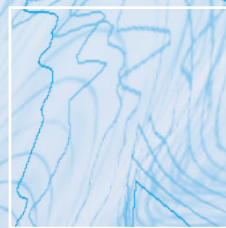
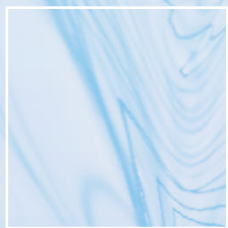




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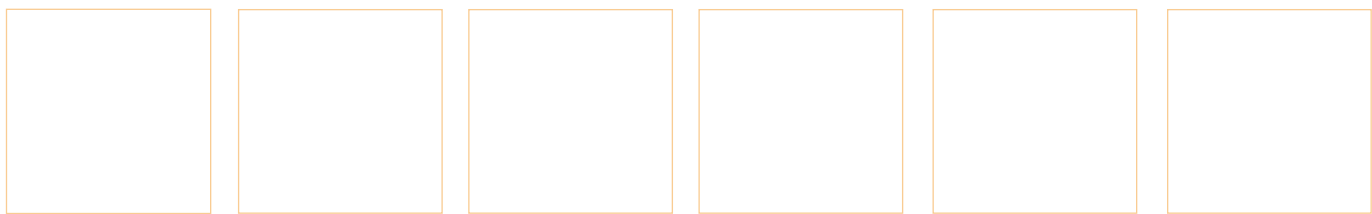


Greening the Covid-19 Recovery in the European Union

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Highlights

- The Covid-19 crisis and climate change are both serious issues, and combining them in a single policy is a serious challenge.
- The Covid-19 crisis has been triggered by a virus outbreak and in Western countries has kept intact most of the supply-side capabilities and a large part of our consumption potential.
- Climate change is quite the opposite. It is an increasing long-term threat which requires changing most of our supply-side fundamentals and consumption habits.
- I will first focus on the immediate issue: after the Covid-19 crisis, what is the new normal for the energy sector? Then I will move on to discussing the feasibility of a 'Greening Recovery,' first looking at it as a general public policy issue and second as a very particular issue for the weak central authority that the EU has.
- Having found the proposal to launch a common 'EU Green Recovery' policy credible, I will look at likely implementation challenges. I will address some aspects of the greening of the energy supply side, either with massive renewables or with a carbon-neutral hydrogen sector taking off.
- I will then conclude that the feasibility of launching a European Green Recovery policy is not the only key condition for its success, as effective implementation also promises to be very challenging. This governance could be taken up by a new EU entity.



1. After the Covid-19 Crisis, What is the New Normal 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% in France and Italy and 10-20% 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, questioning 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 generation merit order, but only 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 should not grow above the pre-Covid crisis level for a while, the electricity sector should evolve between its low level of March-April and its pre-Covid crisis 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 companies, whether they are regulated or not, again questioning the grids practising volumetric charges under their revenue cap.

2. The Feasibility of a 'Greening Recovery' and the EU

In the beginning, in March and April the EU support for countries facing the Covid-19 crisis was supposedly mimicking 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. Therefore, a 'Greening Recovery' policy was only 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 500bn euro recovery plan embedded in the next European Commission budget for the years 2021-2027, a plan that the Commission expanded to 750bn. What the EU will actually adopt will only be known in the second semester of 2020 under the German presidency of the EU, but it is already a real policy-making debate, not only a hypothesis.

The very first issue to discuss here is whether a green agenda can reasonably be a good enough recovery tool. Any medium-term escape from the Covid-19 crisis (with a 5 to 10-year horizon ahead) is indeed a serious matter beyond the fate of short-term rescue plans (the 1 to 18-month horizon). A key empirical proof of seriousness is provided by a study at Oxford led by Cameron Hepburn and co-authored by Nick Stern and Jo Stiglitz in May 2020. It gathered 231 experts from 53 countries (including all the G20) to rank 25 typical public-policy programmes (identified among hundreds of actual public policies implemented after the 2008 financial crisis). The study ranks 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 2 or 3 times) plus their climate impacts and policy attractiveness. Fortunately, five policy programmes have a strong enough potential for recovery as economic multipliers and guaranteed climate impacts. Three are classic public support: Clean R&D, Clean Physical Assets and Building Efficiency Retrofits. The two others are: Education & Training and Investment in Natural Capital.



The second issue to address is the EU itself. The EU 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 from not easy to very difficult, 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 per se deeply hurt EU competitiveness to necessitate a strong border adjustment mechanism, the difficulty in finding a European agreement should be reduced. It might reduce to a 'normal' European fierce fight around an expanded European multi-year budget for 2021-2027. This typical EU fierce fight has two general dimensions. The first is an alliance of 'frugal countries' opposing any new budget transfer to others. However, with Germany defecting from this alliance of the frugal and also 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 only occurring between western countries. Among the several classic recovery tools identified by Hepburn, Stern and Stiglitz, there is already a large basis for significant transfers to the east. Moreover, the creation of a European fund for a 'just energy transition' should also attract many eastern coal regions. I can therefore be optimistic and expect only a traditional fierce big EU fight to agree on a 7-year expanded budget.

3. Implementing an EU 'Greening Recovery': Two Snapshots

Having found it feasible ex ante to launch a common 'Green Recovery' policy in the EU, I now look at two of its ex-post dimensions: the likely implementation challenges either as 'Clean R&D' or as 'Clean Physical Assets' programmes, while acknowledging that all five would deserve serious examination. My

first snapshot will be with massive renewables and the second with a carbon-neutral hydrogen sector taking off.

3.1 Massive RES as a 'Clean Physical Assets' Recovery Programme

With a 40% reduction target for EU GHG emissions, the share of RES in the EU electricity mix in 2030 has been evaluated at 54%. With the suggested further increase of the GHG target to 50-55%, the RES share might go up to 63% or 67%. One can compare this with the actual RES share in Germany during lockdown: roughly 30%. In addition, notice how wholesale market prices then went down by around 2.5 times, to only 16 euro a MWh, not forgetting 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 characterised by fixed 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? 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 for storage? What role for new long-term contracts incentivising investments? And what common-sector adequacy planning can frame the EU path?

The second aspect of massive renewable assets after generation concerns the grids hosting them. One might look at the North Sea future offshore grid. However, let us concentrate here more on the distribution grids hosting both PV panels and onshore wind, and the many decentralised storage units and electric vehicle charging stations. The 2016 MIT 'Utilities of the Future' report already showed that the former 'Fit & Forget' policy 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 use and type of connected asset scenarios should be used? What proper time horizon should be used for calculation: 1 year, 10 years, several decades? What time granularity should be used: the critical day or days, or hour or 10 minutes? What is the proper spatial granularity: the entire grid company portfolio? Each single grid zone or branch? Or single grid node? And what incentives, short-term and long-term, should be used to attract the connection of flexible assets to each unit in the grid? How will distribution grid operation schemes then interact with the transmission grid ones? 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 renewable world is obvious but no robust practice has yet been produced to efficiently frame investment and operation for the grids, and investment, behaviour and uses by the grid users.

3.2 The Hydrogen Sector Taking Off as a 'Clean R&D and Clean Physical Assets' Recovery Programme

For more than a decade, a component of EU Green Energy has been renewable electricity. Green electricity can also expand to new uses, such as electrification of mobility (bikes, motorbikes, cars, buses, etc.). However, certain energy uses might require green molecules instead of green electrons, particularly for their proper energy density. Other 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 programme in June 2020 with the German government defining its national hydrogen strategy. 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 feedstock. 3/ This strategy will cover the entire value chain: technologies, generation, storage, infrastructure, 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 plus CCS) or 'yellow' (from nuclear). 5/ Germany also acknowledges that it will not have enough renewable resources nationally to feed all its hydrogen needs and it will have to import from non-EU countries, which will become close industrial partners. The national target is 'only' 5GW of capacity in 2030 and 10GW in 2040. 6/ Germany plans to spend 2bn euros on research and primary applications, 1bn on pilot industrial facilities, 7bn on launching a German market and 2bn on building international partnerships.

The question now is how this can enter a European policy frame. 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 on 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 Europeans? If hydrogen only circulates in closed pipelines, who will decide their location, connections, operation 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 frame recently created for external gas supply connection facilities. If hydrogen is transferred into another fuel (ammonia, methanol, 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 will start tackling in a first communication in July 2020.

4. Conclusion: an EU ‘Greening Recovery’ as a Two-Step Issue

A European Green Recovery policy looks both sensible and feasible, something that I did not think in March 2020. For me it was then only a dream, a typical French dream of an ideal European policy, while the EU mainly produces pragmatic political horse-trading, and not so easily. It seems that the size of the Covid-19 crisis and the seriousness of the still-running climate threat, at times of self-destruction of the formerly US-led multilateral world, have created this ‘political defining moment’ giving birth to the unexpected. A real EU ‘Greening Recovery’ policy.

However, while its adoption by the legitimate EU institutions (the Council and the Parliament) is not yet a given, the next key challenge is in sight. Without a proper implementation frame, our EU Greening Recovery might lose its muscles and teeth: both its economic multiplier effect and its climate mitigation effectiveness. The EU does not have a strong executive Weberian bureaucracy. Implementing new policies in the EU is just as difficult as defining the new policies: a 27-country crowd game where three EU institutions have to seriously align to make any new journey a success.

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