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The joy of global warming

Climate change can be good for us and we are wasting billions trying to fight it before we need to, writes environmental expert and economist Bjorn Lomborg

Bjorn Lomborg

As I fly into a snow-bound Britain, I realise that you might be asking where global warming has gone as you shiver in the coldest March for 50 years and wonder what you will do if gas has to be rationed. I have been involved in the climate debate for more than a decade, but I am still amazed at how wrong we get it. Let us try to restart our thinking on global warming.

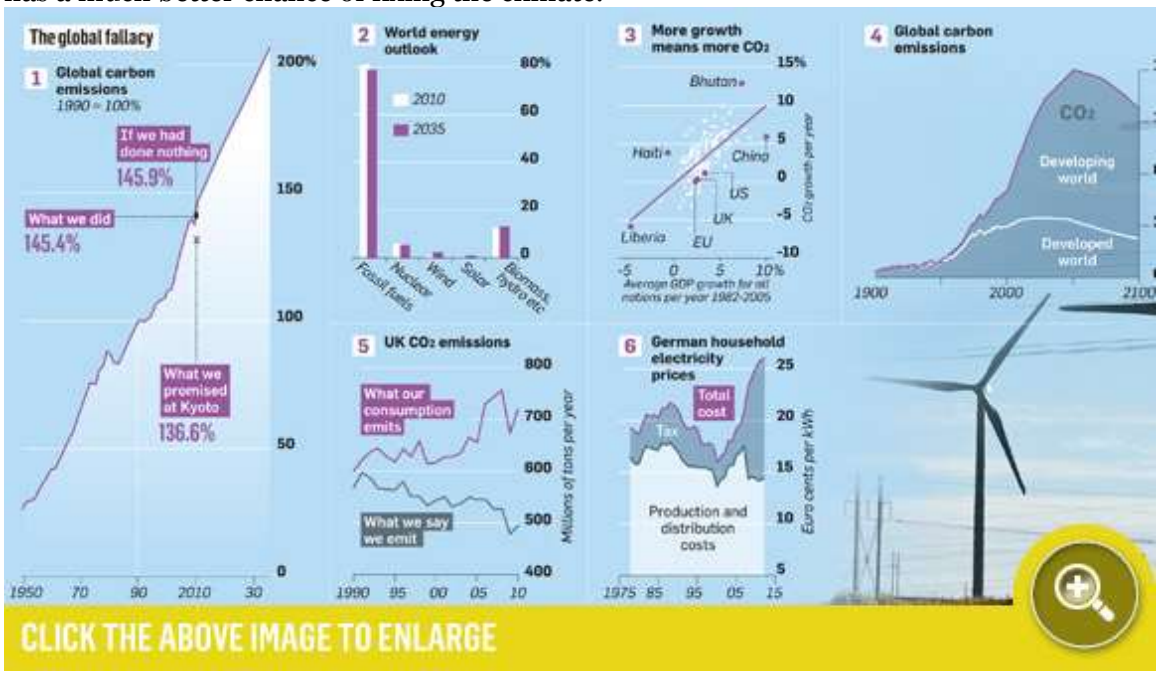
Yes, global warming is real and mostly man-made, but our policies have failed predictably and spectacularly.

I was one of the strongest critics of the Kyoto climate change treaty, back when it was considered gospel.

People were aghast when you criticised it then. Now Kyoto has no friends, and everyone remembers how they really did not believe in it.

If we want to avoid our current ambitions failing in the same way, if we want to get past Britain's unworkable and inefficient Climate Change Act and the EU's climate policies, we need to face up to some hard truths.

I am going to explain the things everyone ought to know about climate change. Then I will set out the ways in which our policies do not work and show you an approach that has a much better chance of fixing the climate.



GLOBAL warming is a problem for the future but a benefit now. Lots of people like to point out that global warming means more deaths from heatwaves, but they forget that fewer die from cold. In the UK and almost everywhere, more people die from cold than heat.

Likewise, higher temperatures mean higher costs for air-conditioning but lower costs for heating. Temperature rises will push some crops beyond their optimal range and reduce yields, but CO2 in the atmosphere acts as a fertiliser and has increased global yields significantly.

When economists estimate the net damage from global warming as a percentage of GDP, they find it will indeed have an overall negative impact in the long run — but the impact of moderate warming (1-2C) will be beneficial.

It is only towards the end of the century, when temperatures have risen much more, that global warming willturn negative. One peer-reviewed model estimates that it will turn into a net cost only by 2070.

We need to stop claiming that it will be the end of the world. Just as it is silly to deny man-made global warming, it is indefensible to describe it as the biggest calamity of the 21st century.

Here is how to quantify this. The most well-known economic model of global warming is the DICE model by Professor William Nordhaus of Yale University. It calculates the total costs (from heatwaves, hurricanes, crop failure and so on) as well as the total benefits (from cold waves and CO2 fertilisation). If you compare these over the next 200 years, the total cost of global warming is estimated at about £22 trillion.

While this is not a trivial number, you have to put it in context. Over the next 200 years, global GDP will run to about £1,500 trillion, so global warming constitutes a loss of about 1.5% of this figure. This is not the end of the world but a problem that needs to be solved.

Next, consider CO2 levels. With huge, green subsidies showing up on our electricity bills, you would be excused for believing that we have managed to cut CO2 substantially. You would be wrong.

Global CO2 has risen relentlessly since 1950. In 1997 the Kyoto protocol put legally binding limits on rich-country emissions. But Kyoto and all our fine policies have had no real impact, as you can see in figure 1 of the graphic.

Kyoto is the little dot in 2010 that the rich world had promised to strive for. We shot right past it. The only indication of a CO2 reduction was in 2009 when the global recession put us on track to fulfil Kyoto. Had the recession continued to cause more job losses and GDP reductions, we might have been able to achieve Kyoto. Not surprisingly, such a policy has no appeal for politicians — or voters — in the real world.

In 2010, 81% of world energy came from fossil fuels. Even with the most optimistic forecasts for renewable energy, such as solar and wave power, that figure will have fallen only to 79% by 2035

Kyoto set a target of 36.6% for the rise in global emissions since 1990. In fact they have gone up by 45.4%. With no Kyoto at all, they would have increased by only about half a percentage point to 45.9%. Put simply, the past two decades of climate discussions have had virtually no impact on global emissions.

But you look around and see lots of solar panels and wind turbines. In the UK, more than 6,000 massive onshore and offshore turbines will be raised over the next seven years, despite increasing opposition. Surely this will quickly change the picture? Well, no.

The International Energy Agency (IEA) in its latest estimate shows that in 2010 the world got just 0.7% of its energy from wind and a minuscule 0.1% from solar. The vast majority of renewables are hydro and especially biomass (largely poor people burning twigs and dung).

Looking forward to 2035, even with an optimistic (and somewhat unrealistic) green scenario, the IEA does not see much change. We will get 2.4% from wind and 1% from solar. The world will still run mainly on fossil fuels. In 2010, 81% of all energy came from fossil fuels; by 2035, 79% will still come from the same source.

Many people ask why we do not go more green. The simple answer is that it would cost too much. If you look at figure 3, you can see a strong one-to-one relationship between economic performance and energy emissions. Renewables cannot deliver a steady supply

of power. Plainly put, nations burn fossil fuels not to annoy the environmentalists but because they support economic growth.

Fundamentally, no matter what carbon cuts we make in the next couple of decades, they will make no measurable difference until the second half of the century, because the climate system is such a super-tanker.

This means that a smart climate policy is not about doing just anything now but doing something significant that will be sustainable and cut a large amount of CO_2 in the long run. This is the difference between doing something that feels good and focusing on something that will do good.

Similarly, the emissions that matter in the 21st century are from the developing world. Yes, we in the rich world emitted most of the CO_2 in the 20th century, but we are slowly sliding towards insignificance. Today we emit just 43% and by the end of the century, we will be down to 23%, as you can see in figure 4.

Fundamentally, UK climate policies (and even all the rich countries' climate policies) will not matter much unless China, India and the rest of the world are in on them. And they really are not right now, because our feelgood policies are all high cost for little benefit, which poor countries cannot afford.

There is another point to make here. When the EU congratulates itself for cutting carbon emissions significantly, this is mostly hypocrisy. We have simply exported most of our emissions to China.

Take Britain's carbon emissions from 1990-2010. You like to brag that your emissions are down some 14%, as you can see in figure 5. Yet this counts only the production of CO_2 inside the UK. Ever more of your responsibility for CO_2 production comes through imports — typically from China.

If we count that CO_2 as well (and deduct the CO_2 emissions that you export), we see a different picture. Britain has increased its CO_2 emissions over the past 20 years by 18%. You are not the good guys, it just feels that way.

Denmark, my own country, has the same pattern, so we are just as hypocritical. And this is true for most nations in the developed world.

EU emissions have declined (as the EU constantly intones) but the entire reduction from 1990-2008 is exactly matched by the increase in the CO_2 from imports from China.


(John William Banagan

SO, REALLY, what should we do about global warming? For a start, we must accept that the current, old-fashioned, approach has failed.

This approach, attempted since the 1992 Earth Summit in Rio, is to agree on promises of large carbon cuts 10-15 years into the future. Only one real agreement, the Kyoto Protocol, has emerged from 20 years of talk and — as I have shown — it really did not do anything. The 2009 Copenhagen follow-up turned into a spectacular failure.

The Kyoto approach is not working for three reasons. First, cutting CO2 is expensive. We burn fossil fuels because they power almost everything we like about modern civilisation. Cutting emissions without affordable, effective replacements for fossil fuel means expensive power and lower growth. The only current comprehensive global-warming policy, the EU 20-20-20 — which aims to cut greenhouse gas emissions to 20% below 1990 levels by 2020, and ensure 20% renewable energy — will cost about £165bn a year.

Second, even if successful, this approach would not solve the problem. If everyone implemented Kyoto, temperatures would drop by the end of the century by a minuscule 0.004C. The EU policy will, across the century, cost about £13 trillion, yet will reduce temperatures by just 0.05C.

Third, green energy is not ready. It is generally much more expensive than traditional sources, its deployment does not create new jobs — its higher, subsidised costs destroy jobs in the rest of the economy — and it does not reduce oil dependence, because it typically produces only electricity, which is rarely generated with oil.

Fundamentally, with the current policies we pay way too much for way too little.

It is also easy to show how even individual climate policies are simply silly. Look at the damage from an extra ton of CO2.

The latest peer-reviewed overview of the 311 published estimates show that the entire cost of the most likely future damage is about £3.50 a ton. This means that cutting CO2 for less than £3.50 a ton is probably a good idea, whereas cutting for more is probably a bad deal.

Unfortunately, almost all current policies for fighting global warming are bad deals by this £3.50 yardstick. The UK and most other large nations have managed to enact climate policies for electricity that cost a lot more than the good they do.

China has one of the most efficient climate policies on electricity. Yet it still pays about £26 to cut a ton of CO2, which is nearly eight times more than the global, long-term benefits. The UK pays more than £1bn to cut about 10% of its electricity emissions, essentially paying about £81 a ton of CO2, or more than 20 times too much.

On biofuels, the excess is even greater and emission reductions even smaller. The UK pays 57 times too much at £193 per ton of CO2, cutting just 0.4% of its total emissions at a cost of £391m. America pays a staggering 133 times too much, at £456 per ton of CO2, costing £12bn a year and cutting just 0.5% of its total emissions.

The cost is not just economic: public resentment at high energy costs is rising. In Germany electricity prices have gone up 61% in real terms since 2000 (shown in figure 6). A quarter of the price is now direct subsidies to renewables. These prices means that upwards of 800,000 German households can no longer pay their electricity bills.

In the UK, there are now more than 5m fuel-poor people, and Ofgem's chief executive, Alistair Buchanan, publicly worries that environmental targets could lead to blackouts in less than eight months' time. This makes the current policies unsustainable in the long run.

You will often hear that we just need to put a price on carbon, either through a carbon tax or an equivalent cap-and-trade. This argument typically assumes that a tax would be a significant step towards solving global warming. It would not.

If the tax were high enough to curtail emissions significantly, it would also curb economic growth significantly — political suicide as well as poor economics.

If the tax were equal to the £3.50-a-ton real cost of CO2 damage (or less than a penny on a litre of petrol) it would make little difference. If enacted across the world, it would cut global emissions by less than 10%. If just one country or region adopted the tax, the effect would be unnoticeable.

Moreover, in most rich countries taxes on fossil fuels such as petrol are already much higher than a penny, so you could argue that we already have the correct carbon tax.

Anyway, the proof is in the eating: carbon taxes have not worked where they have been imposed. They have led to political breakdown (in Australia), climate policy breakdown (in America) or to expensive policies with little benefit (in the UK and the rest of the EU).

So the bottom line is that the old-fashioned policies have failed. Current green technologies just do not make it.

THE only way to move towards a long-term reduction in emissions is if green energy becomes much cheaper. If it cost less than fossil fuels, everyone would switch — including the Chinese.

This, of course, requires breakthroughs in green technologies and much more innovation.

At the Copenhagen Consensus on Climate, a panel of economists, including three Nobel laureates, found that the best long-term strategy was to increase dramatically investment in green R&D — research and development.

They suggested doing so 10-fold to $100bn (£66bn) a year globally. This would equal 0.2% of global GDP, with a commitment of about $5bn from the UK. Compare this with the cost of the EU climate policies: just for the UK the bill is $34bn annually.

Of course, R&D holds no guarantees. We might spend billions and still come up empty-handed in 40 years' time. But it has a much better chance of success than continuing the futile efforts of the past 20 years.

The analogy here is the computer in the 1950s. We did not get better computers by mass-producing subsidised vacuum tubes. We did not provide grants so that all westerners could have a computer in their homes in 1960. Nor did we tax alternatives such as typewriters. The breakthroughs were achieved by a dramatic increase in R&D, leading to many innovations, which enabled companies such as IBM and Apple to produce computers that consumers eventually wanted to buy.

This is what America has done with fracking. It spent about $10bn in subsidies over the past three decades on innovation, opening up huge new resources of previously inaccessible shale gas. Despite some legitimate concerns about safety, it is hard to overstate the overwhelming benefits: a dramatic fall in natural gas prices and a shift in US electricity generation from 50% coal and 20% gas to 37% coal and 30% gas.

This has reduced US annual CO_2 emissions by 400m-500m tons — about twice what the rest of the world has achieved over the past 20 years.

The fracking bonanza also creates long-term social and economic benefits through lower energy costs: US consumers benefit by about £66bn in lower gas prices. By contrast, estimates show that a 330m-ton CO_2 reduction in the EU using carbon taxes would cost £165bn.

It illustrates why we must confess to the failures of the past 20 years. As long as renewables are not ready, we are spending vast sums of money on tiny cuts in CO_2. Instead, we should focus on investing dramatically more in R&D into green energy over the next 20-40 years.

The solution is not to make fossil fuels so expensive that nobody wants them — because that will never work — but to make green energy so cheap that eventually everybody wants it.