Discussion Paper
Nº 05 • APRIL 2021

Costly Trade-offs versus Cost of Inaction:
Divergent Views on the Risks and Benefits of EU Climate Governance

Bjorn Lomborg
PhD, President of Copenhagen Consensus Center

Sebastian Oberthür
PhD, Vrije Universiteit Brussel and University of Eastern Finland

Content

Authors' Bios

Dr Bjorn Lomborg is the president of the Copenhagen Consensus Center, a visiting fellow at the Hoover Institution, Stanford University, and a visiting professor at the Copenhagen Business School. The Copenhagen Consensus Center is a think-tank that researches the smartest ways to do good. For this work, Lomborg was named one of TIME magazine's 100 most influential people in the world.

Dr Sebastian Oberthür is a professor of Environment and Sustainable Development at the Brussels School of Governance, Vrije Universiteit Brussel, and of Environmental Policy and Law at the University of Eastern Finland's Center for Climate Change, Energy and Environmental Law. Oberthür is also the coordinator of the Jean-Monnet network 'Governing the EU's Climate and Energy Transition in Turbulent Times' (GOVTRAN – www.govtran.eu).

Publisher
European Liberal Forum

European Liberal Forum asbl
Rue d'Idalie 11-13, boite 6
1050 Ixelles, Brussels (BE)

Contacts:
+32 (0)2 669 13 18

info@liberalforum.eu

www.liberalforum.eu

Cover Image: Adobe Stock
Graphic design: Penu Kiratzov
ISSN: 2684-6667
DOI: 10.53121/ELFDP5

Published by the European Liberal Forum asbl. Co-funded by the European Parliament. Neither the European Parliament nor the European Liberal Forum asbl are responsible for the content of this publication, or for any use that may be made of it. The views expressed herein are those of the author(s) alone. These views do not necessarily reflect those of the European Parliament and/or the European Liberal Forum asbl.

Abstract:

This discussion paper examines the risks and benefits of EU climate governance from two very different standpoints. In the first part, Dr Bjorn Lomborg suggests that an unreasonable and exaggerated fear of climate change underlies EU climate policies. Lomborg claims that the result of this overinflated fear includes environmental policies demanding costly trade-offs, hurting many sectors of the EU economy and stifling innovation. Ultimately, he concludes that climate change is only one of the many challenges to consider when setting and adopting environmental policies in Europe.

In the second part, Dr Sebastian Oberthür explains how EU climate governance has made significant progress in recent years, including acceleration under the Commission's European Green Deal that was launched in 2019. Nevertheless, the European Union still has a long way to go to realise its climate and sustainability transition, which will require perseverance and a steadily evolving policy framework for more than a generation. Professor Oberthür identifies and discusses seven momentous challenges facing contemporary EU policy on the way towards this climate and sustainability transition. They indicate both the depth of change in governance still required and the long-term nature of the task.

The point of tension that emerges refers to the level of acceptable trade-offs vis-à-vis the cost of inaction in tackling climate change. According to Dr Bjorn Lomborg, EU climate governance is suffering from a sensible cost-benefit analysis which ignores other opportunity costs linked to climate change adaptation and more forward-looking technologies like geo-engineering. The response from Dr Sebastian Oberthür is that some trade-offs are inevitable, but the cost of inaction greatly exceeds the price of climate change mitigation.

Part 1

What really helps against global warming

As we know more about climate change, the discussion about it becomes more and more irrational. If we want to make the world a better place, alarmism is a bad advisor.

Bjorn Lomborg
PhD, President of Copenhagen Consensus Center

Today, the discussion about climate change is increasingly shaped by one emotion: fear. This feeling is not surprising when one studies the books on the subject, for example, with titles such as The Uninhabitable Earth, Field Notes from a Catastrophe, or This is the Way the World Ends.[1] Many politicians and campaigners tell us that "the world will end in twelve years if we do nothing about climate change."[2] This rhetoric is having an effect: according to a survey from 2019,[3] almost half of the world's population believes that humanity will likely become extinct due to climate change.

The alarmism is disproportionate to the scale of the problem. As I already pointed out in my 2001 book The Skeptical Environmentalist, global warming is a real and man-made problem. Scientists have collected more and more reliable data since then. Their projections of temperature changes and rising sea levels have been remarkably consistent over the past twenty years. At the same time, the public discussion has become more and more fear-based. The rhetoric of commentators and the media is increasingly radical and detached from scientific knowledge. If we look soberly at the findings of climate research, one thing is clear: global warming is real, but it is not the end of the world. It is a manageable problem. The distorted public perception is causing us to neglect other challenges, from pandemics to food shortages and political conflict. If we don't stop it, this false alarmism will leave the world a worse-off place.

1 D. Wallace-Wells, The Uninhabitable Earth: Life After Warming (Crown Publishing Group, 2019); E. Kolbert, Field Notes from a Catastrophe: Man, Nature, and Climate (Bloomsbury Publishing, 2006); J. Nesbit, This is the Way the World Ends: How Droughts and Die-Offs, Heat Waves and Hurricanes Are Converging on America (St. Martin's Publishing Group, 2018).

2 Bowden, "Ocasio-Cortez: 'World will end in 12 years' if climate change not addressed", The Hill (22 January 2019), https://thehill.com/policy/energy-environment/426353-ocasio-cortez-the-world-will-end-in-12-years-if-we-dont-address [accessed 22 February 2021].

3 M. Smith, "International poll: most expect to feel impact of climate change, many think it will make us extinct", YouGov (15 September 2019), https://yougov.co.uk/topics/science/articles-reports/2019/09/15/international-poll-most-expect-feel-impact-climate [accessed 22 February 2021].

How big is the damage caused by global warming? The outcome of three decades of climate economics shows us that the cost is moderate. The latest overview from the UN Climate Panel, updated with the newest data, shows us that – if we do nothing – the cost by 2100 will be about 3.6 percent of global gross domestic product.[4] This value includes all negative influences, from the damage caused by stronger storms to additional deaths from heat waves. According to UN estimates, the average income of the world population will reach around 450 percent of today's level by the end of this century. A cost of 3.6 percent would mean that – if we do nothing about climate change – our prosperity at the end of the century will be "only" 434 percent instead of 450 percent of today's level. Obviously, that is a problem, but it's clearly not the end of the world.

Scare tactics, however, lead governments to spend a lot of money on ineffective and inefficient measures against climate change. Worse still: the costs of these measures may disproportionately affect the poor of the world, for example, in the form of higher energy costs.

It is high time to straighten things out and think about how we can most effectively combat climate change without making humanity poorer.

A tax against market failure

The first step in tackling climate change is to introduce a tax on CO_2 emissions. Such a tax could greatly reduce emissions, helping to limit the most damaging effects of global warming, and at a relatively low cost. Without such a tax, the benefit of an emission goes to those who cause it, while the negative effects hit the whole population. This is a classic example of market failure. The best way to remedy this market failure is to price the issue. The question is: how high should this price be?

Perhaps the most important insight from climate economics is that while too much climate change has substantial costs, too much climate policy also has a considerable cost. Since we have to pay for both, we have to find the right level of climate policy to minimize the total cost of both climate change and climate policy.

This is the insight that won Professor William Nordhaus the Nobel Prize, the only climate economist ever to achieve this. According to his model, which attempts to include all costs for the next 500 years, climate change is likely to cost us around 140 trillion dollars if we do nothing about it. The higher we set a CO2 tax, the more this amount drops. However, at the same time, the cost of this tax would increase in the form of prosperity loss. A trade-off between benefits and costs shows that a tax of $36 per tonne of CO_2 emissions would be the most efficient solution. In everyday life, this would mean that, for example, a litre of gasoline would be around a 8¢ more expensive, and the tax would increase over time. If this optimal tax could be coordinated worldwide, emissions would be reduced by 80 percent by 2100 and the global temperature increase could be reduced from 4.1 to 3.5 °C.[5]

4 The Intergovernmental Panel on Climate Change, https://www.ipcc.ch/ [accessed 22 February 2021].
5 W. Nordhaus, "Projections and Uncertainties about Climate Change in an Era of Minimal Climate Policies", American Economic Journal: Economic Policy 10, no. 3 (August 2018), pp. 333-60. See also: B. Lomborg, "Welfare in the 21st century: Increasing development, reducing inequality, the impact of climate change, and the cost of climate policies", Technological Forecasting and Social Change 156 (2020).

EU climate policy

This regulatory approach is immediately applicable to the climate policy of the European Union. Clearly it wants to be seen as the global leader on climate action.[6] That is why it promised a larger absolute emissions reduction by 2030 than any single country at the climate negotiations in Paris in 2015.[7]

Although it would be interesting to discuss existing policies, it is perhaps most useful to discuss the upcoming decision on ramping up the EU's climate ambition. Urged on by ever-increasing climate alarm and youth climate protests, the new European Commission, spearheaded by President Ursula von der Leyen, has voluntarily proposed to further increase the EU's reduction promise.[8] While campaigners are claiming this is still not enough, the promise is certainly unique in the arena of international politics. What remains to be discussed is whether it is a smart way to help the world.

> As stated above, we need to realize that we have to pay for both climate damages and the costs from stronger climate policies, as they may force economies to use ever more costly and less reliable energy.

The UN Climate Panel's latest overview of 128 analysed climate policies shows that all of them have real costs.[9] These range from the very low costs associated with the least restrictive policies and most optimistic models to costs beyond 14 percent of global GDP over the century.[10] It also found that, across the world, the most effective climate policies for achieving the 2°C target[11] would cost between 1 and 4 percent of GDP by 2030 and 3-11 percent of GDP by 2100.[12]

6 European Commission, "State of the Union: Commission raises climate ambition and proposes 55% cut in emissions by 2030" [press release] (Brussels, 17 September 2020), https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1599 [accessed 22 February 2021].

7 Compared to 1990, the EU promised to cut from 5.4Gt CO_2e – See European Commission, 7th National Communication and 3rd Biennial Report from the European Union under the UN Framework Convention on Climate Change (UNFCCC), C(2017)8511 (December 2017), p. 309 – with LULUCF to about 3.3Gt CO_2e – See E. Kriegler et al., "Short term policies to keep the door open for Paris climate goals", Environmental Research Letters 13, no. 7 (2018), https://iopscience.iop.org/article/10.1088/1748-9326/aac4f1 [accessed 22 February 2021] – compared to the second-highest, which is the US, from 5.7Gt CO_2e – See "Historical GHG Emissions", Climate Watch, https://www.climatewatchdata.org/ghg-emissions?end_year=2016&sectors=total-including-lucf&start_year=1990 [accessed 22 February 2021] – to 4.3 Gt – See E. Kriegler et al. again, table 1 – meaning a reduction of 2.1Gt for the EU and 1.4Gt for the US.

8 Compared to 1990, the EU promised to cut from 5.4Gt CO_2e – See European Commission, 7th National Communication and 3rd Biennial Report from the European Union under the UN Framework Convention on Climate Change (UNFCCC), C(2017)8511 (December 2017), p. 309 – with LULUCF to about 3.3Gt CO_2e – See E. Kriegler et al., "Short term policies to keep the door open for Paris climate goals", Environmental Research Letters 13, no. 7 (2018), https://iopscience.iop.org/article/10.1088/1748-9326/aac4f1 [accessed 22 February 2021] – compared to the second-highest, which is the US, from 5.7Gt CO_2e – See "Historical GHG Emissions", Climate Watch, https://www.climatewatchdata.org/ghg-emissions?end_year=2016&sectors=total-including-lucf&start_year=1990 [accessed 22 February 2021] – to 4.3 Gt – See E. Kriegler et al. again, table 1 – meaning a reduction of 2.1Gt for the EU and 1.4Gt for the US.

9 L. Clarke, K. Jiang, et al., "Assessing Transformation Pathways", in Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, eds. O. Edenhofer et al. (Cambridge: Cambridge University Press, 2014), pp. 413-510, https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter6.pdf [accessed 22 February 2021].

10 Ibid: Figure 6.21.d., GDP loss.

11 450 parts per million, See M. Fischetti, "More Carbon Emissions = Less Global Warming?", Scientific American (30 July 2013), https://blogs.scientificamerican.com/observations/more-carbon-emissions-less-global-warming [accessed 22 February 2021].

12 449 parts per million

The EU has had little or no discussion on whether its decision to increase its 2030 promise from a 40 percent reduction to a 55 percent reduction was smart. If fulfilled, this promise will start further reducing emissions in 2021, reach a maximum additional reduction in 2030, and still reduce emissions slightly more in 2049. Across these three decades, the new EU promise will reduce emissions by a total of 12.7 billion tonnes of CO_2 or its equivalent. If put into one of the standard UN climate models, this would reduce global temperature before the end of the century by an immeasurable 0.0057 °C. Since the temperature will still be increasing then, the result of the EU's upped climate policy would be equivalent to postponing global warming by 8 weeks in 2100. The temperature the world would have reached on 1st January in 2100 would now first be reached on February 26.

> To its credit, the EU has always made cost estimates of its climate policies. Unfortunately, they have always been significant underestimates.

To its credit, the EU has always made cost estimates of its climate policies. Unfortunately, they have always been significant underestimates. Moreover, much of this emission reduction is likely fictitious, since about two-thirds of CO_2 emissions will likely still take place but move out of the EU (so-called carbon leakage),13 meaning the real temperature reduction will be 0.002 °C, postponing global warming by just three weeks.14

A consultancy estimated its 2020 climate policy to cost 0.5% of GDP.15 The Stanford Energy Modeling Forum is considered the gold standard of climate economics because it is peer-reviewed and brings together many of the world's leading models instead of relying on one particularly optimistic model. Their study on the EU-2020 targets found the average optimal cost was 1.03% of GDP, but – as the EU's implementation was inefficient because it didn't include a single carbon market – the average actual cost ended up even higher, at 2.19% of GDP.16 So, the EU underestimated the cost by about four-fold.

The same thing happened with the EU's previous 40% promise for 2030. In 2015, the EU ran one respected but very optimistic model and found that the cost of this could be about 0.3% of GDP.[17] They also ran a consultancy model that even showed benefits to the EU, apparently because it assumed an economy not running at full speed which would benefit from extra investments. Of course, this would be true for every other potential investment, from health to education, and has nothing to do with climate policy. This finding of benefits also goes entirely against the UN findings from 128 models, none of which showed net benefits. Indeed, in many of its descriptions, the EU also seems to ignore this implausible result.

13 "Carbon Leakage", Climate Action, https://ec.europa.eu/clima/policies/ets/allowances/leakage_en [accessed 22 February 2021].
14 W. Yu & F. Clora, "Implications of decarbonizing the EU economy on trade flows and carbon leakages: Insights from the European Calculator", EUCALC Policy Brief No. 7 (February 2020), https://european-calculator.eu/wp-content/uploads/2020/04/EUCalc_PB_n07_Trade.pdf [accessed 22 February 2021].
15 C. Böhringer, T.F. Rutherford & R.S.J. Tol, "THE EU 20/20/2020 targets: An overview of the EMF22 assessment", Energy Economics 31, suppl. 2 (December 2009), pp. S268-S273, https://www.sciencedirect.com/science/article/pii/S0140988309001935 [accessed 22 February 2021].
16 Ibid.
17 P100, based on GEM E3, average costs -0.1 to -.45%, See European Commission, Staff Working Document: Impact Assessment, SWD(2015) 135 final (Brussels, 15 July 2015), https://ec.europa.eu/clima/sites/clima/files/ets/revision/docs/impact_assessment_en.pdf [accessed 22 February 2021].

Once again, the Stanford Energy Modeling Forum ran six international models to estimate EU climate policies, one of which coincided with a 41% reduction by 2030.[18] It included the EU model (the second-cheapest) and found that the average cost would be 0.91% of GDP, three times higher than the EU estimate.

For its new 55% reduction, the EU has repeated its use of this optimistic model to find an additional 0.39% GDP cost.19 (It has also included the consultancy model, again showing a small benefit, and an internal EU model, showing a cost of 0.29%.) Although there is currently no academic estimate to set the record straight, it seems likely that the real cost will still be 3-4 times higher. The additional cost for the year 2030 will therefore probably be between the EU's optimistic €80 billion and a more realistic €200 billion.

If we assume the costs' scale with the additional reduction, the total loss over the next three decades to EU economies from additional climate protections will reach €1.2-3 trillion. For comparison, the EU estimates the economic loss of COVID-19 at 8.3%, or €1.4 trillion.[20] The recovery fund for the EU is an additional €750 billion.

Thus, it is likely that the total cost of the COVID crisis and the recovery package is smaller than the additional cost of the EU's upped climate policy. The additional climate measures will leave each citizen between €2,300 and €6,000 poorer, while helping postpone climate change at the end of the century by one-hundredth of a second.

Calculated across nine damage profiles and the UN's five policy scenarios, the average damage from one ton of CO_2 in 2030 is €27.[21] That means the EU will deliver a climate benefit to the world worth about €342 billion in total. Spending €1.2-3 trillion makes that an obviously bad deal.

Innovation is the key

While the EU regulation promises to cut emissions, it is likely that its 55% reduction promise will entail additional costs much higher than the additional benefits.

Similarly, the general point of a worldwide, uniform CO2 tax as discussed above would only be possible in a fairy-tale world. In practice, individual states will introduce their own taxes; some may have already done so. Some of these taxes will be too high, others too low. In reality, the costs of this measure are therefore likely to be higher. It is still correct that a moderate carbon tax can be a good idea to reduce emissions. But the global inefficiency stemming from uneven carbon taxes will mean that the optimal carbon tax should be lower. Moreover, any realistic carbon tax – or most policy promises – will only ever contribute a small part of the solution to climate change. Instead, the most important part is innovation.

18 B. Knopf, Y.H. Chen, et al., "Beyond 2020 – Strategies and Costs for Transforming the European Energy System", Climate Change Economics 4, suppl. 1 (2013), https://www.worldscientific.com/doi/abs/10.1142/S2010007813400010 [accessed 22 February 2021].

19 European Commission, Staff Working Document Impact Assessment: Stepping up Europe's 2030 climate ambition Investing in a climate-neutral future for the benefit of our people, SWD(2020), 176 final (Brussels, 17 September 2020), https://ec.europa.eu/clima/sites/clima/files/eu-climate-action/docs/impact_en.pdf [accessed 22 February 2021].

20 J. Frater & M. Toh, "EU leaders strike 'historic' $2 trillion deal to rebuild Europe's economy", CNN Business (21 July 2020), https://edition.cnn.com/2020/07/21/economy/eu-stimulus-coronavirus/index.html [accessed 22 February 2021].

21 $31 at current exchange rate, See P. Yang, Y. Yao, et al., "Social cost of carbon under shared socioeconomic pathways", Global Environmental Change 53 (November 2018), pp. 225-232, https://www.sciencedirect.com/science/article/abs/pii/S0959378018304424?via%3Dihub [accessed 22 February 2021].

From the 18th to the middle of the 19th century, the oil extracted from whales supplied the western world with light. At its peak, whaling provided a livelihood for 70,000 people in the United States alone and was the fifth largest industry in the country. But even though we slaughtered countless whales to have a good and safe source of light, we did not eradicate them. Why? We found alternative technologies. Petroleum first replaced whale oil before it was itself replaced by electricity.

We have repeatedly underestimated our ability to innovate throughout history. By creating innovations and finding cheap technological solutions, we solve great challenges and create benefits for everyone. We have to apply this knowledge to the problem of climate change. Today's fossil fuels provide cheap and reliable energy, while alternative technologies are still too immature and expensive. We should focus much more on innovating better and cheaper alternatives.

Solar and wind energy are not the answer yet. Despite political support and trillions in subsidies, they only cover a little more than one percent of global energy needs. In order to significantly reduce our fossil fuel emissions, we need innovation.

In 2009, my think-tank Copenhagen Consensus brought together 27 leading environmental economists and three Nobel Prize winners to find out which measures could be most effective in combating global warming. The experts concluded that investing in research into green technologies is by far the best way to go.[22] Every dollar spent on this could save about $11 from the cost of climate change. But although we

> For every 100 dollars of their economic output, industrialized countries spend less than 3 cents on research into green energies.

and others have since sought more investment in this area, it has hardly increased. Instead, they increase spending on subsidies for inefficient solar and wind power.

Additional investments could be used, for example, to research the storage of energy coupled with cheaper wind and solar, nuclear power or even the extraction of CO_2 from the atmosphere. These technologies already exist but are still too expensive to significantly reduce our dependence on fossil fuels. This could change if we spend more money on research. Other technologies could still be developed. Trying to predict innovation is foolish. Therefore, instead of focusing our resources on a few promising ideas, we should explore many different approaches.

22 B. Lomborg (ed.), Smart Solutions to Climate Change: Comparing Costs and Benefits (Cambridge University Press, 2010), https://www.copenhagenconsensus.com/books/smart-solutions-climate-change [accessed 22 February 2021].

Adaptation to Climate Change

Even with new, climate-friendly technologies, however, the temperature will rise. We have to adapt to that. Fortunately, mankind has an impressive track record of adapting to different climatic conditions. People live in the icy cold of Siberia as well as in the burning hot Sahel desert, in the dryness of the Atacama Desert as well as in the rainy Indian state of Meghalaya. When the temperature rises, people adapt – for example, with more households using air conditioning or turning off their heating. The economy is also adapting. For a long time, farmers have varied the plants they grow depending on the climate.

Not all necessary adjustments are possible without government support, however. In agriculture, for example, they are made easier when people are better educated, wealthier (if they can afford a tractor, for instance), and when they have better access to agricultural information.

An often-cited consequence of global warming is rising sea levels. We already know how to cope with this. In the past 150 years, the sea level has already risen by around 30 centimetres. The reason why hardly anyone has perceived this as a significant change is that we have adapted to it. Such measures are a worthwhile investment: in a 2019 overview of nineteen studies, dikes on average were shown to reduce damages by $40 for each dollar spent, whereas artificial nourishment could avoid $111 of damages for every dollar spent.[23]

There are also simple but effective solutions to the increasing amount of heat waves. In cities, temperatures generally reach higher values than in rural areas, mainly because of the dark construction materials used for roads and buildings and due to the lack of green spaces. Los Angeles has reduced the temperature on sidewalks by almost 6 °C by covering their dark asphalt surfaces with a cooling grey layer.

Geo-engineering as a fallback option

In addition to adaptation, there is another efficient way to limit the negative effects of greenhouse gas emissions: geo-engineering, i.e., the conscious control of global temperature.

In June 1991, the Pinatubo volcano erupted in the Philippines. The massive eruption killed hundreds of people and displaced hundreds of thousands. In addition to its devastation, the eruption also affected the climate. It emitted so much sulphur dioxide into the stratosphere that, temporarily, 2.5 percent less sunlight reached the earth. This decrease led to a drop in temperature around the globe by an average of around 0.5 °C over the following 18 months.

As concerns about global warming grew, researchers began to investigate whether such an effect could be mimicked without the ravages of a volcanic eruption. Indeed, this could be achieved by spraying tiny particles, such as sulphur dioxide, into the upper layer of the atmosphere. These particles would reflect some sunlight.

23 A. Markanday, I. Galarraga & A. Markandya, "A Critical Review of Cost-Benefit Analysis for Climate Change Adaptation in Cities", Climate Change Economics 10, no. 04 (2019), https://doi.org/10.1142/S2010007819500143 [accessed 22 February 2021].

A very cheap and effective geo-engineering option is so-called "marine cloud brightening". The idea is to increase the concentration of sea salt particles in the air above the oceans, which would make the clouds whiter and allow for more sunlight to be reflected.

Many people are critical of such ideas, and most environmentalists vehemently reject them. Their scepticism is understandable. The climate is a highly complex system, much of which we still do not understand – who could tell us whether such attempts might lead to unforeseen damage?

I don't advise using geoengineering today. But it is worth researching the approaches precisely because we do not understand a lot about the climate. Proponents of drastic reductions in greenhouse gas emissions often point to the possibility of "tipping points" which, if reached, would mean that we could no longer prevent a catastrophe. Geoengineering is the only known instrument that can reduce temperatures on earth within a short period of time.

Of course, there are risks. It is therefore all the more necessary to research the technologies now to find out if they work. Should we actually face a disaster, we will be happy to have a fall-back option.

Underestimated climate safety from development

CO_2 taxes, innovations, adaptation measures, and geo-engineering are a powerful package in the fight against climate change. There is, however, another measure that is extraordinarily effective but receives little attention in public discourse: economic development.

The importance of prosperity for climate policy becomes clear when one looks at two countries located deep down on a river delta: the Netherlands and Bangladesh. The Netherlands experienced a devastating flood in 1953. Over 1,800 people died after levees broke in several provinces. In response to the disaster, the country began building an extensive protection system of dams and barriers. The system cost a total of $11 billion. Since 1953, the Netherlands has recorded only one death from floods. In contrast, the water in Bangladesh still regularly overflows its banks. In 2019, a flood drove 200,000 people from their homes and threatened supply security.

It is obvious that rich countries can spend more money on protections against climate change than poor ones. But that's not all: when states become wealthier, they can also afford to abolish subsidies for fossil fuels and instead levy taxes on emissions. They have the resources to research and support lower-emission technologies.

The goal of every climate policy measure is to make the world better than it otherwise would be. It's about leaving both people and the environment better off. That is why we have decided on CO_2 taxes and the search for green alternatives to fossil fuels.

But it is inevitable that such measures will cost us resources that we could otherwise invest to make people's lives healthier, longer, and better.

> If we invest some of these resources into development and human capital, people will not only be better off in a number of other ways but they will also be better able to afford green energy sources and adapt to climate change.

In addition, rich countries can more easily afford to care for the environment. The Netherlands is now planting forests, while Bangladesh is still cutting them down.

Getting better climate policies

When considering the current climate debate, it is filled with end-of-the-world sentiments that not only cause us to lose hope but also make us panic and divert large streams of resources to vanity projects that fail to tackle climate change effectively. The commitment to reducing carbon emissions by 55% (compared to 1990) by 2030 is one such inefficient way to spend trillions.

And the general message, scaring children and adults alike, is mostly wrong. Climate change is a problem in the sense that it will only make us 434 percent richer in 2100 than we are today, as opposed to 450 percent richer.

We should still tackle climate change while remembering that there are so many other issues, such as poverty and lack of health care, food, education, and peace, that also demand our attention.

We can do so by making smart climate policies with CO2 taxes, green innovation, adaptation, and research into geo-engineering. By spending smartly, we will also have more resources to make sure we can increase prosperity around the world in so many other ways – helping Bangladeshis to transition into better-off Dutch people. It will make them better able to tackle climate change and institute smart climate policies themselves. And it will help immensely with all their other challenges, not only helping fix climate change but fixing the world.

Comment on Part 1

Bjorn Lomborg's views on climate policy and economics have been the subject of intense controversy for at least two decades. His most recent writings – on which his contribution here relies – has also been amply criticised.

The main criticism concerns the misrepresentation of available scientific evidence so as to arrive at particularly high costs of action on climate change and particularly low costs of inaction (i.e., the impacts of climate change, even in the case of warming levels considered dangerous by science and as assessed and synthesized by the Intergovernmental Panel on Climate Change). While Lomborg contends that others, such as the European Commission, are too optimistic in their calculation of costs and benefits of climate action, his calculations consistently arrive at overly high costs and overly low benefits, "cherry-picking" his supporting evidence. In addition, I would like to point to two further shortcomings of his approach here. First, his arguments are derived from what I would like to call linear and one-dimensional thinking that (1) has an exclusive focus on economics and (2) prefers to base decisions on evidently deficient models of future development, without taking into account uncertainties and counter-effects (as an aside: the current politics of the Covid-19 pandemic illustrate the shortcomings of such an approach on a daily basis).

> This approach ignores key principles of European and international environmental law that have served us very well, in particular the precautionary principle and the principle of prevention.

Even where uncertainty remains in our knowledge, we should act; we should give priority to the prevention of environmental harm as opposed to trying to fix its fallout (be it through geo-engineering or adaptation conceived as an alternative to mitigation). Second, the framing that pits investments in the climate transition against other priorities hides their interrelation and any potential for creating synergy. While trade-offs exist to some extent, smart investments in the climate transition simultaneously create significant benefits for economic development, employment, health, and security (among other areas). Presenting a choice between action on either climate change or poverty is misleading: rather, smart resolute climate action paves the way to fighting poverty. Overall, the protection of our natural resources and decisive action on climate change remain fundamental preconditions for being able to pursue most of the other objectives.

Sebastian Oberthür

Part 2

Taking stock of EU climate governance:

Key challenges

Sebastian Oberthür
PhD, Vrije Universiteit Brussel and University of Eastern Finland

Introduction

Is the European Union finally moving towards effective climate protection? Based on the European Green Deal (EGD) launched by the European Commission in December 2019, the European Council of heads of state and government has agreed to upgrade the greenhouse gas (GHG) emission target for 2030 from 40% to 55% and to aim for full climate neutrality by 2050.[1] The funding for the recovery from the Covid-19 crisis promises to mobilise much of the sizeable investment this climate transition requires. EU GHG emissions have declined by about 24% below 1990 levels, with reductions expected to reach around 30% in 2020 (due to the Covid-19 crisis).[2] The European Commission is scheduled to table proposals for a package of implementing measures towards the 55% target in mid-2021. All these are positive signs that the EU is getting on the right track. However, I argue here that the EU still has a long way to go and the climate, energy and sustainability transition will remain a task for more than a generation. There is no room for complacency but a need to maintain and intensify efforts to push the boundaries of the feasible. In the following, I identify seven momentous challenges on the agenda of contemporary EU climate policy to this end.

Challenge 1: Implementation of the new climate targets

The effective implementation of the 55% emission reduction target for 2030 and moving to climate neutrality by 2050 (at the latest) still lies ahead and will require making important choices. The Climate Law proposed by the European Commission in March 2020 will have to not only enshrine the new targets in EU law but also establish the contours of the future governance system, possibly including a new European Climate Change Council advising on a credible and fair emissions trajectory towards climate neutrality in 2050.[3] Under the EGD, the Commission is furthermore scheduled to present proposals for updating and upgrading key legislative instruments that

1 European Commission, The European Green Deal, COM(2019) 640 final (Brussels, 11 December 2019).
2 European Environment Agency, Trends and projections in Europe 2020: Tracking progress towards Europe's climate and energy targets, EEA Report No 13/2020 (Copenhagen, 2020).
3 European Commission, Proposal for a Regulation establishing the framework for achieving climate (European Climate Law), COM (2020) 80 final (Brussels, 4 March 2020), https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1588581905912&uri=CELEX:52020PC0080 [accessed 22 February 2021].

form part of the dense and rich mix of EU climate and energy policies created in past decades, including market-based, regulatory, and procedural elements. In 2021, the expected key legislative proposals and initiatives include:[4]

- A strengthening of the Emissions Trading System (ETS) – including a possible extension to new sectors such as buildings and transport – and of Member States' emission targets under the Effort-Sharing Regulation for sectors other than power and industry, primarily regulated under the ETS (buildings, transport, agriculture, etc.);
- A reinforcement of the Renewable Energy, Energy Efficiency, and Energy Performance of Buildings Directives, including significantly upgraded goals for renewable energy and energy efficiency for 2030;
- A significant upgrading of the standards of CO2 emissions for cars, vans, and heavy-duty vehicles towards the fossil fuel phase-out required;
- The introduction of a "carbon border adjustment mechanism" to price the GHG emissions enshrined in imports so as to ensure that progress within the EU is not undercut by imports of high-carbon products not subject to similar restrictions;
- A strengthening of the rules governing forest management to preserve and enhance forests' capacity to sequester and store carbon; and
- An overhaul of EU state aid rules (including those in support of renewable energy) to effectively advance the climate transition.

A number of other ongoing policy initiatives and developments will also require follow-up, including the implementation of EU strategies for the industrial sector, (renewable) hydrogen, batteries, sustainable finance, the greening of monetary policy (including by the European Central Bank), and carbon capture and storage/utilisation (CCS/CCU).

While in need of further development (see below), this is already a long list. There can be little doubt that well organised political and economic interests will continue to resist the transition. The devil is frequently in the details, and status-quo interests will try to slow down change and dismantle the list, not least in sectors where solutions do not yet have strong advocates (transport, buildings, energy-intensive industries, etc.). A major and persistent effort will be required to ensure maximum speed in getting the climate transition on track across all sectors and policies. After all, the delay in upgrading climate action in recent decades means that even the 55% target by 2030 falls somewhat short of where the EU's fair share of limiting global temperature increase would be – to no more than 1.5/2 °C, in line with the Paris Agreement.[5]

4 See European Commission, The European Green Deal, Annex. See, e.g., Climate Action Tracker [EU country view], https://climateactiontracker.org/countries/eu/ [accessed 22 February 2021].
5 See, e.g., Climate Action Tracker [EU country view], https://climateactiontracker.org/countries/eu/ [accessed 22 February 2021].

Challenge 2: Creating a future-proof framework for climate policymaking

The climate and sustainability transition will be a long-term undertaking requiring structures for long-term policymaking. It is important to fully realise that the impending reforms indicated above will by no means be the last ones. To start with, the path towards climate neutrality (no later than 2050) necessitates determining how the trajectory can and should be shaped beyond 2030 (also to be communicated as successive 'Nationally Determined Contributions' under the Paris Agreement). Furthermore, new scientific, technological, and socio-economic developments will create new policy demands and open up new opportunities. Renewable energy and the electrification of transport, both of which have already reshaped the policy agenda, continue to create new policy demands (e.g., energy efficiency requirements for electric cars).

> Climate neutrality in 2050 is not the end of the road towards climate stabilisation.

In addition, climate neutrality in 2050 is not the end of the road towards climate stabilisation. How and how far we can move towards net negative emissions afterwards, through enhancing nature-based sinks such as forests or in agriculture, and possibly developing negative emission technologies (such as CCS/CCU), will require our increased attention well before 2050 (including through advancing the 'circular economy'). The global nature of the climate problem will also require that the EU puts additional focus on how climate neutrality can best be exported to less resourceful countries by assisting them in adapting solutions to their conditions. Under the circumstances, what is required is a governance framework capable of identifying and flexibly responding to new developments.

Two particular demands for the development of a future-proof climate policymaking framework arise from the dynamic long-term nature and depth of the task. First, a clear and stable framework for decision-making is required to provide the needed upward flexibility and proactiveness while ensuring stability and predictability. Proposals by the European Parliament for the establishment of a science-based European Climate Change Council may form an important part of such a framework, which may need to be further complemented so as to enact a firm step-by-step approach to policy development that fosters learning and feedback loops.[6]

6 European Parliament, Draft Report on the proposal for a regulation establishing the framework for achieving climate neutrality (European Climate Law), COM(2020)0080 (29 April 2020), https://www.europarl.europa.eu/doceo/document/ENVI-PR-648563_EN.pdf [accessed 22 February 2021].

Second, and relatedly, the depth of societal change required by the climate and sustainability transition speaks for a strong anchoring in society. Building on existing and emerging elements such as energy communities and the European Commission's Climate Pact,[7] a further strengthening of participatory opportunities and elements of deliberative democracy at regional, national, and EU levels can support a proper democratic embedding and foster societal ownership of the transition – while also contributing to strengthening the EU's general input legitimacy. The convening of citizen assemblies on climate change in some Member States provides an interesting element to explore further.[8]

Finally, spurring technological innovation remains a key cornerstone of any successful governance over the climate and sustainability transition. To be sure, technological solutions exist in many areas allowing us to push ahead, including in the production of renewable electricity and heat, electrification of transport, construction and heating of buildings, and more. At the same time, there are still enormous scope and opportunities for technological innovation, ranging from zero-emission technologies in energy-intensive industries (steel, chemicals, cement, etc.) to power storage and grid management, to the production of sustainable biofuels. Incentivising and promoting such innovations will have to remain a key objective of public policy to address climate change, keeping in view the full ladder of technology development, from the initial invention to its market introduction. This will require both: (1) strengthened efforts at fostering innovation, such as in the context of the EU's research and innovation "missions",[9] and (2) the broader policy framework, providing a clear and stable "direction of travel" to decarbonisation as an essential driver of research and innovation.

Challenge 3: Moving beyond the primacy of mainstream economics

Avoiding excessive economic costs is an important consideration in developing climate policy, but mainstream economics is notorious for overestimating the costs and underestimating the benefits of stringent climate policy. Why is that? First of all, innovation is so notoriously difficult to predict that mainstream economic modelling tends to underestimate related costs savings. For example, cost reductions achieved within a couple of years allowed the EU to increase its renewable-energy target for 2030 from 27% (proposed in 2016) to 32% in 2018 at no additional cost.[10] Furthermore, mainstream economics struggles to properly reflect that, in a world transitioning towards

7 European Commission, European Climate Pact, COM(2020) 788 final (Brussels, 9 December 2020), https://europa.eu/climate-pact/system/files/2020-12/20201209%20European%20Climate%20Pact%20Communication.pdf [accessed 22 February 2021].

8 E.g., French Citizens' Convention on Climate 4 (Gütersloh: Bertelsmann Stiftung, February 2021), https://www.bertelsmann-stiftung.de/fileadmin/files/Projekte/Demokratie_und_Partizipation_in_Europa_/Shortcut/Issue_4_French_Citizens__Convention_on_Climate/210218_Shortcut_4_French_Citizens_Convention_WEB.pdf [accessed 22 February 2021].

9 M. Mazzucato, Governing Missions: Governing Missions in the European Union (Luxembourg: Publications Office of the European Union, 2019).

10 See F. Simon, "Fresh EU analysis makes case for higher renewables, energy saving goals", EURACTIV (2 March 2018), https://www.euractiv.com/section/energy/news/leaked-eu-analysis-makes-case-for-higher-renewables-energy-saving-goals/ and S. Morgan, "Momentum builds behind higher renewables target", EURACTIV (20 February 2018), https://www.euractiv.com/section/energy/news/momentum-builds-behind-higher-renewables-target/ [both accessed 22 February 2021].

climate neutrality far beyond Europe, many short-term economic costs may qualify as a long-term investment in future economic benefits. For example, a more stringent, "costly" regulation of CO2 emissions by cars in the EU 15 years ago could arguably have helped EU car manufacturers understand much earlier (and at a time when high profits provided room for investments) that they need to catch up with Tesla and prepare for markets demanding carbon-free solutions.

Modelling the long-term economic costs of climate change itself also has to be taken with a pinch of salt. First of all, the calculation of these costs depends heavily on assumptions about (high) discount rates. As a result, future damage may appear to be low-cost at present while current investments seem expensive. Perhaps more importantly, economic costs are not the only consideration when deciding on what action to take. As debates on "loss and damage" have brought to the fore,[11] climate change entails significant impacts that cannot be easily adapted to and for which it is difficult – if not cynical – to put a price. Think of the disappearance of small island states, deaths caused by climate change, or climate change as a threat multiplier to international security. Impacts extend to "priceless" values such as identity, culture, social stability, and the protection of fundamental human rights. The climate action imperative that arises is one of responsibility rather than cost minimisation.

> Economic costs are not the only consideration when deciding on what action to take.

Policymaking should thus go beyond no- and low-cost options. To be sure, calculations of economic costs rightly are an important consideration (and figure prominently in impact assessments by the European Commission). But they are only one consideration in a broader debate. Extra efforts are required in order for the EU to prepare itself for global decarbonisation and make its fair contribution to limiting the global temperature increase to 1.5/2 °C so as to avoid the worst impacts of climate change.

Related to the excessive focus on economic cost minimisation is an excessive focus on carbon pricing as the silver-bullet policy instrument. Carbon pricing – with the Emission Trading System as the instrument of choice in the EU[12] – is generally the key focus of economists. However, barriers to decarbonisation extend far beyond insufficient price signals. They prominently include the landlord-tenant problem in the buildings sector; the lack of zero/low-carbon technologies in important parts of industry, international transport, and agriculture; the lack of price elasticity of demand, high discount rates of investors, etc.[13] Carbon pricing is an important element, but effective climate action by the EU (and others) requires the right mix of policies to successfully address the barriers of different socio-technical sectoral systems – including market-based, regulatory, informational, and procedural components, as appropriate.

11 E.g., Global warming of 1.5°C: Special Report, Intergovernmental Panel on Climate Change (IPCC, 2018), esp. Chapter 5, pp. 454-456.
12 J. Delbeke & P. Vis (eds.), Towards a Climate-Neutral Europe: Curbing the Trend (Routledge, 2019).
13 C. Dupont & S. Oberthür (eds.), Decarbonization in the European Union: Internal Policies and External Strategies (Palgrave Macmillan, 2015).

Challenge 4: Ensuring a socially "just" transition

With equity forming a key dimension of sustainability, the socially just transition has increasingly moved into the political limelight but remains to be developed more fully. Since the "yellow vests" and the "climate justice" movement, the importance of addressing the distributive implications of both climate change and climate policies has become increasingly acknowledged (about their international dimension, see below). Different countries, regions, and sections of society are affected to varying degrees: there are (relative) winners and losers. Important progress has been made. In particular, a Just Transition Mechanism "to leave no one behind" has been established under the EGD, including a Just Transition Fund that has been endowed with €17.5 billion.[14] Ensuring these funds are properly spent in support of disadvantaged regions will be an important point of attention in the coming years.

Yet the EU's current means for facilitating a just transition remain incomplete. First of all, in focusing on high-carbon regions/sectors, they do not systematically address the issue of fair benefits distribution in this transition (e.g., investments in rising sectors such as battery and hydrogen development and production). The discussions surrounding the review of Member States' national energy and climate plans under the Governance Regulation[15] and spending plans under the recovery fund and EU structural funds provide an important opening for advancing this agenda.

But beyond regional and sectoral disparities, the just transition concerns even broader distributive consequences of climate policy that may reinforce pre-existing socio-economic and societal cleavages (e.g., between rich and poor, highly and low skilled, etc.). While related actions may be considered as falling into the remit of individual Member States, there are good reasons for coordination at the European level to prevent a backlash against EU climate policy and European integration more broadly. It may also be useful to prevent the need for a socially just transition being misused to compensate for misguided investments in fossil industries, defying the polluter pays principle.

Beyond these aspects of distributive justice, the potential for enhancing procedural climate justice could still be more fully exploited. This reinforces the rationale behind advancing opportunities for public participation and deliberative democracy at national and EU level in the development of policies steering the climate and sustainability transition, as mentioned above. Ensuring adequate public participation in the preparation and review of the aforementioned plans, a systematic use of citizens' assemblies, and better access to legal review mechanisms deserve to be developed alongside any other novel ideas. This could serve to give all relevant sections of society a voice and to recognise those particularly challenged and disadvantaged by the transition.

14 "Commission welcomes the political agreement on the Just Transition Fund" [press release] (Brussels, 11 December 2020), https://ec.europa.eu/commission/presscorner/detail/en/IP_20_2354 [accessed 22 February 2021].
15 European Parliament, Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action (Strasbourg, 11 December 2018), http://data.europa.eu/eli/reg/2018/1999/oj [accessed 22 February 2021].

Challenge 5: Mainstreaming climate objectives – climate policy integration

Although significant progress in integrating climate policy objectives into other policy fields (notably energy policy) has been made, fully realising climate policy integration remains a major challenge. The EGD has already broadened the agenda to include trade policy, industrial policy, agricultural policy, the aforementioned social dimension, and more. Above all, the EGD proposes a "green oath" which implies that no EU policies or actions should do harm, but all should contribute their share in the transition. However, this green oath still needs fleshed out across the breadth of EU decision-making. In addition to the external policies discussed below, three issues deserve particular emphasis.

First, the EGD agenda for climate policy integration needs a firm and full follow-up. It is one thing for the Commission to envisage that all other policies should synergise with the climate agenda. It is an entirely different thing to actually achieve this. The EGD hence sets the stage for a great number of debates on concrete steps for reforming – and, in some cases, revolutionising – other sectoral policies. Conflicts with and resistance by status quo interests are pre-programmed (as witnessed in the discussions on reforming the Common Agricultural Policy).[16]

Second, the need for stronger consideration of other environmental objectives and requirements in the climate transition has been growing. The climate transition urgently needs to be fully aligned with the imperative of protecting biological diversity – which is in danger of being crowded out by the climate issue. Also, the expansion of renewable energy cannot mean that nature protections get downgraded; rather, it reinforces the need to strengthen energy efficiency policies and minimise the impact of renewables on the natural environment. While the EGD rightly acknowledges the need for a broader transition to sustainability beyond climate and energy, progress has fallen short so far. It requires the systematic consideration of a set of key environmental objectives in EU decision-making.

Third, the need for adaptation to the impacts of climate change further broadens the climate agenda. Adaptation is no replacement or alternative to mitigating emissions, but resolute emission mitigation enables adaptation. Otherwise, there is a real danger that climate change impacts, including irreparable loss and damage (of land, species, ecosystems, etc.), will spiral out of control. Having said that, adaptation is an inescapable necessity resulting from the unfolding impacts of climate change. As a result, EU adaptation policy is in need of further development over the coming years and decades.[17]

16 "Green groups hold firm on calls to withdraw CAP", ENDS Europe (17 February 2021), https://www.endseurope.com/article/1707672/green-groups-hold-firm-calls-withdraw-cap [accessed 22 February 2021].
17 European Commission, Forging a climate-resilient Europe - the new EU Strategy on Adaptation to Climate Change, COM(2021) 82 final (Brussels, 24 February 2021).

Challenge 6: Avoiding common fallacies/traps

There is a sheerly unlimited number of arguments brought into the discussion to distract from the need for and feasibility of strong and growing climate action in the EU and beyond. This short essay – beyond the discussion of mainstream economics and adaptation (see above) – takes issue with two prominent fallacies/traps.

First, the EU is neither the lonely and idealistic frontrunner of global climate protection, nor is its contribution too small to be relevant. About two-thirds of the world economy have, like the EU, committed to achieving climate or carbon neutrality by 2050 or 2060, including China, the US, Japan, Canada, South Korea, South Africa, and many others. Many countries have also either announced or are preparing upgrades of their ambitions for 2030.[18] The race to zero-carbon solutions is in full motion. The EU accounts for about 10% of global emissions, so its contribution is significant – and, as argued above, the decarbonisation of its economy is both economically essential and morally imperative.

Second, climate geoengineering is a similarly false solution. Solar radiation management technologies entail a far-reaching intervention in complex ecosystems with likely considerable negative consequences. These negative consequences are likely to hit different countries and regions to varying degrees, with considerable potential for feeding international conflict. They require continued and intensified intervention over the long term (to counterbalance high and even rising GHG concentrations in the atmosphere). And they do not even address all important climate change impacts, such as the acidification of the world's oceans. Therefore, there is a need for the EU to ensure that geoengineering adventures are prevented and research on relevant technologies can only proceed under firm international oversight.[19]

Challenge 7: Advancing the EU's international leadership

Over the past decade, the EU has successfully adapted its international climate leadership to evolving geopolitical realities, most notably a more multipolar world and the limits of EU influence in it. In response, the EU has developed a novel mediating and coalition-building leadership; it has also diversified its focus beyond multilateral UN climate politics towards other fora and strengthened bilateral climate diplomacy. While this reorientation has had positive results (e.g., the EU's significant impact on the Paris Agreement), given the enormous international challenges, exploiting any room for further improvement remains imperative.

18 M. Bazilian & D. Gielen, "5 years after Paris: How countries' climate policies match up to their promises, and who's aiming for net zero emissions", The Conversation (10 December 2020), https://theconversation.com/5-years-after-paris-how-countries-climate-policies-match-up-to-their-promises-and-whos-aiming-for-net-zero-emissions-151722 [accessed 22 February 2021]; Nationally Determined Contributions under the Paris Agreement, https://www4.unfccc.int/sites/ndcstaging/Pages/Home.aspx [accessed 22 February 2021].

19 R. Bodle, S. Oberthür, L. Donat, G. Homann, S. Sina & E. Tedsen, Options and Proposals for the International Governance of Geoengineering (Dessau-Roßlau: German Federal Environment Agency, 2014), http://www.umweltbundesamt.de/publikationen/options-proposals-for-the-international-governance [accessed 22 February 2021].

To start with, climate considerations need to be much further integrated into external policies. The full appreciation of the imperative climate transition is still at an early stage. The EGD rightly envisages enhanced external engagement towards promoting and advancing this transition internationally. Beyond that, however, there is a need to comprehensively review and revise the external relations of the EU and its Member States beyond the core area of climate diplomacy – covering the wide array of bilateral, regional, multilateral, and transnational engagement in all policy fields, including trade and investment and general foreign affairs. There can be little doubt, for example, that relations with fossil fuel exporters – much beyond the usual suspects of Russia, Norway, and the Middle East – will undergo profound changes. The suggested comprehensive review should enable the EU to proactively and fruitfully reshape and advance these and other external relations towards the climate and sustainability transition.

Furthermore, the EU and its Member States face the challenge of developing a high-politics "grand climate strategy". This demand emerges from the rise of climate change to the agendas of the highest levels of politics, including in China and the US. With climate and energy constituting areas of shared EU competence, this raises important issues of coordination across EU institutions and EU Member States that may require reinforcing internal mechanisms for high-level coordination (e.g., through the installation of a council of climate ambassadors or czars).

As a caveat, calling for the development of an EU grand climate strategy does not mean calling for the EU to focus on its narrow self-interest. The climate challenge requires global action and an internationally just transition "leaving no one behind". Broad coalition building remains a valid cornerstone of the EU's international climate leadership. Integrating climate into grand strategy can and should also mean pursuing "enlightened self-interest" that accepts international responsibility and fully engages in assistance to others.

Concluding remark

As the EU is embarking on the transition to climate neutrality under the European Green Deal, one may be tempted to consider that the end of climate politics is approaching: agreement on the need for and the opportunities arising from the transition seems to be growing. However, as I have argued here, even with consensus on broadening the decarbonisation goal, climate politics is not fading but rather shape-shifting, at best: away from discussions about the need for the climate transition towards crucial and tense debates on the most effective, efficient, and equitable ways of advancing the transition at home and abroad.

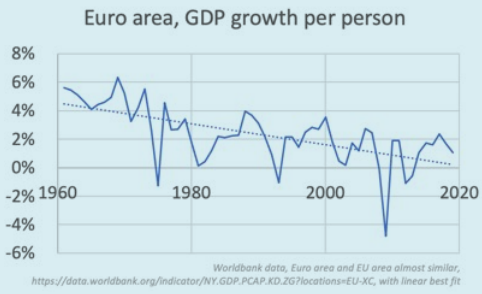
Comment on Part 2

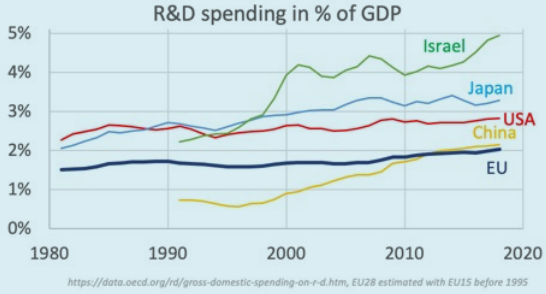
Sebastian Oberthür's paper gives a good overview of the immense challenges before the EU's net-zero path. Inadvertently, it also highlights the enormous size of the implicit costs to replace within three decades the European growth engine of past centuries.

In my paper, I show how such policies can easily end up being very costly while delivering much smaller climate benefits. Oberthür suggests that such comparisons are "difficult", "cynical", and possibly leave out "priceless" values such as identity, culture, and social stability. Yes, such cost-benefit analysis is difficult, but ignoring it does not make the trade-offs go away. Oberthür makes no attempt to describe the magnitude of climate benefits from these policies and offers only handwaving, it-will-be-cheaper-than-you-think descriptions of their costs.

Yet, EU growth per capita having declined over the past sixty years, the trend line moved towards zero growth in 2020 (with COVID making the real growth rate dip below -7.5% in 2020). Imposing climate policy costs of many more percentage points over the coming decades will depress this growth trend even further.

The climate issue also takes attention and focus away from policies that could actually make the EU richer. One good example is the EU's Lisbon strategy from 2000 that aimed to make the EU "the most competitive and dynamic knowledge-based economy in the world" by 2010. It would do so by increasing EU-wide R&D from 1.67% to 3% in 2010. It only achieved an 0.16 percentage point increase. Instead, the EU decided in 2010 to reach the 3% increase by 2020 through the "Jobs and Growth" strategy. It will likely achieve only a very small increase of about 0.16 percent. In 2020, EU Commissioner Gabriel set the 3% target for 2030, but Commission estimates show it is again unlikely to be met. Today, all major economies have overtaken the EU, including China.





The fact that the EU is on-target to reach very costly climate policies that will deliver few benefits in a century but is decades behind increasing growth-boosting R&D encapsulates the problem with a predominant, climate-focused approach. A long-term lack of economic growth will likely endanger the social stability Oberthür worries about.

And without robust growth, Oberthür is right to be concerned about a "backlash against EU climate policy and European integration more broadly."

Bjorn Lomborg

List of Abbreviations

CCS/CCU	carbon capture and storage/utilisation
EGD	European Green Deal
ETS	Emissions Trading System
GHG	greenhouse gas

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