Unburnable carbon and the role of OPEC countries

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Run-away climate change in OPEC countries

Many OPEC countries are sporadically suffering from high temperatures. The danger of run-away climate change hangs over these countries, especially those in the Gulf region: it could render parts of their territory or even entire countries uninhabitable for humans.[1]

The Paris Agreement and the global carbon budget

The world has decided in December 2015 to try and avoid run-away climate change by setting the world on a track towards the end of fossil fuels. The Paris Agreement includes an explicit reference to zero emissions in the second half of the century and temperature targets that are so ambitious that the end of fossil fuels must be coming sooner, lest we are prepared to miss them, with disastrous consequences in some parts of the world, included OPEC countries (see above). IPCC figures indicate the size of the carbon budget for fossil fuels, which would be exhausted by continuing business as usual fossil fuel extraction in 10-15 years.[2]

Unburnable carbon and stranded assets

The concept of unburnable carbon – reserves of oil, gas and coal that cannot be extracted – is getting more and more popular. It translates the physical reality of the carbon budget for temperature targets into numbers for the fossil fuel sector. Through the Paris Agreement, more than 80% of all known fossil fuel reserves have now become unburnable. The question which particular reserves will not get extracted is already a recurring theme in the financial community and is increasingly discussed in science and policy circles. The current paper argues that fossil fuel exporting countries need to take this discussion seriously because it affects their core national interest and should play a proactive role in shaping it. The current UNFCCC framing of mitigation parts from the notion of area-based emissions. This leaves the fossil fuel question completely out of the picture. When and how it will be brought into the picture can determine in important ways what kind of discussion will be had.

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[1] Pal & Eltahir (2015) Future temperature in southwest Asia projected to exceed a threshold for human adaptability. Nature Climate Change, 6 February 2016, 197-200.

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

Arguments and frames

The **economic framing** implies that the cheapest fossil fuels will get extracted, the more expensive ones left in the ground.[3] Looking at the oil cost curve, OPEC members provide a good part of the low-cost oil consumed today. This framing could be used to argue against higher-cost sources of oil, such as from deepwater, Arctic and other frontiers.

From a purely **financial perspective**, exploration is the weakest link in the chain because it has the longest payback time.

From the perspective of **common but differentiated responsibilities**, the argument can be made that Annex-I countries should forego a bigger part of their fossil fuel extraction potential while non-Annex-I countries should get a greater share.

Looking at the **mix of fossil fuels**, coal has higher emissions per unit of energy, so in order to make the most beneficial use of the remaining carbon budget, the argument can be made that the contribution of coal should be minimized while the contribution of oil should be maximized. Gas is perceived as a lower-emissions fuel, but when taking into account recent findings on leakage – especially from fracked gas wells – and evaluating the warming impact on the short time scales on which methane effects its main warming contribution, the picture becomes tilted much more against gas.

Oil **prices** are driven by scarcity. If the world were to decide to limit global oil supply for climate reasons, the price would likely go up. Actively shaping and using this dynamic may be helpful for oil-exporting countries to accumulate capital for the economic diversification and transition to a post-oil society in a planned way.

The agenda of "**Response measures**" which has a long tradition in the climate negotiations could be used to try out the new framing.

Conclusion

OPEC countries should not shy away from the discussion about unburnable carbon, but rather make sure that the discussion will be held on favorable terms. This will allow to buy more time for economic diversification as the income from oil goes down, but may also help maintain high prices for oil and contribute to a security of income for still oil-dependent states in the face of ever stricter climate policies worldwide.

[3] McGlade & Ekins (2015) The geographical distribution of fossil fuels unused when limiting global warming to 2 °C. Nature 517, 187–190.

Scenario 1:

The discussion about fossil fuel supply and climate does not happen until a few years down the road. Coal continues to take up a significant share of the carbon budget, leaving little for oil and gas. Eventually, emergency mitigation measures are taken to swiftly reduce emissions: stiff carbon taxes are put on fossil fuels, rapidly crushing demand and generating significant amounts of money that gets reinvested into zero carbon energy infrastructure in hitherto importing countries. OPEC countries enter into a price-battle to secure market share in an ever-shrinking market with declining profit margins.

Scenario 2:

OPEC member countries actively shape the "fossil fuels and climate" discussion, achieving a decarbonization roadmap that allows us to meet the Paris temperature target and making it possible for human life to continue to exist in the Gulf region. The discussion also results in a global consensus over the following prioritization of fossil fuels: 1. oil before coal and gas, 2. cheaper oil before expensive oil, 3. non-Annex-I reserves before Annex-I. This prioritization maximizes the OPEC share of the fossil carbon budget. The limitation in overall supply results in much higher prices in the short and medium term which are used by OPEC member countries for their economic diversification and post-oil transition and a part of which is captured to help the poorest parts of society achieve the transition from oil dependency to sustainable energy security.