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Renewables Summit

Berlin 2022

EVENT HIGHLIGHTS

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BACKGROUND
ENERGIE & KLIMA

NEW REALITIES: IMPACT OF THE NEW GERMAN 2030 CLIMATE TARGETS AND THE RUSSIAN GAS CRISIS ON THE RENEWABLES SECTOR

Tuesday 24 May | Berlin-Brandenburg Academy of Sciences



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DEAR FRIENDS AND COLLEAGUES

It was wonderful to welcome you to the Renewables Summit Berlin 2022. For us, it marked one of the first occasions to meet in person again after a long time, and it was great to see the buzz in the room with such a passionate and knowledgeable group of energy enthusiasts.

We have received great feedback following the event. Firstly, that it was great to meet up again with so many friends and colleagues, both new and old, but also to have the opportunity dive deep into the issues facing the renewables sector today.

The context in which we met was shaped by two particularly challenging questions: How to adapt energy and security policy in light of the Russian war in Ukraine, and how to address the climate crisis. The fundamental element of any answer to both questions, are renewable technologies: to reduce dependency on Russian energy and to decarbonise the economy.

During the Summit, we went beyond discussing ambitious government targets, tackling the consequences of phasing out Russian gas, how to unlock the enormous growth potential for wind and solar, as well as which regulatory and infrastructure constraints need to be addressed for low-carbon hydrogen in industry to be drastically increased in scale.

Since the pandemic, virtual meetings have provided a great way to stay connected. However, live events facilitate in-person discussions and foster even deeper discussions, helping to grasp the complexity of the challenges and approaches to address these. We will not aim to reflect all of these in this Highlights Pack and instead we hope that this summary helps you to distil the main insights of the day.

During the Summit, despite the challenging context, we felt a strong commitment to move forward with renewables buildout and optimism among participants. Current events only reinforce policy support for rapid deployment of renewables. However, there are severe practical challenges concerning grid integration and regulation for renewables and hydrogen to be addressed by the energy industry and policymakers. Though positively, the Summit showed that there is also a broad consensus amongst stakeholders on what needs to be done to mitigate these obstacles.

During the Summit, despite the challenging context, we felt a strong commitment to move forward with renewables buildout and optimism among participants.

As well as thanking all of our delegates, who contributed to the lively discussion and debate, there are people who deserve our thanks for the critical role that they played in delivering this event.

We were honoured to be joined by such a brilliant group of thought provoking, insightful and engaged guest speakers. A big thank you to Sven Utermöhlen, Thomas Fureder, Stefan Müller, Marie-Luise Pörtner, Sebastian Vogel, Antoine Aslanides and Daniel Breuer. I would also like to extend our thanks to our partners: We were delighted to work with our premium partners Osborne Clark and our media partner Tagesspiegel, and wish to thank them for helping to make a success of the Summit.

Finally, a massive thank you to the team at Aurora, including the panel chairs and keynote speakers, for their collective diligence, commitment, and good humour.

We look forward to welcoming you again at other Aurora events throughout the year to continue the discussion!

DR. MANUEL KOEHLER
MANAGING DIRECTOR,
GERMANY, AURORA



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PROGRAMME HIGHLIGHTS

AURORA KEYNOTE

SHORT TERM PAIN AND LONG TERM GAIN? – CONSEQUENCES OF THE RUSSIAN GAS CRISIS FOR GERMANY'S NET ZERO TRANSITION

Speaker:

Jan-Lukas Bunsen, Head of Research Central Europe, Aurora

Brief summary:

The war in Ukraine has forced Germany to address its dependency on Russian energy imports. This applies in particular to gas, 60% of which was imported from Russia before the war. At the same time, Germany must achieve ambitious decarbonisation targets, including a coal phase-out. This keynote explored this challenge through three questions:

- What would happen in the event of a sudden halt in gas supplies from Russia?
- What are the medium-term scenarios for German gas supply?
- What are the implications for renewable energy in Germany?

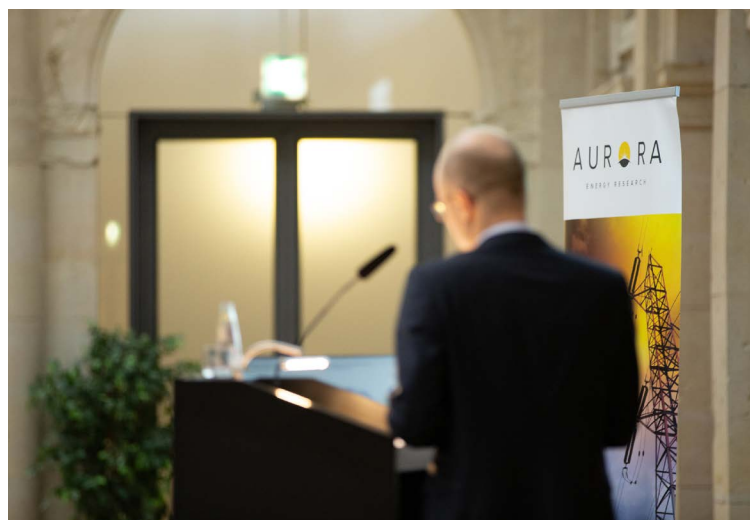
If Russian gas supplies were to be turned off, there would be a supply gap of 5 to 13% in winter. The necessary demand reductions by industry would probably lead to gas prices of over 200 EUR/MWh. Germany could only become independent of Russian gas in the medium term, once sufficient import terminals have been built for a switch to LNG. Gas prices could then stabilise at more than double pre-crisis levels. However, a complete phase-out of Russian gas imports should not be taken for granted: In a "continued flow" scenario, we expect gas prices of EUR 25/MWh. Similarly, a reduction in gas demand in line with the REpower EU package would limit long-term prices.

To limit gas demand growth, Germany has set ambitious targets for 2030, aiming for an 80% share of renewables. Economics is not the main obstacle to achieving this goal: higher LNG prices and rising electricity demand mitigate the cannibalisation of renewable feed-in prices. Even in a decarbonised electricity market, price erosion is unlikely because flexible technologies with high marginal costs will determine the price.

To achieve the target, wind power growth rates will need to triple and solar power growth rates will need to quadruple. This is a challenge given a constrained supply chain problems related to permits and approvals, and grid expansion.

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PANEL DISCUSSION

THE ROAD TO 2030 - KEY CHALLENGES TO GERMANY'S 80% RENEWABLES TARGET

Chair: **Casimir Lorenz**, Principal, Aurora

Panellists:

Marie-Luise Pörtner, Managing Director, BayWa r.e. Wind

Sven Utermöhlen, CEO Offshore Wind, RWE Renewables

Stefan Müller, Co-founder & COO, Enerparc AG



Brief summary:

Comparing historical renewable expansion rates with those of the current government's plan, it is clear that they are up to four times higher. This presents a formidable challenge for renewable energy developers in Germany. The panel discussion addressed these challenges for several technologies, including PV, offshore wind and onshore wind.

For offshore wind, the biggest challenge is the proposed market design in the government's recent Easter Package (Osterpaket). The proposed contract for difference (which would apply to already developed areas) does not include indexation to inflation, which is a risk for investors, especially given the current situation. For areas that are not yet developed, the possibility of an unlimited negative bid component will reduce the attractiveness of developing and investing in German offshore wind and could slow build-out rates. For onshore wind, the main constraint is the slow approval process, which takes more than 5 years. Even if new land were available immediately, an increase in build-out rates would not be expected until after five years. Therefore, not only does new land need to be available, but the approval process would also need to be significantly accelerated.

PV currently faces supply chain disruptions that result in project freezes and create incentives for developers to build-up large stocks of panels and building material that is missing for other market participants. There are varied estimates of whether the required build-out can be achieved. While the outlook for solar PV is positive and the industry should be able to meet expectations, onshore wind is not expected to overcome the challenges and achieve the desired level of expansion unless a radical change in the permitting process can be achieved.

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PRESENTATION & INTERVIEW

GREENWASHING, GREEN, GREENER - A LEGAL PERSPECTIVE ON PPAS

Speakers:

Thekla von Bülow, Principal, Aurora

Daniel Breuer, Partner, Osborne Clarke

Brief summary:

In this session, Daniel Breuer, Partner, Osborne Clark, assessed the development of the PPA market in Germany over the last two years. On the demand side, corporates are showing increased interest in PPAs to realize decarbonisation ambitions. Creditworthiness is perceived as the major hurdle for the broader range of corporate offtakers to become active in this space. On the supply side, strong subsidies in place in Germany are cannibalising supply potentials for PPAs. However, with the current market environment and its high prices, a lot of projects are opting out of the subsidy scheme to go merchant or close PPAs.

Together with Thekla von Bülow, Aurora, Daniel discussed the requirements around the quality of green power. While for electrolyser projects, the criteria around additionality, local and temporal correlation are now clearly set by EU regulation (Delegated Act), industrial players and corporates are mainly setting the rules themselves. Regulatory frameworks for corporate decarbonisation could potentially be developed, posing a risk for corporates closing long term PPAs, which might not fulfill stricter criteria in the future (e.g. cross-border PPAs).

Finally, Thekla and Daniel discussed recent trends on PPAs in Germany. One of which includes baseload PPAs, which have seen increased interest from corporate offtakers as they prove to be easier to integrate into the power procurement strategy. The other trend discussed is around virtual PPAs – while the European PPA markets have seen mostly physical PPAs in their early stages of maturity – virtual PPAs are now increasingly seen as contractually less complex and thus with less transaction cost and quicker transaction closing.



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AURORA KEYNOTE

SCALING UP THE HYDROGEN ECONOMY - OPPORTUNITIES FOR RENEWABLES

Speaker:

Hanns Koenig, Head of Commissioned Projects
Central Europe, Aurora

Brief summary:

Hydrogen will be indispensable for the decarbonisation of the European economy: Germany alone will need up to 300 terawatt hours of green hydrogen to achieve this by 2050.

For project planners and operators, this raises the question of the optimal business model. In this keynote speech, we presented hydrogen production costs as well as the profitability of different combinations of renewable power generation and electrolyzers.

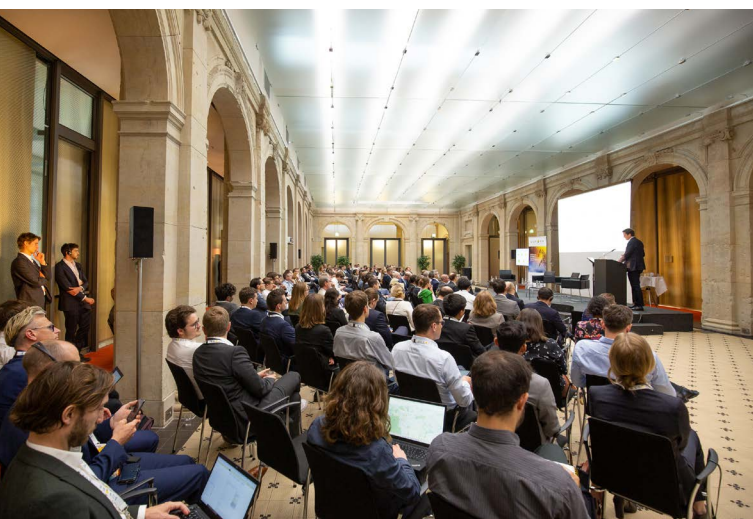
By 2025, the average cost of producing green hydrogen using a combination of renewable power generation plant and electrolyser (co-location) could drop to around 5 EUR/kg. Given the current German climate policy (GHG quota, CCfDs), it can be expected that industrial customers will be willing to pay this much, or more, in the next ten years. With hydrogen prices above 5 EUR/kg, onshore wind power projects are more profitable when combined with an electrolyser instead of selling the electricity purely at market prices. For solar, the profitability advantage of co-location is lower.

Maximum project profitability is achieved when wind and solar plants are combined with an electrolyser; if, in addition, the electrolyser is dimensioned rather small compared to the capacity of the renewable plants (e.g., 50MW wind+50MW photovoltaics with 20MW electrolyser), the lowest hydrogen production costs can be achieved.

If electricity from green power supply contracts (PPAs) is used to generate the hydrogen instead of co-location, the locations for the renewable plants can be optimised and the electrolyser can be built closer to the consumers; this reduces the costs for hydrogen transport further, and potentially also for hydrogen storage. Taking into account lower hydrogen transportation costs, grid-based hydrogen production is thus currently cheaper for industry.

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PANEL DISCUSSION

HYDROGEN READINESS FOR INDUSTRY - HOW DO WE RAMP UP HYDROGEN INFRASTRUCTURE AND REDUCE GAS DEPENDENCY?

Chair: **Thekla von Bülow**, Principal, Aurora

Panellists:

Antoine Aslanides, Chief Executive Officer, Hynamics Germany

Thomas Fureder, Managing Director, Barclays Investment Bank

Sebastian Vogel, Head of Hydrogen Strategy, RWE Generation



Brief summary:

This panel discussed the ramp up of the hydrogen economy in Germany. In the RePower EU programme announced in the week prior to the conference, hydrogen is playing a key role to achieve independence of Russian gas in light of the invasion of Ukraine. The plan includes making available 20 million tonnes of hydrogen annually by 2030. Half of which is to be produced within the EU, which would require 123 GW of electrolyzers installed by 2030.

The panel discussed how far the hydrogen economy will evolve locally, catering existing hydrogen demand (e.g. refineries) versus the development of the cross-European backbone. The war in Ukraine and the planned independence of Russian gas will require gas imports via LNG terminals in the North Sea. Natural gas pipelines in North West Germany will be needed for gas transport rather than being converted to hydrogen pipelines. The business case for greenfield hydrogen pipelines however, is highly dependent on securing early stage demand volumes and clarity on grid regulation. In the up-stream sector, the electrolyser projects planned in Europe now have more clarity around the requirements of the green power through the Delegated Act Art. 27 (RED II), which was published in mid-May 2022. While the panellists interpreted the guideline to be creating substantial difficulties in the sourcing for electrolyzers, especially with respect to additionality and temporal correlation of green power, the exemption of electrolyser projects commissioned before 2027 was welcomed.

Finally, the panel tackled the issue of hydrogen pricing, with a general consensus that the further buildout of hydrogen would result in the price not exceeding the mid-30s.



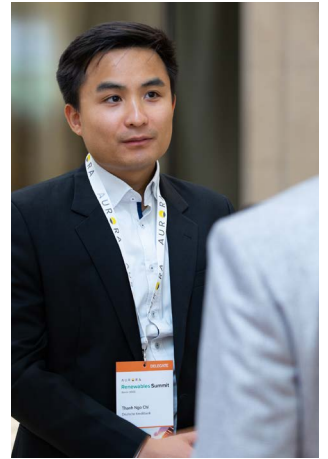
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PHOTO GALLERY



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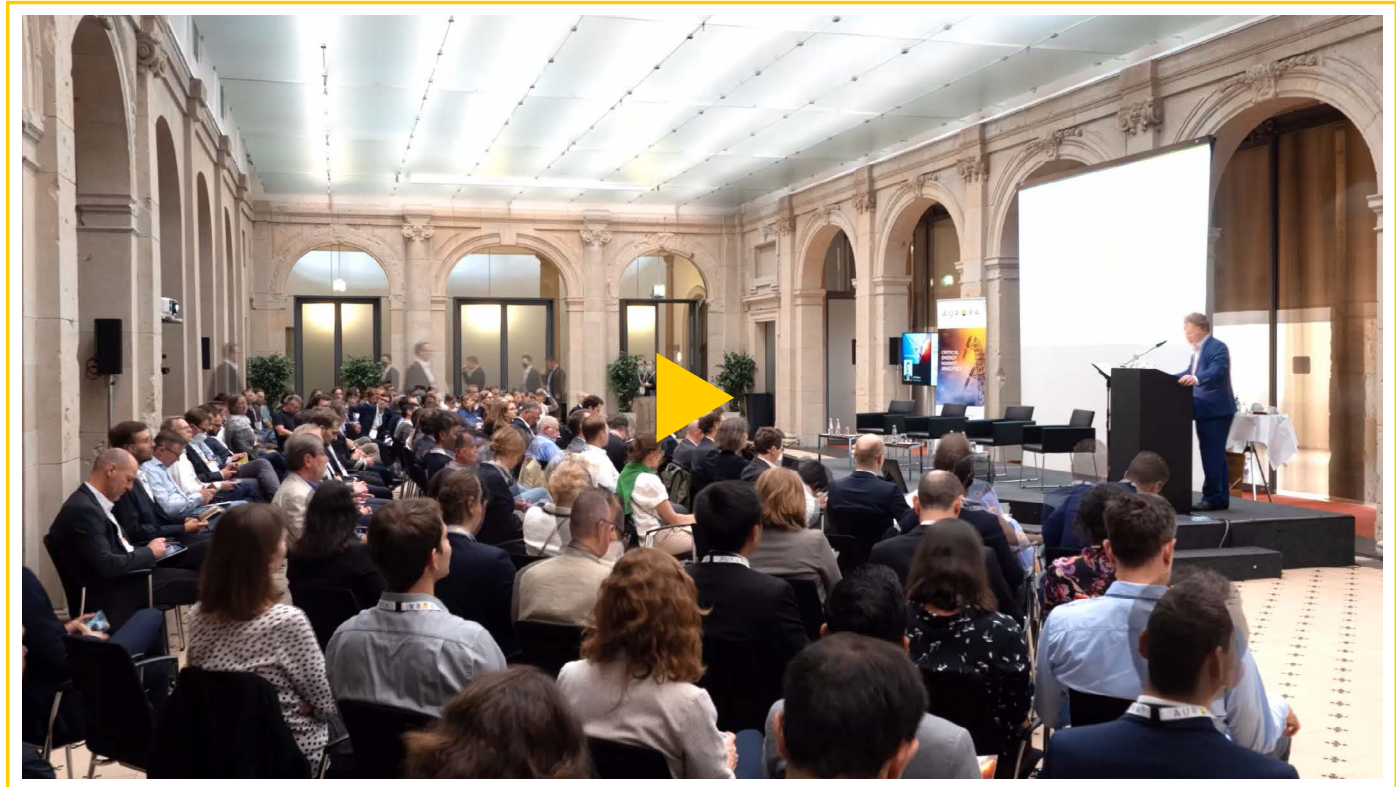
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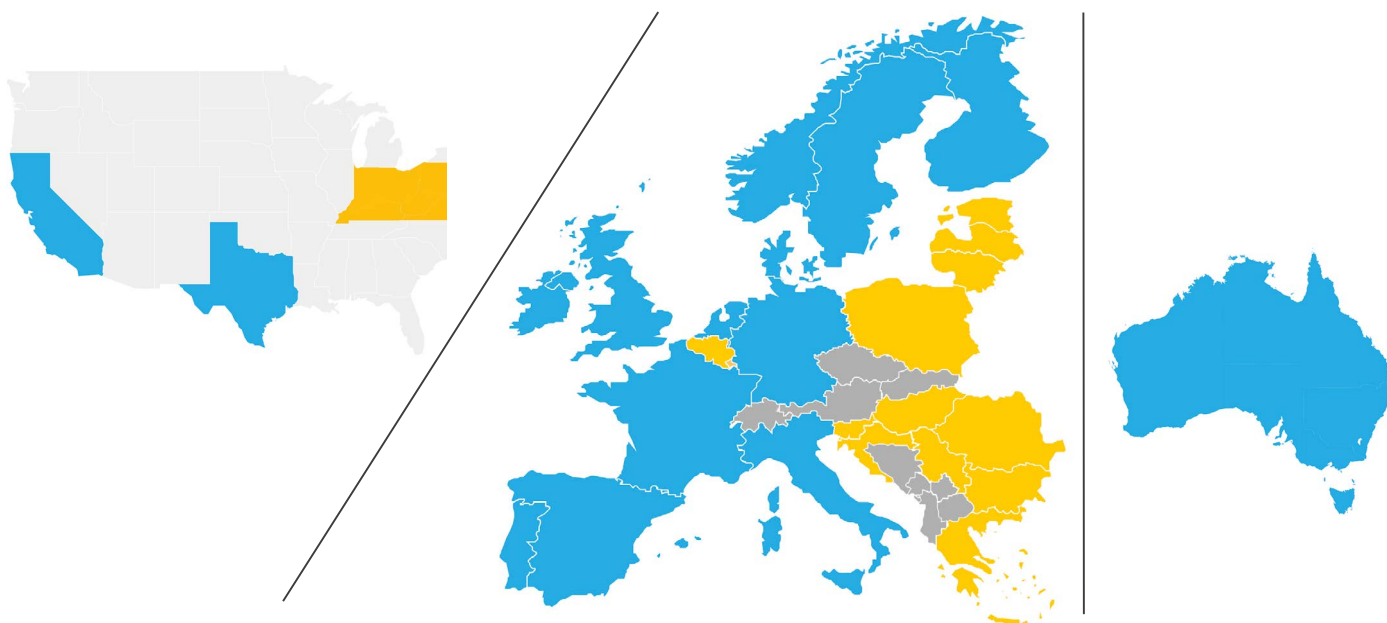
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