

Who is responsible for increasing the risks of climate change?

Updated on 14 February, 2017

Accumulated emissions from the fossil fuel industry have contributed to consistently elevated levels of atmospheric carbon dioxide. Higher levels of atmospheric carbon dioxide lead to an increase in global atmospheric temperatures, which result in a multitude of climate change impacts that can harm the human rights of, and result in significant financial loss to,¹ affected communities.

Climate change threatens the human rights of millions of people in communities around the world who are already experiencing rising sea levels, increasingly severe floods and storms, groundwater contamination, health impacts, forced displacement and relocation, and other adverse impacts. Climate change puts people's lives at risk, makes it harder to access water and food, harder to make a living, harder to find a safe space to live and harder to protect rich cultural heritage.

What if it were possible to estimate how much oil, coal and natural gas has been extracted, produced and burnt since the industrial revolution, and to estimate how much these fossil resources had contributed to the current levels of carbon in the atmosphere?

Richard Heede, a scientist and managing director of a private consultancy focused on developing emissions inventories, has done exactly that. Heede's research on the cumulative (historic) carbon emissions from 90 carbon producers, which he calls the Carbon Major Entities (CMEs) or Carbon Majors, was peer reviewed in 2013 and published in the journal *Climatic Change*.²

The base year for Heede's analysis is 1854. The earliest production data is available for that year. He then compared his results to data from the U.S. Department of Energy's (DOE) Carbon Dioxide Information Analysis Center (CDIAC) database for fossil fuel emissions of CO₂, flaring, and cement production, which dates back to as early as 1751 (in the case of coal).

Based on the best available data, Heede has estimated the cumulative carbon pollution each Big Polluter has historically contributed, and compared that to the best global estimates for emissions from all sources. This means that those who have been the biggest contributors to greenhouse gas emissions so far can now be named and challenged on their contribution to climate change and the impacts we are now experiencing.

¹ The Economist Intelligence Unit (2015). *The Cost of Inaction: Recognizing the value at risk from climate change*.

https://www.eiuperspectives.economist.com/sites/default/files/The%20cost%20of%20inaction_0.pdf

² Heede, Richard (2014) *Tracing anthropogenic CO₂ and methane emissions to fossil fuel and cement producers 1854-2010*, *Climatic Change*, vol. 122(1): 229-241; For the original report see: Heede, R. 2014. *Carbon Majors: Accounting for Carbon and Methane Emissions 1854-2010. Methods and Results Report*, April 7, 2014. For more details on the Carbon Majors Updates see *Climate Accountability Institute: here*.

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Main findings of Richard Heede's research

The primary driver of climate change is not current emissions, but the cumulative (historical) emissions that have been extracted and pumped out since the industrial revolution. The research carried out by Heede estimated, for the first time, the extent to which 90 named entities - the largest multinational and state-owned producers of crude oil, natural gas, coal, and cement - have contributed the lion's share of cumulative global CO₂ and methane emissions in the earth's atmosphere and are responsible for the majority of fossil fuel products produced, marketed, and sold since the industrial revolution.

These are the main findings of the Carbon Major research:³

- The 90 Carbon Majors, including (up to 2010) 50 investor-owned Carbon Major companies, are responsible for an estimated 1,104 Gt CO₂e of cumulative world emissions of industrial CO₂ and methane, or 64.8% of all anthropogenic CO₂ between 1751 and 2013;
- The top 20 investor-owned Carbon Majors contributed 294.6 Gt CO₂e, equivalent to 18.8% of the global historic emissions through 2013;
- The 49 (previously 50) investor-owned Carbon Majors companies contributed 337.7 Gt CO₂e, equivalent to 21.6% of estimated global industrial emissions through 2013.

Why the Carbon Major research matters

The Carbon Majors research is solid evidence that there are a few corporate culprits that are largely responsible for the human rights impacts that are being experienced by individuals and communities. More importantly, the research is also important in identifying which companies must urgently change business plans if we are to prevent the most dangerous impacts of climate crisis.

In 2015, 18 Filipinos from communities living on the frontlines of climate change, supported by 14 Filipino civil society organisations, including Greenpeace Southeast Asia, petitioned the Commission on Human Rights of the Philippines (CHR) to investigate the Carbon Majors for 'violating or threatening to violate the human rights of all Filipinos by significantly contributing to global climate change and failing to reduce emissions, despite having the capacity to do so'.

The Petitioners asked the Commission, among other things, to require the companies to submit plans on the steps they will take to eliminate, remedy and prevent the devastating effects of climate change, in a country known to be one of the world's most vulnerable to the effects of climate change.

- Of the listed 49 entities, only 47 were notified due to acquisitions.⁴ Of those, 41 are fossil fuel companies and 6 are cement companies.⁵
- In July 2016, the Commission issued an Order to the 47 "Carbon Major" companies enjoining them to answer or comment on the Petition.
- In December 2016, the Commission confirmed that it would push ahead with the national inquiry and proceed with planned public hearings in Manila, as well as in communities that have suffered the impacts of devastating storms. The Petitioners anticipate that the hearings will begin in April or May this year.⁶
- As of [February 2017](#), of the notified 47 Carbon Majors, 14 submitted answers to the Commission on Human Rights in the Philippines (CHR) and the petitioners. 11 sent explanations to the Business and

³ All findings are based on: Heede, R. 2015. Carbon Major Entities Cumulative Emission to 2013 Ranked, Climate Accountability Institute. February, 2015. Made available to Greenpeace Southeast Asia and Greenpeace International upon request in April 2016. An older version is online at: <http://climateaccountability.org/pdf/SumRanking%20Dec14%208p.pdf>. For more details on the Carbon Majors Update to 2013 see Climate Accountability Institute: http://climateaccountability.org/carbon_majors_update.html. The research is regularly updated.

⁴ Repsol was notified for Repsol and Talisman. *Repsol was already on the list.* Alpha Natural Resources was notified for Alpha Natural Resources and Massey Energy. *Alpha Natural Resources was already on the list* Glencore was notified for Xstrata. *Glencore is new on the list.* Freeport-McMoRan was notified for Cyprus Amax. *Freeport McMoRan is new on the list.* Rosneft has been added to the list.

⁵ The cement companies are: Holcim (Switzerland), Cemex (Mexico), Taiheiyo (Japan), Italcementi (Italy), HeidelbergCement (Germany) and Lafarge (France).

⁶ Business & Human Rights Resource Centre, <https://business-humanrights.org/en/philippines-commission-on-human-rights-announces-public-hearings-of-fossil-fuels-firms-over-climate-human-rights-impacts>

Human Rights Resource Centre (BHRC),⁷ noting that 4 of these also responded to the Commission and petitioners.

The fossil fuel industry has a moral and legal obligation to prevent business activities from harming people and communities. The industry knew about climate change half a century ago, yet continues to mine, drill and burn fossil fuels while those most vulnerable face the ever-increasing devastating impacts of climate change. But these communities have had enough and are rising up and reaching for a better future by challenging fossil fuels.

The Filipino petitioners are part of a flourishing climate justice movement who are taking legal action to reclaim their lives and livelihoods and fighting on behalf of all of us for the right to a stable climate and healthy environment.

Table: Ranking by % Cumulative Global Emissions per Carbon Major Entity (CME) 1751 2013

Ranking by % Cumulative global emissions, 1751 - 2013

Carbon Major Entity	Country	Cumulative MtCO ₂ e 2010	Cumulative MtCO ₂ e 2013	% Cumulative global, 1751- 2013
Chevron	USA	51.096	52.247	3.34%
ExxonMobil	USA	46.672	48.557	3.10%
BP	UK	35.837	37.251	2.38%
Royal Dutch Shell	Netherlands	30.751	32.171	2.06%
ConocoPhillips	USA	16.866	17.553	1.12%
Peabody Energy	USA	12.432	13.869	0.89%
Total	France	11.911	12.884	0.82%
Consol Energy, Inc.	USA	9.096	9.254	0.59%
BHP Billiton	Australia	7.606	8.649	0.55%
Anglo American	UK	7.242	7.478	0.48%
Arch Coal	USA	5.888	6.766	0.43%
ENI	Italy	5.973	6.634	0.42%
RWE	Germany	6.843	6.472	0.41%
Rio Tinto	UK	5.961	6.248	0.40%
Anadarko	USA	5.195	5.517	0.35%
Occidental	USA	5.063	5.392	0.34%
Alpha Natural Resources	USA	2.149	4.847	0.31%
Lukoil	Russian Federation	3.873	4.740	0.30%
Rosneft	Russian Federation		4.153	0.27%
Sasol	South Africa	3.515	3.875	0.25%
Repsol	Spain	3.381	3.524	0.23%
Marathon	USA	2.985	3.182	0.20%
Xstrata (acquired by	Switzerland	2.223	3.177	0.20%

⁷ Business and Human Rights Resource Centre (BHRC) 2016. Fossil fuel firms respond to petition before Philippines Human Rights Commission on human rights & climate impacts.
<https://businesshumanrights.org/en/fossil-fuel-cos-respond-to-petition-with-philippines-human-rights-commission-on-human-rights-climate-change-impacts>.

Glencore)				
Yukos (does not exist anymore)	Russian Federation	2.858	2.858	0.18%
Hess	USA	2.364	2.525	0.16%
Devon Energy	USA	1.690	2.015	0.13%
EnCana	Canada	1.695	1.940	0.12%
BG Group	UK	1.543	1.830	0.12%
Cyprus Amax (now subsidiary of Freeport Minerals Corporation)	USA	1.748	1.748	0.11%
Suncor	Canada	1.407	1.645	0.11%
Westmoreland Mining	USA	1.530	1.642	0.10%
Kiewit Mining	USA	1.295	1.427	0.09%
Apache	USA	951	1.287	0.08%
North American Coal	USA	1.181	1.283	0.08%
Lafarge	France	1.044	1.232	0.08%
Canadian Natural Resources	Canada	958	1.208	0.08%
Holcim	Switzerland	1.008	1.197	0.08%
Luminant	USA	1.049	1.161	0.07%
Ruhrkohle AG	Germany	1.138	1.138	0.07%
Talisman, Canada (acquired by Repsol)	Spain	925	1.106	0.07%
Murray Coal	USA	796	1.085	0.07%
UK Coal	UK	794	844	0.05%
Husky Energy	Canada	665	800	0.05%
HeidelbergCement	Germany	587	677	0.04%
Cemex	Mexico	551	630	0.04%
Italcementi	Italy	463	544	0.03%
Murphy Oil	USA	418	503	0.03%
OMV Group	Austria	346	471	0.03%
Taiheiyo	Japan	402	427	0.03%
Massey Energy (acquired by Alpha Natural Resources)	USA	2.199	-	0.00%
Nexen, Canada (acquired by a state-owned company - not relevant to this petition)		651	-	0.00%
Total:		314.811	337.662	21.57%

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