GLOBAL RENEWABLES CONGRESS

World Future Council

IET International Energy Transition

POLICY BRIEF FOR THE GLOBAL RENEWABLE CONGRESS

MAKING SOCIETIES MORE RESILIENT!

THE ROLE OF RENEWABLES IN COVID19 RECOVERY PACKAGES

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Policy Brief for the Global Renewable Congress

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1. The Corona Crisis: An Opportunity to Fast-Track the Global Energy Transition

Facing the global COVID-19 crisis, humanity is dealing with an unprecedented challenge. Next to severe impacts for the health system, we are confronted with the biggest economic collapse since the Great Depression. The national and international recovery programs will be larger than those seen after the global financial crisis in 2008. They will determine our infrastructure for decades to come.

Therefore, it is crucial to combine upcoming recovery programs and the following recovery plans with zero carbon development plans and green deals. We need to build an economy and a society that is more resilient, more inclusive, more renewable and healthier, improving the way of life of all citizens around the globe. Instead of managing acute symptoms of the crisis, government should develop a longer-term vision when designing COVID19 recovery programs – with renewable energies at the core. This crisis is an opportunity for fast-tracking the global energy transition.

Many government recovery packages after the global economic crisis in 2008 were labeled "green". However, from an emissions point of view, the recovery from the 2008 global financial crisis was energy and carbon intensive. CO2 emissions declined by 400 million tonnes in 2009, but rebounded by 1.7 billion tonnes in 2010 (IEA 2020)[1]. We don't have time to repeat this mistake once again.

In addition, many countries have already set up stimulus packages for economic recovery[2]. However, many of the least developed countries might lack financial strength to set up national recovery programs. Only 29 out of 69 countries with per-capita GDP of $10,000 or less have established ambitious stimulus packages[3]. Therefore, international support will be crucial for those countries.

2. Energizing Recovery Packages

Renewable energy sources must be the backbone of the future decarbonized system. By 2050, renewables will need to provide almost all electricity world-wide, compared with about 26% today. Looking at total primary energy supply, the share of renewables will need to increase from 14% today to around 65% in 2050 (IRENA 2020) to meet governments´ commitments made in the Paris Agreement. The transition towards a decarbonized global energy system will require massive investments in the energy sector, totaling USD 110 trillion by 2050 or 2% of global gross domestic product (GDP) per year. Therefore, it is clear that renewables need to be the backbone of all green recovery package and recovery plans. Energy infrastructure for tomorrow needs to be built today. Power plants can operate for 40 years or more. Therefore, it is crucial to make the right investment decision now.

[1] https://www.iea.org/commentaries/what-the-2008-financial-crisis-can-teach-us-about-designing-stimulus-packages-today

[2] In Germany, for instance, they amount to more than 20% of the national GDP.

[3] Meaning stimulus packages amounting to 1% of the national GDP. Source: https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19

2.1 Scaling Up Renewable Energy Deployment

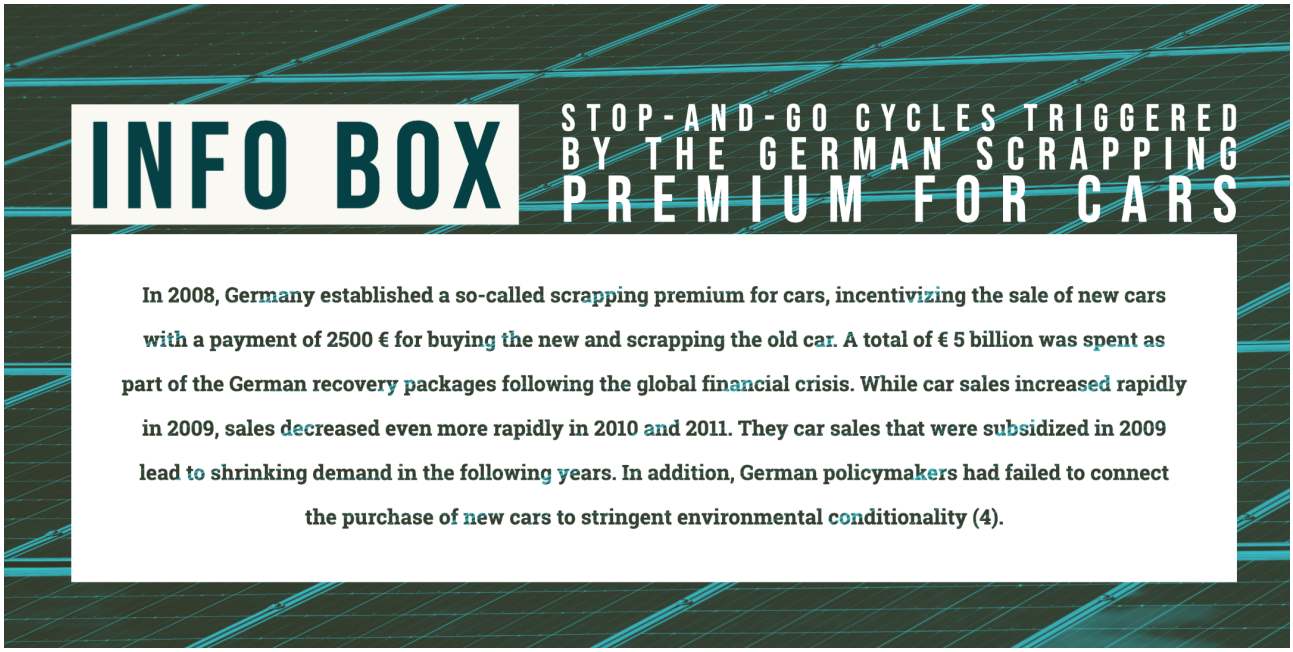
The easiest way to provide socio-economic stimulus with renewables is to scale up existing renewable energy policies. Governments around the world can increase procurement levels, increase funding in terms of fiscal stimulus or tax incentives. The recovery packages following the global financial crisis in 2008 contributed to the cost-breakthrough of solar PV and wind energy (Mundaca and Luth Richter 2015, IEA 2020). They provided positive feedback loop in the wind and PV industry, driving down cost and making them the least cost technologies that they are today. We need to trigger similar developments for other clean energy technologies.

2.2 Incentivize Emerging Technologies

Policymakers can establish new policy frameworks and incentives for emerging technologies which will be essential for fully-decarbonizing power sectors in the coming decades. These include storage technologies, green hydrogen electrolysers, renewable energy based cooking technologies, electric vehicles and others. Therefore, it is crucial to increase R&D funding for renewables and other clean energy technologies considerably.

2.3 Increase RE targets to Avoid Stop-and-go Cycles

Any additional incentives or policies for renewable energy should go hand in hand with increased targets. Without increasing the level of ambition in RE and climate targets, post COVID19 recovery mechanism could result in stop-and-go cycles. Deployment might increase in the years 2021 and 2022 but it could fall again in the following years (see the negative example of the German scrapping premium for cars below). These stop-and-go cycles need to be avoided because they could have a devastating effect on RE industries and attempts to set up national industries. Increasing ambition for RE deployment should also be included in Nationally Determined Contributions (NDC) as part of the Paris Agreement. Eventually, COVID19 recovery packages should enable us to reach decarbonization commitments earlier



[4] https://www.wiwo.de/unternehmen/abwrackpraemie-erschreckende-bilanz-der-autoverschrottung/5707118.html%20

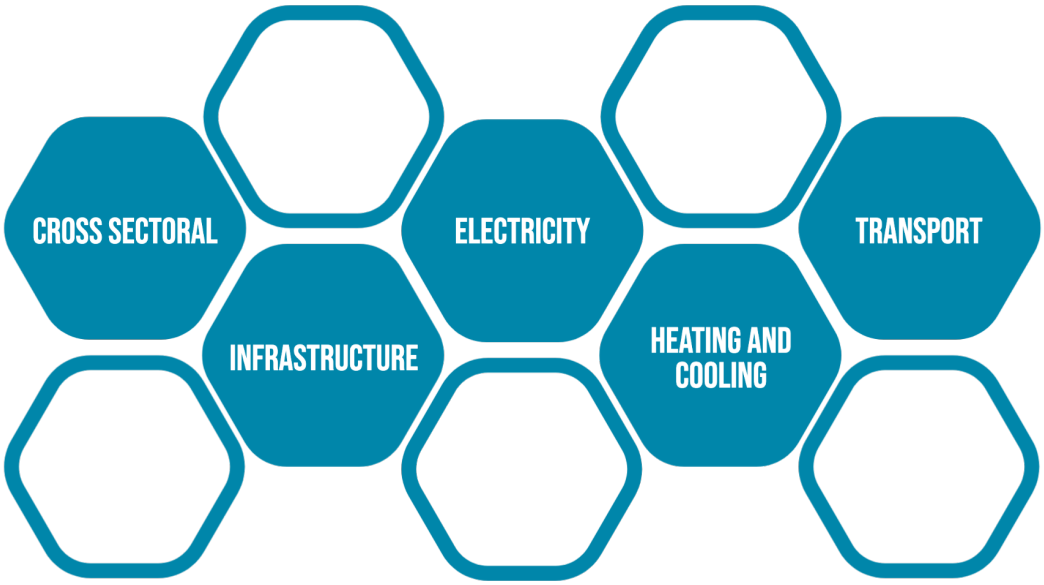
2.4 De-Risking of RE Policies

The main barrier to more RE-investments especially in the Global South is not a lack of (green) investment capital, but rather a lack of bankable projects[5]. A basic condition for any investor to engage in the energy sector is the upfront capital needed for the power plants, and different (perceived) risks, such as technological or regulatory risks associated with policy interventions such as subsidies. The insecurity caused by the ongoing global pandemic will influence the risk appetite of financial institutions. Capital costs for energy projects will likely increase. This might have significant negative effects on the deployment of renewable energy technologies because of their high share of capital expenditures (CAPEX). Therefore, including (additional or new) de-risking elements into renewable energy policy frameworks will become even more important. Best practise on the de-risking of RE policies is readily available (UNDP 2013, Couture, Jacobs et al. 2018) and should be included in all national policies as quickly as possible. In addition, governments and international finance organization can provide green credit lines with low-interest rates for RE developers (IILS 2008).

2.5 Leveraging Central Banks´ tools

For the 2008 financial crisis and the current corona pandemic, central banks spent and are spending trillions and multiplied their balance sheets to overcome the threat. Now, they could build on this mechanism to tackle climate change in an efficient way. In fact, considerations around climate change impacts is regarded as mainstream among central banks[6]. Central banks can use Green Bonds and Guarantees without increasing the money supply by reinvesting matured assets from previous purchase programmes. The tools can be integrated in the regular monetary policies of central banks without compromising their primary objectives or affecting their independence. This would also enable central banks to stimulate the economy in a direct way, by boosting the global energy transition[7].

2.6 Sector-specific Measures for Rapid RE Deployment



[5] cf. IRENA; Scaling up renewable energy investment in emerging markets, 2018, p.3 https://coalition.irena.org/-/media/Files/IRENA/Coalition-for-Action/Publication/Coalition-for-Action_Scaling-up-RE-Investment_2018.pdf

[6] https://www.ngfs.net/sites/default/files/medias/documents/ngfs_first_comprehensive_report_-_17042019_0.pdf

[7] https://www.worldfuturecouncil.org/unlocking-the-trillions/

2.6.1 Cross Sectoral

- Increase R&D funding for renewables to trigger innovations
- Invest in storage and other flexibility options
- Establish carbon pricing
- Establish national green hydrogen strategies in order to decarbonize the industrial sector
- Develop biomass incentives that help to protect biodiversity and create regenerative agriculture
- Include de-risking elements into renewable energy policy frameworks
- Develop education policies to help workers to shift to the RE industry
- Designate RE as critical and essential sector to ensure continuity along the supply chain

2.6.2 Infrastructure Investment

- Invest in distribution and transmission grid to enable increasing shares of variable renewables
- Invest in cross-country interconnections to increase system flexibility
- Invest in smart grid technologies
- Adjust the gas infrastructure for green hydrogen

2.6.3 RE in Electricity

- Increase the targets for wind and solar deployment
- Increases in targets should reflect additional demand for the transport and cooling sector
- Plan additional procurement for the years 2020 and 2021 (to trigger shorter-term employment effects)
- Incentivize dispatchable biomass and hydro power

2.6.4 RE in Heating and Cooling

- Establish binding quota for RE heating and cooling in all buildings – in combination with the retrofitting and making them more energy efficient[8].
- Include renewables in district heating and cooling
- Decarbonizing the industrial sector with green hydrogen
- Meet increasing cooling demand with renewables

[8] Energy efficiency programs have proven to be advantages during the global economic crisis of 2008, also because it promoted the badly affected construction sector.

- Design programs for solar water heaters
- Incentivize clean cooking with renewables in off-grid areas (Couture and Jacobs 2019)

2.6.4 RE in Transport

- Establish targets or quotas for e-mobility (based on green electricity)
- Organize public procurement for transport according to clear environmental guidelines
- Investing in e-mobility charging infrastructure
- Construction of bus and bike lanes
- Establish financial incentives for sustainable electric vehicles
- Invest in railways and other electrified public transport options
- Long-term strategies for decarbonizing aviation
- Develop sustainable biofuel strategies for heavy-duty transport

3. Making our societies more resilient - The Benefits of Renewables in the Post Corona World

The socio-economic benefits of renewable energy deployment are widely known today. From a macro-economic perspective, every USD 1 spent for the energy transition would bring a payback of between USD 3 and 8 USD. By moving to an energy system charged from renewable sources, world-wide GDP in 2050 could be 2.4% higher than under a business as usual scenario. And global welfare gains could increase by up to 13% by 2050 (IRENA 2020). In addition, renewables can trigger socio-economic benefits that can be directly liked to mitigating the negative effects of the corona crisis. Renewable energy deployment will lead to:

- Less air pollution, thus relieving health systems
- Create more jobs than fossil fuel based energy systems
- Create more resilient and secure energy supply
- Strengthen local communities and create local value

3.1 Less Air Pollution and Unburdening the Health Systems

Billions of people have experienced reduced air pollution due to the lockdown in large parts of the world. In China, air pollution levels fell by 25%. Human beings in many cities where able to see the sky and the surrounding landscapes again.

The energy sector is the major contributor to air pollution world-wide. Energy-related fossil-fuel combustion in high- and middle-income countries and biomass burning in low-income countries accounts for most of the global air pollution, generating 85% of airborne respirable particulate pollution and almost all sulfur dioxide and nitrogen oxide emissions to the atmosphere (IEA 2016). Research even suggest that existing air pollution may be a key contributor to the Covid-19 death toll. In four countries 80% of deaths occurred in the most polluted regions across (Germany, Italy, Spain and France), suggesting that long-term exposure to air pollution may be one of the most important contributors to fatality caused by the Covid-19 virus (Ogen 2020).

The combustion of fossil fuels and it's increased pollution levels are causing damage to the immune system of our societies. The World Health Organisation (WHO) estimates that ambient air pollution is responsible for about 4.2 million premature deaths annually at the global level[9]. By changing our energy system, clear skies and less air pollution could become the new normal.

3.2 Renewables Create more Jobs than Fossil Fuels

The job market will be severely affected by the COVID19 pandemic. The International Labour Organisation (ILO) warned that 81% of the world's workforce are affected[10]. In the US alone, 16 million people have lost their jobs in only three weeks[11]. Globally, the corona pandemic will wipe out about the equivalent of 195 million jobs in the second quarter of 2020[12].

Many studies have shown the positive job effects of renewable energy based energy systems. By 2050, up to 42 million people could work globally in the renewable energy sector, four times more than today. Energy jobs overall could reach 100 million by 2050, about 40 million more than today (IRENA 2020). The same holds true for country level analyses. In India, a renewable energy based power system could create more than 3 million

9 https://www.who.int/airpollution/ambient/en/

10 https://www.euractiv.com/section/economy-jobs/news/ilo-warns-of-devastating-consequences-of-covid-19-on-labour-markets/

11 https://www.theguardian.com/business/2020/apr/09/us-unemployment-filings-coronavirus

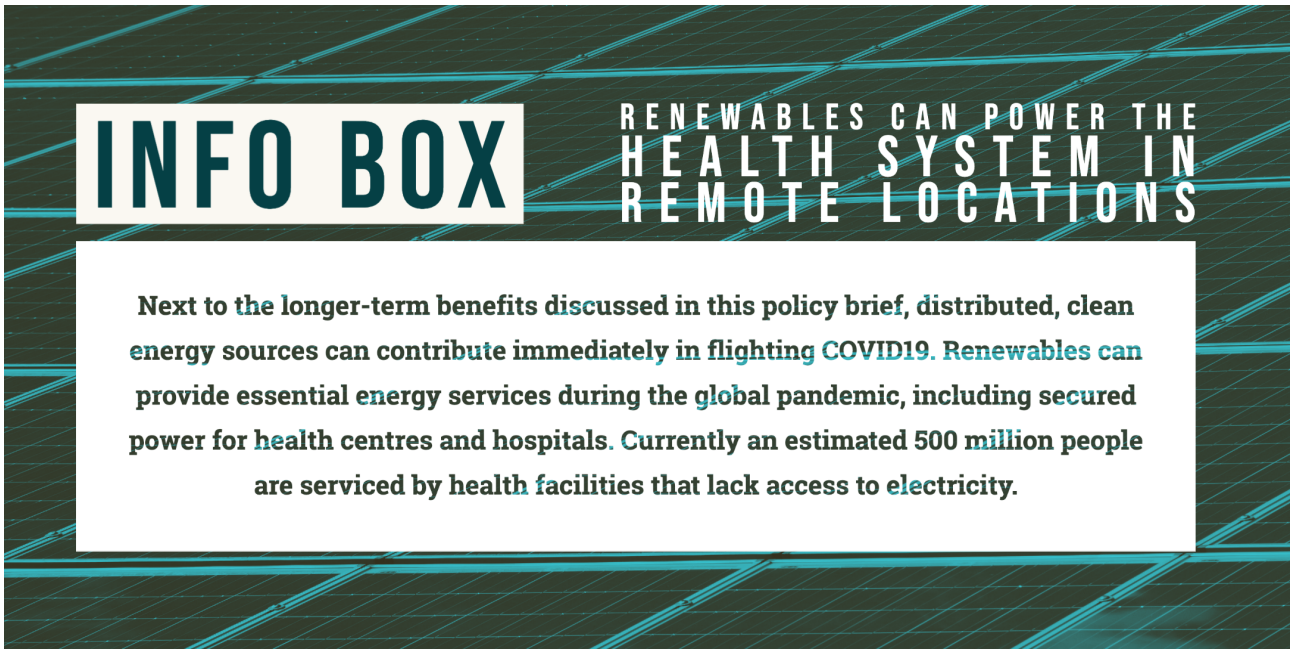
12 https://www.theguardian.com/world/2020/apr/07/covid-19-expected-to-to-wipe-out-67-of-worlds-working-hours

new jobs. The Indian renewable energy sector could employ five times more people by 2050 than the entire Indian fossil-fuel sector employs today(Kuldeep, Koti et al. 2019). COVID19 recovery programs should be based on an assessment of potential job gains and also available skills at national and regional level.

3.3 Resilient and Secure Energy Supply

The corona crisis has taught us that long supply chains of products, goods and services can become a risk in crisis times. Renewable energy sources are local energy sources. They can assure security of supply even when world-wide supply routes are disrupted. Further, renewable energy systems can produce electricity at much more stable prices as any fossil-fuel based energy generation and will therefore prevent strong fluctuations in (energy) prices. Energy importing countries can avoid costly imports of fossil fuels which can have very positive effects on national trade balances in developing countries. In China, for instance, imports of fossil fuels account for more than 10% of all merchandise imports. The net value of all fossil energy sources imported to China in 2015 was about 170 billion $ (154 billion Euros)[13].

When combining wind energy and solar PV with dispatchable sources of energy (e.g. biomass, hydro) and storage options (e.g. batteries, green hydrogen), renewables energy systems can easily integrate large share of variable source without jeopardizing security of supply. At the same time, renewables have the potential to enable secure energy access for more than 700 million human beings that do not have access to any source or clean und reliable electricity and almost 3 billion people without access to clean cooking solutions (IEA, IRENA et al. 2019).



3.4 Strengthening Local Communities and Create Local Value

This global pandemic will disproportionately impact developing countries and particularly the most vulnerable groups in our societies. Renewables can play a crucial by providing energy access to the world's poorest people. Rural communities can be strengthened by granting access to sustainable energy solutions. In this regard,

[13] https://www.unendlich-viel-energie.de/english/fossil-fuels-burden-the-trade-balance

distributed renewable energy solutions will play a crucial role. At the same time, renewable energy projects can create value locally, in terms of local tax revenues, local industries and local services (Hirschl, Aretz et al. 2010)[14].

4. Phasing-out Fossil Fuels and Reducing Subsidies

Fossil fuels damage the immune system our planet. Nonetheless, fossil fuel industries already benefited from short-term stimulus packages in various countries around the world[15]. In Canada, the controversial Keystone XL pipeline o transport tar sands oil from Canada to the US received $5bn financial backing by the Alberta government. US Environmental Protection Agency (EPA) suspended environmental laws that will ease the extraction of dirty fossil fuels in the USA. And in In South Korea, the major coal plant company received a $825m government bailout[16].

This is clearly not in line with internationally agreed targets such as the Paris Agreement and SDGs, signaling the political will for a more resilient, climate-safe future. By 2050 energy-related emissions would need to decline by 70% compared to today's levels (IPCC 2018, IRENA 2019). Any incentives for fossil fuel today will likely lead towards stranded investment in the future and locked-in emissions. Already without any additional investment in fossil fuels, USD 11.8 trillion in assets will need to be stranded by 2050 (IRENA 2020).

4.1 Strengthen phase-out Policies for Fossil Fuels

The current economic recession is an opportunity to increase the speed of the energy transition and to phase-out fossil fuels more rapidly. Especially in the power sector, this is an opportunity to re-visit or implement phase-out policies for coal, since excess power generation capacity is now likely. According to IRENA, cumulative investments of nearly USD 10 trillion should be redirected from fossil fuels and related infrastructure to low-carbon technologies by 2030 (IRENA 2020). This will not happen by trusting the forces of the market. Clear phase-out pathways are required.

4.2 An Opportunity to Reduce Fossil Fuel Subsidies now

Now is the time to phase out subsides for fossil fuels. Prices have fallen significantly in the past month. Oil prices even turned negative in the US market[17][18]. Governments have the opportunity to sharply reduce existing subsidies for oil, gas and coal in the coming months. This will help to create a level playing field with renewable energy source. Global fossil fuel totalled $5.2 trillion in 2017 (IMF 2019, IRENA 2019). One the one hand, reducing subsidies will free financial resources that are required for (green) recovery programs. On the other hand, this will speed up the transition process from harmful and pollution fuels towards renewable energy sources[19].

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[14] https://www.irena.org/benefits/Local-Value-Creation

[15] https://influencemap.org/report/The-Coronavirus-Crisis-and-Climate-Lobbying-23249d39450ff19b441090a6a50174eb

[16] https://www.theguardian.com/environment/2020/apr/17/polluter-bailouts-and-lobbying-during-covid-19-pandemic

[17] https://www.bloomberg.com/opinion/articles/2020-04-26/negative-oil-prices-were-a-warning-not-an-anomaly-in-covid-19-era

[18] https://www.ft.com/content/a5292644-958d-4065-92e8-ace55d766654

[19] See also : https://blogs.worldbank.org/climatechange/thinking-ahead-sustainable-recovery-covid-19-coronavirus

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