be considering them regardless of whether they are perceived to be brought about by climate change, and regardless of the regulatory outlook. In this sense, climate change has the potential to be a distracting label. The question is really whether there is a foreseeable risk to the interests of a company.”³⁷

31. For example, many of the respondent companies to this Petition are likely to need to take increasing disruption to supply chains caused by extreme weather into account in managing their complex global businesses, or they could face negative financial and legal consequences. It is therefore important that the results of event attribution studies are integrated into the catastrophe and loss models used by the private sector.

32. I was asked by the petitioners to respond to the question of whether event attribution science itself could assist communities in securing compensation from corporations to cover the costs of adaptation. In responding to this question, it is important to point out that event attribution science identifies the way that human greenhouse gas emissions changes extreme weather, but that it does *not* identify who or what emitted or released those gasses into the atmosphere. The work of social scientists has attempted to answer the question of ‘who’ may have been responsible for historic greenhouse gas emissions.³⁸ Therefore, event attribution science is only one part of the evidence that would be required to establish a claim to compensation from a corporation.

33. To date, the science of probabilistic event attribution has not been tested in a trial in the courts. However, there is clearly potential for event attribution studies, and particularly impact attribution studies, to be useful in climate cases by providing evidence of the specific loss and damages suffered by a particular community. In terms of this evidence being accepted by courts,

³⁶ A set of papers on the legal duties of company directors in the face of climate risk has been published by the Commonwealth Climate and Law Initiative and is available at: <https://ccli.ouce.ox.ac.uk/>

³⁷ Hutley, N & Hartford-Davis, S ‘Climate change and directors’ duties’ (Centre for Policy Development, 2016).

³⁸ See the work of Richard Heede, which attributes 63 per cent of global carbon dioxide equivalent emissions to the products of 90 investor-owned, state-owned, nation-state producers of oil, natural gas, coal and cement from as early as 1854 to 2010. Richard Heede, ‘Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854–2010’ (2014) 122 *Climatic Change* 229, and the latest work attributing temperature rise to each of these actors: B. Ekwurzel and others, ‘The Rise in Global Atmospheric CO₂, Surface Temperature, and Sea Level from Emissions Traced to Major Carbon Producers’ (2017) 144 *Climatic Change* 579.

there is no reason in principle why event attribution science and its methodologies could not pass the applicable test/s for admissibility of expert evidence in courts of law in the United States or England and Wales, for example, although this is yet to be tested.³⁹

34. Overall, event attribution science could have a significant impact on identifying the extent to which human activity causes or contributes to events that were previously seen as random, unpredictable ‘Acts of God’. Better information about impacts of man-made climate change at an individual, local level should be of particular interest to governments, professionals and companies, who not only have to keep assets safe, but also to protect people from the worsening weather that is caused by continued emissions of greenhouse gasses.

c) Corporate Reporting and Directors’ Duties

35. As discussed in the JENRL article, there is currently significant interest among global investors in the disclosure of climate-related financial risk by large companies. This arose from the recognition by the Bank of England in 2015 that climate change poses risks to companies as well as systemic risks to the financial sector as a whole.⁴⁰ In 2016, the Task Force on Climate-related Financial Disclosures (TCFD) (chaired by Michael Bloomberg) was established and it presented its final recommendations report to the G20 conference in 2017. The objective of the TCFD was to issue recommendations for a methodology by which companies could voluntarily disclose climate-related financial risks to the market, in the interests of improving financial stability through the disclosure of information regarding material risks.

36. Many investors are seeking this information so that they can better understand not only the exposure of companies to these kinds of risks, but the capacity of management to manage and mitigate such risks. The TCFD’s final recommendations report⁴¹ gives specific guidance on how large companies should quantify and disclose both:

- a. risks from the physical impacts of climate change;
- b. transition risks, which arise from the transition to a low carbon economy, and include the risk of stranded assets; and
- c. associated litigation risks.⁴²

³⁹ See discussion in JENRL article, cited note 8 at page 279.

⁴⁰ Prudential Regulation Authority, ‘The Impact of Climate Change on the UK Insurance Sector: A Climate Change Adaptation Report by the Prudential Regulation Authority’ (Bank of England, September (2015) www.bankofengland.co.uk/prad/ Documents/supervision/activities/pradefra0915.pdf

⁴¹ Available at <https://www.fsb-tcf.org/publications/final-recommendations-report/>

⁴² Stranded assets are coal, oil or gas assets that could lose value if climate regulation or market forces drive the world toward an economy that is much less dependent on fossil fuel energy.

37. The implementation of the TCFD's recommendations is currently being considered by financial sector regulators around the world. Much of the current debate around the TCFD recommendations relates to their integration into national corporate governance and reporting frameworks. There is some support for the TCFD recommendations from financial regulators and governments.⁴³ For example, the UK Government has endorsed the TCFD recommendations⁴⁴ and the UK's recent Green Finance Taskforce report includes proposals in relation to regulator implementation of the TCFD recommendations in the national corporate governance and reporting framework.⁴⁵ In the EU, the recently launched Sustainable Finance Action Plan states that the European Commission will provide guidance on how to disclose in line with the TCFD recommendations by Q2 2019.⁴⁶
38. Under existing laws governing the disclosure of risk (such as in company annual reports), many companies are already required to disclose risks arising from climate change, regulatory risk and market driven disruptions.⁴⁷ Several of the defendant companies named in this Petition already provide disclosure to shareholders regarding the three classes of climate related risk: physical, transition and liability risks.⁴⁸ Some of them have committed to provide disclosure in line with the recommendations of the TCFD's report,⁴⁹ a key aspect of which is the disclosure of a two-degree scenario analysis, in which the company assesses its operations in a world in which the world succeeds in meeting the Paris Agreement goal of keeping global temperature rise at two degrees. Several respondent companies have already published, or committed to publish 2-degree scenario analyses, some voluntarily, and some after demands from investors.⁵⁰

⁴³ <https://www.fsb-tcfid.org/tcfid-supporters-july-2018/>

⁴⁴ Claire Perry, 2017. Minister Claire Perry reflects on her time at Climate Week available at: <https://www.gov.uk/government/speeches/minister-claire-perry-reflects-on-her-time-at-climate-weeks> accessed 2 April 2018.

⁴⁵ Green Finance Taskforce, 2018. Accelerating Green Finance [Online] Available at: <http://greenfinanceinitiative.org/wp-content/uploads/2018/03/Accelerating-Green-Finance-GFT-FINAL-report.pdf>, accessed 2 April 2018.

⁴⁶ European Commission, 2018. Action Plan: Financing Sustainable Growth Available at: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018DC0097&from=EN> accessed 2 April 2018.

⁴⁷ In the UK, this is required to be included in the Strategic Report by Section 414C of the Companies Act 2006. This was recently confirmed by the UK's Financial Reporting Council in its revised *Guidance on the Strategic Report* released on 31 July 2018. The revised guidance clarifies that climate risks and opportunities may be a trend and factor required to be disclosed by quoted companies, and that these may constitute principal risks and have an impact on business model and strategy, requiring disclosure under section 414C of the UK Companies Act 2006. Available at <https://www.frc.org.uk/news/july-2018/revised-guidance-on-the-strategic-report> accessed 2 August 2018.

⁴⁸ See for example page 13 of Royal Dutch Shell's 2017 Annual Report and Form 20-F, available at <https://reports.shell.com/annual-report/2017/>, which provides a detailed disclosure regarding the risks of climate change regulation and litigation risk to the business of Shell.

⁴⁹ For example, BHP states that it aligns its disclosures with the recommendations of the TCFD. <https://www.bhp.com/environment/climate-change>.

⁵⁰ For example, in February 2018 ExxonMobil published a report containing a 2-degree scenario analysis after a shareholder resolution requesting it do so secured over 60% of the vote at its AGM in 2017. Available at <https://news.exxonmobil.com/press-release/exxonmobil-releases-energy-carbon-summary-and-outlook-energy>. BP, Chevron, Conoco Phillips, ENI, Exxon Mobil, Royal Dutch, Shell, Statoil and Total have also published 2-degree scenario analyses which have been analysed by the NGO Carbon Tracker Initiative in this report: Carbon Tracker Initiative, (21 May 2018) 'Under the microscope: Are companies' scenario analyses meeting investors' requirements?' available at <https://www.carbontracker.org/reports/under-the-microscope/> accessed 31 July 2018.

39. This is important to this national inquiry as it demonstrates that the expectations of both investors and financial regulators⁵¹ regarding climate risk reporting by the respondent companies to this Petition are likely to increase over the coming years. Given that additional disclosure on this topic is the clear direction of travel, it is reasonable to expect that the respondent companies disclose how they intend to respect human rights by publishing business plans that describe their operations and activities in a world in which global warming is kept to well-below 2 degrees. ClientEarth recommended that the Commission make such a recommendation as part of its *amicus curiae* brief dated 21 November 2018. This recommendation now appears entirely reasonable, given that many of the respondent companies to this Petition have already published or may be required to produce similar reports as part of emerging disclosure frameworks under financial regulation.
40. Disclosure in accordance with the TCFD's guidance will assist companies to prepare for the coming transition to a low carbon economy, by preparing executives for a range of possibly disruptive futures. It is also likely to assist companies in meeting their *existing* legal obligations in respect of climate related disclosure.⁵² It could also help these companies to prepare for the physical disruption that will eventuate from increasing extreme weather events and rising sea levels.
41. As noted above, ClientEarth is part of a research, education and outreach project known as the Commonwealth Climate and Law Initiative, together with academics from several Universities as well as lawyers from private practice and financial professionals.⁵³ In April 2018, the CCLI released four papers analysing the duties of company directors and trustees to take climate-related financial risk into account in business and investment decisions under the laws of the UK, Australia, South Africa and Canada.⁵⁴ The practitioners and academic experts in each jurisdiction reached similar conclusions in

⁵¹ Several financial regulators around the world are now considering the macro-economic risks of climate change to the economy as a whole: Prudential Regulation Authority, 'The Impact of Climate Change on the UK Insurance Sector: A Climate Change Adaptation Report by the Prudential Regulation Authority' (Bank of England, September 2015) www.bankofengland.co.uk/pradefra0915.pdf accessed 22 March 2018; in Australia, see Geoff Summerhayes, 'Australia's new horizon: Climate change challenges and prudential risk' (Australian Prudential Regulation Authority, 17 February 2017) www.apra.gov.au/Speeches/Pages/Australias-new-horizon.aspx accessed 22 March 2018. Timothy Lane, 'Thermometer Rising - Climate change and Canada's Economic Future' (Bank of Canada 2 March 2017) www.bankofcanada.ca/2017/03/thermometer-rising-climate-change-canada-economic-future accessed 22 March 2018; and French Treasury, 'Assessing Climate change-related risks in the banking sector: synthesis of the project report submitted for public consultation with regard to Article 173 (V) of the 2015 French Energy Transition Act' (French Treasury, 2017) www.tresor.economie.gouv.fr/File/433465 accessed 22 March 2018.

⁵² Staker et al, Concerns Misplaced: Will compliance with the TCFD recommendations really expose companies and directors to liability risk? (Sept 2017), available at <https://ccli.ouce.ox.ac.uk/wp-content/uploads/2017/10/CCLI-TCFD-Concerns-Misplaced-Report-Final-Briefing.pdf>

⁵³ Partners include ClientEarth, the University of Oxford, Osgoode Hall Law School at York University, the Centre for Resources, Energy and Environmental Law at Melbourne Law School, the South African Institute of Chartered Accountants, Accounting4Sustainability, Ceres, the Centre for Environmental Rights and the law firm Minter Ellison.

⁵⁴ Available at <https://ccli.ouce.ox.ac.uk/publications/>

relation to the duties of directors to consider, actively manage and disclose climate-related financial risk to their business – that is, corporate law in these countries already requires prudent directors to consider, actively manage and disclose both physical and transition risks which present material financial risks to the company.

42. These legal requirements arise from the fiduciary duties that directors owe their company, which, although distinct in each jurisdiction, share some degree of commonality and require directors to act in the best interests of their company, and with reasonable prudence, due diligence and skill. The inquiry into whether a director has discharged their duty of care, skill and diligence focuses on robust decision-making process, rather than the content of a particular decision.⁵⁵ Laws in some jurisdictions expressly *oblige* directors to have regard to the environment and the community in their pursuit of the best interests of the company, and in other jurisdictions, at least *permit* them to do so as part of the requirement to reflect on the interests of the company as a good corporate citizen'.⁵⁶

43. This analysis shows that at least some of the directors of the respondent companies to this Petition may have existing legal duties under company law, to take account of and manage climate-related financial risks to their companies, including risks arising from more extreme weather events. This is relevant to the human rights responsibilities these companies may also have under other frameworks such as the United Nations Guiding Principles on Business and Human Rights (UNGPs) as it demonstrates that company directors are not required by corporate law to pursue profit on behalf of shareholders *at the expense of* other stakeholders. In fact, the law in several Commonwealth countries actually expressly requires company directors to take stakeholder interests, including the environment and human rights, into account when pursuing the interests of the corporation. Accordingly, there is no barrier in corporate law to a finding by this Commission that the UNGPs

⁵⁵ *Companies Act 2006* s174; CCLI, Country Paper - UK p20.

⁵⁶ CCLI, Country Paper – UK, 13 citing *Companies Act 2006* s172(1); CCLI, Country Paper – SA, 11; CCLI Country Paper – Canada, 9-10. In the UK, an enlightened shareholder value model has been adopted whereby the duty to act in the best interests of a company in section 172(1) of the Companies' Act specifies that director's must have regard to stakeholder interests, which explicitly include the environment:

(1) A director of a company must act in the way he considers, in good faith, would be most likely to promote the success of the company for the benefit of its members as a whole, and in doing so have regard (amongst other matters) to—

(a) the likely consequences of any decision in the long term,

(b) the interests of the company's employees,

(c) the need to foster the company's business relationships with suppliers, customers and others,

(d) the impact of the company's operations on the community and the environment,

(e) the desirability of the company maintaining a reputation for high standards of business conduct, and

(f) the need to act fairly as between members of the company. [Emphasis added].

In Canada, the Courts have found that 'the best interests of the corporation' should not simply be read as 'the best interests of the shareholders' and that other factors may be relevant in determining how the directors' should manage the company's best interests. In executing its duty of loyalty to the corporation, the board of directors is required to reflect on the interests of the corporation both as an economic actor and as a "good corporate citizen": *Peoples Department Stores Inc (Trustee of) v Wise*, 2004 SCC 68, [2004] 3 SCR 461.

require companies to undertake a due diligence process relating to the human rights impacts of climate change, or that such due diligence should include the production of a report that describes how the company will support the goals of the Paris Agreement by mitigating emissions to so as to limit global warming to well below 2-degrees Celsius.⁵⁷

44. In my opinion, the implications of the legal duties of company directors for the management of climate change remains an open question that may one day be tested in court. As we know that scientific evidence predicts confidently that a world where warming exceeds 2-degrees will have severe and in some places catastrophic impacts on human civilisation, disrupting both the economy and human rights, one may ask whether a company director acting in the best financial interests of his or her company⁵⁸ should continue to invest in fossil fuel projects that will take the world above that threshold. This may be relevant to the Commission's inquiry in considering the content of the due diligence process that companies should undertake under the UNGPs relating to climate change.

45. Finally, I would also like to draw the Commissions' attention to the fact that a number of major institutional shareholders in the respondent companies recognise the risks of climate change to the environment and the economy, and expect the companies to demonstrate their commitment to the Paris Agreement by reducing their emissions. The Investor Agenda is supported by asset owners and managers holding \$28 trillion in assets, and aims to "provide[...] comprehensive guidance for investors to transition the world's financial capital to low-carbon opportunities, and a mechanism to report on their progress."⁵⁹ The ClimateAction 100+ Initiative is part of the Investor Agenda and was launched at the President of France, Emmanuel Macron's One Planet Summit in December 2017. It is a collaboration through which some of the world's largest and most influential investors plan to actively engage with the 100 most carbon intensive companies in the world (many of whom are respondents to this Petition). The objective of the initiative is securing commitments from boards and senior management to:

- "Implement a strong governance framework which clearly articulates the board's accountability for and oversight of climate change risk and opportunities.
- Take action to reduce greenhouse gas emissions across their value chain, consistent with the Paris Agreement's goal of limiting global average temperature increase to well below 2-degrees Celsius above pre-industrial levels.

⁵⁷ See ClientEarth Amicus Curiae Brief presented by ClientEarth Re: National inquiry on the impact of climate change on the human rights of the Filipino people, 21 November 2016, p 6 available at <https://www.documents.clientearth.org/library/download-info/amicus-curiae-brief-presented-by-clientearth-re-national-inquiry-on-the-impact-of-climate-change-on-the-human-rights-of-the-filipino/>

⁵⁸ As required by section 172 of the Companies Act 2006 (UK).

⁵⁹ <https://theinvestoragenda.org/>

- Provide enhanced corporate disclosure in line with the final recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and sector-specific Global Investor Coalition on Climate Change Investor Expectations on Climate Change (when applicable) to enable investors to assess the robustness of companies' business plans against a range of climate scenarios, including well below 2-degrees Celsius scenarios, and to improve investment decision-making."⁶⁰

46. This demonstrates that many shareholders in the respondent companies have already started to demand greater action from the respondent companies to not only disclose in accordance with the TCFD, but also to mitigate their direct and indirect greenhouse gas emissions, in order to implement the Paris Agreement and prevent the significant human rights impacts of climate change around the world.

47. As stated in ClientEarth's amicus curiae brief, we found that the UNGPs require the respondent companies to this Petition, and others, to both undertake a due diligence process regarding the impact of climate change on human rights, and to seek to prevent or mitigate adverse human rights impacts. In our opinion, an effective human rights due diligence process in the context of climate change should:

- a. ensure that the company has a strong governance framework by which corporate management acknowledges and describes how they assess and manage the impact of their operations' contribution to climate change on human rights;
- b. make a commitment to reporting on climate-related risks in accordance with the TCFD recommendations report; and
- c. include a robust analysis (developed in consultation with stakeholders) of the company's direct and indirect greenhouse gas emissions in the context of the well below 2-degree temperature goal in the Paris Agreement; and
- d. describe how the company will reduce emissions from its operations and products in line with the global carbon budget implied by the well below 2-degree temperature goal, in order to respect human rights.



Signed:

Sophie Jelena Marjanac

Date: 3 August 2018

At: London, United Kingdom

⁶⁰ <http://www.climateaction100.org/>