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The impact of COVID-19 on renewable capacity developments

EXECUTIVE SUMMARY

The ongoing COVID-19 pandemic caused a major drop in global economic activity with its recovery starting to manifest itself gradually. Focusing in on Europe, the decrease in economic activity drove down power prices and electricity demand. With the recovery of economic activity taking shape, power prices and demand are recovering, too.

The adverse shift in market conditions can impact the development of renewables capacity installations. This is particularly given by the uncertainty concerning the future economic development, the dip in power prices and demand, and supply chain and operations-driven delays.

In this study we therefore examine how the avenue of renewable capacity developments has changed in light of the COVID-19 pandemic. The study is hereby focused on three renewable energy technologies, that is solar photovoltaics (PV), onshore wind energy and offshore wind energy, and eight regions, that is Baltics, Belgium, France, Great Britain, Netherlands, Nordics, Poland and Spain.

For each of the three technologies short-term and mid-term capacity developments are evaluated using the time periods of 2020 to 2021 and 2024 to 2025, respectively. In this regard, the analysis correlates changes in capacity additions and total capacity with absolute capacity additions using a graphical format.

AFRY's analysis unveils three underlying trends in market developments, that is (i) continued underperformance, (ii) recovery to pre-COVID-19 expectations and (iii) outperformance of prior expectations. The first trend is markets with lower capacity additions both in the short-term and mid-term. This is particularly observed for onshore wind energy, for instance in Spain. The second trend is markets characterized by a short-term dip in capacity additions, while in the mid-term both capacity additions and total capacity reach pre-COVID-19 projections. Particularly solar PV and offshore wind energy markets show this trend, for example in the Netherlands. Finally, the third trend is markets that experience a boost in capacity additions and thereby total installed capacity both in short-term and mid-term. This is particular present in solar PV and also in a few regions for onshore wind energy, for instance in the Nordics.

Hence, avenues in renewables development are shifting in light of the COVID-19 pandemic with desirable but also adverse outcomes depending on technology and region. It is therefore an imperative for investors to revisit their strategic focus and adjust it for the now, the next and the beyond.

SOLAR PV

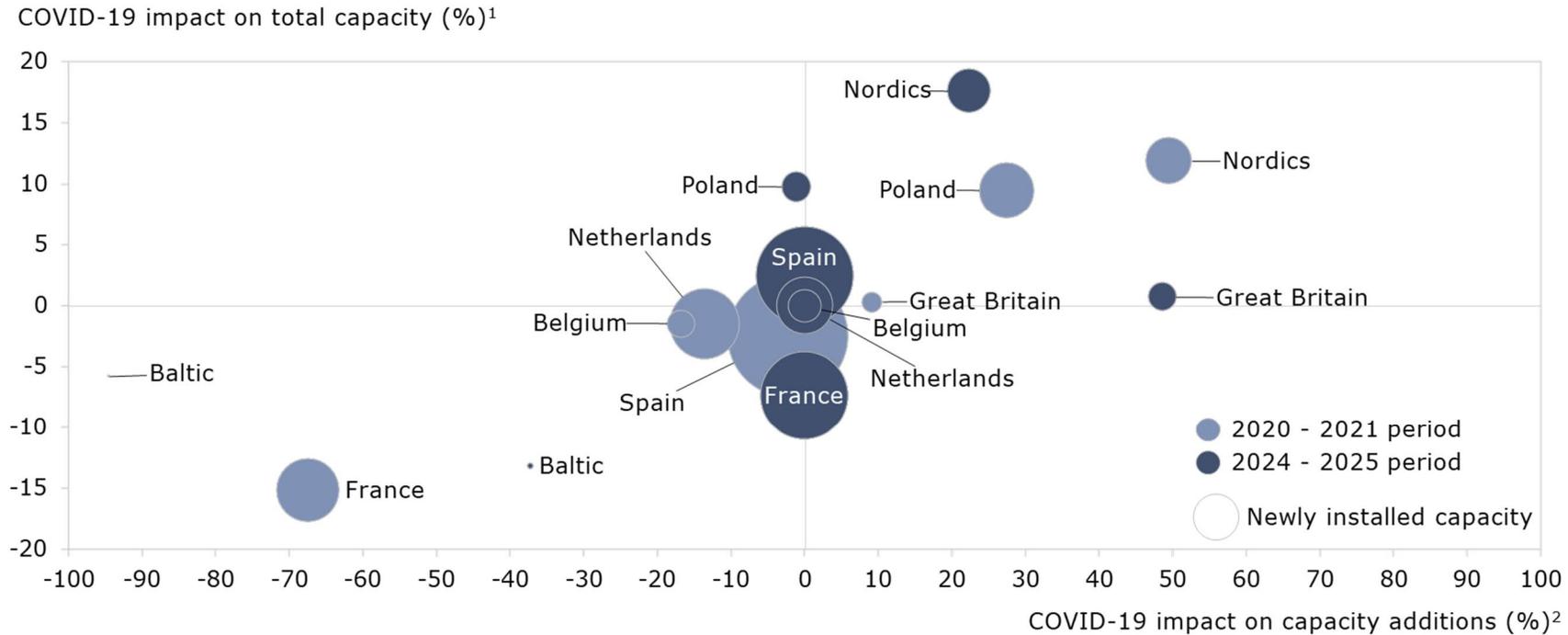
AFRY's analysis shows that in COVID-19 future capacity additions in solar PV gain in Nordics and Poland, dip in France, and are barely affected in the other investigated countries.

Figure 1 shows the evolution of solar PV capacity development in the selected regions in the COVID-19 future. Three KPIs are displayed and feed into our analysis. The first is the impact of COVID-19 on capacity additions. It is the percentage-wise change in projected capacity additions after COVID-19 occurred. Reference are capacity additions projected before COVID-19. The second KPI is the impact of COVID-19 on total installed capacity. It is calculated as the difference between total capacity projected with COVID-19 and total capacity projected before COVID-19, normalised with total capacity projected before COVID-19. The third KPI is capacity additions with COVID-19.

AFRY's projections show the following change in solar PV capacity installations in the COVID-19 future:

- Nordics solar PV capacity additions outperform pre-COVID-19 expectations in new additions and consequently also total installed capacity. Given its volume and growth rate the Nordics market is becoming an attractive investment opportunity.
- Solar PV in Spain remains a large market and is mostly untouched by the COVID-19 crisis. Total installed capacity in 2024-2025 period even surpasses pre-COVID-19 projections by 2.5%.
- New government incentives have transformed Poland into a booming market for solar PV installations. As a result, total installed capacity is up by 10% in 2024-2025 period.
- The Dutch solar PV market experiences a 14% dip in new capacity additions in 2020-2021 period. In 2024-2025 period both new additions and total installed capacity have reached the pre-COVID-19 capacity projections.
- Similar to the Netherlands, the Belgium solar PV market dips by 17% in new capacity additions in 2020-2021 period. In 2024-2025 period both new additions and total installed capacity have reached the pre-COVID-19 capacity projections.
- New capacity additions in Great Britain surpass expectations yet remain small compared to the already large installed capacity.
- French solar PV capacity additions drop by 68% in 2020-2021 period and recover to capacity additions projected before COVID-19 in 2024-2025 period. Nonetheless, total installed capacity is not recovered fully until then and remains 7.4% below pre-COVID-19 projections.
- Baltic solar PV market drops strongly and remains insignificant.

Figure 1: Solar PV capacity development in COVID-19 future.



¹ calculated as $(Capacity_{with\ COVID-19} - Capacity_{before\ COVID-19}) / Capacity_{before\ COVID-19}$, where $Capacity_{before\ COVID-19}$ is forecasts before COVID-19 pandemic for total installed capacity

² calculated as $(Additions_{with\ COVID-19} - Additions_{before\ COVID-19}) / Additions_{before\ COVID-19}$, where $Additions_{before\ COVID-19}$ is forecasts before COVID-19 pandemic for new capacity additions

ONSHORE WIND

AFRY's analysis shows that in COVID-19 future capacity additions in onshore wind gain in Great Britain and Nordics, and drop and then recover in the remaining of the selected countries.

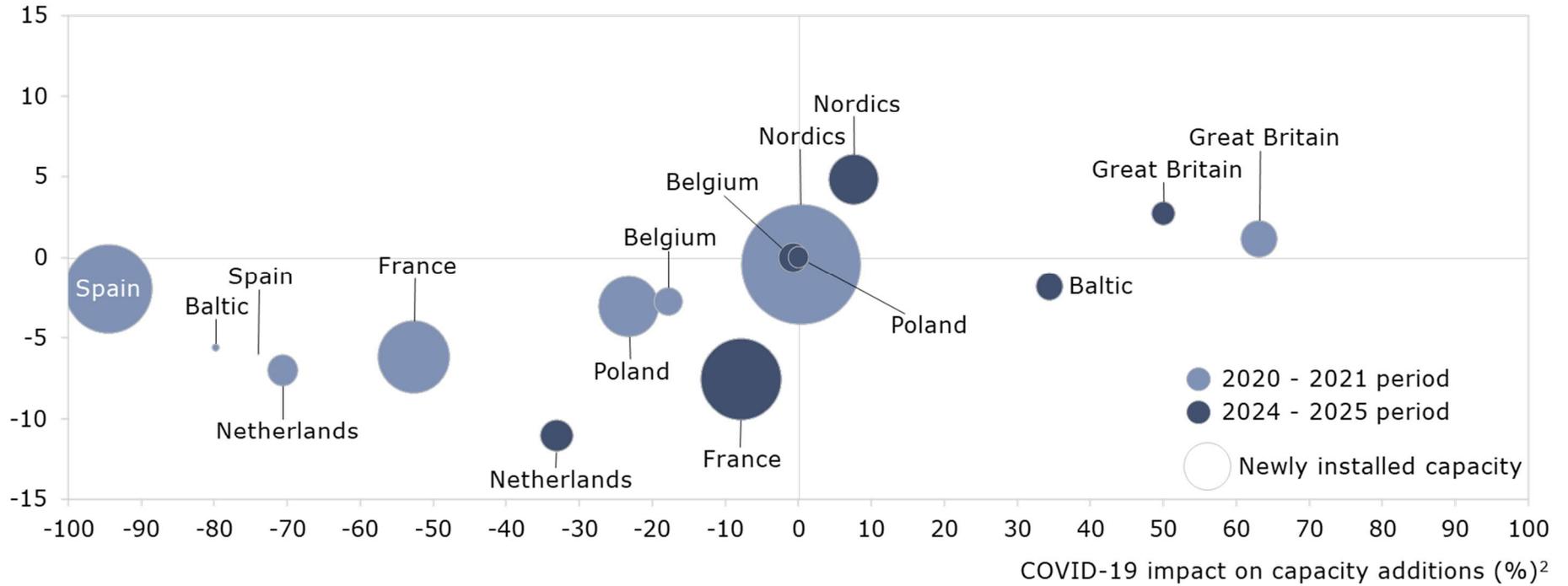
Figure 2 shows the evolution of onshore wind capacity development in the selected regions in the COVID-19 future. The same three KPIs are displayed as in the analysis of solar PV above. The first is the impact of COVID-19 on capacity additions. The second is the impact of COVID-19 on total installed capacity. The third is capacity additions with COVID-19.

AFRY's projections show the following key changes in onshore wind capacity installations in the COVID-19 future:

- In the Nordic region a good pipeline of attractive onshore wind projects drives further growth, while no impact of COVID-19 is observed. Significant differences in medium-term attractiveness between projects is expected due to strong price differences between price areas.
- Onshore wind additions are expected to increase in Great Britain by 50 to 63% throughout next 5 years. Absolute capacity additions are on par with the Netherlands, but smaller than in the Nordics or France.
- Polish onshore wind market dips slightly by 23% in 2020-2021 period, while still booming. By 2024-2025 period new additions and total installed capacity are on track again with pre-COVID-19 expectations.
- Market developments in Belgium are comparable to Poland. However, new capacity additions grow 10% from 2020-2021 period to 2024-2025 period. By 2024-2025 period new additions and total installed capacity are on track again with pre-COVID-19 expectations.
- In France, capacity additions drop by 50% in 2020-2021 period and recover to levels 10% below pre-COVID-19 expectations in 2024-2025 period. Nonetheless, total installed capacity remains 7% below pre-COVID-19 projections.
- In the Netherlands, additions take a significant hit of 70% in 2020-2021 period and are still 30% below pre-COVID-19 projections in 2024-2025 period. As a result, total installed onshore wind capacity is 11% below pre-COVID-19 expectations in 2024-2025 period.
- The Spanish market slumps by an enormous 95% in 2020-2021 period compared to pre-COVID-19 expectations. In 2024-2025 period, there is no new capacity additions. Consequently, total installed capacity is 6% below pre-COVID-19 expectations. Nonetheless, capacity additions are revived in the years after 2025.
- Finally, Baltic market is 80% lower in 2020-2021 period, but rebounds strongly in 2024-2025 period with 34% higher additions than expected before COVID-19. Total installed capacity is thereby only 1.8% below pre-COVID-19 expectations.

Figure 2: Onshore wind capacity development in COVID-19 future.

COVID-19 impact on total capacity (%)¹



OFFSHORE WIND

AFRY's analysis shows that in COVID-19 future capacity additions in offshore wind drop in all selected markets in 2020 – 2021 period, but losses are fully recovered until end 2025.

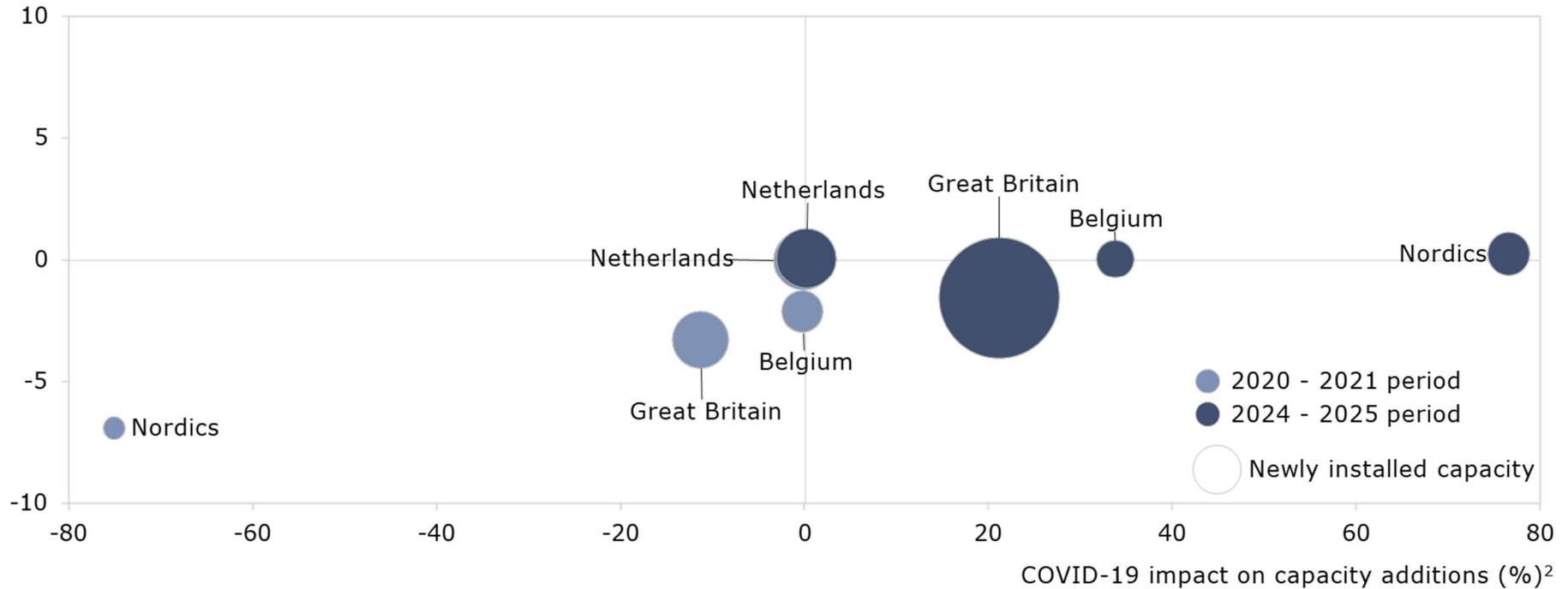
Figure 3 shows the evolution of offshore wind capacity development in the selected regions in the COVID-19 future. The same three KPIs are displayed as in the analysis of solar PV above. The first is the impact of COVID-19 on capacity additions. The second is the impact of COVID-19 on total installed capacity. The third is capacity additions with COVID-19.

AFRY's projections show the following key changes in offshore wind capacity installations in the COVID-19 future.

- In Great Britain offshore wind capacity additions dip slightly by 20% in 2020-2021, while remaining one of the largest of the selected markets. In 2024-2025 period capacity additions are up 20% compared to pre-COVID-19 expectations and are by far the largest in the selected markets. Total installed capacity is only 2% below pre-COVID-19 expectations in 2024-2025 period.
- The Netherlands remains an attractive market for offshore wind with no observable impact of COVID-19. Future capacity additions also depend on how the government is going to incentivise the next round for offshore wind energy.
- Offshore wind takes a 75% hit in the Nordics region in 2020-2021 period but recovers strongly with additions up by 76% in 2024-2025 period. Total installed capacity reaches same levels as expected without the effects of COVID-19 by end of 2025.
- In Belgium capacity additions in offshore wind remain solid until 2025 with no major impact of COVID-19 noticeable.

Figure 3: Offshore wind capacity development in COVID-19 future.

COVID-19 impact on total capacity (%)¹



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