



Short communication

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## Will COVID-19 hit the renewable energy sector and slow down the global energy transition?

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### 1. Introduction

Renewable energy technologies in general and wind and solar energies in particular have shown significant growth during the last decade (Figure 1). The total installed renewable energy capacity has doubled, growing from 1.25 TW in 2010 to 2.53 TW in 2019 [International Renewable Energy Agency (IRENA), 2020]. Falling costs and policy support, such as feed-in tariffs, caused a spectacular growth in the solar and wind energy sectors in the last nine years. The installed capacity of solar energy grew from 41.5 GW in 2010 to 586.5 GW in 2019 (Figure 2a), and the installed capacity of wind energy grew from 181 GW in 2010 to 623 GW in 2019 (Figure 2b). This significant growth created a global industry that helped in creating millions of jobs, improving energy security, reducing greenhouse gas emissions and air pollution (Abu Hamed and Bressler, 2019).

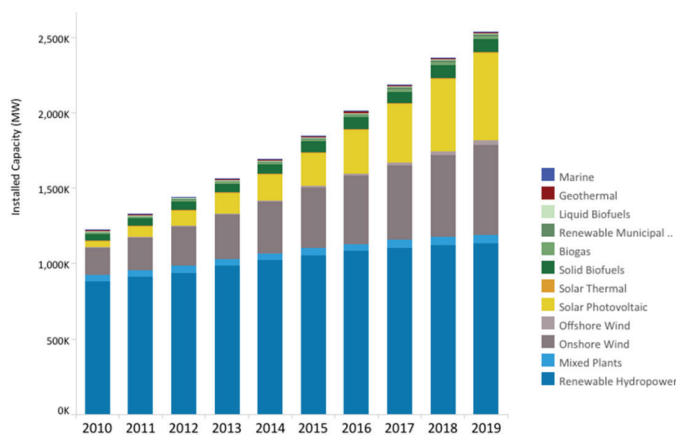
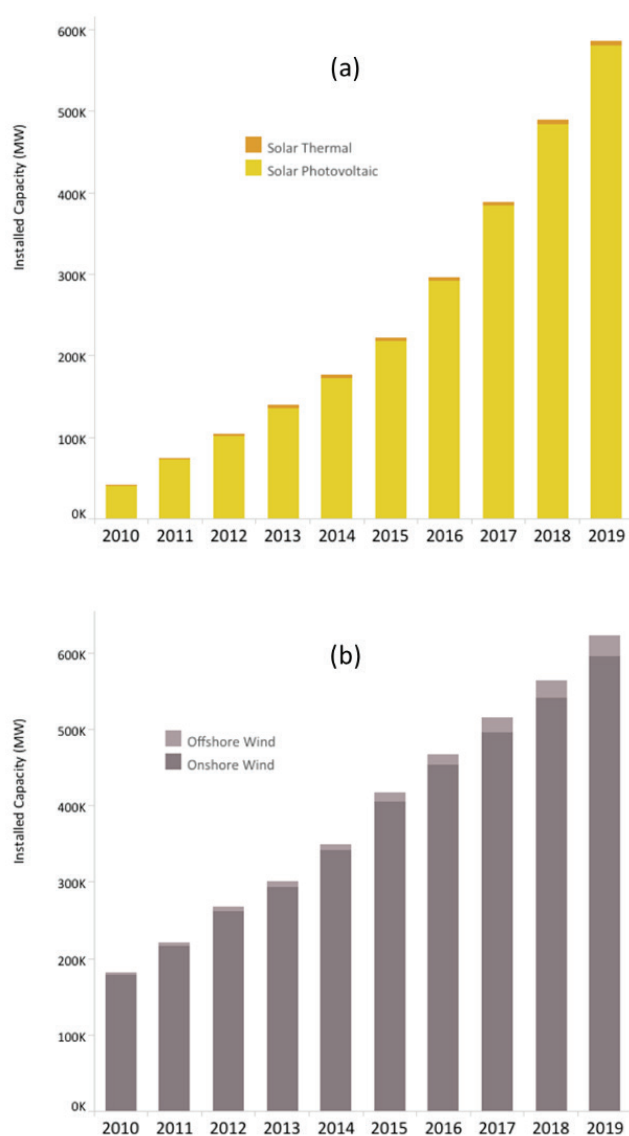


Figure 1: World total installed renewable energy capacity (IRENA, 2020)



**Figure 2:** World total installed solar (a) and wind (b) energy capacity (IRENA, 2020)

The growth of renewable energy will enable the transition to global clean energy (Gielen et al., 2019). This transition is crucial to limit the increase of average global surface temperature from exceeding 2° Celsius. But the crisis caused by COVID-19 may disrupt the momentum in this transition. This short communication touches upon the impact of COVID-19 on the future of global renewable energy sectors.

## 2. Challenges facing the renewable energy sectors from COVID-19

### 2.1. Supply chain disruptions caused by the COVID-19 lockdown

The lockdown will prevent or further delay the completion of renewable energy projects around the world. China is the leading manufacturer for photovoltaic (PV) modules (JRC,

2019). At the beginning of 2020, while other economies were functioning normally, the COVID-19 pandemic paused the Chinese production of PV and delayed shipments to other countries. Since March 2020, the PV production in China is going back to normal. Although ports in China may resume activities by taking necessary health precautions and ship PV products to the rest of the world, other ports around the world are unable to function regularly because they are closed or operating with reduced capacity. Thus, there is an impact on the whole renewable energy supply chain (The PV Magazine, 2020).

Rooftop PV represented 40% of the global solar PV market in 2018-19 and was expected to drive future growth (IRENA, 2020). This specific sector was hit hard by the economic slowdown that followed the COVID-19 outbreak and the resulting steps taken by governments and businesses. The strict confinement restrictions and social distancing make it hard for the rooftop installations where workers must work closely with each other to install arrays.

Regarding to wind energy supply chain, the production is mainly divided between Europe, China, and the USA. Denmark, Germany, China, and the USA are the major hubs for wind turbine production (Statista, 2020). The wind turbine production has been disrupted due to the strict confinement measures around the world. The first quarter of the year is usually the season for installations of wind turbines. However, due to the lockdown, the installations may be delayed or even paused because of the monsoon season, when wind turbine installations are at their lowest.

### 2.2. Sharp drop in fossil fuel prices

The clear economic slowdown accelerated the collapse of oil prices and the global energy demand. Also, the competition between major oil producing countries lowered the oil price to record levels. This sharp drop in oil prices could potentially make oil and other fossil fuels more attractive to some markets compared to clean renewable energy sources. For example, the low oil prices may make it less attractive for some people to shift from gasoline fueled cars to electric ones.

### 2.3. Inability to benefit from government incentives

The year 2020 is a milestone for many countries to reach their renewable energy targets. Also, major incentives will expire at the end of 2020. By the year 2020 the EU wants the member countries to produce 20% of their energy from renewable energy sources (Klessman et al., 2011), China (Li et al., 2019) aims for 15% of their total energy consumption to come from

non-fossil fuels, the USA solar tax credits for solar energy are scheduled to decrease by 4% (Cohen et al., 2020). Due to the lockdown caused by COVID-19, developers may not be able to commission their wind and solar energy plants by the end of this year, and thus, may not be able to benefit from government incentives and receive production tax credits.

#### ***2.4. Decrease in investment and uncertainty of the future electricity demand***

COVID-19 fears have rattled investors in many sectors and could negatively affect investments in clean energy. The future of energy demand is a major concern, the unprecedented economic impact and the uncertainty of the future electricity demand are likely to place additional stress on the renewable energy markets. The social distancing measures have forced industry conference organizers to cancel or postpone their activities, thus hampering networking and deal-making.

#### ***2.5. Lack of social acceptance surveys due to the lockdown***

Social acceptance is a major and essential requirement for the successful implementation and adoption of any technology, including renewable energy technologies (Wüstenhagen et al., 2017). At first glance, the public acceptance of renewable technology might seem unproblematic because several public opinion polls on people's attitudes toward renewable energies have reported high general acceptance of renewables (Eurobarometer, 2014). In actuality, policy makers face considerable local resistance and lack of support when it comes to the actual implementation of a project. Current social-distancing measures have made it harder for investors and developers to engage with communities.

The local residents' acceptance of renewable technologies in a specific region is important, not only to the renewable energy project itself but also to the successful implementation of the region's sustainable development projects (Rio and Burguillo, 2008). Therefore, the lockdown due to COVID-19 will cause delays in the commissioning of solar energy plants in the coming years.

### **3. Post COVID-19 era and the governments' role**

Governments need to play a central and crucial role to reduce the impact of challenges facing the drastic growth of renewable energies. Renewable energy development in the past decade proved that it could create millions of jobs, foster innovation and reduce air pollution. Thus, many governments should consider the transition from fossils to renewables and climate

change when designing the post COVID-19 economic stimulus packages and recovery plans.

Here are some actions governments may take to keep the momentum of the renewable energy deployment:

1. Include incentives and tax credits for renewable energy projects in any future economic recovery packages.
2. Postpone the deadlines for commissioning undergoing projects to 2021 or 2022.
3. Increase incentives for renewable energy innovation and energy efficiency to advance the clean energy transition and meet the Paris Agreement targets.

### **4. Conclusions**

The spread of COVID-19 and its subsequent social distancing policies have forced several solar and wind power plants to temporarily close. The impacts of COVID-19 on the renewable energy market will depend on the level of strict confinement, level of social distancing measures and the ability of governments to put the support of renewable energies in the heart of any future economic recovery plans. Easing social distancing measures is crucial for the continuation of distributed and small-scale rooftop PV projects. Regarding to large solar and wind projects, the postponement of deadlines and suspension of penalties for delayed projects are important to ensure that renewable energy developments are not negatively impacted.

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