

Briefing

A greener, healthier, cheaper, safer world

A 1.5 degrees pathway using the Global Calculator

It's an urgent priority for all Governments to work together to keep the risks from global warming to safe levels. Many of the governments that represent the most vulnerable people¹ have said that to do this we should keep climate change to below 1.5 degrees of global warming. This position is also supported by the world's largest environmental and development groups, such as Friends of the Earth International, Greenpeace, WWF, and Oxfam².

Warming above this level will harm particularly the poorest people across the world, as well as harm fragile ecosystems and nature. Higher levels of warming also risk crossing dangerous thresholds, such as the melting of the Greenland ice cap or releases of vast amounts of greenhouse gases from permafrost.

Already, with just 0.8 degrees centigrade of warming, more extreme weather is wreaking havoc.

The new global calculator - produced by a number of international bodies including the UK Dept of Climate Change, the International Energy Agency, the World Resources Institute, Climate-KIC and others³ - is an exceptionally impressive initiative that allows anyone to construct their own emissions pathway by making choices about how much energy we use, how we produce the energy, how much we eat, what we eat, and much more. One of its main benefits is that it shows there are multiple possible routes to a safer world; what is now needed is the political will and leadership to make sure we take one of these pathways.

Friends of the Earth has used the pathway to construct a pathway that gives a 50:50 chance of avoiding a temperature increase of 1.5 degrees. This briefing describes the choices we have made to do so. Our pathway is work in progress. We look forward to seeing others produce 1.5 degrees pathways, rather than riskier 2 degree pathways. And we may tweak ours as we get to know the Global Carbon Calculator better, including the data behind it.

For more than 40 years we've seen that the wellbeing of people and planet go hand in hand – and it's been the inspiration for our campaigns. Together with thousands of people like you we've secured safer food and water, defended wildlife and natural habitats, championed the move to clean energy and acted to keep our climate stable. Be a Friend of the Earth – see things differently.

Our pathway

Our current pathway has the following characteristics:

- **A greener world** – the amount of forests in the world increases from 3.7 million hectares (excluding commercial forests) to 5.4 million hectares. A win for biodiversity and for carbon storage, achieved through reductions in meat consumption freeing up land.
- **A more energy efficient world** – a reduction in total energy use of around 50 per cent – in manufacturing, transport and buildings - by being ultra-efficient in our need for and use of energy. As a result, for example, homes across the world in 2050 are on average larger, warmer in winter, and cooler in summer. The global average distance travelled per person increases by 30 per cent from current levels, but with significant shift in the mode of travel towards public transport. There is significant growth in developing countries and a reduction in some but not all developed countries
- **A world of healthier diets** – our pathway has average per capita calories consumed growing, but with meat consumption falling to an average of 45 grams of meat per day, a 50% cut on global average consumption today (higher in developed countries, e.g. three-quarters cut in the UK). For animal welfare and biodiversity reasons we have not significantly increased the proportion of meat from pigs and chickens - these are currently intensively reared and driving deforestation through consumption of soya. We advocate humane animal rearing with animals fed sustainable sources of feed, including waste food and alternatives to soya. And we support the development of high quality fake meats when they result in lower environmental and social impacts.
- **Renewables powering the world** – by 2050 all the world's electricity needs are met through renewable energy, with substantial levels energy storage to ensure reliable supplies. Gas and oil production will have been cut by 80 per cent with its use largely confined to industry, aviation and freight. The use of coal and peat in electricity production will be zero, as will nuclear power. Friends of the Earth and others are calling for a Global Feed-in Tariff to fund this transformation⁴. We also see no growth in mega hydro dams, and minimal growth in bioenergy.
- **A world of 8 billion people** – providing girls' education to secondary level, giving them control over their reproductive rights, and achieving gender equity are necessary actions in their own right. They also lead to smaller families. An increased focus on these rights is critical if the wellbeing of half the world's population is to be taken seriously. Doing so may also enable the UN's lower population projections for 2050 to materialize. Friends of the Earth have, together with the Population and Sustainability Network, identified a number of important policy changes for this issue⁵.
- **A more equal world** – the UK Government's global carbon calculator doesn't provide options for how to share out resources in the future. Our pathway, to be fair and equitable, would require more equitable sharing of food, travel and other resources. Current much of the world's resources are consumed by the one billion wealthiest in the world. If the wellbeing of 8 billion people is to be achieved, without exceeding 1.5 degrees of warming, it will be necessary for the resources to be shared much more equitably. This should also make the world a safer place⁶.
- **Cheaper** – our pathway is considerably cheaper than the other example pathways in the global carbon calculator because of its focus on energy demand reduction and energy efficiency, although calculating costs accurately so far ahead is probably nigh-on impossible so one shouldn't set too much store on this finding.

Challenges

Our pathway has a focus on demand management, with a large number of level 3 and 4's in the global carbon calculator (level 4 is described in the web tool as 'extraordinarily ambitious'). Increasing the odds of going over 1.5 and 2 degrees increases the risks of much more dangerous climate change – effectively playing Russian Roulette with humanity at stake - in this context 'extraordinarily ambitious' is exactly what world governments should be prepared to do.

We have zero new Carbon Capture and Storage (CCS) in our pathway. CCS has a greater carbon footprint than renewables, will be more expensive, and has other negative impacts such as air pollution from continued fossil fuel use. Apart from afforestation we also have zero use of geo-engineering techniques⁷.

Our pathway is cautious in terms of crop yields, assuming zero increase by 2050. This is because climate change due to climate change is forecast to decrease yields by 2 per cent per decade, which is likely to offset any increases due to better crop varieties.

Likewise we have shunned overly optimistic projections of reducing land-use efficiency. With very significant challenges from global soil degradation, existing over-abstraction of aquifers for irrigation, and rising sea levels we are likely to lose land which, if we are lucky, may be offset with greater efficiencies on other existing land.

We have also been cautious on post-2050 emissions reductions, assuming only minor reductions in emissions beyond this date. Our pathway reaches net zero emissions by 2050 where remaining emissions are offset by increases in forestry carbon stores. After 2050 remaining emissions are areas where emissions reductions are difficult. Assuming high levels of post-2050 emissions reductions would be a risky bet.

In other words, to have a reasonable chance of avoiding 1.5 degrees of global warming, as advocated by the majority of the world's countries representing the majority of the world's population, it is necessary to have an extremely strong focus on demand management.

Conclusions

A world with less than 1.5 degrees of global warming is much more desirable and much less risky than a warmer world; particularly for the poorest people across the world who will suffer most from warming (although nobody is immune to the impacts, as extreme weather events have already shown). The Global Carbon Calculator shows that, in theory at least, it is still possible to have a 50:50 chance of avoiding 1.5 degrees. It is obvious that to do so will require extraordinary efforts, particularly on demand management. But the goal is worth it. A world that is greener, healthier, cheaper, safer and, necessarily, more equal. In other words, a better world.

References

¹ Alliance of Small Island States, 28 February 2012, Workplan on enhancing mitigation ambition, <http://aosis.org/wp-content/uploads/2012/08/Enhancing-Mitigation-Ambition.pdf>

² This is the position of Climate Action Network International of which these groups are members: CAN International, June 12 2014, Long-term global goals for 2050

http://www.climatenetwork.org/sites/default/files/can_position-long_term_global_goals_for_2050.pdf

³ DECC, 2014, The Global Carbon Calculator, a Guide to the Project

<https://www.gov.uk/government/publications/the-global-calculator/the-global-calculator>

⁴ NGO joint position, December 2014, Globally funded renewable energy feed-in tariffs

http://www.whatnext.org/resources/Publications/Energy/Energy-brief_Lima-2014.pdf

⁵ Friends of the Earth, August 2013, Global population, consumption and rights,

http://www.foe.co.uk/sites/default/files/downloads/population_friends_of_the.pdf

⁶ Wilkinson and Pickett, 2009, The Spirit Level – why equality is better for everyone, Penguin Books

⁷ McLaren, 2011, Negatonnes – an initial assessment of the potential for negative emission techniques to contribute safely and fairly to meeting carbon budgets in the 21st century, Friends of the Earth, <http://www.foe.co.uk/sites/default/files/downloads/negatonnes.pdf>