Tobias Haas, Felix Syrovatka, Isabel Jürgens*

The European Green Deal and the limits of ecological modernisation

Abstract

With the European Green Deal (EGD), the European Commission presented an ambitious roadmap for accelerated "ecological modernisation" in December 2019. Semantically, the EGD is linked to the New Deal and the debates surrounding the Green New Deal. In contrast, the European Commission's strategy aims less at profound social change and the questioning of social power relations. Rather, the EGD remains largely within the leitmotif of "ecological modernisation", which relies on technological innovations without far-reaching social change. The thrust of the EGD bears the hallmark of ecological modernisation; it is about reconciling economy and ecology, about continuing the growth path under green auspices. The greening of the EU is to take place primarily by means of technological innovations. Amongst others, clean hydrogen and carbon dioxide removals (CDR) are central pillars to reach the aim of climate neutrality by 2050. Technological improvements are closely linked to the aim of improving the competitiveness of the European economy and stabilising global power relations under a green mantle. Such a strategy runs the risk of renewing social inequalities within the EU as well as globally. In addition, the war in Ukraine raises further problems for the fulfilment of the EGD.

Keywords: Carbon dioxide removal, ecological modernisation, EU, gender, hydrogen

Acknowledgements

We are grateful to the editors and two anonymous reviewers for helpful and lucid criticisms and suggestions. Thanks also to Damian Harrison for editorial assistance.

On December 11, 2019, European Commission President Ursula von der Leyen unveiled the European Green Deal (EGD) (EU COM, 2019a). With much pathos, she proclaimed: "This is Europe's man on the moon moment." Admittedly, the comparison with the moon landing was lofty even then, and in 2022 the EGD certainly does not stand up to comparison with the moon landing. However, the EGD does represent an attempt to accelerate the processes of ecological modernisation that have emerged over the past decades as the leitmotif of EU environmental policy. The Commission semantically links its aspirations to the New Deal concept; the omission of the "New" at the same time indicates a certain distance both from the historic US-New Deal in the 1930s and from the more recent debates on a Green New Deal (GND). Both the New Deal and the majority of the concepts of a GND go hand in hand with a questioning of social power relations and have a socially transformative thrust (Haas & Jürgens, 2021). The EGD, on the

* *Tobias Haas* (tobias.haas@iass-potsdam.de), IASS Potsdam, Germany
Felix Syrovatka (felix.syrovatka@fu-berlin.de), Free University Berlin, Germany
Isabel Jürgens (i.juergens@student.uni-kassel.de), Kassel University, Germany

 DOI: 10.5771/2566-7742-2022-2-247

other hand, remains, as we will show in this paper, largely caught in the model of ecological modernisation. The EGD follows the logic Stirling (2015, 62) defines as typical for transition processes,

> *"managed under orderly control, through incumbent structures according to tightly disciplined technical knowledges and innovations, towards a particular known (presumptively shared) end. This typically emphasises integrated multidisciplinary science directed at processes of instrumental management through formal procedures in hierarchical organisations sponsored by the convening power of government."*

The greening of the EU is to be achieved via technological innovations and the right market incentives, and the mastery of nature is to be raised to a new level. In this way, the EU is, and this is a similarity to the historical New Deal, attempting to respond to various crises as well as to the geopolitical upheavals overlaid by the war in Ukraine. However, unlike the historical New Deal in the United States, the EGD does not pursue a transformative agenda.

1. The EU in the context of multiple crises and global shifts

The EGD was developed against the background of at least three crises that represent important contextual factors: a worsening ecological crisis, massive economic inequalities within the EU, and a widening social crisis that is fuelling a right-wing resurgence (Haas & Jürgens, 2021).

First, the second half of the last decade has seen a significant intensification and politicisation of various ecological problems, especially climate change. In recent years, movements such as Fridays for Future and Extinction Rebellion have repeatedly highlighted the inadequacy of the measures taken to date to curb climate change. Despite ambitious decarbonisation targets, the EU's climate record is also far from compatible with the targets of the 2015 Paris agreement. Between 1990 and 2019, emissions fell by only 25.4 percent, which is not enough to limit global warming to well below two degrees Celsius compared to pre-industrial levels. Not to mention the advancing destruction of biodiversity, the causes of which can be attributed in significant part to the expansion of industrial agriculture.

Second, the EU is characterised by uneven economic development, most recently expressed in the euro crisis of 2009ff (Becker et al., 2021). The asymmetric integration of different growth regimes into a common monetary union without corresponding social and economic compensation and cohesion instruments led to a de-industrialisation and financialisation of the southern and south-eastern European periphery. The member states from Northern and Central Europe benefited from the common economic and monetary union because of their strong export orientation and broad industrial base. The handling of the euro crisis did not ameliorate this unequal development; instead, the market-liberal design of the coordination instruments installed to tackle the crisis led to its consolidation (Syrovatka, 2022; Ruser, 2015). There is much to suggest that this polarisation was further deepened by the coronavirus pandemic (Gräbner et al., 2020). The fact

that the sovereign debt crisis has not escalated further is mainly due to the fact that the ECB's expansionary monetary policy has masked the uneven economic development in the euro area (Sablowski et al., 2022).

Third, the euro crisis and its handling in the member states have led to considerable political and social upheaval, which in turn has repercussions for the EU and fundamentally questions its existence. Thus, the integration process has been in a state of crisis for years, as expressed in the widespread public rejection of the EU and its institutions. Strong right-wing populist parties that reject the European project have established themselves in almost all member states. While the authoritarian right at the EU level obstructs the functioning of many institutions and uses established agreements on the protection of minorities to block policy, at the member state level they agitate directly or indirectly for an EU exit (Tiedemann et al., 2022). The crisis of the EU integration process thus found its clearest expression in the withdrawal of the United Kingdom from the European Union ("Brexit"), which was decided by referendum in 2016 and completed in January 2020.

Against the backdrop of these three crises, the EU is also facing new challenges as a result of geopolitical shifts. In particular, the industrial rise of China as a serious competitor on the world market threatens the EU's position in the global division of labor (Abels & Bieling, 2022). At the same time, it has led to a reconstitution of the geopolitical balance of power in combination with the protectionist and economic nationalist course of the USA. As a result, global relations are increasingly structured by the confrontation between two power blocs (EU COM, 2019b). Although this can also take military form – as is currently the case in Ukraine – it has so far manifested itself primarily at the economic level. For example, an economic war between the United States and China has been observed for some time. This takes the form of sanctions and tariffs on the one hand, and technological decoupling on the other. The economic dualisation and technological decoupling of the two economies has caused the EU to reassess its trade policy, which traditionally linked Europe with the USA but have also led to closer economic ties with China in recent decades (Lavery & Schmid, 2021). Accordingly, efforts have been made in recent years to expand the EU as an area of industrial policy innovation in order to maintain its own position in the global division of labor and avoid being caught up in the confrontation between China and the United States. Accordingly, industrial policy initiatives such as the reform of the EU state aid law aim at foreclosing critical infrastructures as well as at modernising industry (Pichler et al., 2022).

The three crises and the new global challenges are key determining factors of the EGD. The Commission thus attempts to provide a response to the crises and challenges. It imagines the reconciliation of economy and ecology and at the same time tries to outline a future-oriented project for the EU. The EGD ties in with the "myth of a green Europe" (Lenschow & Sprungk, 2010). This self-image of Europe as a pioneer in climate and environmental policy has certainly been an

important legitimising basis for the European integration process in recent decades (Haas & Jürgens, 2021). Accordingly, the Commission is trying to bring together different dynamics with the EGD in order to deal with its own legitimacy crisis, to mitigate the uneven economic development between the member states, to meet the geopolitical challenges, and at the same time to fulfil the requirements of the Paris Climate Agreement.

2. Ecological modernisation instead of Green New Deal

There is an extensive literature on the EU as a leader in global environmental and climate policy (Wurzel & Connelly, 2010). However, this assessment is not uncontroversial, with many criticising the EU for pursuing an approach to environmental and climate policy that focuses on technological innovations and market-based developments (Haas & Sander, 2020) and which remains within the growth paradigm (Hickel & Kallis, 2020) and does not address the deeper societal causes of ecological crisis. Amanda Machin (2019) uses a discourse-analytical approach to the EU's Environmental Action Plans to show that since the 1980s they have reflected an increasingly narrow focus on the concept of ecological modernisation. This was developed in the late 1980s and aims at reconciling economy and ecology without addressing social relations, such as structural inequalities along axes such as class, race or gender. The establishment of the leitmotif of ecological modernisation also stems from the EU's limited scope for action within the system of multi-level governance. Moreover, it is quite attractive to EU elites, because it can be easily linked to the ordoliberal-influenced integrative approach aimed at increasing economic competitiveness. At the same time, Machin argues, the focus on technological and market-based approaches is accompanied by a double depoliticisation of environmental policy: a transfer of political decisions into the hands of the market and the establishment of an overriding rationality (common sense). She illustrates this with the example of the European Emissions Trading Scheme, which was introduced in 2005 and has been expanded and reformed several times.

While the EGD does address regional inequalities and proclaims the goal of leaving no one behind, this is likely due primarily to the intensifying crisis dynamics and global developments outlined above. The thrust of the EGD bears the hallmark of ecological modernisation; it is about reconciling economy and ecology, about continuing the growth path under green auspices. In the introduction, the EGD is touted as follows:

> *"It is a new growth strategy that aims to* transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is de-coupled from resource use." (EU COM, 2019, 2, emphasis in original)

The EGD thus continues to focus on the economic competitiveness of the EU and thus on defending its own position in the global division of labour. However, the

growth strategy required for this is linked to the goal of achieving climate neutrality by 2050. This is remarkable, because in 2019, when the EGD was announced, emissions were only about 25.4 percent below 1990 levels, while the target for 2030 was minus 40 percent. Accordingly, the EGD announced emission reduction targets for 2030 to be raised to 50–55 percent (ibid., 4).

In order to achieve these ambitious goals, the EGD focuses on anchoring sustainability aspects as a cross-cutting issue and names various areas that are to be aligned with the EGD. These include the areas of energy supply, construction/heat supply, mobility, agriculture and forestry, resources/circular economy and industry. By means of public investment and, above all, the mobilisation of private capital, the European economy is to be decarbonised by 2050 while also fulfilling the pledge "to leave no one behind." (ibid., 16). The objective of leaving no one behind, combined with the repeated reference to the Just Transition concept within the EGD, suggests that social concerns do play a role. A Just Transition Fund was set up within the framework of the EGD. This is primarily intended to support regions that have so far been heavily dependent on coal mining. In this respect, the social dimension is taken up within the EGD, but limited to regional challenges and inequalities. The EGD does not address inequality along gender lines or intersectional issues (Heffernan et al., 2021) and thus does not substantially go beyond previous EU-initiatives such as climate adaptation strategies in social terms (Remling, 2018).

3. The blind spots of the EGD

The EGD was predominantly well received by the European public and even members of conservative parties referred to it positively (Haas & Jürgens, 2021, 137). In contrast, environmental policy organisations criticised the lack of binding targets and concrete measures. In addition, criticism ignited over the lack of designation of nuclear power and natural gas as "dirty energy sources" and the failure to pursue a general shift away from fossil fuels (Greenpeace, 2019). Obstacles to effective environmental and climate policy are hardly addressed in the EGD; instead, high hopes are placed in new technologies and innovations: "New technologies, sustainable solutions and disruptive innovation are critical to achieving the objectives of the European Green Deal" (EU COM, 2019, 18), admits the European Commission. The EGD's focus reveals at least three blind spots:

First, the EGD relies almost exclusively on innovation and technology under the *primacy of technology openness*. The ambitious decarbonisation goals are to be achieved by using technologies that are not yet available:

> *"EU industry needs 'climate and resource frontrunners' to develop the first commercial applications of breakthrough technologies in key industrial sectors by 2030. Priority areas include clean hydrogen, fuel cells and other alternative fuels, energy storage, and carbon capture, storage and utilisation. As an example, the Commission will support clean steel breakthrough technologies leading to a zero-carbon steel making process by 2030." (ibid., 8)*

This quote makes it clear that most of the required "breakthrough innovations" are not yet in a market-ready state and many must overcome considerable technical challenges. Although the promotion of innovations (via the EU's Horizon Europe programmes) is a central component of EGD, it is doubtful that the targeted technological options will be available in time and to the desired extent – as we will illustrate in the next sections using the examples of hydrogen and negative emissions. Despite this big question mark, the availability of the necessary technology is assumed and already included in the calculation of the climate target.

Second, the EGD focuses exclusively on the sphere of production, especially on male-dominated sectors, as well as the financial sector. The EGD proclaims the expansion of sustainable and employment-intensive economic activities, especially in the textile, construction, electronics and plastics sectors, in addition to the innovation imperative. The steel, chemical and cement industries are also described as indispensable for the European economy (ibid., 7f.). The failure to consider social and health-related services, especially against the background of the coronavirus pandemic, stands out in the EGD concept. A systematic consideration of the social reproduction and gender-political implications of the proposed transformations would have allowed Europe to engage with alternative understandings of prosperity, beyond the fixation on growth, innovation, and technology that characterise the EGD. The extensive gender-blindness of the EGD is also reflected in the initiatives that build on it. Heffernan et al. (2021, 23) state:

> *"The EGD is incongruent with the gender equality strategies of the von der Leyen Commission. Many of the new strategies and laws put forward within the framework of the EGD are either fully gender blind or are not sufficiently based on gender analysis. Even where gendered differences are acknowledged, the policies, as a rule, do not sufficiently address these."*

Third, EGD is embedded in and perpetuates relations of global inequality. Ecological debt is not mentioned in the EGD, and access to resources in the Global South is negotiated under the aspect of security of supply for European industry (EU COM, 2019, 8). Based on the concept of ecologically unequal exchange, much evidence has been developed that Europe's prosperity is based on access to resources from the Global South (Hickel et al., 2022). However, this is not considered within the framework of the EGD. Thus, on the one hand, the high consumption of raw materials is described as a problem, but it is supposed to be reduced only through recycling and examination of a "right to repair". On the other hand, the concept of the circular economy in the EGD suggests the possible decoupling of economic growth from resource use. Although a significant decoupling of economic growth and resource consumption has not yet been demonstrated and is very unlikely in the future (Hickel & Kallis, 2020), the Commission's communication on the EGD identifies digitalisation as crucial to achieving its goals. Despite this, the communication largely ignores the resource demands linked to these objectives (Reckordt 2019). Digitalisation is not only fuelling growth in the demand for certain raw materials, it is also a significant driver of increasing energy demand, both in the

EU and globally. Energy demand related to information and telecommunication technologies increased by nine percent annually until the outbreak of the coronavirus pandemic and was already responsible for 3.7 percent of global greenhouse gas emissions in 2018. It is unlikely that digitalisation will significantly contribute to efforts to mitigate global environmental problems within the framework of a capitalist growth economy (Lange et al., 2020).

4. Ambitious goals – difficult implementation

Setting aside the challenges arising from these blind spots, two serious crises have emerged since the EGD was presented in December 2019: the coronavirus pandemic, which reached Europe in the spring of 2020, and Russia's war of aggression against Ukraine, which began on February 24, 2022. Despite this, numerous initiatives and legislative packages have been launched in connection with the EGD. While fiscal pandemic management in the form of the NextGenerationEU agreement has been closely linked to the EGD, the impact of the war in Ukraine suggests the need for greater energy self-sufficiency (EU COM, 2022).

In the following, we briefly analyse several key initiatives and legislative packages: The European Climate Law of 2021 in conjunction with the Fit for 55 package, the European Hydrogen Strategy, and the importance of negative emissions or Carbon Dioxide Removal (CDR) as envisioned in the Communication on Sustainable Carbon Cycles (EU COM, 2021b). While the European Climate Law and the Fit for 55 package mark important milestones for the near future of European climate and environmental policy, the hydrogen strategy and approaches to CDR exemplify EGD's dependence on technologies whose future availability is uncertain. Nevertheless, the selection of these three dimensions is by no means an exhaustive analysis of the bandwidth of EGD – because available technologies such as nuclear energy are still contested within the EU (Machin, 2020) and gain momentum against the backdrop of the Ukraine war, at least in some member states (Reuters, 2022).

These initiatives demonstrate both the high level of ambition set by the EU and a reliance on technological developments whose prospects are unclear and which aim at renewing existing power relations and forms of domination of nature.

4.1 The European Climate Law and Fit for 55

The year 2020 was marked by the Corona pandemic. In addition to national governments, the EU also launched the NextGeneration EU, a 750-billion-euro stimulus package presented by Commission President Ursula von der Leyen in May 2020. While a relevant share is earmarked for ecological modernisation, it remains to be seen whether the spending of the funds will actually contribute significantly to a greening of the European economy in contrast to the economic stimulus packages of 2009 (Bongardt & Torres, 2022). However, in 2021, the European Climate

Law was passed, stipulating a 55 % reduction in greenhouse gas emissions compared to 1990 levels and climate neutrality by 2050 (EU, 2021).

Shortly thereafter, the Fit-for 55 package was presented. This comprises proposals for a total of 20 directives that are to be geared toward achieving the 2030 targets (EU COM, 2021a). For example, fleet limits for car manufacturers are to be reduced by 55 percent by 2030 instead of 37.5 percent as originally planned (Haas & Sander, 2020). From 2035, the sale of new cars with combustion engines will effectively be prohibited within the EU. The revised directive was adopted in June 2022. However, under pressure from the German liberal party (FDP) and the German automotive industry, a window of opportunity was negotiated into the directive for the continued sale of cars with internal combustion engines beyond 2035, as long as it is ensured that they are fuelled exclusively with synthetic fuels (Naumann, 2022).

This suggests that the European Green Deal is indeed associated with a new and more comprehensive level of ambition for ecological modernisation as targets are significantly tightened and all environmental policy initiatives are aligned within the framework of the EGD. Bongardt & Torres (2022) argue that the EGD integrated the dimension of sustainable growth as a third pillar of economic governance in the EU: "Our key argument is that the EGD may thus be regarded as a third building block in the making of the European economic model, alongside the single market and EMU, and that any crisis would therefore need to be addressed through its framework." (ibid., 172) However, it remains to be seen to what extent the ambitious goals of the EGD can actually be realised. This is because they are closely guided by technological approaches whose potential has so far been very limited and previous analysis show that in the past an absolute decoupling of resource consumption and economic growth failed whereas a certain degree of decarbonisation was achieved in some areas (however not at a rate that makes achieving net zero emissions in the EU by 2050 a feasible goal) (Hickel & Kallies, 2020).

4.2 The European hydrogen strategy

Within the EGD, hydrogen plays a central role as an energy carrier. The Commission associates it with the hope of a climate-neutral industry, as energy from renewable sources can be stored and made transportable in hydrogen (EU COM, 2020, 2; Sgobbi et al., 2016). At the same time, its use does not produce any greenhouse gas emissions. Hydrogen is suitable for use in energy-intensive industries such as the chemical industry or in steel production, where it is intended to act as a substitute for natural gas and coal (EU COM, 2020, 3). The adoption of the EU Hydrogen Strategy in June 2020 was also closely linked to discussions on a redesign of European industrial policy.

In the context of the geopolitical shifts outlined above, Germany and France in particular had been pushing for a European strategy to deal with the new transatlantic insecurity and the rise of China especially. The call for "Securing Europe's Economic Sovereignty" (Leonard et al., 2019) was closely linked to the security of supply of the industrial sector. Dependence on gas and oil imports was identified as a strategic vulnerability that needed to be reduced.

Against this background, the development of the European hydrogen strategy was embedded in a context characterised by an interweaving of climate, industrial and security policy considerations (EU COM, 2020, 2). The strategy focuses on the provision of "clean hydrogen" for industrial use and the development of a Europe-wide hydrogen infrastructure. The overall goal is to increase the European electrolysis capacity by 2030 from currently less than one gigawatt to 40 gigawatts, enabling the production of a total of 10 million tons of "clean hydrogen" per year in the EU from 2030. At the same time, the development of dedicated hydrogen infrastructures such as electrolysers, hydrogen refuelling stations and seasonal storage facilities, as well as the repurposing of existing gas infrastructures such as pipelines, LNG terminals and gas turbines, was announced.

The potentials vary across the EU. Portugal, for example, is planning a massive expansion of hydrogen production by 2030 in its reconstruction plan within the framework of the Recovery and Resilience Facility (RRF), in order to greatly reduce its gas imports and export hydrogen within the European single market (EU COM, 2021c, 17). However, the 400 so-called "Important Projects of Common European Interest (IPCEI)", which have been established within the framework of the EU industrial strategy, focus on the development and marketing of complex technologies in the European core countries. In this respect, it is becoming apparent that the development of a European hydrogen infrastructure will not overcome the dynamics of uneven development within the EU.

The emphasis on industrial policy within the hydrogen strategy leads to a strong focus on technology development on the one hand and a state control component on the other hand. The strategy states that "the policy focus will be on laying down the regulatory framework for a liquid and well-functioning hydrogen market" but should not go beyond that (EU COM, 2020, 7). The market, through incentives and competition, is seen as the most effective instrument to provide cheap hydrogen, while the state is limited to the role of framework setter (ibid., 6).

Nevertheless, there are considerable uncertainties as to the extent to which hydrogen can be provided and to what extent processes for the production and transport of hydrogen can be optimised. There has also been much debate about which form of hydrogen production can ultimately be described as "clean". In addition to using renewable energy to produce hydrogen through water electrolysis (*green hydrogen*), hydrogen is currently mainly produced from natural gas. However, this hydrogen, which is referred to as *grey*, can be "cleaned up" by cutting off and

storing the resulting CO2 emissions using CCS technologies (*blue hydrogen*). Until the war in Ukraine, grey hydrogen was by far the cheapest and promised numerous energy companies a new market for their natural gas. Thus, the industry lobby organisation HydrogenEurope lobbied for a softening of the definition of clean hydrogen and against strong regulation of the hydrogen market. So far, however, a definitive extension to blue hydrogen has failed to take place – both in the strategy itself and in the negotiations on the revision of the Renewable Energy Directive (RED II).

However, the disputes show that green hydrogen will remain a scarce commodity for the foreseeable future. Accordingly, there are intensive efforts on the part of the EU to import green hydrogen from countries of the global South. Simone Claar (2021) speaks in this context of "green colonialism" as these efforts target countries of the Global South in which both electricity and water are often already scarce. Water scarcity in particular is likely to be exacerbated by climate change and associated droughts. According to estimates by Simoes et al. (2021, 5), almost 15 litres of high-purity water are needed to produce one kilogram of hydrogen.

In this respect, the hydrogen strategy intertwines industrial and security policy considerations with environmental and climate policy ambitions, which are intended to ensure further industrial growth, energy independence and the defence of EU's position in the global division of labour. Industrial and security policy considerations have once again gained considerable importance against the backdrop of the war in Ukraine. In response to the war and the associated energy policy consequences, the Commission recently announced in its "RePower Europe" package, which aims at "rapidly reducing our dependence on Russian fossil fuels" (EU COM, 2022, 1) – by accelerating the ramp-up of the hydrogen market, in addition to its own production targets, by importing a further ten million tons of hydrogen from third countries (ibid.).

This complex picture illustrates the uncertainty surrounding the EGD and its reliance on new technologies and forms of unequal ecological exchange (Hickel et al., 2022). The existing modes of production and life and domination of nature shall be ecologically modernised.

4.3 Carbon Dioxide Removal (CDR)

With the adoption of the European Climate Law in 2021, the EU has agreed to become climate neutral by 2050 and thus contribute to meeting the goals of the Paris Agreement of 2015. However, as it will not be possible to reduce emissions to zero in some sectors (e.g., agriculture, but also cement production and other industrial processes), processes must be established to remove greenhouse gases from the atmosphere. This is addressed by the EU Commission in its Communication on Sustainable Carbon Cycles published on December 15, 2021 (EU COM, 2021b).

It must be ensured by the year 2050 that every residual emission is neutralised by a removal (Schenuit et al., 2022).

The Communication establishes a clear course to continuously increase the level of greenhouse gas removals through to 2050. In doing so, it defines three central fields of action: Carbon Farming, Industrial Capture, Use and Storage of Carbon, and a regulatory framework for the certification of carbon removals. The Commission lists the following key elements of carbon farming: afforestation, agroforestry, conversion of cropland, and the restoration of peatlands and wetlands (EU COM, 2021b, 5). In the area of carbon capture and use (CCU) and carbon capture and storage (CCS), BECCS (bioenergy carbon capture and storage) also plays an important role, along with many other technologies. Nevertheless, it is very doubtful whether negative emission technologies will be available on a large scale by mid-century. So far there is no clear evidence that large-scale negative emission technologies can be deployed in the foreseeable future. All potentially available approaches are fraught with various social, environmental, technical and economic hurdles (Lawrence et al., 2018). In addition, there is the problem of mitigation deterrence, i.e., that real or potentially available negative emissions could lead to a reduction in climate mitigation efforts (McLaren et al., 2019). The approaches pursued to date in the CCU field are by no means aimed at ending the fossil fuel era (Malm & Carton, 2021). Rather, fossil fuel companies are using it to try to offset their emissions, continue their existing business model, and at the same time meet the requirements for climate neutrality. However, against the background of the limited possibilities of negative emission technologies, climate neutrality can only succeed in the context of a move away from fossil energy sources (Buck, 2021).

It is doubtful whether the EU will be able to achieve a breakthrough in negative emission technologies in the foreseeable future. And even if it does, it is doubtful that the challenge of mitigation deterrence could be effectively addressed within the context of a capitalist growth economy. Nevertheless, the Commission leaves no doubt that CDR must become an important component of the EGD and that CDR measures must be market-based:

> *"Making carbon cycles sustainable is an urgent necessity for humanity. This process needs to be accelerated and it must be credible. With the Green Deal as the EU's growth strategy, carbon removals should also become a new business model." (EU COM, 2021b, 22)*

Here too, the EGD relies very strongly on technological development and competitive imperatives and thus aims to renew the existing social power relations and forms of domination of nature. Space for other understandings of prosperity or the negotiation of societal boundaries, such as those proposed by Ulrich Brand et al. (2021), are not provided within this framework.

5. The rocky road to decarbonisation

The EGD and its associated initiatives represent an attempt to realign the European Union against the backdrop of various crises and global shifts. It is intended to provide an answer to the environmental and climate crisis, the uneven development within the EU, the crises of the integration process as well as the new global challenges posed by the rise of China. However, as we have shown, the EGD does not pursue a social-transformative agenda like that of the historic New Deal in the USA but is closely aligned with the concept of ecological modernisation. Rather, it is about reconciling economy and ecology, about continuing the growth path under green auspices although historical evidence shows that absolute decoupling of growth and resource consumption is wishful thinking (Hickel & Kallies, 2020). As we elaborated, technological developments, for example in the field of hydrogen or negative emissions, are intended to reconcile economy and ecology, stimulate economic growth and increase the EU's security of supply and competitiveness. The focus on technology and competition goes hand in hand with a renewal of social power relations and inequalities both globally and within the EU. Although the EGD acknowledges various social aspects and the just transition concept figures prominently, inequality is only discussed in terms of regional disparities while ignoring the dimensions of gender and intersectional inequality (Heffernan et al., 2021). Accordingly, alternative understandings of prosperity or a revaluation of social reproduction play no role in the EGD. Likewise, concrete initiatives that seriously address the social dimension of the ecological transformation are absent.

While the Climate Change Act of 2021 and the Fit for 55 Package indicate that there are certainly ambitions to meet the EGD targets, the narrow focus on environmental modernisation and reliance on technological innovation make achieving the long-term goals extremely unlikely. Moreover, the arms spiral reignited by the war in Ukraine, associated emissions (Stoddard et al., 2021), and the capping of financial resources for environmental and climate policy initiatives are creating additional difficulties. Nevertheless, the conflicts with Russia and energy market turbulence have highlighted the dangers of a fossil fuel-based energy supply and accelerated efforts (even if not motivated by climate policy) to save energy in the EU. Overall, it is difficult to predict how the war in Ukraine will shape efforts to achieve the objectives of the EGD. It will be interesting to observe the evolution of the EGD over the coming years and whether progressive social forces can push the agenda beyond issues of regional inequality and embrace and anchor a broader vision of just transitions.

References

Abels, J. & Bieling, H.-J. (2022). Infrastructures of globalisation: Shifts in global order and Europe`s strategic choices. *Competition & Change.* DOI: 10.1177/10245294221130119.

Becker, J., Weissenbacher, R. & Jäger, J. (2021). Uneven development in the EU: Processes of core-periphery relations. In D. Bigo, T. Diez, E. Fanoulis, B. Rosamond, & Y. A. Stivachtis (Eds.). *The Routledge handbook of critical European studies* (224–238). London: Routledge.

Bongardt, A. & Torres, F. (2022). The European Green Deal: More than an Exit Strategy to the Pandemic Crisis, a Building Block of a Sustainable European Economic Model. *JMCS 60* (1), 170–185.

Brand, U. et al. (2021). From planetary to societal boundaries: an argument for collectively defined self-limitation. *Sustainability: Science, Practice and Policy* 17 (1), 264–291.

Buck, H. J. (2021). *Ending Fossil Fuels. Why Net Zero Is Not Enough*. London, New York: Verso.

Claar, S. (2021). Kein Ende des grünen Kolonialismus. *PROKLA. Zeitschrift für Kritische Sozialwissenschaft*, 51 (202), 141–148.

European Commission (2019a) 640 final. The European Green Deal.

European Commission (2019b). *EU-China – A strategic outlook*. JOIN(2019) 5 final. Strasbourg.

European Commission (2020). *A hydrogen strategy for a climate-neutral Europe*. COM(2020) 301 final. Brussels.

EU (2021). REGULATION (EU) 2021/1119 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law').

European Commission (2021a). European Green Deal: Commission proposes transformation of EU economy and society to meet climate ambitions. Retrieved from: https://ec.europa.eu/commission/presscorner/detail/en/IP_21_3541 (last accessed: 01.11.2022).

European Commission (2021b) 800 final. Sustainable Carbon Cycles.

European Commission (2021c). *Analysis of the recovery and resilience plan of Portugal*. SWD(2021) 146 final. Brussels.

European Commission (2022). *REPowerEU Plan*. COM(2022) 230 final. Brussels.

Gräbner, C., Heimberger, P. & Kapeller, J. (2020). Pandemic pushes polarisation: the Corona crisis and macroeconomic divergence in the Eurozone. *Journal of Industrial and Business Economics*, 47(3), 425–438.

Greenpeace (2019). Retrieved from: https://www.greenpeace.org/eu-unit/issues/climate-energy/2517/european-green-deal-misses-the-mark/ (last accessed: 01.11.2022).

Haas, T. & Jürgens, I. (2021). Die europäische Landung auf dem Mond? Der European Green Deal als Projekt ökologischer Modernisierung. *PROKLA. Zeitschrift für Kritische Sozialwissenschaft* 51 (202), 133–140.

Haas, T. & Sander, H. (2020). Decarbonizing Transport in the European Union: Emission Performance Standards and the Perspectives for a European Green Deal. *Sustainability* 12, 8381. DOI: 10.3390/su12208381.

Heffernan, R., Heidegger, P., Köhler, G., Stock, A. & Wiese, K. (2021). A Feminist European Green Deal. Towards an Ecological and Gender Just Transition. Friedrich-Ebert-Stiftung.

Hickel, J. & Kallies, G. (2020). Is green growth possible? *New Political Economy* 25 (4), 469–486.

Hickel, J., Dorninger, C., Wieland, H. & Suwandi, I. (2022). Imperialist appropriation in the world economy: Drain from the global South through unequal exchange, 1990–2015. *Global Environmental Change* 73, 102467. DOI: 10.1016/j.gloenvcha.2022.102467.

Lange, S., Pohl, J. & Santarius, T. (2020). Digitalization and energy consumption. Does ICT reduce energy demand? *Ecological Economics* 176 (106760). DOI: 10.1016/j.ecolecon.2020.106760.

Lavery, S. & Schmid, D. (2021). European integration and the new global disorder. *Journal of Common Market Studies* 59 (5), 1322–1338.

Lawrence, M. et al. (2018). Evaluating climate geoengineering proposals in the context of the Paris Agreement temperature goals. *Nature Communications* 9 (3734). DOI: 10.1038/s41467–018–05938–3.

Leonard, M., Pisani-Ferry, J., Ribakova, E., Shapiro, J. & Wolff, G. (2019). Securing Europe's Economic Sovereignty. *Survival*, 61(5), 75–98.

Lenschow, A. & Sprungk, C. (2010). The Myth of a Green Europe. *JCMS: Journal of Common Market Studies* 48 (1), 133–154.

Machin, A. (2019). Changing the story? The discourse of ecological modernisation in the European Union. *Environmental Politics* 28 (2), 208–227.

Machin, A. (2020). The agony of nuclear: sustaining democratic disagreement in the anthropocene. *Sustainability: Science, Practice & Policy* 16 (1), 286–297.

Malm, A. & Carton, W. (2021). Seize the Means of Carbon Removal: The Political Economy of Direct Air Capture. *Historical Materialism* 29 (1), 3–48.

McLaren, Duncan P. et al. (2019). Beyond "Net-Zero": A Case for Separate Targets for Emissions Reductions and Negative Emissions. *Frontiers in Climate* 1 (4), 1–5.

Naumann, F. (2022). Retrieved from: https://www.merkur.de/politik/eu-verbrenner-aus-verbot-ampel-koalition-gruene-lindner-fdp-habeck-luxemburg-kommission-streit-91635749.html (last accessed: 01.11.2022).

Pichler, M., Krenmayr, N., Schneider, E. & Brand, U. (2021). EU industrial policy: Between modernisation and transformation of the automotive industry. *Environmental Innovation and Societal Transitions* 38, 140–152.

Reckordt, M. (2019). Dasselbe in Grün. Weltweiter Ressourcenverbrauch und -abbau. *politische ökologie* 37 (159), 46–52.

Remling, E. (2018). Depoliticizing adaptation: A critical analysis of EU climate adaptation policy. *Environmental Politics* 27 (3), 477–497.

Reuters (2022). Analysis: Global energy crisis drives rethink of nuclear power projects. Retrieved from: https://www.reuters.com/business/energy/global-energy-crisis-drives-rethink-nuclear-power-projects-2022-08-04/ (last accessed 17.11.2022)

Ruser, A. (2015). By the Markets, of the Markets, for the Markets? Technocratic Decision Making and the Hollowing Out of Democracy. *Global Policy* 6(1), 83–92.

Sablowski, T., Schneider, E. & Syrovatka, F. (2022). Krise und Regulation des Kapitalismus in der Europäischen Union. *PROKLA. Zeitschrift für Kritische Sozialwissenschaft*, 52(207), 231–252.

Schenuit, F., Boettcher, M. & Geden, O. (2022). CO2-Entnahme als integraler Baustein des Europäischen »Green Deal«. In: SWP Aktuell Nr. 37.

Schmidt, O., Gambhir, A., Staffell, I., Hawkes, A., Nelson, J. & Few, S. (2017). Future cost and performance of water electrolysis: An expert elicitation study. *International Journal of Hydrogen Energy*, 42(52), 30470–30492.

Schneider, E. & Syrovatka, F. (2020). Corona und die nächste Eurokrise. In: *PROKLA. Zeitschrift für kritische Sozialwissenschaft* 50(199), 335–344.

Sgobbi, A., Nijs, W., Miglio, R. de, Chiodi, A., Gargiulo, M. & Thiel, C. (2016). How far away is hydrogen? Its role in the medium and long-term decarbonisation of the European energy system. *International Journal of Hydrogen Energy*, 41(1), 19–35.

Simoes, S. G., Catarino, J., Picado, A., Lopes, T. F., Di Berardino, S., Amorim, F., Gírio, F., Rangel, C. M. & Ponce de Leão, T. (2021). Water availability and water usage solutions for electrolysis in hydrogen production. *Journal of Cleaner Production*, 315, 128124.

Stirling, A. (2015). Emancipating Transformations: From controlling 'the transition'to culturing plural radical progress. In I. Scoones, M. Leach, & P. Newell (Eds.). *The Politics of Green Transformations* (54–67). London, New York: Routledge.

Stoddard, I. et al. (2021). Three Decades of Climate Mitigation: Why Haven't We Bent the Global Emissions Curve? *Annual Review of Environment and Resources* 46, 653–89.

Syrovatka, F. (2022). *Neue Europäische Arbeitspolitik: Umkämpfte Integration in der Eurokrise*. Frankfurt a.M, New York: Campus.

Tidemann, N., Bolldorf, H., Caterina, D., Huke, N., Opratko, B. & Syrovatka, F. (2022). The Manifestation of Authoritarian Populism in Europe: Challenging the Fragile Compromise of Liberal Democracy. In Regelmann, A. (Eds.). *The Crisis and Future of Democracy*. Basingstoke: Palgrave.

Wurzel, R. K. W. & Connelly, J. (2010). *The European Union as a Leader in International Climate Change Politics*. London, New York: Routledge.