UNIVERSITÄT ZU KÖLN

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Titel:
How to integrate decentralised flexibility into an integrated capacity market

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Abstract:

As Germany moves toward introducing a capacity market to ensure long-term security of electricity supply, the integration of decentralized flexibility—such as demand-side response and battery storage—has become a central concern. Commissioned by the German Association of Energy and Water Industries (BDEW), this study explores how decentralized flexibility can be effectively incentivized and integrated within an Integrated Capacity Market (IKM) framework.

The analysis shows that both explicit incentives (e.g. prequalification and capacity payments through centralized auctions) and implicit incentives (e.g. price signals and dynamic allocation of capacity market costs) can support the deployment of decentralized flexibility. The study also highlights international best practices, demonstrating that centralized capacity mechanisms can successfully include smaller and distributed resources, provided the right market design instruments are in place.

Contrary to concerns that centralized tenders may limit participation by decentralized assets, the study concludes that the IKM—if designed appropriately—offers a robust and adaptable platform for integrating flexibility. It recommends leveraging proven international tools to enhance the German market design and ensure broad participation across all relevant technologies.