

Game Over – Only a radical scaling back of the economy can still avert the climate catastrophe

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The CO₂ budget has been used up, but those in power refuse to acknowledge it

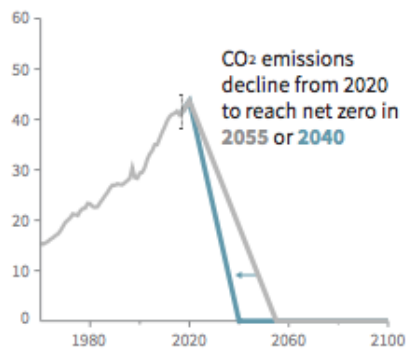
References to the CO₂ budget we still have left can put politicians from governing parties in quite an awkward position. Olaf Scholz, for example, pauses for a moment when asked by presenter Louis Klamroth how large the CO₂ budget is that he (as Finance Minister and Vice-Chancellor) is working with, before – without giving a direct answer – speaking of ‘ambitious’ and ‘clear targets’ (which cost nothing to set) and referring to ‘the political debate around the world’.

This tacit consensus within the political establishment is also evident, for example, in Environment Minister Svenja Schulze’s response to a question from the magazine Kontraste about how many tonnes of CO₂ Germany still has left: ‘Nobody can really picture what all those tonnes and so on actually mean.’ The minister is ignoring the emphatic call from the German Federal Government’s own German Advisory Council on the Environment to base Germany’s climate policy on a clearly defined and well-justified CO₂ budget. Similarly, CDU leader and candidate for the chancellorship, Armin Laschet, is unwilling to commit to a CO₂ budget for Germany, referring instead to ‘technological developments’ – the greenhouse gas reduction effects of which are unknown – and vaguely to ‘global solutions’.

Apparently, the political establishment believes that German (export-oriented) industry should buy up emission rights from less developed economies. For example, under the EU’s flexibility mechanism or, globally, under the Clean Development Mechanism. To do so, it merely needs to find someone who declares they will soon clear cut their native rainforests – unless they are compensated for not doing so. The CDU/CSU refers to this in its current election manifesto as ‘international achievements in climate protection’, and they would like to see these ‘taken into account in national climate accounts as well’. German (export) industry can afford this because Germany has been one of the ‘leading industrial nations’ for a good hundred years, which was only possible through the production and consumption of fossil fuels. ‘The profits from climate destruction make it possible to buy one’s way out of responsibility for the global climate.’¹ It would be hard to find a greater injustice than this.

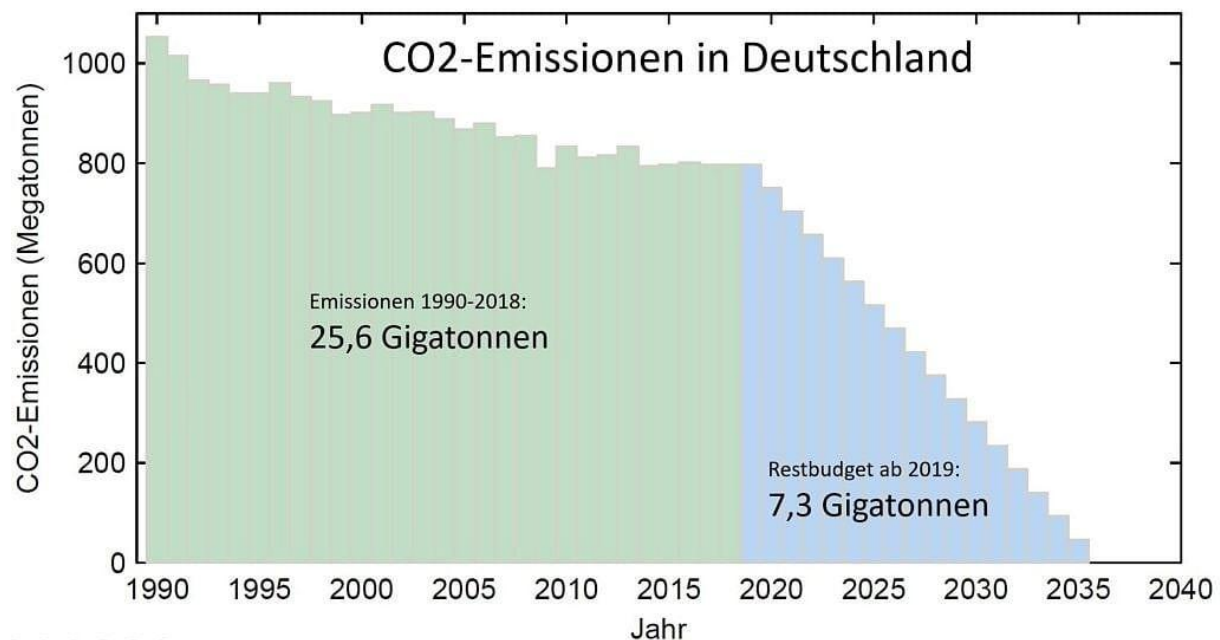
The CO₂ budget specifies how much more fossil fuel humanity is still permitted to consume in order to hopefully avert the climate catastrophe. For any more or less ambitious scenario, the CO₂-reduction curves are pointing steeply downwards. And this is after the emissions curve in the course of industrialization has risen almost just as steeply upwards at a global level right up to the present day. Here is the IPCC’s curve for the 1.5-degree target:

¹ Erik Flügge on [Twitter](#) on 16 May 2021.



Faster immediate CO₂ emission reductions limit cumulative CO₂ emissions shown in panel (c).

Climate scientist Stefan Rahmstorf has calculated this for Germany, taking into account that the question of who is allowed to emit how much is, of course, 'not a question of science' – nor, by the way, a question of efficiency (efficient for whom?) – 'but one of justice'.² Based on a generous estimate of Germany's share of the world's population (rather than its historical debt) and with the 1.75-degree target in mind (the likelihood of exceeding tipping points is higher than with the 1.5-degree target), Rahmstorf arrives at a remaining budget of 7.3 gigatonnes, which amounts to barely a third of the total consumed by Germany between 1990 and 2018. If the remaining amount were consumed at a linear rate, the use of fossil fuels would come to an end in 15 years. This would require an annual reduction in greenhouse gas emissions similar to that forced upon us last year by the coronavirus pandemic, which is still raging, i.e. by around 6 per cent of current levels. Every year, right up to 2035. Meanwhile, thanks to the 'recovery' of the global economy, the International Energy Agency is forecasting a 5 per cent increase in CO₂ emissions for the current year (2021). And China continues to invest heavily in the expansion of coal-fired power stations.



² Rahmstorf, Stefan: Wie viel Kohlendioxid bleibt Deutschland noch?, [Spektrum](#) 2019.

Economic instruments prevent the necessary emergency brake

This emergency brake in terms of emissions, having steadily risen (on a global scale) thus far, cannot be applied without a controlled reduction of economic activities. We must bring the dynamics of the capitalist 'mega-machine' (Lewis Mumford, Fabian Scheidler) to a halt if we are to somehow prevent subjecting our descendants to a 'century of hell'³ and ultimately destroying human civilisation. And we must do so immediately.

The CO₂ reductions of around 36 per cent that Germany has achieved compared with 1990 are not only far too timid, but are also due, at least in part, to the 'grey' imports – in terms of emissions – of goods produced using particularly 'dirty' coal, primarily from China, the 'world's factory'. Whilst Europe and Japan have reduced their primary energy consumption by 4–6 per cent since 2010, consumption in emerging economies has risen by six times that amount.⁴ This consumption serves only partly to meet domestic demand within these countries; rather, it enables increases in consumption in the West.⁵ Furthermore, the 24 per cent reduction in the EU's emissions is largely attributable to climate policy 'windfall profits', i.e. the decline of heavy industry in particular and the deindustrialisation of Eastern and Central Europe after 1989 in general.

The ongoing debates about a 'market-oriented climate policy' (CO₂ taxes and, above all, emissions trading), whose supporters identify themselves through the use of the code phrase 'technology neutrality' ('Technologieoffenheit'), might perhaps have taken place 30 years ago, at a time when Al Gore published his much-acclaimed book on the climate crisis and the UN adopted its Framework Convention on Climate Change. However, it is precisely in these past 30 years that the total emissions humanity has produced throughout its history have doubled. Even though we knew full well back then what to expect. All one had to do, for example in Germany, was watch the main evening news programme, the [Tagesschau](#), in 1979.

It is no wonder that the use of 'economic instruments' has failed to reduce greenhouse gas emissions, given that they are intended to promote 'efficiency'. Whilst it is not entirely clear what this means, the term implies that the logic of market-based competition should continue to operate and that profits continue to soar. That is also why the CO₂ price – or the volume of emission allowances ('cap') – is not set in such a way as to reduce emission levels by the 6 per cent required at least each year. (Thirty years ago, it would have been less.) The consequence would be a wave of bankruptcies on an unprecedented scale. That is why there are numerous exemptions within the EU Emissions Trading Scheme, particularly for the export industry, so that it can continue to generate current account surpluses and does not relocate ('leakage'), as well as vast quantities of allowances distributed free of charge. However, such an economic downturn would also occur in a closed economy, which would apparently be detrimental to 'efficiency', which is why it is not done. This view is shared by eco-socialists such as Richard Smith⁶ as well as Senior Economist for Deutsche Bank, Eric Heymann⁷.

Why is this the case? Well, if the economy is obligated to emit 6 per cent less CO₂ each year from now on, and the economy is also expected to continue growing (which, incidentally, would mean that this growth would have to be 'climate-neutral' or completely emission-free), then either resource

³ Wallace-Wells, David: Ausblick auf das Höllenjahrhundert, in: Blätter für deutsche und internationale Politik, 11/2019, pp. 47–57.

⁴ Cembalest, Michael: [2021 Annual Energy Paper](#), p. 2.

⁵ Wiedmann, Thomas O et al.: [The material footprint of nations](#), May 2015.

⁶ Smith, Richard: 'An ecosocialist path to limiting global temperature rise to 1.5°C', Real-World Economics Review, No. 87, 2019, pp. 149–180, here pp. 165 ff.

⁷ Heymann, E.: Climate neutrality: [Are we ready for an honest debate?](#), 11 November 2020.

consumption must fall – 85 per cent of which, globally, is currently driven by fossil fuels – or fossil fuels must be replaced by other resources.

Services alone do not create prosperity

The first scenario is the services option. Admittedly, this is in itself pointless – or rather an expression of ‘growthism’ (growth as an end in itself) – because growth should, after all, be justified by consumer demand, and why should everyone, from now on, only want services that do not consume resources? Yet, setting that aside, pure services generate little added value. And we are talking here about genuine services. The vast majority of activities recorded as ‘services’ in the statistics are outsourced tasks that are, in any case, necessary for the production of goods (such as ‘transport services’). Only 10–20 per cent of the ‘services’ recorded in the national accounts are directly intended for final consumption; the rest – and thus the vast majority – consists of intermediate inputs for industrial production.⁸ And sectors such as tourism do not count here either, as they represent a form of guided high-performance consumption of industrially manufactured goods (aircraft, cruise ships, hotels, etc.).

Where does digitalisation fit in? Well, on the one hand, it merely accelerates or ‘optimises’ the production of goods, thereby exacerbating the impact on the climate. On the other hand, insofar as it serves end consumption directly, it is anything but dematerialised. So-called cryptocurrencies (essentially digitally created speculative assets) consume as much electricity as the whole of the Netherlands. One hour of HD streaming consumes roughly as much energy as driving one kilometre by car.

All that remains, in essence, are personal services. Yet the actual prosperity created over the last, say, 200 years certainly does not rest on these. And not just because of ‘Baumol’s cost disease’. This theory views genuine services from a dynamic perspective and states: when providers of mere services, in line with the capitalist norm, come under competitive pressure, they are practically unable to increase their productivity, because the conductor cannot conduct any faster, the teacher should not teach at a quicker pace or more children, and the nurse has already reached the limits of their capacity.

But this has been the case from the very beginning: pizza delivery drivers do their own laundry; domestic helpers, for their part, have no domestic helpers of their own. General, real prosperity is not based on personal services and only partly on ‘knowledge’ or expertise (let’s say: doctors), but on the power of fossil fuels, which is equivalent to an ‘army of 500 billion fossil labourers’.⁹ Of course, the fossil fuels are combined with labour and organised and set up through engineering, i.e. technical expertise. That is why genuine services, at least without an egalitarian wage policy, rhyme with ‘proletariat’.

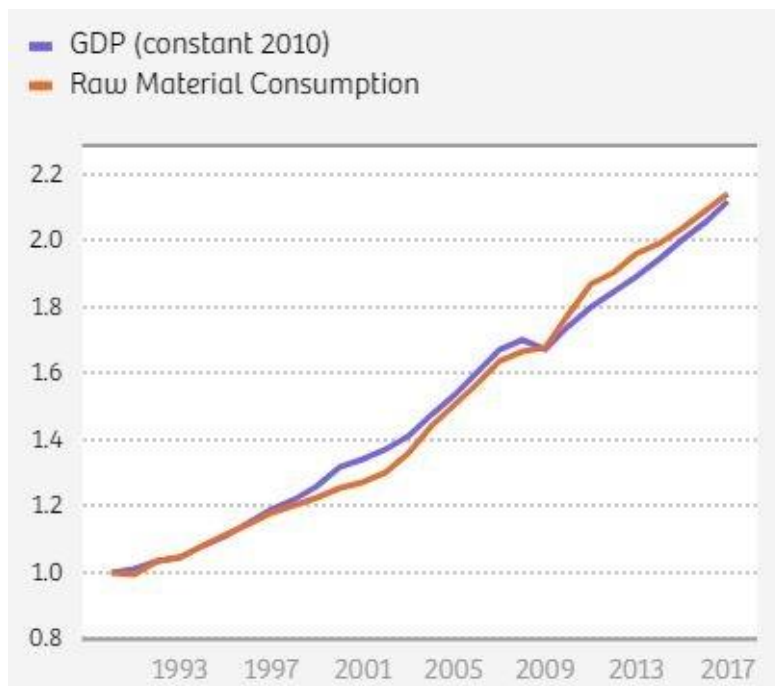
On the difficulties of replacing the fossil fuel army

Within the growth paradigm, the only option left is replacement, or ‘decarbonization’. Of course, the increased use of renewable rather than fossil fuels is highly desirable, namely, to secure a level of prosperity that can be described as comfortable in some way – one that is hopefully universal but also ecologically sustainable. However, quite apart from the question of how quickly this might be achieved, what social ‘collateral damage’ would have to be accepted in the attempt to replace the ‘fossil fuel army’, and how this could be mitigated, there is ample evidence to suggest that this technological strategy would inflict other irreparable damage on planet Earth.

⁸ Henriques, Sofia Teives/Kander, Astrid: ‘The modest environmental relief resulting from the transition to a service economy’, in: *Ecological Economics*, 70/2, 2010, pp. 271–282, p. 281.

⁹ Hagens, N.J.: [Economics for the future](#), in: *Ecological Economics*, Vol. 169, 2020, p. 4.

The climate is, after all, only one – albeit the most serious – dimension of the planetary boundaries that economic activity threatens to breach or has already breached. This is clearly illustrated by the steadily rising global material footprint, which parallels GDP. For every dollar of GDP, half a kilo of biomass, sand, gravel, oil or metal is extracted from the ground or taken from nature (Hagens 2020, p. 11). The total quantity of man-made – or, more precisely, transformed and extracted from natural processes – materials (concrete, gravel, asphalt, metals, plastics) is now greater than the entire global biomass, which, incidentally, has been reduced in the process.¹⁰ The mass extinction currently taking place – the sixth in the history of the Earth and now caused by human activity – is (as yet) not primarily attributable to global warming, but to the still unchecked seizure of all the world's resources that can be utilised.



<https://www.jasonhickel.org/blog/2020/10/9/response-to-mcafee>

Renewable energies, particularly wind and solar power, consume vast amounts of land. This is hardly surprising, given that fossil fuels are far superior to renewable energies in terms of energy density, as well as in terms of storability and transportability. If, for example, the US wishes to implement its Green New Deal – a path it has, fortunately, finally embarked upon – and increase the share of solar and wind power in electricity generation by 10 per cent each year as planned, it will require an area the size of South Dakota by 2030.¹¹ Moreover, a mere ‘transition’ of the energy supply to renewables at the current – and still rising – level (‘Energiewende’) would drive up the global material footprint even further.¹² For example, to meet the demand for silver for solar panels, it would require 130 additional mines on the scale of the Peñasquito Mine in Mexico – which is the fifth-largest in the world and whose operations cause a wide range of environmental impacts.

Or let’s look at steel production, which, according to the World Steel Association, is responsible for a staggering 7 to 9 per cent of global CO₂ emissions, primarily due to the chemical processes involved. It has roughly tripled worldwide since 1970, almost exclusively as a result of massive growth in China. Imports from China have not, in fact, replaced German steel production, as Thyssen and Co. have been producing virtually the same amount of steel since 1995, albeit with around half as many employees.

¹⁰ Weizman Institute of Science: [The Mass of Human-Made Materials Now Equals the Planet’s Biomass](#), 9 December 2020.

¹¹ Merrill, Dave: [The U.S. Will Need a Lot of Land for a Zero-Carbon Economy](#), Bloomberg, 3 June 2021.

¹² Hickel, Jason: *Less is More. How Degrowth Will Save the World*, London 2020, pp. 141 ff.

Now, 'green' hydrogen is set to replace fossil fuels. However, this would require more wind turbines than are currently installed in Germany – onshore or offshore – for electricity generation, namely around 12,000. That is why the German government's 'hydrogen strategy' relies on the import of 'green' hydrogen. The vast areas of land that production would require come into conflict with food production, water supply and the ecological integrity of the respective landscapes. Accordingly, the German Advisory Council on the Environment warns that Germany's strategy of outsourcing renewable energy generation 'externalises the ecological and social impacts of German electricity and hydrogen use'.¹³

The mere 'transition' to a renewable energy supply is evidently an extremely difficult undertaking. From a market-economy perspective, according to various estimates, it 'costs' between 3 per cent¹⁴ and 5 per cent of GDP¹⁵. These costs are, in themselves, neither of an investment nature (in the sense of a financial return on investment) nor of a consumptive nature (in the sense of satisfying private needs). This would therefore require economic resources to be diverted from other sectors and uses. It is possible that these costs measured in terms of GDP are, in fact, costs, i.e., reductions of GDP itself.

'Climate neutrality' rather than a reduction in CO₂ emissions

These difficulties, coupled with an unwavering determination to maintain the market and accumulation regime, have led to the triumph of the concept of 'climate neutrality' or 'net zero'. 'Net' here means that the actor in question – be it a company, the state, etc. – does not reduce its emissions, but rather 'offsets' them by purchasing (alleged) reductions from other actors, or 'neutralises' them by providing 'sinks', particularly forests, which sequester CO₂. To put it bluntly: we are allowed to carry on driving SUVs if we plant a few trees in return, which is why CDU politicians are keen to act as 'tree ambassadors'. It would have to be quite a lot of trees, though.

The calculations by the Intergovernmental Panel on Climate Change (IPCC), which formed the basis for the Paris Agreement, are based on so-called negative-emission technologies, in particular BECCS, which are mere speculation (Hickel 2020, p. 130 ff). Their purpose is to relieve political decision-makers of the need to implement more stringent reduction measures – namely, to effectively cease emitting greenhouse gases into the atmosphere not as early as 2035, but only by 2050. By planting trees and managing (unused?) land, the aim is not only to create CO₂-absorbing sinks, but also to generate bio-energy; during the production of this energy (through the combustion of pellets or the production of biofuel), the CO₂ is to be captured and then permanently stored deep within the Earth. The fact that this is a fundamentally misguided option is already evident from the fact that it would require land on a scale equivalent to two and a half times the size of India.¹⁶ Other studies suggest that an artificial carbon sink would need to be managed that is larger than the world's total land area.¹⁷ This would lead to a severe shortage of agricultural land, resulting in higher food prices and food crises. And as these would be monocultures that would, moreover, need to be cultivated for centuries, biodiversity would also suffer further damage. A group of engineers conducting research at British universities therefore

¹³ SRU: [Wasserstoff im Klimaschutz: Klasse statt Masse](#), June 2021.

¹⁴ Wuppertal Institute: CO₂-neutral by 2035: Key points of a German contribution to meeting the 1.5°C limit, 2nd revised edition, 2020, p. 33.

¹⁵ Day, John W. et al.: The Energy Pillars of Society: Perverse Interactions of Human Resource Use, the Economy, and Environmental Degradation, in: BioPhysical Economics and Resource Quality, February 2018, p. 8.

¹⁶ Brack, Duncan and King, Richard: 'Managing Land-based CDR: BECCS, Forests and Carbon Sequestration', in: Global Policy, 21/S1, April 2021, pp. 45–56.

¹⁷ Lenzi, Dominic et al.: Weigh the ethics of plans to mop up carbon dioxide, in: Nature, 20 September 2018, pp. 303–305, here p. 304.

concludes that the existing plans for BECCS underground ‘are entirely implausible, due to the shortage of biomass, and should not be considered seriously’.¹⁸

Meanwhile, in a sensational study in which it argues against the exploitation of previously untapped fossil fuel reserves, the International Energy Agency recommends the massive expansion of carbon capture and storage (CCS) technology for fossil fuels that are still to be extracted.¹⁹ Land use for bio-energy should remain limited so as not to jeopardise biodiversity and food supplies. Nevertheless, by 2050, an area the size of India and Pakistan combined would be required.²⁰ Analysts at J.P. Morgan point out that scaling up CCS to cover just 15 per cent of current US greenhouse gas emissions would require infrastructure capable of handling higher capacities than the existing oil supply infrastructure, which has been built up over more than 100 years (Cembalest 2021, p. 22). The IEA believes (2021, p. 81) that the ‘climate-neutral’ transition of the growth regime – which is assumed to be an unquestionable given – whilst continuing to use fossil fuels, albeit at a declining rate, would require expenditure amounting to just 2.5 to 4.5 per cent of global GDP annually. In the context of the US, this would be eight times more than Biden’s plan, which allocates just 0.5 per cent of US GDP to achieving climate neutrality in the US.²¹

How a phase-out could be achieved

The market-driven ‘openness to technology’ („Technologieoffenheit“), which pins its hopes on a miracle, is a dead end, because the world simply no longer has the necessary resources to spare – at least not in a way that is ecologically sustainable and ensures fair burden-sharing. We no longer live, as Herman Daly put it, in an ‘empty world’ that offers ‘ample space and resources for the indefinite future’, but in a ‘full world’ that is exceeding – or has already exceeded – ‘the limits of nature at the local, regional and planetary levels’.²² Apart from that, ‘breakthrough technologies’ take decades to become established, ‘and we don’t have enough time left’ (UK FIRES 2019, p. 32).

Since the option of simply replacing fossil fuels with other resources is not available, and the option of a dematerialised service economy would, from the outset, amount to a contraction of GDP, the only way left to save some kind of human civilisation is a controlled downsizing of the economy. This is also the conclusion reached by Helge Peukert in his ‘open-ended’ examination of various national and international ‘bureaucratic monsters’ of the prevailing (and failed) climate policy, which has essentially relied on emissions trading since Kyoto: ‘Preserving the existing ecosphere will only work with a post-growth economy... It cannot be done without economic contraction (degrowth), which is taboo today.’²³ Moreover, the European Environment Agency, which is tasked with advising the European Commission, considers a complete decoupling of growth from resource consumption to be ‘unlikely’, which implies the need for a ‘fundamental transformation to a different kind of economy and society’.²⁴ The European Commission is likely to have been taken aback and may be tempted to ignore the political upheaval that this would inevitably cause.

We would therefore have to do precisely what the prevailing political establishment across virtually all spectrums is determined to avoid at all costs, namely ‘stifling the economy’.²⁵ But of course, one would

¹⁸ UK FIRES: [Absolute Zero](#), November 2019, p. 33.

¹⁹ IEA: [Net Zero by 2050. A Roadmap for the Global Energy Sector](#), Paris 2021.

²⁰ Simon, Frédéric: [IEA criticised over growing share of bioenergy in net-zero scenario](#), 18 May 2021.

²¹ Wallace-Wells, David: [Is 1.5 Degrees Still Possible?](#), 21 May 2021.

²² Daly, Herman: [Economics for a Full World](#), June 2015.

²³ Peukert, Helge: *Climate Neutrality Now! Climate Neutrality Policies Put to the Test*, Marburg 2021, pp. 70, 471, 473.

²⁴ European Environment Agency: [Growth without economic growth](#), 11 January 2021.

²⁵ A statement of this kind by Environment Minister Svenja Schulze on Deutschlandfunk on 3 May 2021.

not speak disparagingly of ‘stifling’ (which implies a legitimate claim – but whose, exactly?), but rather of a slowdown, which – given the widespread fatigue with growth that is clearly evident – is economically advisable even in the most basic sense. There is hardly anyone amongst the population who believes that ‘Germany should become more prosperous’.²⁶

The scaling back of the economy is not an end in itself. In and of itself, a growing abundance of goods is a wonderful, emancipatory development. But it cannot be viewed in isolation. First, the machinery of growth is driven by the systemic force of competition, which subjects all of life to its economising dynamics.²⁷ And since it is inevitably linked to resource consumption – a fact that ecological economics has been highlighting for decades (Hagens 2020) – this machinery, secondly, eventually reaches the limits of ecological carrying capacity of the planet. This is evident in the fact that, at least as far as the global economy is concerned, there has not yet been any significant relative—let alone an inherently necessary absolute—decoupling of economic output from resource consumption in general, and from the consumption of fossil fuels in particular.

Reducing growth pressures through asset reduction

If the growth machinery is indeed to be brought to a halt, the endless cycle of ‘creation’ and ‘destruction’ would have to be broken. Some increase their profits, possibly creating jobs in the process, whilst thereby putting pressure on others and generating ‘artificial scarcity’ (Jason Hickel) for them, which manifests itself in loss of income and unemployment. Those affected, and their alleged advocates—who are uninformed about macroeconomic workings of competition—then call for jobs to be created and for the economy to be ‘stimulated’ once more; yet, following successful ‘creation’, this in turn generates scarcity for others, since the increase in income for some consists precisely in redirecting purchasing power from the losers to the winners of competition.

On the whole, the losers, who are forced to seek out new sources of income, have no choice but to bring further resources within the scope of human control. This is the extractivist nature of the competition-driven growth machinery, which is not, and cannot be, ‘sustainable’ in itself.

It would therefore be appropriate, firstly, to address the surplus paradox of mature, saturated economies. This paradox consists in the fact that, as these economies become increasingly saturated in terms of consumption overall, wealth holdings rise in relation to GDP (Piketty’s income-to-capital ratio), even though growth itself, from the perspective of real human needs, no longer needs to be ‘stimulated’ through investment. The massive growth in asset holdings is attributable not only to speculative revaluations but also to an increased propensity to save among high-income earners,²⁸ who are hardly ‘able’ or willing to consume all of it. This means that more ‘dry powder’ is available – that is, liquid funds that can be deployed for investment in the real economy (or for financial speculation). If these were to be reduced – whether through taxation or debt relief – the initial force driving the intensification of competition as a process of ‘creative destruction’ (Schumpeter) or ‘destructive creation’ (Altvater) would be reduced. Thus, the pressure on the losers of competition to have to acquire ever more resources simply to maintain their previous level of income would be relieved as well.

However, it is not clear whether the capital thus eroded would have served nothing but to generate new income streams initially, that is, without any necessity other than to increase profits for its greedy

²⁶ More in Common: [Vertrauen, Demokratie, Zusammenhalt: wie unterschiedlich Menschen in Deutschland die Corona-Pandemie erleben](#), 2020, p. 38. The same holds for other wealthy countries, like France, the UK, or the US, though in slightly lesser degree, cf. More in Common: [The New Normal?](#), 2020, p. 52.

²⁷ Thielemann, Ulrich: Competition as a Concept of Justice. A Critique of Neoliberalism, Marburg 2010, pp. 329–369.

²⁸ Alvaredo Facundo et al.: Global Inequality, Munich 2018, p. 248.

owners even further, thereby inevitably creating pressure on weaker competitors which, in the end, leads to GDP-growth, or whether it would have served to restore the income streams that had previously been destroyed. It is precisely this connection that lends a false political plausibility to the argument – euphemistically labelled ‘supply-side’ – regarding the necessity of ‘courting capital’ (Hans-Werner Sinn). The more there is, the better. Jobs simply ‘must’ be created – because, as is almost never mentioned, they were destroyed beforehand, precisely because capital was invested ‘innovatively’ in other, more profitable sectors of the real economy. Even more: unless we let capital invest proactively in ‘the competitiveness’ of existing income positions, these will soon be swept away by competition. ‘Creation’ here leads to ‘destruction’ there, and this ‘destruction’ must be cured by further creation, which leads to another wave of destruction elsewhere, and so on and so forth. That is the whole secret behind the growth machinery. – It should at least be noted that a reduction in wealth holdings – which are, by and large, completely disproportionate anyhow (one need only think of the growing number of billionaires in the world) – would take quite some pressure off the competitive cauldron.

Providing social security – the example of air travel

Pressure would also be taken off the cauldron if those whose income sources are destroyed by competition were granted ‘social security’, so that they would not feel compelled to seek out new (resource-intensive) sources of income themselves, whether as employees or as self-employed workers. What this might entail can be illustrated by measures of the calibre that would actually be necessary here and now to somehow avert the looming climate catastrophe.

These include, for example, the rapid reduction of air travel, which has the worst environmental footprint of all modes of transport, growing at a rate of just over 4 per cent annually, i.e. growing at a steep exponential rate, contributing between 3.5 per cent and 5 per cent to global warming depending on the estimate, but which, like shipping, has so far been exempted from all international climate agreements – apparently due to the ‘system-disrupting potential’ of what is in itself a necessary ‘drastic limitation’ (Peukert 2021, p. 213). Without air travel, global ‘value chains’ would face difficulties.

The aviation industry’s ‘commitment to net zero aviation by 2050 is really a commitment to zero aviation,’ says Julian Allwood, a professor of technology and the environment based at Cambridge.²⁹ Electric aircraft are too heavy for the foreseeable future; ‘green hydrogen’ is hampered by a lack of space or competition for land, and negative-emission technologies such as CCS are not yet available.

If air traffic were to be halved in 10 years’ time, as proposed by Allwood, and phased out entirely by 2050, those employed in the sector and in the supply industry (Boeing, Airbus, etc.) would lose their source of income, and those with whom they have hitherto spent their income would also become poorer – a phenomenon economists refer to as negative multiplier effects. The industry association BDL estimates that the number of people employed in and through the aviation sector in Germany stands at almost one million. This group of people would then be forced either to descend into the low-value-added (and less resource intense) service sector workforce or to take up employment in or for the industrial sector, which would increase resource consumption – driven primarily by fossil fuels – and would diminish the gains in greenhouse gas reduction achieved through the reduction in air traffic. This is precisely how ‘creative destruction’ works, except that this time the trigger would not be a ‘better offer’, but rather policy measures – whether regulatory or ‘market-compliant’ (pricing via a CO₂ tax or larger caps in emissions trading).

The alternative would be to provide ‘social security’, for example through a basic income or the reintroduction of the so-called ‘unemployment benefit’ (“Arbeitslosenhilfe”), which, until its abolition by Hartz IV, guaranteed those affected a lifelong transfer income of around half their last net earnings.

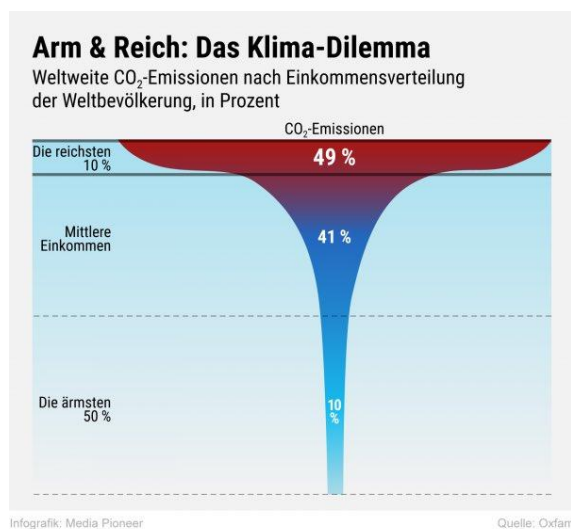
²⁹ Allwood, Julian: [‘The only way to hit net zero by 2050 is to stop flying’](#), Financial Times, 7 February 2020.

However, measures to reduce resource consumption and greenhouse gas emissions would simultaneously reduce the pool of resources available for (re)distribution. An alternative to this, in turn, would be the public employment option to participate in the development of the public infrastructure required by climate policy in energy supply, transport, renaturation, etc., offered in particular to those affected by the 'closure of entire industrial sectors' necessitated by climate policy (Peukert 2021, p. 474 ff.), which, as is well known, is a core element of a 'Green New Deal'. This would guarantee social security, albeit – at least from the middle class upwards – at a lower level of economic prosperity than at present.

As far as financing is concerned, hydraulic Keynesianism relies on money printing (MMT). However, this can only provide relief in the short term, as money is a medium of circulation. Yet it is envisaged that a considerable proportion of GDP should be channelled into the ecological transition. If this transition, on the scale of, say, 5 per cent of GDP each year, were repeatedly financed by 'gift money' (Peukert 2021, p. 476), this would likely lead to inflation fairly soon. According to Peukert, this inflation is to be offset by taxing the wealthy. It is therefore unclear why the detour via money printing by central banks should be necessary at all.

Fiscal reduction of overconsumption

Ultimately, it is the wealthy who would have to make the most substantial contributions. And this is, after all, the correct starting point from a climate policy perspective. This becomes clear when we look at consumption as 'final consumption', to which economic activity can ultimately be reduced. According to Oxfam estimates, the top one per cent of the world's population emits more than twice as much CO₂ through their consumption as the entire poorer half of humanity, meaning they consume 107 times as much per capita as the latter.³⁰ The consumption of this poorer half remains within planetary boundaries.³¹ The top 10 per cent have a per capita impact on the global climate that is 'only' 37 times greater than that of the bottom half.



This is likely to account for roughly half the population of the wealthy OECD countries, which make up 18 per cent of the world's population; from a Western perspective, this certainly includes middle-class citizens. According to Oxfam, in order to remain within planetary boundaries in terms of climate policy and perhaps still avoid triggering tipping points (permafrost, the AMOC-collapse, the ice sheets, etc.), the poorer half of the EU population would have to halve their CO₂ emissions calculated on the basis

³⁰ Oxfam: [Confronting Carbon Inequality](#), 21 September 2020.

³¹ UNEP: Emissions Gap Report 2020, p. 25.

of consumption, whilst the top 10 per cent would have to reduce theirs by a factor of 10. In the absence of decoupling, this would amount to a reduction in real consumption of 90 per cent and 50 per cent respectively.³²

A strongly progressive tax system could ensure that these funds are no longer available for ‘overconsumption’³³. This overconsumption, which exceeds planetary boundaries, is only made possible by the use of fossil fuels. Access rights to the global pool of resources – which belong to humanity as a whole – based on purchasing power would be restricted, thereby curbing the disproportionate use of emission allowances. (However, the sellers of these resources and of the products manufactured with their help would also see their incomes reduced.) This would also reduce the status competition into which the capitalist machinery has plunged humanity and make it clear that everyone is making their proportional contribution to humanity’s task of averting collective doom.

The financial resources thus freed up, however, should not be redistributed to the world’s poor, or at most only to a limited extent, as Jason Hickel (2020, pp. 188 ff., 193) calls for, using arguments for justice that are well-founded in their own right. For otherwise, the overconsumption of the rich would merely be spread more widely but not eliminated. With regard to the poor, the primary concern should rather ensure that their situation is not further exacerbated, on the one hand, by extractivism or the destruction of the commons³⁴ as the continued form of ‘so-called primitive accumulation’ (Karl Marx), and, on the other hand, by competitive destruction, which often is the other main source of artificial scarcity. This would also strengthen the ‘right not to have to leave’³⁵. The resources that are freed up should be used to build an ecological infrastructure in the spirit of a (non-growth-oriented) Green New Deal – that is, for services that nobody is willing to pay for privately, as they are public goods and must therefore be financed with public funds, i.e. taxes.

Leave it in the ground

The most effective – and ultimately imperative – measure of climate policy is to leave the fossil fuel reserves (oil, gas, coal) that have not yet been extracted in the ground. This is imperative because otherwise rebound effects would come into play: those who do not participate in the reduction would have these reserves available to them all the more cheaply. If climate collapse is to be avoided, these reserves simply must no longer be extracted and burnt – or, at most, only to a limited extent during a very short transitional period.

How this might be achieved is, of course, unclear. One possibility would be for the major consumer nations to form a sort of ‘post-Kyoto super-cartel’, in which they credibly assure the producing nations that they will very soon cease purchasing any fossil fuels at all and are prepared to pay very high prices for a short transitional period (Peukert 2021, pp. 465, 472). It is possible that this ultimate cap could also be applied one distribution level further down the chain, namely at the level of the oil production companies. This could be achieved by courts giving legal force to the content of the lip service paid by the political establishment, which previously has translated its promise to take the climate crisis seriously into legislation. This is precisely what happened recently in the high-profile ruling by a Dutch court against Royal Dutch Shell, which ordered the company to reduce its greenhouse gas emissions by 45 per cent by 2030 compared with 2019 levels, including emissions attributable to end users. Further similar lawsuits are pending.³⁶ To avoid rebound effects, however, oil companies not based in the

³² Oxfam: [Confronting Carbon Inequality in the European Union](#), 8 December 2020, p. 1.

³³ Wiedmann, Thomas et al.: [Scientists’ warning on affluence](#), Nature Communications, volume 11, Article number 3107, 19 June 2020.

³⁴ An illuminating example: Metcalf, Peter: [The poverty of ‘economic growth’](#), 10 June 2021.

³⁵ Buckel, Sonja/Kopp, Judith: [Das Recht, nicht gehen zu müssen](#), 7 June 2021.

³⁶ <https://www.leave-it-in-the-ground.org/projects/climate-litigation/>.

‘West’ – which has a stronger tradition of fundamental rights – such as Saudi Aramco, would also need to be subject to a wave of lawsuits with a realistic chance of success, which is unlikely. The same applies to China’s massive coal mining industry, which accounts for just under half of global coal production. Apparently with the aim of permanently maintaining its position as the world’s leading exporter whilst simultaneously bringing domestic consumption up to the same level as in the West. From the perspective of humanity’s survival, this is a kamikaze strategy from which, incidentally, the German export sector benefits considerably.

The world is on fire

The world is burning. But we are only beginning to notice it in isolated instances. And by the time we do realise it, when heatwaves and floods go hand in hand, it will already be too late to prevent serious disruptions. In fact, it is high time for ‘immediate eco-austerity’ (Peukert 2021, p. 423). Presumably, only this might still give us a chance to avert the triggering of tipping points which would lead to an unstoppable – because it is self-reinforcing – drift into a new hot age, the hothouse earth, and herald the end of the blue planet’s habitability. But this would contradict everything that, since the neoliberal turn, has been regarded the canon of any serious opinion: the focus on ‘competitiveness’, not only of companies, but also, extended downwards, of individuals, and upwards, of states and entire communities of states (“Staatenverbünde”) such as the EU; and, of course, on ‘growth’, which is, as we have seen, just an echo of the willing submission to the regime of competition. Also, in day-to-day political discourse, this does not refer to growth in the strict sense – that is, in the national or, ultimately, global economic sense – but rather to the increase in income and the ‘profit’ or current account surplus of some, namely entities domiciled on one’s own territory, at the expense of others. This, however, exerts pressure on income earners based abroad who see their incomes shrink. Only when they manage to cope with the pressure and generate a new income stream, this leads to actual, macroeconomic growth – and somewhere along the line the world into the abyss.

Naomi Klein is absolutely right: ‘This changes everything.’³⁷ The climate crisis *ought* to change everything and lead to the replacement of the market regime’s dominance. Towards a regime in which markets play only a subordinate role, certainly not a hegemonic one. However, the ground is not yet ready for this. Establishment politicians such as Wolfgang Schäuble seriously believe that ‘we’ have ‘already overcome bigger problems [than climate change]’,³⁸ thereby merely demonstrating their complete cluelessness about the magnitude of the paradigm shift that is actually needed. ‘We’, Schäuble adds, must, however, ‘take it more seriously now’ and ‘actually put into practice what we have known for decades’.

But why have politicians like Schäuble, who have been in the corridors of power for decades, not already put ‘it’ into practice 30 years ago, when there was still time to do so? With full knowledge of the facts, the ruling regime of opinion has driven humanity to the brink of the apocalypse and failed to prevent the way we conduct our economic affairs from destroying the Holocene. (It was the Holocene, with its moderate and stable temperatures, that made human civilisation as we know it possible in the first place.) Instead, they have meekly submitted to ‘market obedience’ (Oswald von Nell-Breuning) and, in full accordance with the ordoliberal programme, ensured that ‘all members of society’ are ‘subjugated’ to the ‘steering mechanism’ of globalised competition.³⁹ The working properties of this ‘mechanism’, however, are ‘biased’ (Peter Ulrich); they work in favour of those holding net asset positions and of those executing their will to reap the highest possible returns – and at the expense of the Earth’s ecological and climatic integrity.

³⁷ Klein, Naomi: *This Changes Everything: Capitalism vs. the Climate*, New York 2014.

³⁸ [Die Welt](#), 28 May 2021.

³⁹ Böhm, Franz: *Privatrechtsgesellschaft und Marktwirtschaft*, in: *Ordo*, Vol. 17, 1966, pp. 74–151, here p. 74.

It is doubtful whether the tide can still be turned, so to speak, at the eleventh hour. On the one hand, this depends on whether we finally ‘panic’ (Greta Thunberg). With media figures such as the still-serving Director-General of ZDF, Thomas Bellut, this is hardly to be expected. He recently stated, in a relaxed manner and with conviction, that ‘climate’ was just one ‘topic’ amongst many others – ‘constantly changing topics’ – and that a programme called ‘Climate Before Eight’, as demanded by climate activists, would constitute ‘political’ interference, in contrast to the programme ‘Stock Market Before Eight’, which merely ‘informs’.⁴⁰ In a few decades’ time, the broadcaster – if it still exists – will simply be ‘informing’ the public about droughts, famines, floods, migration flows and much more misery that a climate spiralling out of control will bring about. On the other hand, this depends on whether there are political-economic programmes available to manage the scaling down of economic activities effectively and fairly, and, above all, to make the negative multiplier effects manageable. One thing is clear in any case: the times for ‘stimulating the economy’ are over. Nor should the construction of urgently needed green infrastructure (wind and solar) be financed through loans, as this – unlike tax-funded financing – would create further pressures for growth. Such growth would not be necessary anymore if no more losers from competition were created.

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