Press

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Diversification creates a €45bn opportunity for renewables in meeting France's 50% nuclear target and emissions reduction by 2035

- **In November the French Government will release its Programmations Pluriannuelles de l'Energie (PPE), setting out the country's ambitious plans to reduce its reliance on nuclear - the backbone of the power system since 1973**
- **Keeping emissions in check whilst reducing nuclear output will require a 70% increase in renewables capacity by 2030 – representing a €45bn investment opportunity**
- **An additional €10bn of subsidies will be required from the government by 2030 to unlock this investment**
- **Wholesale power price volatility will increase due to rising renewables penetration, opening up opportunities for battery storage**
- **Security of supply will be provided by a mix of interconnectors, batteries, and renewables, as nuclear and coal plants exit the system**
- **The domestic generation market could shrink by €5bn, or 15%, if neighbouring countries decarbonise aggressively**

New analysis on the French power market and policy from leading European analytics firm Aurora Energy Research, highlights significant potential for the accelerated growth of renewables in France, as well as impacts on French generators and consumers through proposed policy changes in the wider European energy markets.

Aurora's research reveals that meeting a 50% nuclear generation target by 2035 will require a 70% (43 GW) increase in intermittent renewables capacity by 2035 if emissions are to be kept in check. Government subsidies for renewables will have a significant impact on achieving this.

Commenting on these findings, Weijie Mak, Aurora's Lead Associate on the French power market, said:

"The French Government's ambitions to maintain current levels of carbon emissions and energy prices while reducing reliance on nuclear power will provide significant investment opportunities for companies investing in renewables. Direct government subsidies will unlock a €45bn

renewables investment opportunity that will also see entry of subsidy-free solar and onshore wind assets by 2030."

Despite only modest growth in power demand, wholesale power prices will increase by 20% by 2030 due to rising gas and carbon prices. Additionally, the higher penetration of renewables will result in increasingly volatile prices, due to the inherent variability of renewables output. This helps the economics of storage projects such as large-scale batteries. Aurora's analysis indicates that at least 5GW of batteries will enter the French market by early 2030s.

Security of supply concerns from the closure of nuclear and coal plants will be alleviated by the increase in interconnectors to neighbouring power markets, as well as battery storage projects, which are expected to be more cost competitive than thermal technologies when the need for new-build generation capacity arises. Relying on batteries and interconnectors for security of supply is sufficient to reach the 50% nuclear target, but has its limitations, as their contribution diminishes at higher level of build-out.

The highly interconnected nature of the French market makes it particularly susceptible to evolution of energy policies in neighbouring countries. A potential shift towards more aggressive decarbonisation efforts in neighbouring countries, highlighted in particular by Germany's target of 65% renewable power generation by 2030, would lead to a fall in annual revenues for French domestic power producers by up to 15% by 2030.

Aurora's Mak added:

"France is currently at the forefront of decarbonisation efforts relative to its neighbours, boasting one of the lowest emission levels and prices in the power sector in the EU. This is set to change in the next decade as neighbouring countries continue to place greater emphasis on their climate change objectives. Aggressive decarbonisation efforts by GB, Spain and Germany in particular, could lower the market value for French domestic power by EUR5bn (or 15%) in 2030, through a combination of lower exports and wholesale prices".

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About Aurora

Aurora Energy Research is a leading European independent energy market modelling and analytics company founded in 2013 by University of Oxford Professors and economists. Aurora provides deep insights into European and global energy markets supported by cutting edge models and data driven analytics to support project development and investment decisions. Services include subscription-based forecasts, reports, forums and bespoke consultancy services. Aurora Energy Research has offices in Oxford and Berlin. For further information, please visit: http://www.auroraer.com