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# GREENING THE COVID-19 RECOVERY: FEASIBILITY AND IMPLEMENTATION ISSUES IN THE EUROPEAN UNION

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The COVID-19 crisis and climate change are both serious issues, and addressing them in a single policy is a serious challenge. In Western countries, the COVID-19 outbreak has left intact most of the supply-side capabilities and a large part of the consumption potential. Climate change, in contrast, is an increasing long-term threat, which requires changing most supply-side fundamentals and consumption habits.

This article first explores the question: after the COVID-19 crisis, what will the 'new normal' be for the energy sector? It then discusses the feasibility of a green recovery, as a general public policy issue and as a particular challenge for the EU's weak central authority. Next, it reviews likely implementation challenges, focusing on two energy supply-side options: renewables and carbon-neutral hydrogen. While a European green recovery policy seems much more feasible than it did even a few months ago, both the launch and the implementation of such a policy are likely to be challenging.

## After the COVID-19 crisis, what will the 'new normal' be for the EU energy sector?

The COVID-19 crisis has temporarily but sharply reduced demand from companies for electricity, and from both companies and households for fossil fuels. At its lowest, electricity demand was down by as much as 25–28 per cent in France and Italy and 10–20 per cent in Germany and Belgium. Electricity wholesale prices fell by much more than half, with many negative price episodes. The EU price of carbon also went down to 15 euros a ton, calling into question whether the expected intervention by the EU Market Stability Reserve will be able to put it back to the pre-crisis level.

The world reduction in demand for fossil fuels put their prices at very low levels, triggering a wave of reduction in investments and of cost cutting by oil and gas majors. For the first time, world investment in renewables also reduced sharply. However, as low as fossil fuel prices are, they cannot beat wind and solar short-term costs in the generation merit order; they only call into question the relative order between lignite and coal versus gas in the residual demand left by renewables.

Another question regards the new EU post-crisis trend in renewable generation investment. As electricity demand and electricity generation investment are unlikely to grow above the pre-COVID-19 crisis level for a while, the electricity sector should probably evolve between its low level of March and April and its pre-COVID-19 level, with no other major change for a year or two. The low levels of prices and demand in the EU energy sector should impact all energy companies, whether they are regulated or not, raising questions about the viability of grids recovering fixed costs through volumetric charges under their revenue cap.

## The feasibility of a green EU recovery

At the beginning of the COVID-19 crisis in March and April, the EU support for member countries supposedly mimicked what had been done after the 2008 financial crisis: an intervention by the EU central bank centred on a short-term rescue package framed by an ad hoc conditionality mechanism embedded in political governance driven by the 'frugal northern' states. At that

point, a ‘green recovery’ policy was only an issue for intellectual debate. However, it became an EU policy-making issue on 18 May when Chancellor Merkel and President Macron allied in favour of a €500 billion recovery plan embedded in the European Commission budget for 2021–2027, a plan that the Commission expanded to a €750 billion recovery proposal: Next Generation EU. What the EU actually agrees to do will be detailed in the second semester of 2020 under the German EU presidency, but it is already a real policy-making debate, not only a hypothesis.

The first issue to discuss is whether a green agenda can reasonably be considered a good enough recovery tool to place it at the centre of the EU´s strategy. Any medium-term escape from the COVID-19 crisis (with a 5- to 10-year horizon) is indeed a serious matter beyond the fate of short-term rescue plans (with a 1- to 18-month horizon). A key empirical proof of seriousness is provided by an Oxford University study led by Cameron Hepburn and co-authored by Nick Stern and Jo Stiglitz in May 2020. Researchers interviewed 231 experts from 53 countries (including all G20 countries) to rank 25 typical public-policy programmes (identified among hundreds of actual public policies implemented after the 2008 financial crisis). The study ranked these programmes according to their properties as economic policy tools (such as their speed of implementation as short-term ‘rescue’ packages and their long-term economic multipliers for medium-term ‘recovery,’ multiplying the initial public spending up to two or three times) plus their climate impacts and policy attractiveness. The study identified five policy programmes with a strong enough potential for recovery due to their economic multipliers and guaranteed climate impacts. Three are classic public support programmes: clean research and development (R&D), clean physical assets, and building efficiency retrofits. The other two are education and training, and investment in natural capital.

The second issue to address is the EU itself. It does not have a strong central government like the US and China, or even an acting political majority, as even troubled Spain and Italy have. Undertaking new policies in new areas which are not already entrusted to the European Commission by EU treaties is difficult, sometimes extremely so, as is illustrated by a decade of European crises over the eurozone, Ukraine, and migrants. However, if an EU recovery plan concentrates on public spending and state aid financed by debt, and does not so deeply hurt EU competitiveness as to necessitate a strong border adjustment mechanism, there should be less difficulty in reaching a European agreement. The difficulty might drop to the level of a ‘normal’ fierce fight about an expanded European budget for 2021–2027.

A typically fierce EU fight has two general dimensions. The first is an alliance of ‘frugal’ countries opposing any new budget transfer to other countries. However, with Germany defecting from the alliance of the frugal and occupying the EU presidency until the end of 2020, a way to a European compromise is open. The second critical dimension is an alliance of eastern countries opposing transfers that only occur among the western countries. There is already a solid basis for significant transfers to the east among the several classic recovery tools identified in the Oxford University study cited above. Moreover, the creation of a European fund for a ‘just energy transition’ should also attract support from many eastern coal regions. There was therefore reason for optimism that such a policy would only face a traditional fierce EU fight over a seven-year expanded budget. As we have seen on Tuesday 21 July, at 6am, after the longest ever EU marathon since Nice Summit in year 2000.

**Implementing a green EU recovery: two scenarios**

While the launch of an EU ‘green recovery’ policy is become feasible, implementation will likely face its own challenges. While all five of the potential green programmes described above deserve serious examination, this article focuses on two – clean physical assets and clean R&D – and specifically on efforts to incorporate more renewables and carbon-neutral hydrogen in the energy mix.

***Massive renewables as a ‘clean physical assets’ recovery programme***

With a 40 per cent reduction target for EU greenhouse gas emissions, the share of renewable energy sources (RES) in the EU electricity mix in 2030 has been evaluated at 54 per cent. With the suggested further increase of the greenhouse gas target to 50–55 per cent, the RES share might go up to 63 or 67 per cent. One can compare this with the actual RES share in Germany during lockdown of roughly 30 per cent. In addition, wholesale market prices then went down by around 2.5 times, to only €16 per MWh, also undergoing many negative price episodes. What might happen with from half to two times more renewables in the electricity mix? Massive renewables mean a massive number of generation units characterized by fixed costs, zero variable costs, and intermittent output. How could they efficiently work in a market design which was conceived for dependable generation units with significant variable costs? Might the market design evolve to give a scarcity value to flexible operation and other flexibility services? How can the arrangements for balancing and reserve procurement be redefined? How can generation adequacy and security of supply be guaranteed? What about capacity markets? What role will storage have? What role will there be for new long-term contracts incentivizing investments? And what multi-sector adequacy planning can provide a framework that ensures a multi-energy security for the whole EU?

The second aspect of massive renewable assets concerns the grids hosting them.

Consider only the distribution grids hosting both photovoltaic panels and onshore wind, and the many decentralized storage units and electric vehicle charging stations. The 2016 Massachusetts Institute of Technology report *Utilities of the Future* already showed that the former fit-and-forget approach can no longer lead to efficient expansion of distribution grids, and that distribution grids have to move to a very granular analysis of the costs (and benefits) of the different uses by their various users. What type of connected asset scenarios and usages should be envisaged? What time horizon should be used for calculation: one year, 10 years, several decades? What time granularity should be used to define system stress and network requirements: the critical day or days, or hour, or 10 minutes? What is the proper spatial granularity: the entire grid company portfolio, a single grid zone or branch, or a single grid node? What incentives, short-term and long-term, should be used to attract the connection of flexible assets to each network unit in the grid? How will distribution grid operation schemes then interact with the transmission grid schemes? How should their respective scarcity values for flexibility combine at the whole-system level to reduce the need for further grid investments, or to substitute copper with local storage and fibre data cable? There are many questions but not much validated practice feedback yet. The need for innovative planning and tariffs for distribution grids in a massive-renewables world is obvious, but no robust practice has yet been developed. We still need to define a much more robust and efficient frame for investment and operation by the grid operators; as well as or for investment, behaviour and uses by the grid users.

***Carbon-neutral hydrogen as a 'clean R&D' and 'clean physical assets' recovery programme***

For more than a decade, a key component of EU green energy has been renewable electricity. However green electricity can also expand to new uses, such as electrification of mobility (e.g. bikes, motorbikes, cars, and buses). However, other energy uses might require green molecules instead of green electrons, particularly for their proper energy density. Certain uses will depend on their chemical nature as feedstock. Here carbon-neutral hydrogen is a candidate. Having been debated and written about since 2002, it became a major public policy objective in June 2020 with the German government establishing a national hydrogen strategy, with the following justification and features:

1. An industrial country the size of Germany needs to have a carbon-neutral hydrogen future.
2. All the various potentials of hydrogen need to be addressed: as an energy carrier, for energy storage, for sector coupling as Power2X, and as feedstock.
3. The strategy will cover the entire value chain: technologies, generation, storage, infrastructure, and use, including all logistics.
4. Germany will only focus on green hydrogen (produced from renewable energy), while it acknowledges that other countries might prefer blue (from fossil fuels plus carbon capture and storage) or yellow (from nuclear).
5. Germany also acknowledges that it will not have enough renewable resources nationally to supply all its hydrogen needs and it will have to import from non-EU countries, which will become close industrial partners. The national target is limited to 5 GW of capacity in 2030 and 10 GW in 2040.
6. Germany plans to spend €2 billion on research and primary applications, €1 billion on pilot industrial facilities, €7 billion on launching a German market, and €2 billion on building international partnerships.

The question now is how this can enter into a European policy framework. Can the EU choose green hydrogen only and ignore the other carbon-neutral hydrogen generation technologies? If EU funding is given to R&D, who will own the rights to the resulting technologies? If EU pilots are built, who will calibrate their testing and evaluate the results? If a national market is created, what will be the market-opening regime for non-national European players? If hydrogen only circulates in closed pipelines, who will decide their location, connections, operational rules, and access regime? Will hydrogen grids be designed and regulated at the EU level? If hydrogen is to be imported into a market inside the EU, it becomes a commodity submitted to the EU common trade regime and, presumably, the EU framework recently created for external gas supply connection facilities. If hydrogen is converted into another fuel (e.g. ammonia, methanol, or methane), how will this be measured, tracked, and guaranteed? There are many questions that Germany cannot solve on its own and that the European Commission started tackling in its first communication 8 July 2020.

**Conclusion: a green EU recovery as a two-step challenge**

A European green recovery policy looks both sensible and feasible – something that, as recently as March 2020, appeared to be only a dream; an idealistic French aspiration for an EU that is more likely to engage only in pragmatic political horse-trading, and even that not easily. It seems that the extent of the COVID-19 crisis and the seriousness of the ongoing climate threat, at a time of self-destruction of the formerly US-led multilateral world, have created an unexpected political defining moment, making a real EU 'green recovery' policy possible.

However, while its final adoption by EU institutions (both the Council and the Parliament) is not yet a given, the next key challenge is in sight. Without a proper implementation framework, a green EU recovery might lose its muscles and teeth: both its economic multiplier effect and its climate mitigation effectiveness. The EU does not have a strong Weberian executive bureaucracy pushed by an effective political power. Implementing new policies in the EU is just as difficult as establishing them: a 27-country crowd game where three EU institutions have to align to make any new journey a success.