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Germany's Easter package: Great green intentions

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Katharina Utermöhl
Senior Economist Europe
katharina.utermoehl@allianz.com

Markus Zimmer
Senior Expert ESG
markus.zimmer@allianz.com

EXECUTIVE SUMMARY

- **The starting shot for Germany's green transformation,** the Easter package announced last month calls for a near tripling of electricity generation from renewables by 2030.
- **But it is unfortunate timing for Germany's green ambitions to shift into overdrive:** The ambitious plans are likely to overwhelm German bureaucracy, and the prevailing context of heightened price pressures as well as input and labor shortages will mean Germany is likely to fall short of the near-term targets. Elevated costs and uncertainty call for additional sweeteners to ensure sufficient private sector financing to meet the investment needs up to 1% of GDP per annum.
- **There is a big reward for getting it right:** Germany's green transformation comes with significant growth and employment benefits. We estimate the additional value added from implementing the Easter package at 1.4 times the investment needs or 2.7 times the fiscal support needs. Meanwhile, more than 400,000 jobs will be created until 2032.

The Easter package: The starting shot for Germany's green transformation.

Five months after the formation of Germany's traffic-light government, the Minister of Economics Robert Habeck presented his 600-page "Easter package", the first comprehensive set of legislation to create the conditions for Germany's shift away from fossil energy – at least as far as greening electricity generation is concerned. Going forward, only electricity from wind, sun and biomass is to flow through German grids instead of nuclear power, gas and coal. The five pieces of legislation are to be voted on by the German Bundestag in the next couple of weeks.

The package envisages green energy accounting for 80% of gross electricity consumption in Europe's biggest economy by 2030, up from 42% now and a previous target of 65%. Meanwhile, domestic electricity generation is planned to be nearly greenhouse-gas-neutral by 2035, i.e., generated entirely from renewables. Germany is thus following the recommendation of the International Energy Agency (IEA) and drawing level with the ambitions of other OECD countries such as the US and UK, which are also aiming for a climate-neutral power supply by 2035.

But these are some ambitious targets. After all, assuming gross electricity consumption of 750 terawatt hours (TWh) in 2030, and to safely achieve the 80% expansion target, electricity generation from renewables will need to increase from just under 240 TWh at present to 600 TWh in 2030. At the same time, electricity demand is set to increase significantly due to the increasing electrification of industrial processes, heat and transport (sector coupling).

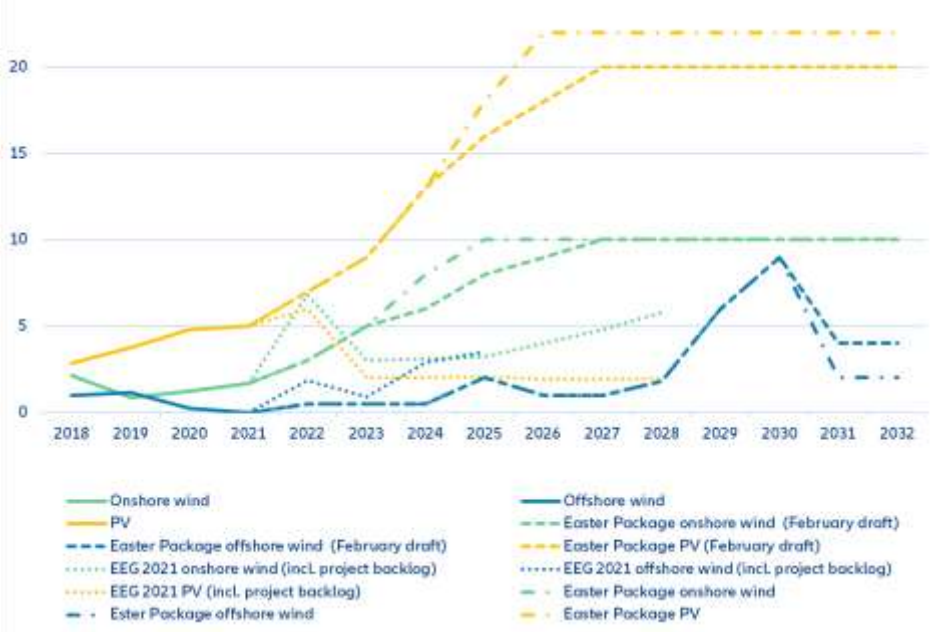
The Easter package also excludes heat and fuel, which together account for 80% of German energy consumption and continue to be produced predominantly from fossil fuels. As a result, it is only a first step, with further legislative proposals on energy efficiency in buildings and the reduction of greenhouse gas emissions in the transport sector to be expected later this year in the form of a "Summer package" and the "Masterplan Ladeinfrastruktur II" (masterplan charging infrastructure 2).

The invasion of Ukraine provides fresh urgency to greening plans.

In the context of the invasion of Ukraine, the pressure on Germany to reduce its reliance on Russian fossil fuels has clearly increased, adding additional urgency to its green ambitions. While the war in Ukraine has not led to an adoption of more ambitious long-term climate targets, the traffic-light government[1] has responded with an acceleration of the short to medium-term investment targets in renewables. Furthermore the war in Ukraine should also help provide more support to the cause within the government coalition as well as among the German population. Moreover, the Easter package includes some elements that should allow for swifter implementation. Most importantly, going forward, investments in renewables will be categorized under "overriding public interest", which should speed up planning and permit processes.

Figure 1 compares the renewable expansion plans of the previous German government (dotted line) with those of the current government before (dashed line) as well as after the invasion of Ukraine (dash-dot line). The reaction to the war (difference between the dashed and the dash-dot line) is planned to materialize primarily in additional onshore wind from 2024-2026 and additional photovoltaics from 2025 onwards. It should result in frontloading the full transition of the electricity sector from a climate-motivated 2045 to a Ukraine war-motivated 2035.

Figure 1: Comparison of pathways for renewable capacity addition



Source: Allianz Research

[1] [1] *A term referring to the colors red, yellow and green associated with the social democrats, liberals and greens in the coalition.*

But watch out for implementation challenges.

While the Easter package affirms that Germany is serious about its green transformation plans, it does not address some key concerns:

1) Implementation hurdles

In the past, planning bottlenecks have acted as stiff brakes for the expansion of renewable energy. While permissions could now become much less of a challenge, the remaining red tape around large-scale construction projects in Germany would still limit how fast renewables can expand, particularly if a sharp pick-up in projects overwhelms the capacity of public administration.

2) Supply-side bottlenecks

The moment to kick off an ambitious expansion of renewables could not come at a worse time from a supply-side perspective. After all, the entire supply chain for renewables, from steel to concrete to generators, has already been facing significant price increases.

In fact, with further disruptions likely as China continues with its zero-Covid strategy, Germany's green transformation could seriously stumble in the near term. While the upcoming revival of the Solar Valley located close to Leipzig in East Germany could ease supply bottlenecks, skyrocketing prices for basic materials and energy will still affect local panel production. The national wind power industry is also struggling despite the growing global market.

We see the biggest risks for expansion targets of onshore wind and photovoltaic, given that they are subject to the most ambitious targets – a six-fold rise by 2026 and a more than four-fold rise by 2027, respectively. To put these into perspective, in the case of photovoltaics, annual construction of 22 gigawatts in Germany would almost double the European market volume. Hence, further price increases and supply shortages are all but certain. Next to production inputs, the scarcity of craftsmen and construction workers could also make it tough to meet the targets.

3) Attracting the necessary funds

The German government may have fired the starting shot for the green transformation, but it needs the private sector to provide the financing. After all, additional investments to the tune of 1% of GDP per annum will be required. For now, in view of the high electricity prices, investing in solar seems profitable but, as explained, construction costs are also exploding.

Subsidies for wind and large solar PV installation capacities are determined by auctions and thus the auction results will reflect the changing market circumstances[2]. Indeed, compared to the end of 2021, the average subsidy for PV increased from 5.00 to 5.19 ct/kWh, but declined from 5.79 to 5.76 ct/kWh for onshore wind[3]. Hoping for lower future construction costs, investors are inclined to delay the implementation of the projects that won a bid. Bids have been falling on average in recent years, reflecting the cost reductions of renewable energy projects.

In such an environment, the project implementation will be delayed to the last possible moment to profit most from the cost declines. In 2018, this already led to a reduction of the implementation deadlines from 30 to 24 months, reducing the realization times accordingly.

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[2] Check here for upcoming auctions and auction results: https://www.bundesnetzagentur.de/DE/Fachthemen/ElektrizitaetundGas/Ausschreibungen/start.html

[3] The bids often only partially reflect the market situation as bid ceilings regularly led to auction volumes being undersubscribed.

Switching from a fixed subsidy per kWh to so-called electricity contracts for difference (CfDs) could increase the resilience of the electricity market against the price hikes we observe currently.

Another critique is that amid high electricity prices, renewable energy producers realize high windfall profits as they can sell at the high price without facing higher production costs. These profits are realized at the expense of consumers, burdening them unfairly. In the CfD regime, the producer of renewable energy receives a fixed so-called strike price for the electricity he sells. If the market price is below this strike price, the producer receives a subsidy to cover the gap from the strike price, but if the market price is above the strike price, the producer has to pay the surplus over the strike price to the agency handling the CfDs. In the current situation, that would mean that this agency would generate revenues that could be used to stabilize electricity prices, for example. Naturally, in such a CfD-based subsidy scheme, windfall profit does not accumulate in the first place, making the discussion about its redistribution obsolete.

However, subsidies alone won't do the trick. Additional reforms will be necessary, aimed at promoting investment, R&D and energy efficiency to ensure that the necessary costs associated with climate change can be covered. Yet, the Easter package remains mute on these issues.

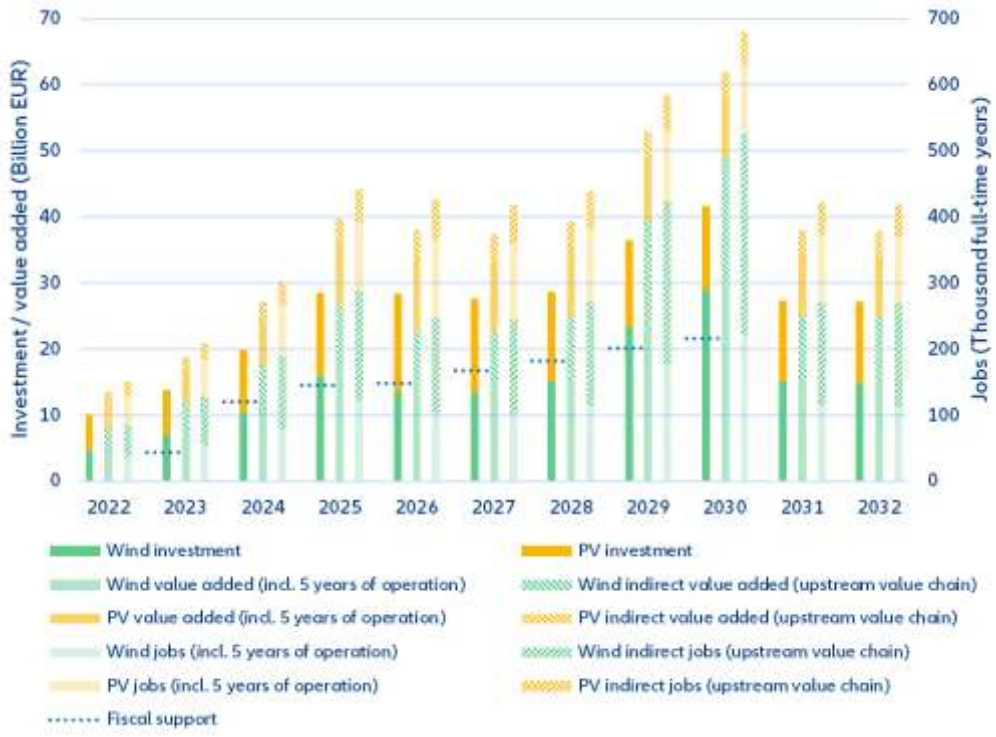
The reward for getting it right: A positive green tailwind to the economy.

If Germany can get it right, the transformation of its economy will come with significant growth and employment benefits. We estimate the additional value added to the German economy (direct and indirect – the latter concerns the upstream supply chains of the renewable energy investments) from implementing the Easter package at 1.4 times the investment needs or 2.7 times the fiscal support needs in photovoltaics and wind (Figure 2). Meanwhile, on average, the renewable expansion could generate an additional 409,000 jobs until 2032.

Our analysis includes the near-term economic benefits for the first five years of operation of the installations. Their contribution to value added varies between 37% for free field PV and 52% for offshore wind[4]. The investment volume will surpass 1% of current GDP at the end of the decade. In Figure 2, the total economic effects are strictly allocated to the year in which the expansion is planned in the legislation, and in which, for example, the capacities are auctioned or allocated to project founding programs. In practice, these effects will be smoothed out over time. Firstly, as mentioned above, projects are not necessarily realized right away in the year of the auctioning and secondly, operation effects are by our definition spread out over five years. Summing up, the national economic benefits largely surpass the fiscal benefits. Arguably including just five years of operational benefits implies a rather conservative lower bound evaluation and including up to 20 years of operation benefits could be justified. In addition, our analysis does not include the benefits for international suppliers, which would further increase the value added effects from a global perspective.

Figure 2: Economic effects of the Easter package's accelerated wind and PV expansion

[4] The methodological approach in most studies is very similar and our approach is similar to for e.g. BDEW (2020) "Konjunkturimpulse der Energiewirtschaft - Methodik und Ergebnisse einer Input-Output-Analyse einschließlich regionaler Effekte" but typically varies in the inclusion of the economic benefits for the operation of the installations as well as the inclusion of so-called induced effects on top of indirect effects. Unlike our analysis, the BDEW study excludes operation benefits but includes induced effects and thus arrives at smaller effects. Our methodological approach is therefor closer to Hirschl et al. (2010) "Kommunale Wertschöpfung durch Erneuerbare Energien" and Hirschl et al. (2015) "Wertschöpfung durch Erneuerbare Energien - Ermittlung der Effekte auf Länder- und Bundesebene" which include operating effects for 20 years and thus arrive at larger effects than our estimates.



Source: Allianz Research.
Note: Fiscal requirements are listed in Table 1 in the Annex.

ANNEX

Table 1: Fiscal requirements

(Billion EUR)	2023	2024	2025	2026	2027	2028	2029	2030
Investments after EEG 2021	4.4	12	14.4	14.3	14.7 - 15.7	14.9 - 16.1	15.1 - 16.5	14.4 - 15.9
Onshore wind energy investments (EEG 2023)	0	0	0	0.1	0.5 - 0.9	1.1 - 1.7	1.8 - 2.5	2.8 - 3.7
Photovoltaic investments (EEG 2023)	0	0	0	0.1	0.5 - 0.9	1.1 - 1.7	1.8 - 2.5	2.8 - 3.7
Financial participation of municipalities (EEG 2023)	0	0	0.1	0.3	0.4	0.4	0.5	0.5
Total	4.4	12	14.5	14.8	16.1 - 17.4	17.2 - 19.3	18.8 - 21.4	20.2 - 23.0

Source: Allianz Research

These assessments are, as always, subject to the disclaimer provided below.

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