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THE EUROPEAN WIND ENERGY ASSOCIATION



Integration of wind energy in Balancing and Intraday Energy Markets

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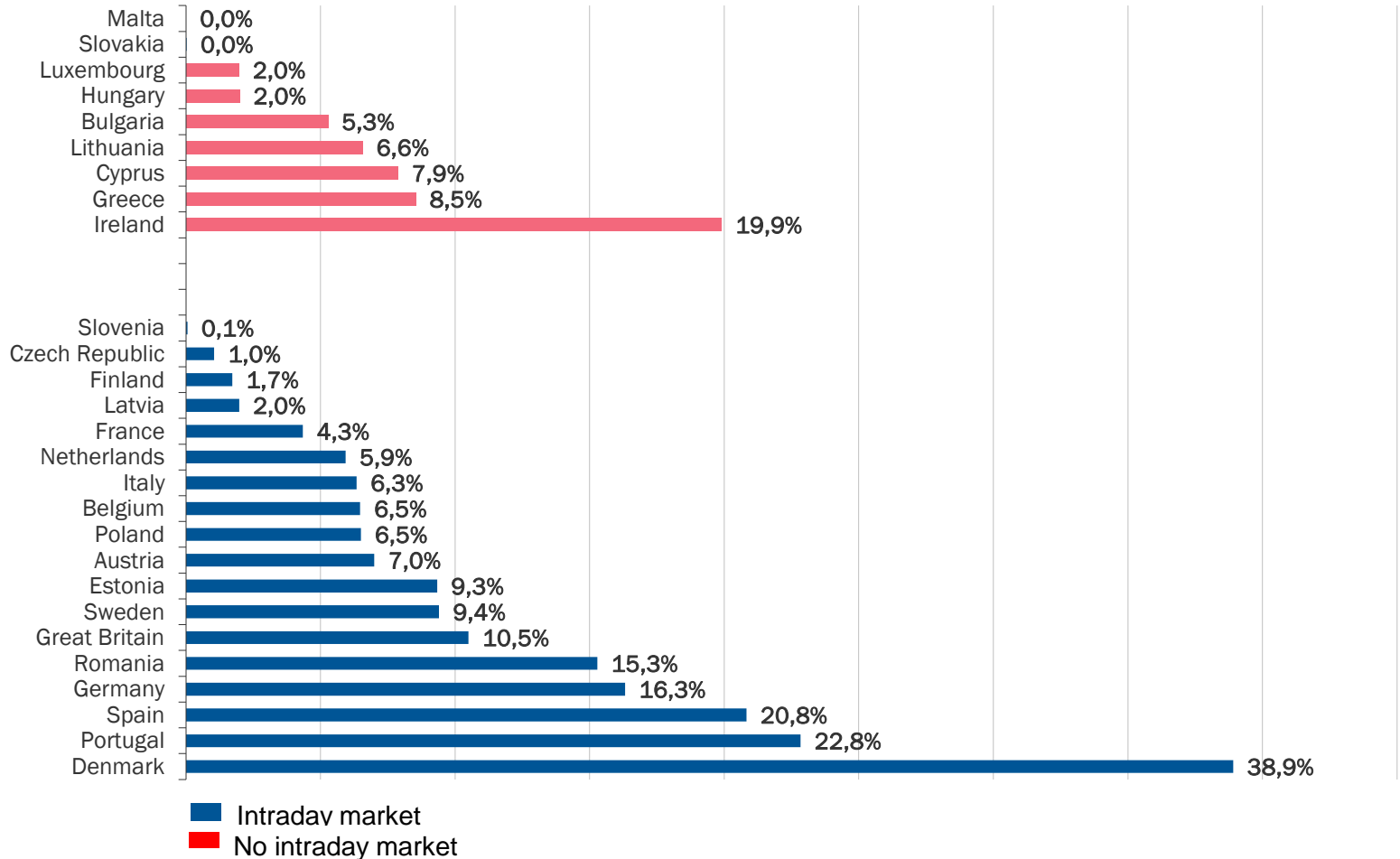
Around 600 members from almost 60 countries

- Manufacturers with a leading share of the global wind power market
- Component suppliers
- Research institutes
- National wind and renewable associations
- Developers
- Electricity providers
- Finance and insurance companies
- Consultants
- Contractors



Intraday Market

Wind energy penetration [% of consumption] in MS
with and without intraday markets



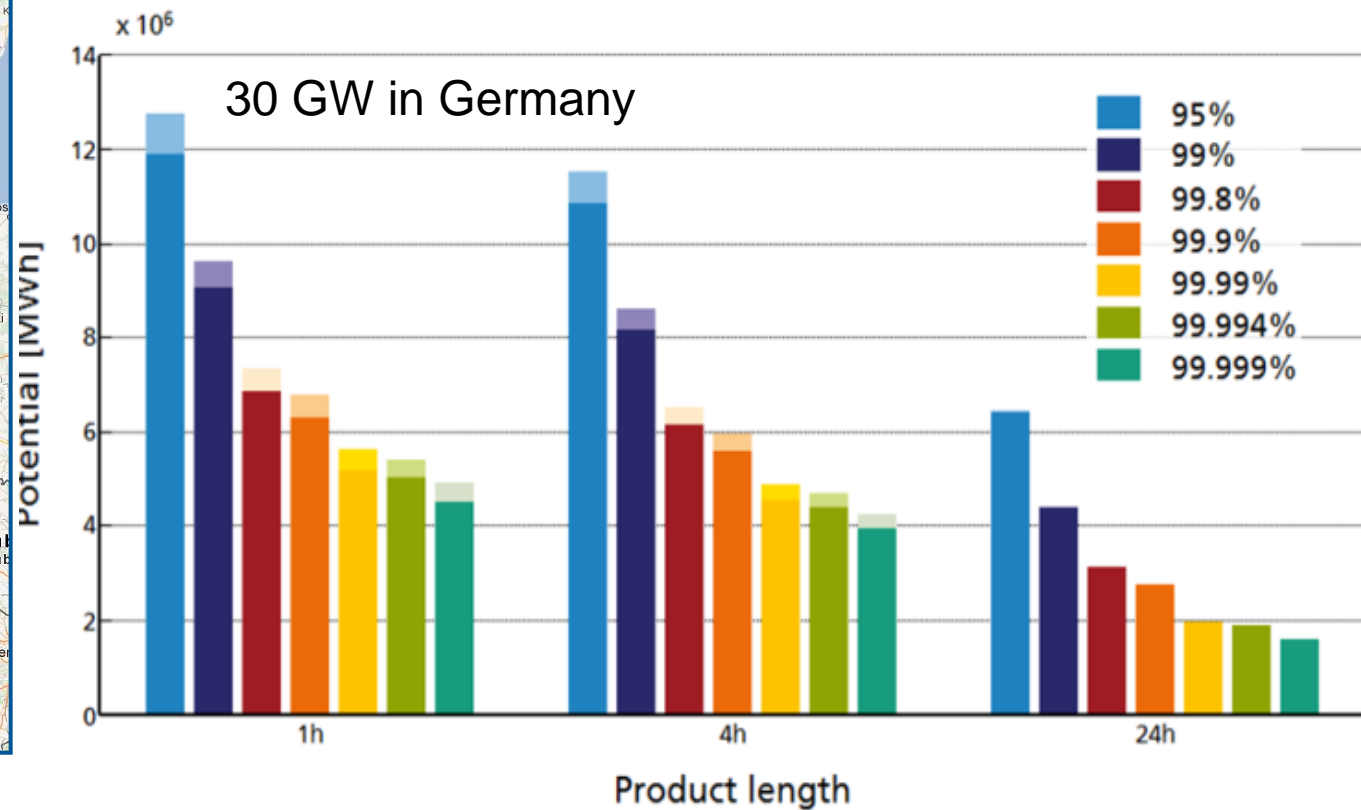
Balancing Market

Issues	Proposal
Balancing Gate Closure Times	Harmonisation of balancing gate closures
Standard product characteristics	Add “direction” and “confidence interval level” as standard characteristics
Terms and conditions related to balancing	Clear definition of balancing responsibility and transparency on prequalification procedures
Imbalance settlement	Harmonisation target of period to 15 min

Standard products characteristics

Confidence interval and product length effects

- 1 Wind Farm = 77.4 MW
- Cluster = 1 GW (WFs located in the same control area)



Balancing Responsibility

Preconditions

- Market maturity and wind energy penetration level
- Existing of functional intraday and balancing markets
- Wind generators are enabled to participate in the market
- A satisfactory level of market transparency

Market Features

- Harmonised gate closures as close as possible to real time
- Aggregation of generators
- Single price mechanism (+ and -) for imbalance prices
- Imbalance price calculated “pay as clear”