ECDSO-E TF
"NETWORK PLANNING"

Vienna, November 2023

Criteria for connection of producers to the grid

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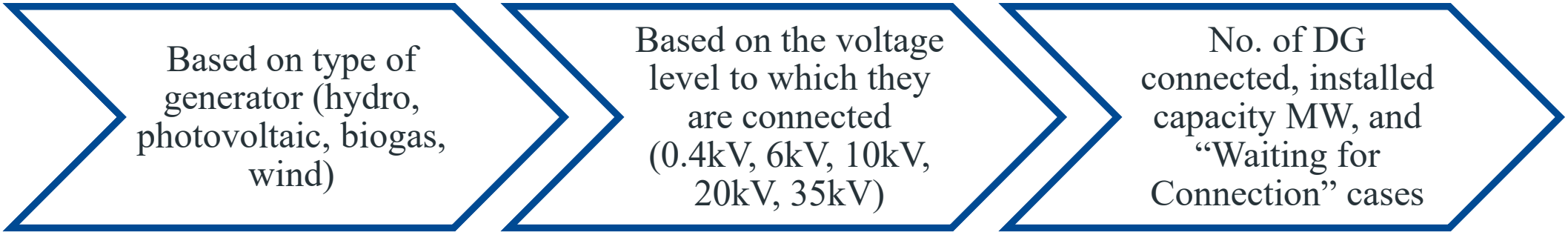
Introduction: Brief overview of the integration of the generators within the respective country, indicating the percentage of distributed generators by different types.



Criteria for connection of producers to the grid

Legislative Framework: Primary and secondary legislation, emphasizing DSO responsibilities outlined in the legislation.

Primary legislation:

1. Law on Electricity *(note: Different naming depending on the country)*
2. Law on Renewable Energy Sources *(note: Different naming depending on the country)*

Secondary Legislation:

1. Network/Distribution Code
2. Regulation regarding New Connections in the DSO,
3. General Conditions for Electricity Delivery
4. Rules for Functioning of Electricity Distribution System
5. Technical Criteria for Connection of Prosumers to the DSO

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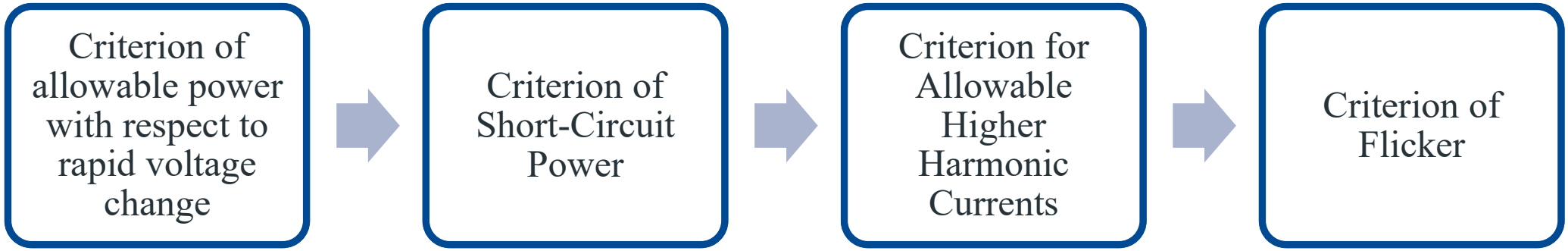
Technical Criteria: Technical requirements set by DSOs for new user connections. Reference to any specific technical standards mandated by the legislative framework.



Criteria for connection of producers to the grid

Analysis of RES connection requests -> specific study related to the maximum available power in the node where the connection is expected:

- **Network capacity for new RES**

Analysis of network capacity in the considered node regarding additional generated power from new RES without exceeding limits

- **Power flow analysis**

Analysis regarding the influence of RES power flow on the grid.
This may include analysis of the power flow direction and its impact on the node voltage and network losses.

- **Operating regimes**

For normal regime (N), the maximum injected power by RES in an OHL or MV undergroung cable powered from 2 or more sources must not exceed 100% of admissible line loading determined for the smallest conductor cross-section of the circuit.

For N-1 regime, a line loading of up to 120% is allowed, determined for the smallest conductor cross-section of the circuit -> only for OHL with non-insulated conductor.

For power transformers, a simultaneity coefficient of 0.9 is applied to the total power injected by all RES into feeders connected to the busbars of the same substation.

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Alignment with Network Development Plans: The role of forecasting and planning in accommodating new users.

- If in a specific area network development is not a priority for the SO and the only beneficiary would be the respective producer and is not necessary for other system users, the producer shall pay the SO the costs related to the respective network development.
- Since new connection requests can happen unexpectedly, the planned projects list adapts with each approval for connecting, if it involves distribution system development.
- DSO plans investments in the network based on the development potential of natural resources in respective geographical areas. Predictions for the network's development are made for long-term periods, considering the potential production from generating sources that can be continuously integrated.

Future Activities

A questionnaire related to the topic, featuring more detailed questions to obtain a comprehensive overview.

A workshop with representatives from the EU aimed at sharing their experiences and practices with representatives from CPs.

THANK YOU!