

Hitting the accelerator: Germany's race to 215GW

Germany | Germany's new rainbow coalition has hit the accelerator on solar deployment in the country, setting the ambitious aim of reaching 215GW of installed capacity by 2030. Jules Scully speaks to policy makers and developers alike to discover just how the market can reach that goal.



Credit: Enerparc

A 30MW solar project from Enerparc in Germany.

With already more than one-third of the European Union's (EU) installed solar capacity, Germany is set to supercharge PV deployment in the coming decade as the new government seeks to accelerate the decarbonisation of the country's electricity sector while lowering energy imports.

Before the new coalition government – comprising the centre-left Social Democrats (SPD), Greens and neoliberal Free Democrats (FDP) – was sworn in in December, its plans to speed up the energy transition had already been revealed, including a target of having 200GW of solar installed by 2030, by which time renewables should provide 80% of the country's electricity.

The government has since raised that goal even higher, aiming for 215GW of deployed solar by 2030 as part of measures included in the so-called Easter package.

The initial 200GW target was warmly welcomed by the country's renewables industry, with the managing director of solar trade body Bundesverband Solarwirtschaft (BSW), Carsten Körnig, at the time describing the coalition's agreement as a "solid launchpad for the successful solarisation of Germany's energy supply".

Having deployed 4.8GW of solar in 2020, Germany added 5.3GW last year, taking the country's total installed capacity up to 59GW, according to figures from BSW. Some 22GW will need to be added annually by 2030 to reach the government's new target.

Attention has now shifted to the policies required to support the PV sector reach the new deployment ambition amid a heightened focus on energy security following Russia's invasion of Ukraine.

A recent report from SolarPower Europe (SPE) revealed that Germany's solar sector has been experiencing a second boost as of 2018, thanks in part to self-consumption with attractive feed-in premiums for medium- to large-scale commercial systems and auctions for projects up to 10MW.

The country currently has two tenders for larger solar projects: one for ground-mounted plants between 750kW and 20MW and another for rooftop systems between 300 – 750kW. Christophe Lits, junior market analyst at SPE, says the ground-mount tenders are supporting the higher growth, having awarded 1.6GW of capacity in 2021 and planning to allocate a further 3.6GW this year.

In addition to those, the country also has a technology-neutral innovation tender and a solar innovation tender, for segments such as floating PV, carports and agriPV.

After the government recently revealed it would bring forward plans for renewables to account for all of Germany's electricity needs by 2035 as well as speed up the passage of the country's Renewable Energy Sources Act (EEG) through parliament, there have been solar industry calls for an increase in auction volumes to support new projects.

Tender volumes

David Johann, head of sales Europe and new markets at solar developer and EPC provider Belectric, says the target means Germany "must go back to a more subsidised market to give the security to the financing banks and to the investors". He believes the proportion of solar projects in the country backed by auctions will increase.

With recent rising costs, Johann says project Capex is now comparable to 2018. "And at that time, we had higher subsidies to achieve lower targets."

According to Stefan Müller, COO at developer Enerparc, companies without much equity tend to participate more in Germany's solar auctions, which he says are "easy to finance because the government backs you up with the amount which you participate. So that means here you see a lot of energy communities" taking part.

In terms of projects with power purchase agreements (PPAs), Müller says these are generally suited to players with strong equity back-up, "such as Vattenfall, EnBW, Statkraft, all the big utilities".

As well as posting winning bids in auctions, Enerparc has secured PPAs for PV projects in Germany in recent years, with offtakers including Statkraft and utility RWE. The latter deal, announced in December, will see RWE market electricity



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produced from a 57MW solar project from Enerparc in the state of Hesse, with the companies touting the potential of PPAs to allow more flexibility in terms of location while speeding up development.

As of this year, RWE is also sourcing electricity from a solar project in the northern state of Mecklenburg-Western Pomerania and supplying it to Volkswagen through a ten-year PPA.

In a statement sent to PV Tech Power, RWE said that as Germany is the only industrialised country where both nuclear energy and coal will be replaced, the company sees “huge potential” for its renewables sector. In the short term, the utility is planning to open seven new offices and hire 200 employees who will work exclusively on project development.

Lits of SPE says large-scale solar PPAs remain an “emerging trend” in Germany. “However, as many utilities and investors are active in the segment, we can anticipate that it will grow and become a pillar for solar PV’s development in the country in the coming years.”

Indeed, German renewables developer BayWa r.e. recently announced that one of its targets for 2022 will be an increased focus on subsidy-free projects, set to be realised through PPAs with corporations.

Germany may also launch a contracts for difference (CfD) scheme, which “is probably for investors who want to think a bit bigger, but want to be on the safe side”, says Enerparc’s Müller. He believes the mix of auctions, PPAs and CfDs “is a good combination because this will attract

Belectric’s 172MWp Tramm-Göthen project in the state of Mecklenburg-Western Pomerania.

international investors because they know what CfDs are”.

The outlook for merchant solar in Germany isn’t as promising as other options, according to Johann of Belectric, who believes project financing could be an issue for that segment. In general, he says solar equity and debt capital providers “need securities to keep or lower their return expectations” and become less risk-averse, adding: “It’s a big challenge. If there is no change, then that target will not be achieved.”

Hurdles to overcome

As in other markets across Europe, solar project permitting in Germany remains a headwind that proves problematic for developers aiming to speed up deployment.

In a recent press release from the Association of Energy Market Innovators (BNE) welcoming that new draft legislation aims to decarbonise the electricity sector by 2035, the trade body called for a significant increase in tender volumes as well as faster grid registration and connection for new PV plants. “It is unacceptable that you have to wait months for a PV system to be connected to the grid,” BNE CEO Robert Busch said at the time, adding that a maximum of four weeks is “acceptable”.

Solar permitting processes, however, have been accelerated in some areas given the increased focus on energy security following Russia’s invasion of Ukraine.

While developers such as Enerparc previously encountered some opposi-

tion to new PV plants from local residents aiming to block their construction, Müller says such opposition “is off the table from one day to another” since the war began in February.

“We’ve had community hearings and even mayors calling us now and saying, ‘In the last hearing a few people were against it, but this is different, we want to be part of being independent from Russia, so you can have this piece of land.’ This is really great.”

Despite this positive development for the industry, other solar players in Germany contacted by PV Tech Power have yet to witness such efforts to speed up project permitting.

According to Johann, while people often say they want to contribute to tackling climate change and increasing climate security, when it comes to permitting “there are many people against” authorising new projects. This is said to be an issue especially impacting ground-mount installations.

Belectric has yet to see a change in mindset among German municipal governments in terms of solar permitting, Johann says, adding that opposition to new projects can come from environmentalists, archaeologists and even hunting organisations concerned about the impact a PV plant might have on animals. “It’s unbelievable” that so many other things are considered more important than clean energy, he says.

Alongside struggling to secure consent for new projects, Johann believes the main

challenge for Germany's solar sector will be grid infrastructure, with upgrades already too slow to keep up with current levels of deployment. "We get sites where we have a very long transmission line – 10km to the next grid connection point – so we cannot use the closest one, and that makes grid costs expensive."

An additional challenge the sector faces is a skills gap, as solar companies battle to secure the best talent from a limited pool of qualified candidates. SPE research published last year revealed that Germany had 79,000 full-time equivalent (FTE) solar jobs in 2020, the majority of which worked in the rooftop segment. The report's medium scenario forecasts that the country will have 137,000 FTE solar jobs by 2025, when a significantly higher proportion will be employed in the utility-scale sector.

Workforce development is an issue that people tend to underestimate, according to Müller, who says "it's really difficult to find good people". As a result, Enerparc has stopped its activities in some Nordic markets, instead opting to focus on five countries: Germany, France, Spain, the Netherlands and Portugal.

As of February, Germany's unemployment rate was just 3.1%, compared with 11.9% in Greece and 12.6% in Spain, according to European Union figures. This means it can be difficult to get workers in Germany to change jobs, says Vittorio Van Ginderdeuren, director for Germany at developer ib vogt, who has called on the country's solar sector to educate people about the PV industry and encourage them to join its growing workforce.

"We find it very challenging to find enough people, either to hire or to work with," he says. "We have a restricted pool of people that we're trying to tap into, and the challenge is to grow that pool of people to be able to increase the speed of development." Positions such as project managers and originators are said to be especially difficult to find candidates for.

Van Ginderdeuren, however, is bullish about the ability of Germany's solar sector to secure enough land to reach the government's solar target, thanks to regulations that allow for projects backed by PPAs to be constructed on low-value agricultural land. "For example, in the Brandenburg area you have huge areas of land which is very sandy, and that's perfect land for PV."

Earlier this year Germany's government launched an initiative to support the dual use of some areas for both power produc-

tion and agriculture. Under the proposals, moorland used for agriculture could be used to install solar projects as long as the land is eventually restored.

AgriPV and rooftop systems

Among its ten solar predictions for 2022, BloombergNEF (BNEF) forecasted that agriPV will start to properly be understood for commercial purposes. While noting that such projects make planting and harvesting more difficult, the research organisation said agrivoltaics is currently "something of a buzzword in solar circles" as it predicted progress will be made this year in choosing optimal applications.

Miguel Herrero, senior policy advisor at SPE, believes the most important part of Germany's new agriPV push is a proposal to allow multiple land use to be possible

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with PV projects. He says many EU member states don't recognise that agriPV projects should be eligible for Common Agricultural Policy subsidies for the reason that the project is no longer considered agricultural land.

If it is recognised in law that PV plants can also be agricultural land, Herrero says this will give developers and farmers "the clarity and the legal and investment certainty that they will actually be able to go ahead with their project".

Despite the significant potential of using more agricultural land for solar, concerns have been raised that Germany's tender mechanism will bundle agriPV and traditional ground-mount projects together.

BSW generally welcomed the government's agriPV proposals, but said that due to the additional costs when constructing plants on farmland, auctions should be separate. A similar view is taken by the German Renewable Energy Federation (BEE), the umbrella organisation for renewables associations in Germany, which said agriPV would have no chance to compete if bundled with conventional PV in auctions.

BEE head of politics Sandra Rostek says that although the proposal to combine agriculture with solar is a "very positive development", bureaucratic hurdles mean that for the time being "no more than 1GW

per year will come from this segment, which is good, but it's obviously not enough".

Amid potential challenges in securing suitable land, BSW estimates that less than 1% of Germany's area will be required for ground-mount projects to meet the government targets. The trade body predicts that about half of the solar expansion by 2030 will come from ground-based plants and half from rooftop solar.

As well as pledging to slash red tape for rooftop PV, the three parties said in their coalition agreement last year that "all suitable roof areas are to be used for solar energy in the future", making it mandatory to install PV on new commercial buildings and the norm for new private buildings.

According to SPE, law changes last year made investments in residential and small commercial systems more attractive after a self-consumption levy was removed. The residential segment is expected to grow at a "reasonable pace", says SPE's Lits, adding: "The increase in solar system's price is somewhat counterbalanced by the rise in electricity price and we see households are willing to make the investment to reduce their electricity bill."

The commercial and industrial (C&I) segment, however, has been penalised by the introduction of a new rooftop tender as of last year, which led to a decline in installations. According to Lits, discussions are now underway to increase the threshold under which rooftop systems must participate in the tender.

BSW has warned current government proposals to support rooftop PV fall short, while Enerparc's Müller says that although the C&I segment is quite untapped, the market "at the moment is really very challenging for company owners who want to focus on own consumption because the bureaucracy is very high".

Measures to boost both rooftop and ground-mount solar were included in the government's Easter package. But while industry players continue to push for additional policy support, there is a recognition that the government is helping to set up the industry for significant growth.

"They are very dedicated. And I must say, I'm really positively surprised that they're not just talking, but they're really doing," says BEE's Rostek, who believes more work still needs to be done on the policy front. "We're not yet 100% convinced that the measures that have been taken will be enough."