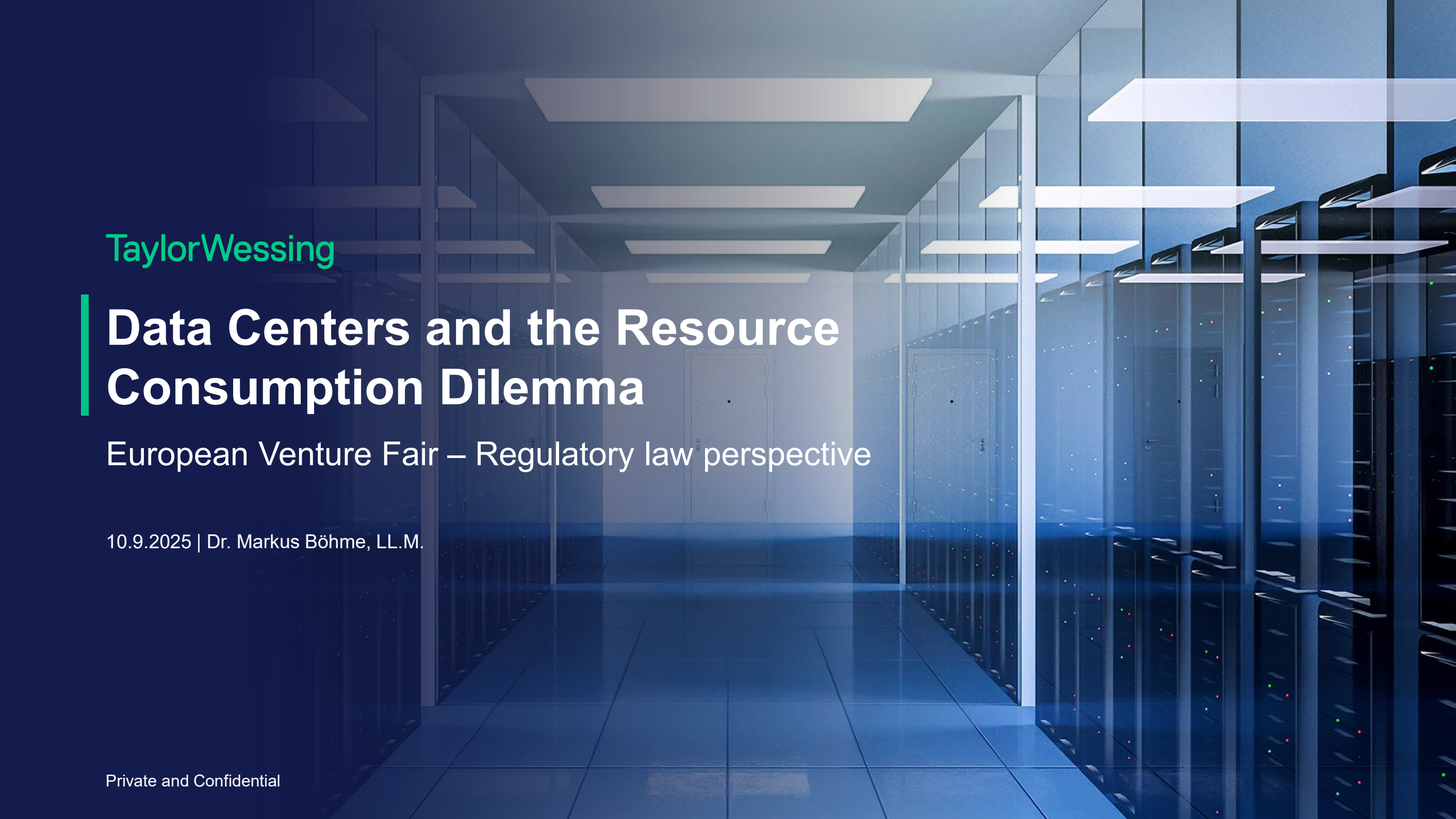




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Data Centers and the Resource Consumption Dilemma

European Venture Fair – Regulatory law perspective

10.9.2025 | Dr. Markus Böhme, LL.M.

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Goldman Sachs prediction as of 2nd September 2025

“The rush to build the infrastructure that supports AI is set to be a major source of activity, with at least \$1 trillion estimated to be spent on data centers, electricity suppliers and communications networks.”



1

Centralised vs. decentralised

Restrictions due to bottlenecks in the electricity and fibre optic network

Centralised vs. decentralised

110 kV high voltage grid in Germany

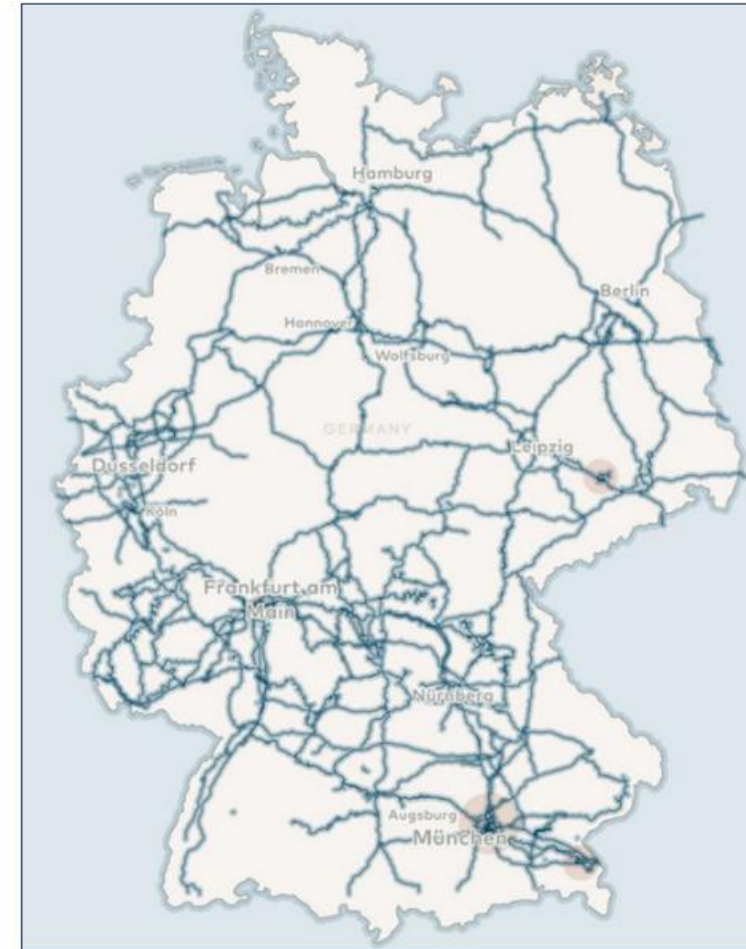
Congestion areas in red

Source: Federal Network Agency



German fibre optic network

Source: NGN Fiber Network GmbH & Co. KG





2

Waste heat utilisation

Impact on decentralised site selection and relevant for building permit

Waste heat utilisation

Obligations resulting from German law for commissioning as of 1 July 2026:

- Reused energy of at least 10 %
- Reused energy of at least 15 % for commissioning as of 1. July 2027
- Reused energy of at least 20 % for commissioning as of 1. July 2028
- Two exemptions from abovementioned requirements possible if:
 - agreement between operator and district heating network shows specific intention to set up or use district heating network within 10 years and contains an investment plan and a regulation on bearing the costs of the connection line and on the price of the waste heat supply or
 - operator of a nearby heating network does not accept an offer to use reused energy at cost price within six months, even though the data center operator has the necessary infrastructure in place to supply the heat, in particular in the form of a heat transfer station.



Waste heat utilisation

Stricter requirements from city council Frankfurt to receive a building permit:

3.1 Bau und Betrieb

Bei der Errichtung von Rechenzentren ist anzustreben, die Voraussetzungen für die Bereitstellung der gesamten Abwärme zu schaffen. Vorzugsweise stellt das Rechenzentrum Abwärme mit einem Temperaturniveau von mindestens 60 °C an der Grundstücksgrenze kostenlos zur Verfügung.

Im Sinne einer hohen Gesamteffizienz sollen daher Voraussetzungen geschaffen werden, 100 % der Gesamt-IT-Fläche mit direkter Flüssigkeitskühlung betreiben zu können. Der Kundschaft des Rechenzentrums soll ein Angebot gemacht werden, um die zu errichtenden Server auch mit direkter Wasserkühlung (Heißkühlung, Flüssigkühlung) zu betreiben.

Sollte eine Wärmebereitstellung auf einem Temperaturniveau von 60 °C nicht möglich sein, ist auf dem Areal eine ausreichend große Fläche (pro MW [Megawatt] nutzbare Abwärmeleistung 20 m², mindestens jedoch 150 m², bei 8 m Raumhöhe) anzustreben. Auf dieser Fläche sollen die Anlagen zur Druck- und Temperaturanhebung auf das für die Nutzung zur Wärmeversorgung benötigte Niveau (Abwärmeaufbereitung) durch die Rechenzentrumsbetreibenden oder Dritte errichtet und betrieben werden.

Betreibt das Rechenzentrum die Abwärmeaufbereitungsanlage nicht selbst, ist den Betreibenden der Anlage aus dem Kontingent des Rechenzentrums eine ausreichende Stromkapazität für deren Betrieb zur Verfügung zu stellen.





3 | Individual network fees vs. flexibility

Current consultation process issued by Federal Network Agency

Individual network fees vs. flexibility



Reduced network fees under following requirements:

- 10 GWh and 7.000 utilisation hours = 20 % of fees
- 10 GWh and 7.500 utilisation hours = 15 % of fees
- 10 GWh and 8.000 utilisation hours = 10 % of fees

Currently under review by Federal Network Agency since existing system seems to be inappropriate due to growing share of renewable electricity but highly controversial!



Flexibility potential due to:

- Spatial relocation of computing loads
- Temporal relocation of computing loads
- Flexibility from energy infrastructure (emergency power systems)

Willingness to pay higher network fees if thresholds are not met due to offering of flexibility?

Currently, very few realised projects in Germany.



4

Customer networks and behind the meter (BTM) solutions

Recent decision from European Court of Justice

Customer networks and BTM solutions

Reasons for on site generation:

- Delay in expansion of electricity network (especially high voltage)
- Need for more capacity which can not be fulfilled from electricity network
- Availability of gas network access
- Potential to switch from gas to hydrogen (if available and competitive pricewise)

BUT:

- ECJ decided on 28. November 2024 (C-293/23) that European law hinders German regulation of so-called customer networks which are not seen as electricity networks and widely exempted from standard network regulation.
- Industry and data centers affected by this judgement.
- Federal Network Agency has not yet provided a solution for this topic.
- In case customer networks must become regulated electricity networks, network fees and all related levies and surcharges will apply, and supply will become more expensive for customers.



Your contact

Markus Böhme is a sought-after legal expert in the national and international energy industry.

Clients value his advice on regulatory issues in the light of the liberalised energy market. Markus advises on M&A transactions and on the entire field of energy supply (gas, electricity, local and district heating as well as renewable energies). He has in-depth knowledge of the business perspective from his secondment to a major player in the German energy industry. Markus represents clients in court drawing on his experience from various leading decisions on energy law.

Markus Böhme complements the wide range of his advisory practice with his scientific expertise, as evidenced by his numerous publications and commentaries. In addition to nuclear regulatory issues, Markus Böhme focuses in particular on the area of renewable energies and is co-author of several commentaries on the EnWG, WindSeeG and EEG.

Following his studies of law at the Rheinische Friedrich-Wilhelms-Universität Bonn, he received his PhD in 2008. Markus Böhme participated in a Master of Laws program (LL.M.) at Nottingham Trent University.

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Frequently recommended lawyer for Energy Regulatory, [JUVE 2021/2022 – 2024/2025](#)

"Markus Böhme is a very competent and friendly partner specializing in the energy sector.", [Client, The Legal 500 2024](#)

Recommended lawyer industry focus energy, [The Legal 500 2024 & 2025](#)

Next Generation Partner for energy law, [The Legal 500 2019 – 2025](#)

Rising star in the field of energy regulatory law, [JUVE 2023/2024 – 2024/2025](#)

"Profound expertise and solution-oriented", Client; "always to the point", competitor, [JUVE 2023/2024](#)

"Very detailed knowledge in energy law", Client, [JUVE 2022/2023](#)

"Pragmatic and appreciated", "high level of expertise", Competitor, [JUVE 2022/2023](#)

Leading lawyer for energy law in Germany, [German Institute for Legal Departments and Corporate Lawyers \(diruj\) – law firm monitor 2021/2022 – 2024/2025](#)

Best Lawyer for energy law, [The Best Lawyers™ in Germany, Handelsblatt 2020 – 2024](#)

"... client- and target-orientated in the negotiation of PPAs", [Client, JUVE Rechtsmarkt 1/2024](#)

Future Leader, [Who is Who Legal 2023 – 2024](#)



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- Renewable Energies
- District heating and contracting solutions



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