

TIME TO STOP DIGGING

WHY GERMAN CLIMATE LEADERSHIP REQUIRES A RAPID PHASEOUT OF FOSSIL FUEL PRODUCTION AND FINANCE

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Oil Change International is a research, communications, and advocacy organization focused on exposing the true costs of fossil fuels and facilitating the coming transition towards clean energy.

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In September 2016, Oil Change International and partners published *The Sky's Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production*. The report found that burning the oil, gas, and coal in already-producing fields and mines would be enough to take the world beyond 2 degrees Celsius of warming; therefore, meeting the Paris goals requires an end to new fossil fuel development.

This is one of a series of national briefings that consider the conclusions of that work and apply the same methodology at a country level, in this case Germany. For further detail on methodology and international implications, please see the original report. It can be found at:
<http://priceofoil.org/2016/09/22/the-skys-limit-report/>

EXECUTIVE SUMMARY

In December 2015, world governments agreed in Paris to limit global average temperature rise to well below 2 degrees Celsius, and to strive to limit it to 1.5 degrees Celsius. To achieve these ambitious and necessary aims requires a redefinition of climate leadership.

In our September 2016 report, “The Sky’s Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production,” we analyzed what a Paris-aligned carbon budget would mean for fossil fuel production globally (Figure ES 1). In that previous report, key findings included:¹

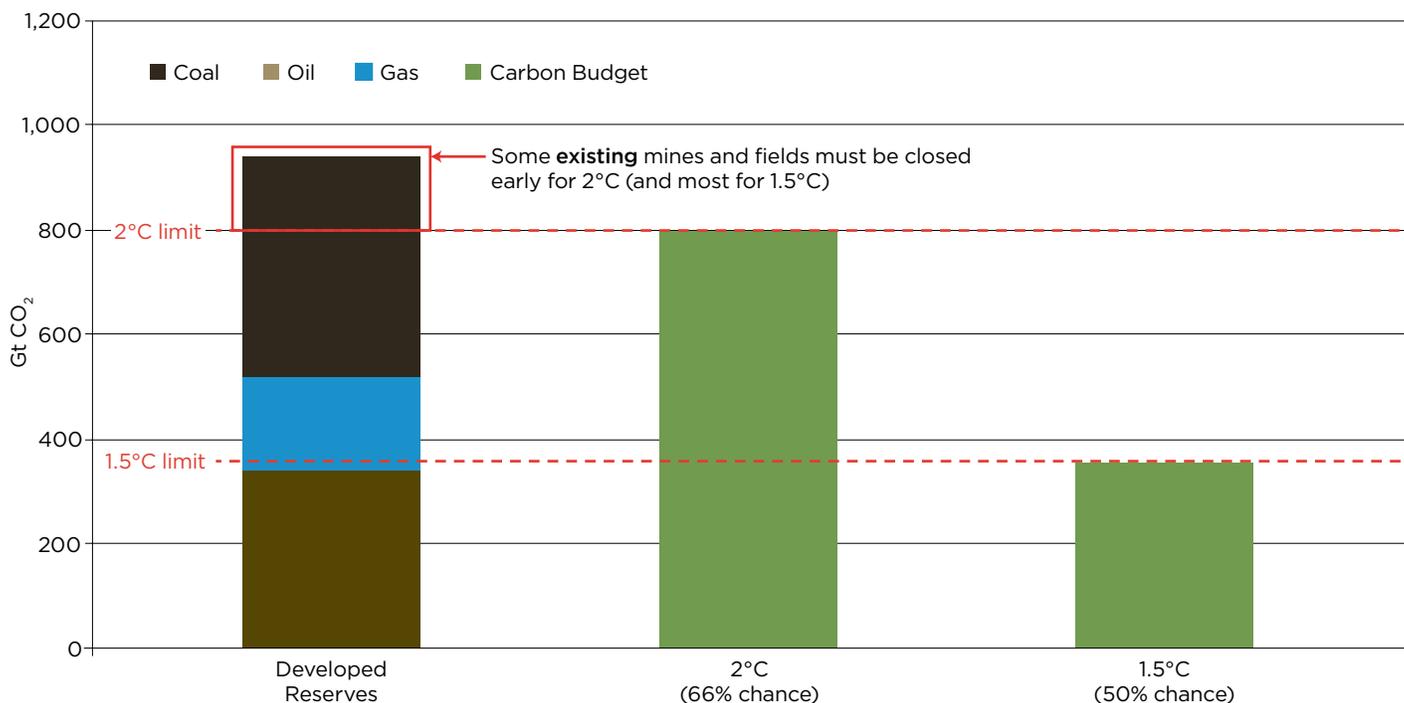
- ❖ The potential carbon emissions from the oil, gas, and coal in the world’s currently-operating fields and mines would take us beyond 2 degrees Celsius of warming.
- ❖ The reserves in currently-operating oil and gas fields alone, even with no coal, would take the world beyond 1.5 degrees Celsius of warming.
- ❖ With the decline in fossil fuel production required over the coming decades to meet climate goals, clean energy can be scaled up at a corresponding pace, expanding the total number of energy jobs.

These findings indicate that meeting climate goals will require a managed decline of the entire fossil fuel sector towards global decarbonization in the coming decades, including a just transition for energy workers and communities.

Given that the coal, oil, and gas in already-producing mines and fields around the world are more than we can afford to burn while keeping likely warming below 2 degrees Celsius – and far more than we can afford for a 1.5 degrees Celsius limit – a significant portion of existing coal mines and oil and gas fields must be closed early, before their reserves are fully depleted. Coal mining in wealthy countries rises to the top as a form of existing production that must be shut down early – and quickly – to stay within global climate limits.

Germany, for reasons that we will explore in this report, should be among those leading the way.

Figure ES1: Emissions from Developed Fossil Fuel Reserves, Compared to Carbon Budgets



Sources: Rystad Energy, International Energy Agency (IEA), World Energy Council, Intergovernmental Panel on Climate Change (IPCC)²

German Chancellor Angela Merkel has a strong rhetoric on climate change, and has realized significant diplomatic successes on climate abroad – the German press has even dubbed her the “Klimakanzlerin” (Climate Chancellor). However, in spite of impressive progress on renewables, including the globally recognized ‘Energiewende’, Germany has not reduced its emissions since 2009. The increased renewable energy generation has instead displaced nuclear or been exported. This failure can be largely attributed to Germany’s continued reliance on coal, in particular a failure to plan for a transition away from lignite mining, on which nearly 20,000 workers depend (including 5,000 in the associated power plants).^a Furthermore, Germany continues to finance emissions abroad that are incompatible with a safe climate future. As a result of this failure to demonstrate adequate ambition in curbing emissions at home, Merkel has more recently earned the moniker of “off-duty Climate Chancellor.”³

It is increasingly recognized that real climate action must address fossil fuel supply, as well as end-of-pipe emissions. For example, at the time of publication, France is in the process of legislating a complete, nationwide ban on new licensing of fossil fuel production and numerous jurisdictions worldwide have banned the practice of hydraulic fracturing of gas and oil. Political leaders are being challenged to plan for the full fossil fuel phaseout to which they have committed.

Germany’s most significant challenge will be phasing out remaining lignite mines. It will be especially difficult for workers and communities that depend on them for their livelihoods. Any equitable solution to ending coal extraction must take those people into account. In fact, ending extraction will be difficult everywhere it happens. For example, in Germany, coal miners account for 0.03 percent of the workforce and, in China, 0.6 percent of the workforce. Meanwhile, Germany has sixteen times more capacity to support workers through a rapid transition than does China, based on total wages for coal miners relative to each country’s GDP.

^a Where this report refers to “coal,” unless otherwise specified, it refers to both lignite and hard coal.

If Germany will not close its lignite mines within a short timeframe, it is hard to see which other countries can be expected to close already-operating fields or mines. The same holds true for new oil and gas development, which Germany should ban as a proactive measure.

Beyond efforts to rein in domestic fossil fuel production (and the associated emissions), Germany must extend its climate action beyond its borders by ending its support for the buildout of European gas, as well as the many billions of dollars in public finance that Germany provides for fossil fuel production abroad each year.

This report examines the implications of real climate leadership for Germany in the global context. Its key findings conclude that Germany must take the following steps domestically to credibly claim climate leadership:

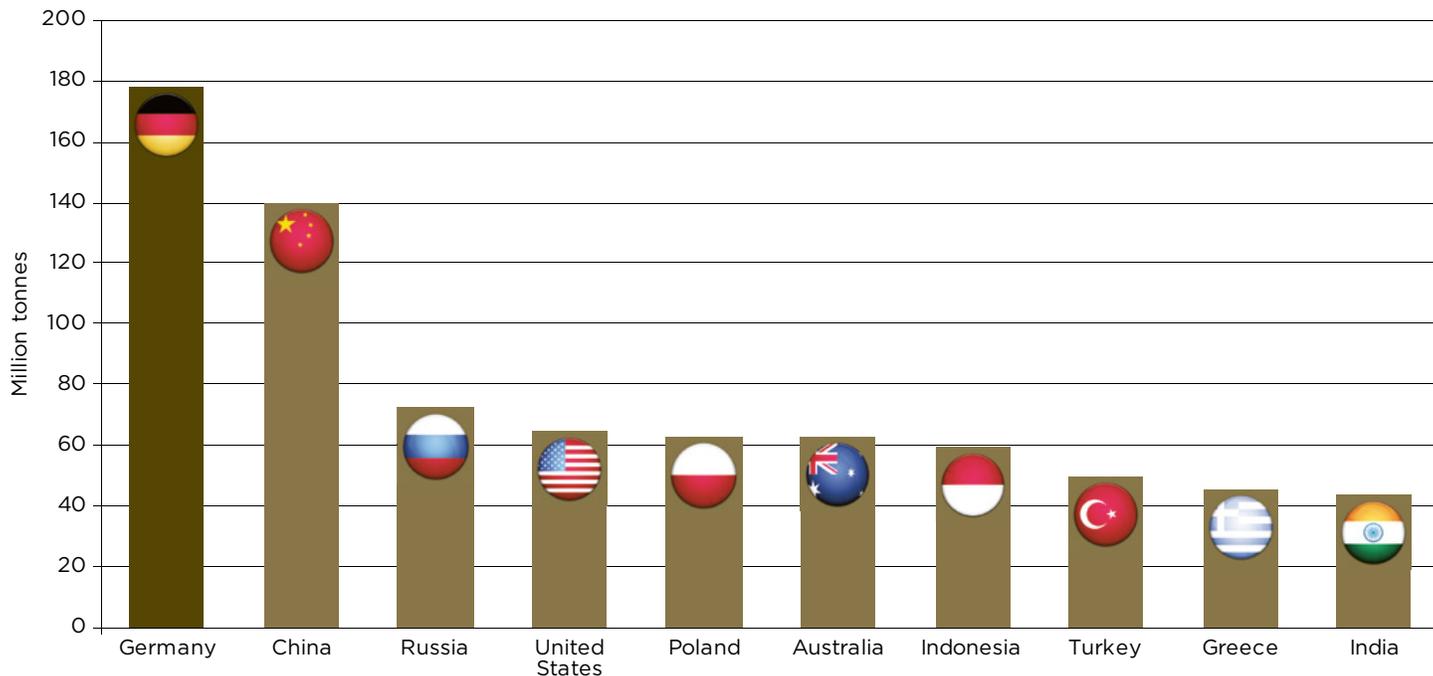
- ❖ **Close existing lignite coal mines as soon as possible, and within 10 years,** and restore the damaged land left behind. Germany is the world’s largest producer of lignite coal and is well-positioned to phase out coal (Table ES1 and Figure ES2). Morally, Germany has no right to extract more, while other countries have greater needs. Practically, we observe that the decision to phase out hard coal in 2007 - when there were 32,000 miners - set a timeframe of 11 years. With fewer workers (20,000), and greater urgency, the lignite phaseout should be significantly faster.
- ❖ **Support a credible and robust just transition.** The biggest barrier to ending coal production in Germany is the disruption it would cause to workers and people in the lignite regions; therefore, Germany’s federal and state governments must make deep investments in job creation, economic transition, and protection of workers’ rights, while putting unions and communities at the heart of crafting a vision for their regions’ futures.
- ❖ **Ban new oil and gas development.** A national ban on oil and gas exploration and expansion (including fracking) will ensure potential production does not introduce significant new sources of carbon pollution mid-century at a time when global decarbonization should be nearly complete (Figure ES3).
- ❖ **Announce a plan for a managed decline of all German fossil fuel production.** Germany is well-positioned to serve as a global role model for an effective and just managed decline of fossil fuel production towards decarbonization in the coming decades.

Table ES1: Top Ten Global Coal Producers by Human Development Index (HDI) Rank

Country	Human Development Index	Human Development Rank	2016 Coal Production (Million tonnes)
Australia	0.939	2	503.3
Germany	0.926	4	175.6
United States	0.920	10 (tied)	671.8
Poland	0.855	36	130.9
Russia	0.804	49	365.5
Kazakhstan	0.794	56	97.9
China	0.738	90	3,242.5
Indonesia	0.689	113	460.5
South Africa	0.666	119	256.9
India	0.624	131	707.6

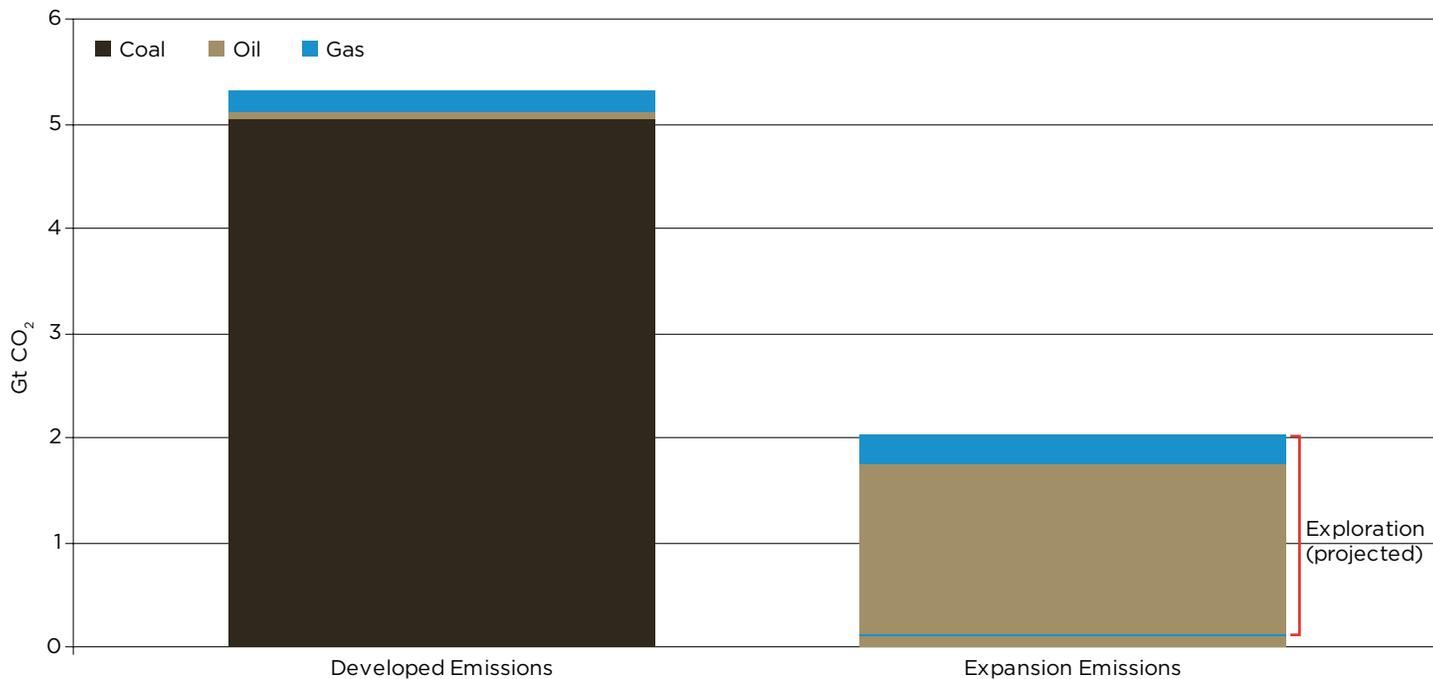
Sources: United Nations Human Development Programme (UNDP),⁴ IEA⁵

Figure ES2: Top Ten Lignite Producers Globally, 2015



Source: BGR⁶

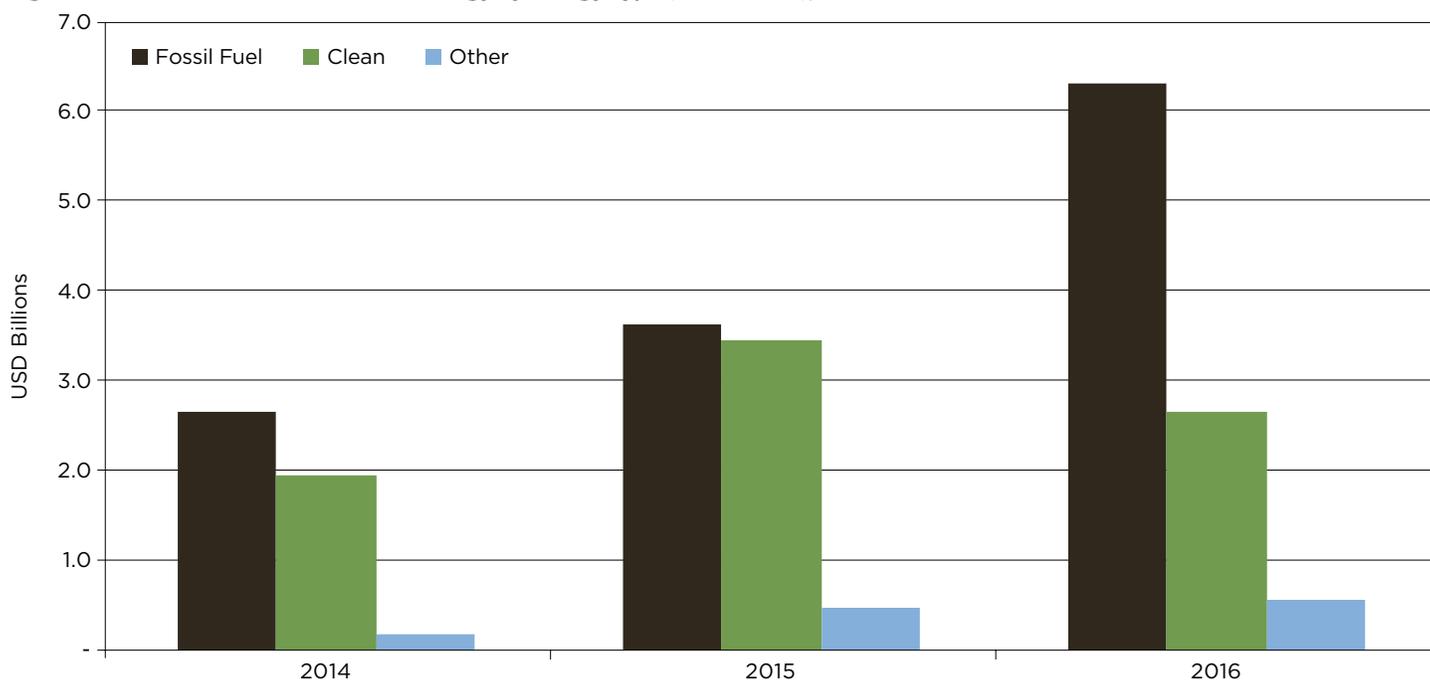
Figure ES3: Developed vs. Potential Expansion Emissions from Germany's Coal, Oil, and Gas Reserves



Sources: BGR, Rystad Energy, IPCC, UBA⁶

b Developed coal reserves include lignite in operating and planned mines, which totals about 5 Gt of lignite, as well as 12 Mt of remaining hard coal expected to be extracted from operating mines before they shut in 2018. BGR, op. cit., p. 23-25. Remaining undeveloped coal reserves, which include 31 Gt of lignite, are not considered potential expansion emissions. Developed oil and gas reserves include operating fields. Potential expansion emissions are projected from discovered reserves and possible discoveries of new oil and gas resources. Oil and gas reserves and resources data is from Rystad UCube, October 2017. Oil includes condensate and NGL. Gas includes flared gas as well as sold. For coal, reserves are converted to emissions using German emissions factors for lignite (111.3 tCO₂/TJ) and hard coal (93.6 tCO₂/TJ), which are derived from Umweltbundesamt (UBA), "CO₂-Emissionsfaktoren für fossile Brennstoffe," June 2016, Table 16. https://www.umweltbundesamt.de/sites/default/files/medien/1968/publikationen/co2-emissionsfaktoren_fur_fossile_brennstoffe_korrektur.pdf. The lignite emissions factor is derived from the emissions factors given for the four main lignite-producing regions, and weighted to 2016 production volumes from each region. For oil and gas, reserves are converted to emissions based on emissions factors from IPCC Guidelines: oil 0.42 tCO₂/bbl, gas 59,726 tCO₂/bcf. See IPCC, "Guidelines for National Greenhouse Gas Inventories, 2006, Vol.2, Chapter 1," Tables 1.2 and 1.3, http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf

Figure ES4: German Public Finance for Energy by Energy Type (USD billions), 2014 to 2016



Source: Oil Change International Shift the Subsidies Database

This report also finds that Germany must take the following steps beyond its borders to credibly claim climate leadership:

- ❖ **Revoke support for a natural gas buildout in Europe.** Germany must stop using its influence to drive an ill-informed European Union (EU) energy strategy to scale up natural gas infrastructure. Natural gas is not a bridge fuel and this gas buildout is not aligned with the Paris climate goals.
- ❖ **End public finance for fossil fuels as soon as possible and by no later than 2020.** Between 2014 and 2016, Germany contributed nearly USD 13 billion in public finance for fossil fuel expansion abroad, 99 percent of which went to oil and gas infrastructure. This compares to just USD 8 billion for clean energy finance (Figure ES4). Even after the Paris Agreement was reached in 2015, Germany provided USD 6.3 billion in public finance for fossil fuels in 2016 compared to just USD 2.65 billion for clean energy.^c
- ❖ **Scale up international climate finance.** Germany's public finance for fossil fuel expansion is five times as much as the entire world's spending to support climate and disaster resilience in small island developing states (such as Fiji).^d Germany must scale up climate finance while ending public finance for fossil fuel expansion and should leverage its climate finance leadership to push other countries to do the same.

To be a 21st-century climate leader, Germany must recognize that tackling fossil fuel production through action at home and abroad is as critical as tackling demand for fossil fuels. German civil society organizations and environmental leaders have been leading calls for this kind of increased climate ambition for years and these continued efforts are critical. At a time when the world already has access to more fossil fuels than the climate can afford, Germany is well-positioned to act on the above recommendations and lead the world towards a safer climate.

^c Note that approximately 83% of the 2016 fossil fuel finance was in the form of guarantees or insurance. It is also likely that both of these numbers are underestimates, as we estimate that the source database captures only half of Germany's public energy finance due to a lack of transparency at these institutions.

^d This figure assesses Germany's public finance for fossil fuels for the three year period from 2014 to 2016, with global development assistance for climate and disaster resilience in SIDS between 2012 and 2014. In each case, this is the most recent three year period for which data is available.