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in the European Parliament

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THE CARBON BUBBLE:
The financial risk of fossil fuels and need for divestment

The 2° target: a minimum consensus which represents economic dynamite

The world is agreed: the temperature of the atmosphere must not rise by more than 2˚C. However, this means that most oil, gas and coal reserves are valueless.

The international community has committed itself to an unequivocal target: the Earth's atmosphere must not warm by more than 2°C by the end of the century. At the 2010 UN Climate Conference in Cancún, Mexico, representatives of 194 states committed themselves to this target. Even the USA and China, who never signed the Kyoto Protocol, supported the decision, as do all other major greenhouse gas emitters.

The 2°C target refers to the rise in temperature relative to pre-industrial levels. However, as the mean temperature has already risen by 0.8°C since the 19th Century, the climate must not warm by more than 1.2°C between now and the end of the century. How this can best be achieved is the subject of much controversy. However, there is a large measure of consensus that it must be achieved in order to limit the impact of climate change to a level which humanity can bear. The Intergovernmental Panel on Climate Change (IPCC), where hundreds of international scientists analyse climate change and propose countermeasures, have on a number of occasions stressed the urgency of consistent measures if we are to keep the Earth on track towards the 2°C target.

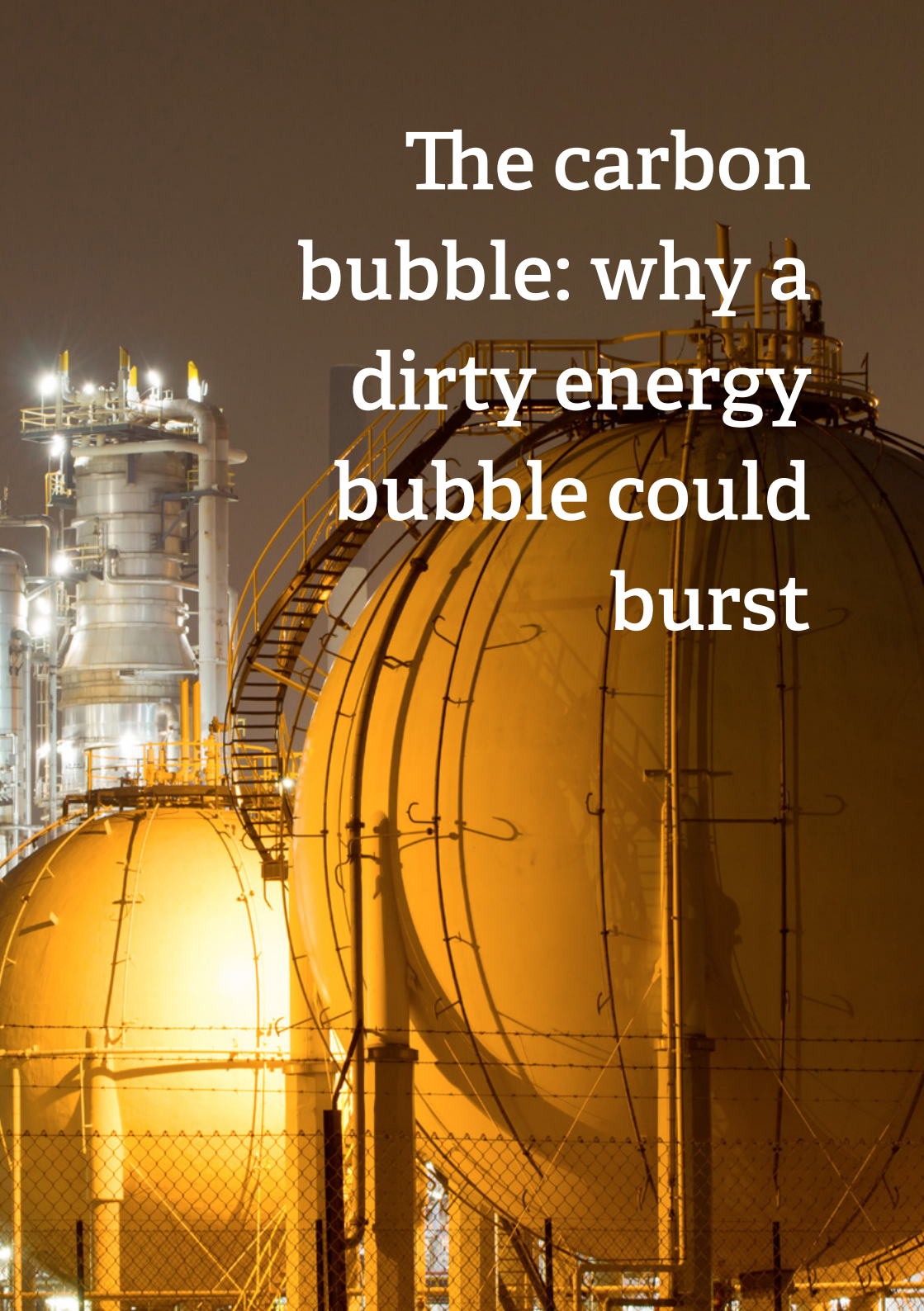
The 2°C target will not be easy to achieve and will only be feasible by determined action from the global community. At the same time however, climate researchers say that 2°C constitutes the borderline not between 'tolerable' and 'dangerous' climate change, but rather between 'dangerous' and 'very dangerous' climate change. Even with an increase of 'only' 2°C, Arctic ice sheets will melt, and habitats and cultural regions will be destroyed. Island states and indigenous peoples in particular consider the 2°C target to be inadequate and are calling for the more stringent target of 1.5°C to be adopted. The 2°C target is therefore by no means an over-ambitious project dreamed up by environmentalists — it is a consensus that is accepted worldwide as representing the maximum warming that can be allowed if the very worst is to be prevented from happening.

But what does the 2°C target mean in concrete terms? How much CO_2 can humanity emit into the atmosphere without jeopardising getting there? A joint study by the Carbon Tracker Initiative and the London School of Economics has produced a detailed answer: Between now and 2050, only 900 gigatons of CO_2 can be emitted if the 2°C target is to be attained with a probability of 80%. In the second half of the century, only a further 75 gigatons can be emitted. If more CO_2 is emitted, the probability of remaining within the 2°C limit falls rapidly. With 1,075 gigatons by 2050, the probability is only 50%.

Naturally, these values are only estimates. As far as their order of magnitude is concerned, they are largely uncontentious among climate researchers. Their explosiveness only becomes apparent when one compares them with the quantities of CO_2 contained in the oil, gas and coal reserves which states and big business giants have secured for themselves – this means all sources which are already being exploited or have been earmarked for exploitation. If we calculate how much CO_2 they contain altogether, we arrive at a figure of 2,890 gigatons. This is around three times the maximum which our climate could bear. There is therefore an alarming disparity between the 2°C target adopted by the international community and the action which is being taken by states and businesses.

Essentially what this means is that if all fossil reserves were to be burned, our climate would warm by far more than 2°C — with disastrous consequences for humanity and our planet. The alternative is for states to ensure compliance with the 2°C target, as agreed at the World Climate Conference in Cancún. That in turn would mean that the bulk of oil, gas and coal reserves cannot be burned, and therefore worthless to their owners.


CO_2



The carbon bubble: why a dirty energy bubble could burst

When investors realise that a large part of fossil fuel reserves cannot be burned, energy undertakings could lose 40-60% of their value on stock exchanges.

For investors, shares in energy companies have been good business in recent years. Their share prices have risen in an apparently unending manner. But can they continue to do so forever? The share prices of energy multinationals such as BP, Shell or Statoil are partly based on the size of their oil, gas and coal reserves and on investors' assumptions regarding the price at which these reserves can be sold in due course. But what will happen if many of these reserves prove to be worthless? What impact would this have on share prices?

HSBC, Britain's largest bank, has calculated the answer. It estimates that the principal energy companies could lose between 40 and 60% of their stock exchange value if the 2°C target is enforced. A study by business consultants – McKinsey and the Carbon Trust — have yielded a similar findings. It forecasts a possible loss of 30 to 40%. What will cause such massive losses? According to the study by HSBC's, BP, for example, would be unable to burn a quarter of its reserves if the 2°C target was enforced. This would turn these reserves into 'stranded assets', or worthless investments. That alone would substantially reduce its share price. There would be a secondary effect too: because of the over-supply of fossil fuels, their price would fall. Businesses might therefore only be able to sell part of their oil, gas and coal reserves — and would receive a lower price for what they did sell.

To date, businesses have failed to respond to this danger. In 2012, a further 674bn USD was spent on prospecting and developing new sources of fossil fuels. Likewise, investors remain willing to invest their money in fossil fuels. But how can this be? Should they not adjust their behaviour in the light of the facts? Sir Nicholas Stern, the former chief economist of the World Bank, who is now teaching at the London School of Economics, gives the following explanation: "Either the market has not yet thought the matter through properly, or it is assuming that governments will not do much – or a combination of the two."

It may be the case that businesses and investors are assuming that governments will not reach the 2°C target. However, that would not only be a cynical bet, but would also be a serious economic risk. As soon as it becomes clear that governments are stepping up their measures against climate change, investors could panic and withdraw their capital. If this happens, the bubble will burst – and share prices will plunge. Another explanation for the fact that investors are continuing to back fossil fuels is that the danger is simply not yet sufficiently perceived on stock exchanges. Many funds, for example, are guided by indexes such as the British FTSE 100. As the large energy companies are assigned a substantial weighting, money flows virtually automatically into oil, gas and coal. In order to prevent this, scientists, politicians and NGOs are drawing greater attention to the danger of a potential carbon bubble.

What has happened to date: an unusual coalition is combating the carbon bubble

Scientists, investors, NGOs and politicians are warning of the danger of a bubble. A movement is coming into being which is calling on investors to withdraw their money from fossil fuels.

July 2011: The Carbon Tracker Initiative, a London NGO set up by financial analysts, publishes the first study on the carbon bubble. It shows that a large part of fossil fuel reserves cannot be burned if the 2°C target is to be attained. The danger of a carbon bubble is described in detail for the first time.

January 2012: In an open letter to the Bank of England, a coalition of investors, politicians and scientists warns about the dangers of a carbon bubble and call for the 'systemic risk' to the British financial system to be investigated. In his reply, the Governor, Sir Mervyn King, concedes that this is necessary.

July 2012: The American journalist Bill McKibben publishes an article on the carbon bubble in Rolling Stone ('Global Warming's Terrifying New Math'), causing a considerable stir. No previous article in the magazine has ever been shared on Facebook more times. The report sets in motion a worldwide 'divestment' movement, calling on institutional investors in particular to withdraw their money from fossil fuels.

January 2013: HSBC, Britain's largest bank, publishes a study which calculates the possible impact of a carbon bubble on energy companies. It indicates that businesses such as Shell, BP or Statoil could lose 40-60% of their market value.

April 2013: The divestment movement achieves its first success. The Australian 'Uniting Church of New South Wales and ACT' withdraw its money from oil, gas and coal and instead invests it in renewable energies.

May 2013: In the context of their 'Green New Deal' and 'Climate Core' working groups, the Greens/EFA Group decides to commission a study to analyse the impact of the carbon bubble on the European financial system.

October 2013: Former US Vice-President and Nobel Peace Prize winner Al Gore warns: 'We have a carbon bubble, and it will burst.' He compares the carbon bubble to the 2007/2008 bubble that led to the global financial crisis. In that case too, investors had for a long time failed to recognise what in retrospect appeared obvious.

January 2014: The carbon bubble is debated at the World Economic Forum in Davos. The audience includes not only investors, but also central bankers. The danger of a "commodities bubble" is now also being debated by the economic and political elite.

March 2014: The Greens/EFA Group, publishes 'The Price of Doing Too Little Too Late'; a study which investigates the impact of the carbon bubble on the European financial system. The study is presented at a high-level conference at the European Parliament with contributions from Bill McKibben of 350.org and Bevis Longstreth, the former Commissioner of the US Securities and Exchange Commission. They advocate greater divestment and welcomed the Greens' study.

March 2014: The Norwegian Government sets up a committee of experts to investigate whether the state investment fund which is fed by large parts of the country's oil and gas revenues ought to cease to invest in fossil fuels. The fund is the largest state fund in the world, with assets of more than 800bn USD.

March 2014: Exxon Mobil becomes the first oil and gas company to agree, in response to pressure from investors, to investigate the possible impact of a carbon bubble on the company and its investments and to publish the findings. Ten other energy companies, including Chevron, have received similar demands from their shareholders.

September – December 2014: The divestment movement spreads across the world: The church of Sweden completes full divestment, Glasgow University divestes from fossil fuels, Norway's largest pension fund divested from coal, California State University in Chico/US committs to fully divesting from the top 200 coal, oil and gas companies within four years.

December 2014: The Greens/EFA Group sends a letter to Mario Draghi, President of the European Central Bank, to ask him to investigate the risks of the carbon bubble for the financial system.

Our study: what impact will the carbon bubble have on the EU financial system?

Banks, insurance companies and pension funds have invested more than a trillion Euros in fossil fuels – money that also comes from taxpayers. They run the risk of big losses, particularly if political decision-makers do not act with determination.

We, the European Greens, advocate remaining within the 2°C limit. We are concerned, not only on environmental, but also economic grounds, about the fact that this limit has so far not been reflected in the actions of fossil fuel energy companies and investors.

In order to assess the possible impact of a carbon bubble on the EU financial system, we commissioned a study by the Sustainable Finance Lab at the University of Utrecht and the research specialists at Profundo. It examined the money trail, investigating how much banks, insurance companies and pension funds have invested in businesses that make their money from fossil fuels. If the carbon bubble were to burst, the impact would be felt not only by fossil fuel energy companies themselves, but also by those who have invested in them — the EU financial market included.

How banks, pension funds and insurance companies drive the bubble

For the study, the 20 largest EU banks, the 23 largest EU pension funds, and the EU insurance industry were analysed. If one extrapolates the findings about the banks in order to estimate how much the entire banking industry in the EU has invested in fossil fuels in the form of loans, bonds and shares, the total ranges between €460bn and €480bn. The study also reveals which of the largest banks have invested particularly heavily in oil, gas and coal in relation to their own balance sheet total. The list is headed by the French group BNP Paribas and the British group Standard Chartered. Others particularly committed to fossil fuels are the Societé Générale (France) and BBVA, Spain's second largest banking institution. At the other end of the list, with less than 0.5% of their balance sheet total, come Danske Bank (Denmark), Rabobank (Netherlands) and Santander (Spain).

In the case of pension funds, the amount which the industry has invested in fossil fuels is between €260bn and €330bn. Here too, the degree of dependence on oil, gas and coal varies from institution to institution. If the carbon bubble were to burst, the pension funds that would be hit hardest are the British Universities Superannuation Scheme (12% of its total investments are in fossil fuels) and another British fund, BAE Systems Pensions (nearly 10% of its total investments are in fossil fuels). In addition to British pension funds, many of their Dutch counterparts have also invested above-average amounts in oil, gas and coal.

It was impossible to analyse the position of individual insurance companies due to limited available data. However, an estimate on the basis of samples suggests that the industry as a whole has between €300bn and €400bn invested in oil, gas and coal. Together, banks, pension funds and insurance companies therefore have more than a trillion Euros invested in fossil fuels.

How dangerous the bubble is will also depend on governments

But what does this mean for the institutions? What losses would they face if the carbon bubble were to burst, and what consequences would those losses have on the stability of financial markets within the EU? As these questions cannot be answered in general terms and as the answers are also heavily dependent on the conditions established by political decision-makers, we worked out three possible scenarios enabling us to outline the potential impact of a carbon bubble.

Under the first scenario, 'low-carbon breakthrough', we assume that industry rapidly and definitively switches to methods which do not harm the climate. Thus we suppose that political decision-makers will act quickly and decisively, giving businesses and investors a clear framework for their decisions. Even though, to date, no such approach has been perceptible either at global or at European levels, we still consider it both necessary and feasible.

With a low-carbon breakthrough, pension funds would on average lose between 2.5% and 3.4% of their value. Certain individual institutions, such as the British Universities Superannuation Scheme, would be likely to lose a good deal more of their value (up to 7%), because of their high exposure to fossil fuels.
The losses suffered by insurance companies would be somewhat smaller (2%), while banks would lose far less (0.4%). The latter is mainly due to the fact that banks tend to lend money to fossil energy companies in the form of short-term loans, which would be less affected by the bursting of the carbon bubble. Nonetheless, their value should not be underestimated. In terms of balance sheet total, it is equivalent to the annual profits of many institutions. Moreover, some banks would suffer greater losses than others. Those that would be hit hardest would be the French institutions BNP Paribas and Société Générale – two of the biggest banks in the EU.

Altogether, under this scenario, banks, pension funds and insurance companies would lose €350bn to €400bn. Thus the carbon bubble does not present a systemic risk to the EU financial market as a whole. For individual institutions which have invested particularly heavily in oil, gas and coal, the risk is significantly greater. Some Member States are also at greater risk than others: Britain and the Netherlands on account of their pension funds, which have invested heavily in fossil fuels, and France, because of the likely losses which would be incurred by two of its banks, BNP Paribas and Société Générale.

Ambitious climate targets are also desirable from an economic perspective

But what will happen if political decision-makers do not act as decisively as we have assumed under the first scenario? What if the switch to alternative fuels not only takes longer but it also has a high degree of uncertainty? In the case of this second scenario — 'uncertain transition' — the impact is far more difficult to quantify. However, it is likely that the damage suffered by banks, pension funds and insurance companies would be incomparably greater. The main reason is that, in the absence of a clear lead from politicians, they will initially continue to invest in fossil fuels and the losses incurred if the bubble bursts will therefore be significantly greater.

Under a third scenario — 'carbon renaissance' — we assumed that politicians would fail to enforce the 2°C target, and that instead, fossil fuels would make a comeback. While that would have a disastrous impact on the climate, it would permit energy companies to burn all their fossil fuel reserves. However, even on purely economic grounds, this scenario is not desirable from the investors point of view. The costs that they would incur as a result of climate change would presumably be significantly greater than the losses due to the decline in value of fossil fuels. For example, insurance companies would have to cover the enormous costs of damage caused by flooding arising from unbridled climate change.

Overall, the study shows that ambitious and unequivocal climate targets are also desirable from an economic perspective and reduce the potential dangers of a carbon bubble. Although a carbon bubble does not in itself constitute a systemic risk to the EU financial market, the fact remains that, in combination with other shocks, it could unquestionably contribute to a disastrous chain reaction. Moreover, individual institutions and countries are particularly at risk. In order to be able to assess these dangers more effectively, greater transparency and monitoring is needed. **We therefore call for a CO_2 stress test for banks, pension funds and insurance companies. Such tests could be performed, for instance, by the European Banking Authority (EBA) and the European Insurance and Occupational Pensions Authority (EIOPA).**

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