

The Climate Responsibilities of Industrial Carbon Producers

WHO IS RESPONSIBLE FOR CLIMATE CHANGE?

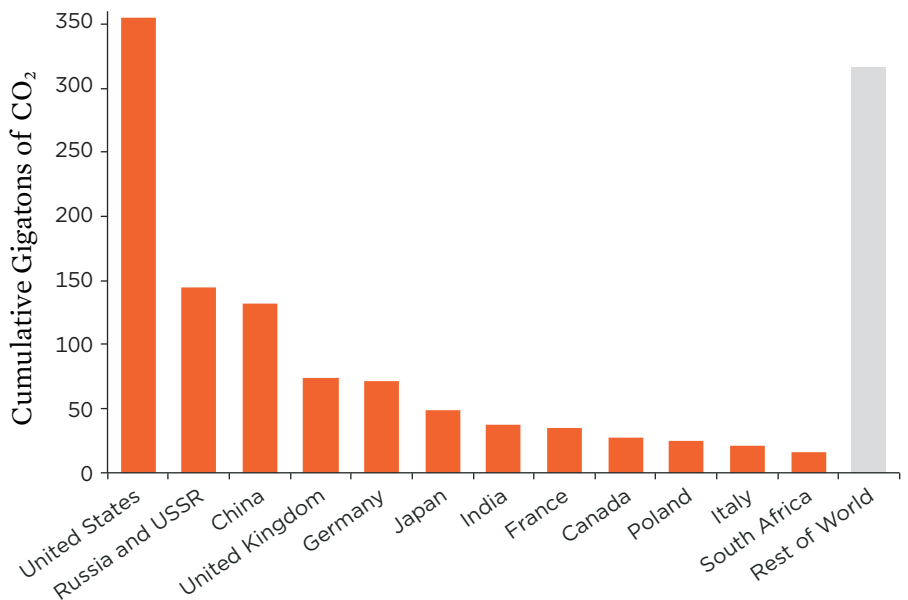
Recently published data show that just 90 entities have produced the fossil energy responsible for 63 percent of the world's industrial emissions of heat-trapping CO₂ and methane; of these, 50 are investor-owned companies such as Chevron, Peabody, and Shell. In the context of a global problem such as climate change, what is their responsibility?

As the scientific evidence became clear, many of these investor-owned companies sought to deny and sow doubt about the science linking their products to global warming, and today aggressively pursue the development of new fossil fuels. It's time for these companies to be held accountable for their contribution to global climate change and the harm their products have caused, and support solutions to reducing heat-trapping emissions.

Increasing heat, drought, wildfires, flooding, and rising sea levels—climate change is all around us. A wealth of scientific evidence shows that these impacts are the result of too much heat-trapping carbon being emitted into the atmosphere when we burn fossil fuels (coal, oil, and natural gas) to drive our cars, heat our homes, and power our lives. We know we need to reduce carbon emissions in order to avoid the most severe consequences of a warming world. But we also know communities are experiencing the impacts of climate change today. Who should be held accountable for climate change today and in the future? Who will pay for the damages?

There are several ways to think about responsibility for global problems. Individuals, corporations, and nation-states have all been found responsible for actions that harm people in various ways. There are also several approaches to

FIGURE 1. Top 12 Nations' CO₂ Emissions from Fossil Fuels and Cement, 1751–2010



Led by the United States, a small number of nations have emitted a large share of carbon pollution from fossil fuel and cement production. Cement manufacturing is a significant emitter of CO₂ (through the calcining of limestone), and accounts for 1.4 percent of the emissions attributed to major carbon producers.

NOTE: Depending on how and over what time frame global CO₂ emissions are allocated to entities such as nations, the order and magnitude of a given entity's contribution will differ; for more information see Frumhoff, Heede, and Oreskes n.d.

SOURCE: BODEN, MARLAND, AND ANDRES 2013.

quantifying this responsibility. The United Nations Framework Convention on Climate Change (UNFCCC) examines climate responsibility by nations, considering, for example, historic emissions in order to distinguish “common, but differentiated responsibilities.” By this accounting, industrialized nations have the greatest responsibility, commensurate with the emissions they have produced (see Figure 1, p. 1).

An additional approach to the UNFCCC nation-based framework is to consider the responsibility of the major investor-owned producers of fossil fuels; these companies have extracted and marketed the coal, oil, and natural gas whose use is the primary driver of disruptive climate change.

Why Focus on Industrial Carbon Producers?

CORPORATE RESPONSIBILITY

Social change often results when notions of responsibility shift (Gunningham, Kagan, and Thornton 2004). Tobacco, asbestos, and lead are prime examples of products that were once considered acceptable but have since been rejected following scientific understanding of their harmful effects (Oreskes and Conway 2010). Particularly in the case of tobacco, social and legal notions of responsibility shifted, recognizing that responsibility for harmful effects should be borne not just by individuals but also by the companies producing and marketing the products (Eubanks and Glantz 2012). The fact that the harmful product was legal did not absolve corporations of their responsibility to protect workers and consumers from harm (Markowitz and Rosner 2013; Castleman 2005). A similar argument can be applied to fossil energy producers: The fiduciary requirement of returning value to shareholders does not absolve corporations of other legal and ethical responsibilities relating to their products.

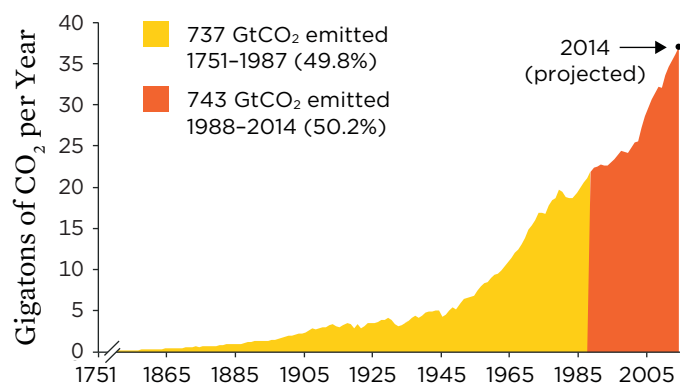
HISTORIC CONTRIBUTIONS

It is notable that a small number of companies have made a significant contribution to the total historic emissions driving disruptive climate change (see Figure 2). Indeed, just 90 entities have produced all the fossil fuels and cement responsible for 63 percent of the world’s industrial heat-trapping emissions since 1751 (Heede 2014). Of these, 50 are investor-owned coal, oil, and natural gas companies such as BP, Chevron, Peabody, and Shell.

KNOWING THE HARMS—AND FAILING TO ACT

It has been long established in the scientific community that the burning of fossil fuels is a major contributor to global climate change. Scientists have seriously discussed the

FIGURE 2. Annual Global CO₂ Emissions from Fossil Fuels and Cement, 1751–2014



Though the Industrial Revolution began more than 250 years ago, more than half of all industrial carbon emissions have been released only since 1988.

SOURCES: LE QUÉRÉ ET AL. 2014; BODEN, MARLAND, AND ANDRES 2013.

consequences of anthropogenic climate change since the 1950s and, by the late 1970s, scientific experts were convinced that disruptive climate change would occur. Fossil fuel energy companies certainly should have recognized that their products were harmful by 1988, the year in which James Hansen, a leading climate scientist and director of the NASA Institute for Space Studies, testified before the U.S. Congress that scientific data confirmed humans’ role in climate change (Wilford 1988). That same year, Congress introduced the National Energy Policy Act of 1988 in an effort to reduce the generation of heat-trapping gases, and the Intergovernmental Panel on Climate Change was created. Yet since then, more than half of all industrial emissions of CO₂ since the Industrial Revolution have entered the atmosphere (see Figure 3) (Frumhoff, Heede, and Oreskes n.d.).

How did the fossil fuel companies respond to the well-established scientific evidence of harm from their products? They could have adjusted their business models to anticipate policies motivating a transition to low-carbon energy by substantially investing in low-carbon energy technologies, constructively engaging in policy design, and taking other steps to reduce the adverse impact of their products.

But they did not.

Some fossil energy companies have advertised a commitment to renewable energy, while at the same time encouraging the expanded use of their fossil fuel products they know to be responsible for disruptive climate change. Many companies are also exploiting increasingly expensive and carbon-polluting

fossil fuel sources such as tar sands. Perhaps most egregiously, leading fossil fuel companies have consistently worked to discredit and disparage scientists and the scientific evidence linking fossil fuels and global warming, and to deny, diminish, or discount the reality and significance of climate change as a problem (Washington and Cook 2011; Oreskes and Conway 2010; Hoggan, Littlemore, and Ball 2009; Ward 2006; Gelbspan 2005; Leggett et al. 2000; Gelbspan 1997). Many of these companies also lobby—either directly or through influential industry trade associations—to prevent policies that would encourage the transition to low-carbon energy.

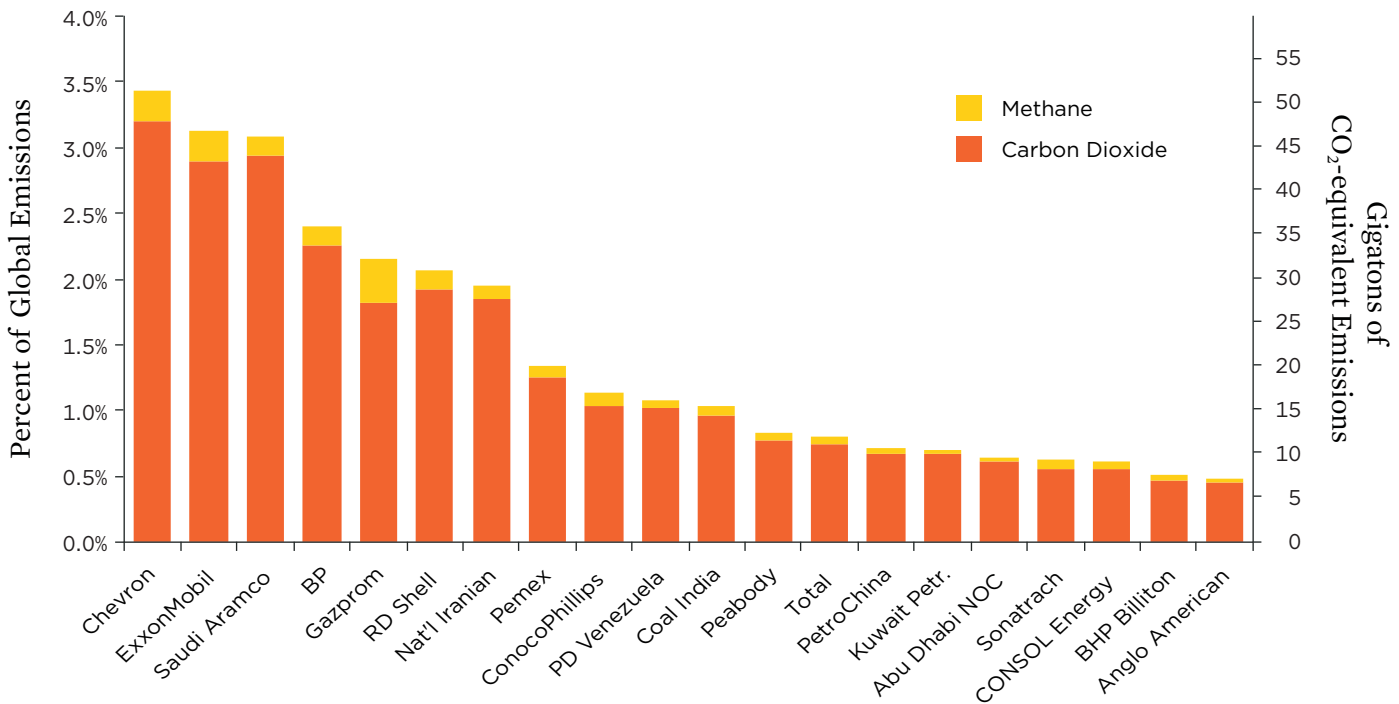
Bringing Accountability to Industrial Carbon Producers

To be sure, governments, emitting industries (e.g., electric utilities), and individuals all bear some responsibility for climate change. But major industrial carbon producers are substantial contributors to the problem, and therefore must

take responsibility for their actions. At a minimum, society should expect them to:

1. **Stop disseminating climate disinformation**, directly and through their trade associations and other lobbying groups; they should also publicly disassociate themselves from such groups and their activities.
2. **End misleading advertising** that highlights their investments in renewable and other low-carbon energy, obscuring their core business of producing energy from coal, oil, or natural gas.
3. **Fully disclose to shareholders** the financial and physical risks that climate change poses to their business.
4. **Unequivocally support policies** consistent with keeping warming below the 2°C global temperature target set by world leaders to limit disruptive climate change, and actively communicate to customers and shareholders the need to support sensible regulation of heat-trapping emissions.

FIGURE 3. Historic CO₂ and Methane Emissions Traced to Top 20 Industrial Carbon Producers (Investor- and State-owned Companies), 1751–2010



A large proportion of historic carbon dioxide and methane emissions can be traced to just a small number of investor and state-owned producers of coal, oil, and natural gas.

SOURCE: HEEDE 2014.

5. **Pay for their share of the costs** of climate-related damages and climate change adaptation.

On issues such as tobacco, asbestos, and lead, the public made it clear that companies operate with a social license, and that this license should be revoked if they fail to acknowledge and address the impact of their products on human health and well-being.

Climate change is no different. A global call to action—including such efforts as shareholder engagement, divestment campaigns, consumer boycotts, and litigation—can exert pressure on industrial carbon producers to accept responsibility for their heat-trapping emissions and to help transition to a low-carbon energy system that will benefit *all* of us.

REFERENCES

- Boden, T.A., G. Marland, and R.J. Andres. 2013. Global, regional, and national fossil-fuel CO₂ Emissions. Oak Ridge, TN: Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S. Department of Energy.
- Castleman, B.I. 2005. *Asbestos: Medical and legal aspects*. Frederick, MD: Aspen Publishers.
- Eubanks, S.Y., and S.A. Glantz. 2012. *Bad acts: The racketeering case against the tobacco industry*. Washington, DC: American Public Health Association.
- Frumhoff, P., R. Heede, and N. Oreskes. No date. The climate responsibilities of industrial carbon producers. Under review.
- Gelbspan, R. 2005. *Boiling point: How politicians, big oil and coal, journalists, and activists have fueled the climate crisis—and what we can do to avert disaster*. New York, NY: Basic Books.
- Gelbspan, R. 1997. *The Heat is on: The high stakes battle over Earth's threatened climate*. Reading, MA: Addison-Wesley.
- Gunningham, N., R.A. Kagan, and D. Thornton. 2004. Social license and environmental protection: Why businesses go beyond compliance. *Law & Social Inquiry* 29(2):307–341.
- Heede, R. 2014. Tracing anthropogenic carbon dioxide and methane emissions to fossil fuel and cement producers, 1854–2010. *Climatic Change* 122(1–2):229–341.
- Hoggan, J., R.D. Littlemore, and T. Ball. 2009. *Climate cover-up: The crusade to deny global warming*. Vancouver: Greystone Books.
- Leggett, S.K., T.R. Geballe, X. Fan, D.P. Schneider, J.E. Gunn, R.H. Lupton, G.R. Knapp, M.A. Strauss, A. McDaniel, D.A. Golimowski, T.J. Henry, E. Peng, Z.I. Tsvetanov, A. Uomoto, W. Zheng, G.J. Hill, L.W. Ramsey, S.F. Anderson, J.A. Annis, N.A. Bahcall, J. Brinkmann, B. Chen, I. Csabai, M. Fukugita, G.S. Hennessy, R.B. Hindsley, Ž. Ivezić, D.Q. Lamb, J.A. Munn, J.R. Pier, D.J. Schlegel, J.A. Smith, C. Stoughton, A.R. Thakar, and D.G. York. 2000. The missing link: Early methane. *The Astrophysical Journal Letters* 536(1):L35.
- Le Quére, C., R. Moriarty, R.M. Andrew, G.P. Peters, P. Ciais, P. Friedlingstein, S.D. Jones, S. Sitch, P. Tans, A. Arneeth, T.A. Boden, L. Bopp, Y. Bozec, J.G. Canadell, F. Chevallier, C.E. Cosca, I. Harris, M. Hoppema, R.A. Houghton, J.I. House, A.K. Jain, T. Johannessen, E. Kato, R.F. Keeling, V. Kitidis, K. Klein Goldewijk, C. Koven, C.S. Landa, P. Landschützer, A. Lenton, I.D. Lima, G.H. Marland, J.T. Mathis, N. Metz, Y. Nojiri, A. Olsen, T. Ono, W. Peters, B. Pfeil, B. Poulter, M.R. Raupach, P. Regnier, C. Rödenbeck, S. Saito, J.E. Sailsbury, U. Schuster, J. Schwinger, R. Séférian, J. Segsneider, T. Steinhoff, B.D. Stocker, A.J. Sutton, T. Takahashi, B. Tilbrook, G.R. van der Werf, N. Viovy, Y.-P. Wang, R. Wanninkhof, A. Wiltshire, and N. Zeng. 2014. Global carbon budget 2014. *Earth System Science Data Discussions* 7:521–610. doi:10.5194/essdd-7-521-2014.
- Markowitz, G., and D. Rosner. 2013. Lead wars: *The politics of science and the fate of America's children*. Volume 24 of California/Milbank Books on Health and the Public. Oakland, CA: University of California Press.
- Oreskes, N., and E.M. Conway. 2010. *Merchants of doubt: How a handful of scientists obscured the truth on issues from tobacco smoke to global warming*. New York, NY: Bloomsbury Publishing Inc.
- Ward, R. 2006. Letter to ExxonMobil. Robert Ward was formerly senior manager of policy communication at the Royal Society. Online at https://royalsociety.org/-/media/Royal_Society_Content/policy/publications/2006/8257.pdf.
- Washington, H., and J. Cook. 2011. *Climate change denial: Heads in the sand*. London: Routledge.
- Wilford, J.N. 1988. His bold statement transforms the debate on greenhouse effect. *New York Times*, August 23. Online at www.nytimes.com/1988/08/23/science/his-bold-statement-transforms-the-debate-on-greenhouse-effect.html.

FOR MORE INFORMATION ONLINE: www.ucsusa.org/global_warming

Union of Concerned Scientists

The Union of Concerned Scientists puts rigorous, independent science to work to solve our planet's most pressing problems. Joining with citizens across the country, we combine technical analysis and effective advocacy to create innovative, practical solutions for a healthy, safe, and sustainable future.

NATIONAL HEADQUARTERS

Two Brattle Square
Cambridge, MA 02138-3780
Phone: (617) 547-5552
Fax: (617) 864-9405

WASHINGTON, DC, OFFICE

1825 K St. NW, Suite 800
Washington, DC 20006-1232
Phone: (202) 223-6133
Fax: (202) 223-6162

CLIMATE ACCOUNTABILITY INSTITUTE

The Climate Accountability Institute engages in research and education on anthropogenic climate change, dangerous interference with the climate system, and the contribution of fossil fuel producers' carbon production to atmospheric carbon dioxide content.

1626 Gateway Road
Snowmass, CO 81654
Phone: (970) 927-9511