

THE LOW-HANGING FRUIT: FOSSIL FUEL EXPLORATION AND CLIMATE CHANGE

Read the full report at: www.leave-it-in-the-ground.org/exploration

In 2016, exploration for additional fossil fuel reserves is no longer necessary. Since the Paris Agreement, the days of what is today still a multibillion dollar industry are counted. In this report we take a look at the global fossil fuel exploration industry and its future in a world where addressing climate change is becoming a priority. And we look at ways to start winding down fossil fuel exploration.

KEY FINDINGS:

- ▶ Further fossil fuel exploration is incompatible with the Paris Agreement.
- ▶ Fossil fuel exploration is a sector with diminishing returns on investments. Long payback times expose these investments to additional and increasing risks.
- ▶ Stopping exploration is a smart option, as it provides significant financial, climate and other co-benefits and high leverage and there are ways to get started immediately.

1. AFTER PARIS, THERE IS NO CARBON SPACE LEFT FOR MORE FOSSIL FUELS.

The carbon budget for burning fossil fuels that results from the Paris Agreement and its specific temperature target allows for 16% of current proven fossil fuel reserves (equivalent to 473 Gigatons of CO₂ emissions) to be burnt. 84% (equivalent to 2427 Gigatons of CO₂) must stay in the ground.¹ Exploration increases the amount of unburnable carbon as additional discoveries do not make a difference to the carbon budget and existing oil and gas fields and coal mines hold enough carbon to break the Paris target.² Today's exploration would only make sense in a scenario that sees temperatures rise by much more, triggering runaway climate change.

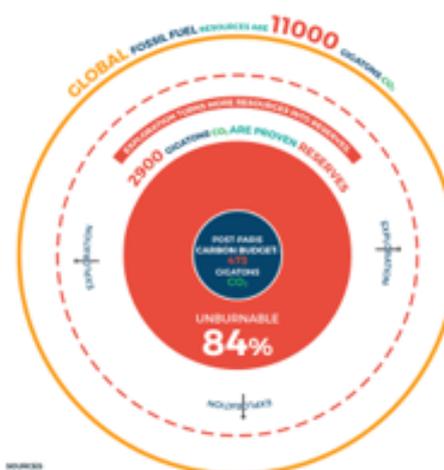


Figure 1. How exploration increases the carbon bubble.³

2. EXPLORATION IS AN INCREASINGLY BAD INVESTMENT.

While exploration used to be a very attractive investment with internal rates of return (IRR) as high as 20%, this situation has shifted dramatically over the past years. It is more and more difficult to find new deposits in ever harsher environments, and exploration costs are climbing higher and higher. This is a natural dynamic for a non-renewable resource and was already evident (Figure 2) before the recent downturn in fossil fuel prices which add an even bigger question mark to the economics of fossil fuel exploration.

¹ Kühne, Kjell (2016), [The global Carbon Budget after the Paris Agreement](#), Leave it in the Ground Initiative (LINGO), 18.2.2016.

² Oil Change International (2016) [The Sky's Limit: Why The Paris Climate Goals Require A Managed Decline Of Fossil Fuel Production](#). Oil Change International. September 2016.

³ Source: LINGO

For exploration activities to make economic sense, the discovered fuels must be extracted and profitably sold. It typically takes between 15 to 20 years for deepwater oil projects from discovery to payback, all delays included,⁵ while shale gas projects may have shorter time frames and tar-sands projects even longer ones. For current and future exploration

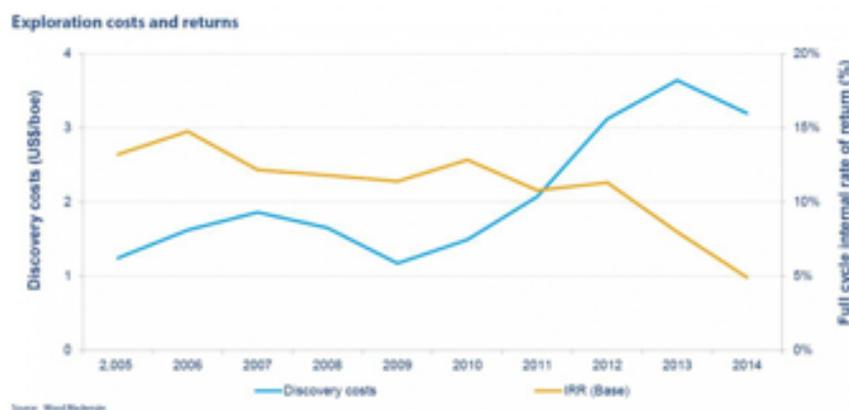


Figure 2. Costs versus IRR for the oil&gas exploration industry 2005-2014⁴

activities, the earliest expected date of turning profitable are therefore usually beyond 2030. This places many of these exploration activities today outside a reasonable time frame for sensible investments. As a “side note”, the Paris targets require a complete global decarbonization by about 2035.⁶ But even in the absence of effective climate action, the markets for fossil fuels may get much tighter soon due to renewable energy competition as the price trends for renewable electricity and energy storage and plans for phasing out gasoline car sales by 2030 in the EU⁷ and elsewhere indicate.

Apart from the time-critical aspect of exploration, the Deepwater Horizon oil spill has shown that offshore oil exploration is a highly risky bet in and of itself: the cost of the disaster exceeded the possible profits from the undertaking by a factor thirty.

Even if the exploration industry still spends billions of dollars, public money outnumbers private investments in exploration, indicating a reliance of the industry on government support⁸. During the fossil age, a steady flow of cheap fossil fuels was a priority and to be guaranteed by government intervention (and spending). But today, the same governments have committed to climate targets which will turn these investments into stranded assets. The money would be better spent on ramping up renewable energy infrastructure. The money needed for a single deep-sea well - more than 50 million USD - can install solar panels on all homes in a small town. (See also Figure 4)

3. STOPPING EXPLORATION PROVIDES MULTIPLE BENEFITS AND HIGH LEVERAGE

Offshore oil and gas exploration is implemented with methods that harm marine wildlife. Stopping it would protect ecosystems which are already exposed to the combined impacts of a warming climate and other human pressures. But not only is the act of exploring harmful - once oil is found, the possibility of an oil spill becomes an imminent and permanent threat to the local ecosystem,

⁴ Source: Wilson, Julie (2016) [Deepwater Exploration Cutbacks May Come Back To Haunt Oil Drillers](#). Forbes 11.2.2016.

⁵ Carbon Tracker Initiative (2014) [Responding to Shell: An Analytical perspective](#). July 2014.

⁶ NewClimate Institute (2016) Was bedeutet das Pariser Abkommen für den Klimaschutz in Deutschland? Kurzstudie, Februar 2016.

⁷ Böll, Sven (2016) Ab 2030 - Bundesländer wollen Benzin- und Dieselaautos verbieten. Spiegel online, 8.10.2016.

⁸ Oil Change International and Overseas Development Institute (2014) The fossil fuel bailout: G20 subsidies for oil, gas and coal exploration.

local industries and - through liability in the case of an accident - even to the companies involved in these operations. Offshore exploration is a candidate for an immediate moratorium.

Onshore exploration is also pushing deeper into difficult environments with both ecological and social risks associated with fossil fuel development. The increasing number of cases where such projects get contested and halted on ecological and social grounds remind us that these frontiers have not yet been explored for a reason. Exploring for fossil fuels on indigenous lands and in protected areas often contradicts the commitment to prohibit mineral extraction in protected areas made by governments in 2000¹⁰ and the UN Declaration on the Rights of Indigenous People which gives indigenous communities the right to say No to projects on their lands.

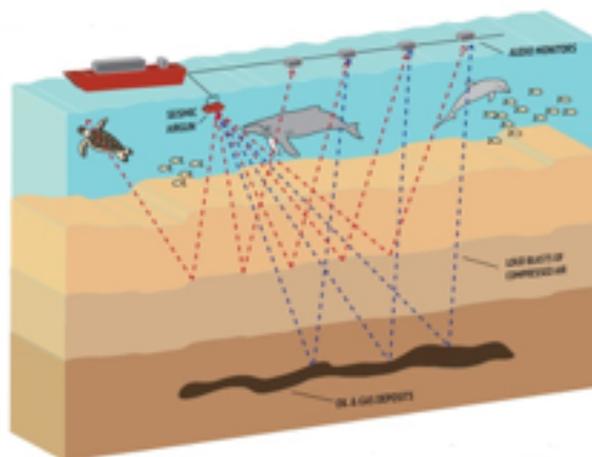


Figure 3. Seismic testing impacts marine wildlife.⁹

Besides the economic, ecologic and social, there are even security concerns that can be addressed by cancelling exploration. A number of areas with fossil fuel reserves are under dispute between states. Cancelling exploration plans for these areas will be a contribution to deescalation and ultimately to peace.¹¹



Figure 4. Annual US exploration subsidies in comparison.¹²

Another argument in favour of addressing exploration first, is leverage: Three dollars spent on exploration may discover a barrel of oil which will swallow 7 to 40 times more money - between 20 and 120 dollars of production costs - before being sold, burned and emitting 0.3 tons of CO₂. Very substantial flows of finance into the fossil industry can thus be diverted by stopping exploration.

The mitigation "cost" of 10 USD per ton of CO₂ in this case is actually negative cost, i.e. money saved.

⁹ Image source: Oceana

¹⁰ World Conservation Congress (2000) [Resolution 2.82 Protection and conservation of biological diversity of protected areas from the negative impacts of mining and exploration](#). Amman, 4-11 October 2000.

¹¹ Benedikter, Roland, et al. (2016) "Keep It in the Ground." The Paris Agreement and the Renewal of the Energy Economy: Toward an Alternative Future for Globalized Resource Policy? Challenge (2016): 1-18.

¹² Image: Oil Change International

RECOMMENDATIONS

Companies:

- ▶ Cancel scheduled exploration expenditures and pay dividends or invest in renewables.
- ▶ Create and implement transition plans.
- ▶ Do not apply for new exploration licenses.

Governments:

- ▶ Stop issuing and renewing exploration licenses.
- ▶ Review existing exploration licenses in indigenous territories, protected areas, zones in dispute and offshore and cancel where possible.
- ▶ Remove exploration subsidies and spend the money on renewable energy security.
- ▶ Do not create mechanisms under free trade agreements where cancelling or delaying exploration licenses could result in fines or lawsuits.

Investors:

- ▶ Divest exploration companies or demand transition plans out of the industry.
- ▶ Urge companies with exploration activities to cancel exploration projects and pay dividends or invest in renewables instead.

Civil society:

- ▶ Use all means, such as lawsuits and where necessary civil disobedience to halt or delay exploration projects.

OTHER LINGO ANALYSIS AVAILABLE ON OUR WEBSITE:

- ▶ The global Carbon Budget after the Paris Agreement, 2016
- ▶ Redefining Energy Security in the 21st Century, 2015
- ▶ The Paris Mirage - Reducing emissions while increasing them, 2015
- ▶ Poster: Understanding the Climate Crisis, 2014

11 Benedikter, Roland, et al. (2016) "Keep It in the Ground." The Paris Agreement and the Renewal of the Energy Economy: Toward an Alternative Future for Globalized Resource Policy? Challenge (2016): 1-18.

12 Image source: see footnote 8.