



# Draft GGP on Electricity Grid Connection and Access

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# Introduction of the consultation paper

# Objectives of GGP

- Conditions that should apply to all grid users of transmission and distribution grids throughout EU
- TSOs have responsibility for defining and implementing of specific provisions to be met by the grid users at transmission level and duly followed by all other grid users

# Issues addressed

- EU-wide common connection principles for generation units (including distributed generation), for consumption units and for DSOs;
- Principles for provisions for the voltage and frequency quality;
- Provisions for sufficient transparency and information; and
- EU-wide non-discriminatory and fair treatment of all grid users.

# Contents of GGP

- General provisions and objectives;
- Roles and responsibilities of different stakeholders and market players;
- General provisions on grid connection and access;

# Contents of GGP

- Technical framework for grid connection and access referring to
  - general aspects;
  - generation;
  - consumption;
  - DSOs;
  - a special consideration for the exemptions under Article 7 of Regulation (EC) 1228/2003 on merchant lines;
- Glossary of Terms

# Specific questions

- Do you agree with the problems these GGP are trying to solve – are there other problems that should be addressed within grid connection and access not yet included in these guidelines?
- Do these guidelines address the problem - will they lead to more transparent, effective and non-discriminatory grid connection and access?
- Please outline your views on the description of the roles and responsibilities set out in GGP.

# Specific questions

- Are the technical framework and general provisions for generation, consumption and DSOs relevant and practical? Is there anything else that should be included / excluded?
- How would the implementation of these GGP affect your business / market – what would the impacts be?
- We note that respondents to the consultation on the Implementation of the 3rd Package asked for certain areas, such as priority access for renewables, to be dealt with by ERGEG GGP. Priority access has not been covered by these particular guidelines, however, regulators welcome further input on this and other relevant issues.





# Roles and responsibilities of stakeholders

- Member States
- Regulators
- Transmission System Operators (TSOs)
- Distribution System Operators (DSOs)
- Generation units
- Consumption units

# General provisions

- **Connection procedures**
  - Included in terms and conditions for connection and access
  - Connection agreement / contract models prepared and published
  - No undue connection delays
  - Information and data (including technical data) to be provided
- **Connection requirements**
  - Apply to new installations and modification of existing installations
  - Technical solution designed by system operators under transparent and non-discriminatory conditions
  - Compliance check by system operator
  - Disputes

- **Information exchange**

- TSO/DSO provide information on technical requirements for connection
- Information to TSO/DSO necessary to ensure operational security of the system; significant units shall be able to receive and to execute instructions sent by the system operator
- Information on commissioning of significant units (TSOs to each other)

- **Access limitation**

- Transparent and approved rules in place (by SO) to handle access limitation situations
- Access limitation shall be considered only if operational security is at stake and no other solution is available

# Technical framework - general requirements

## Operating frequency

- Normal operating frequency range specified
- Predefined frequency deviation levels
- Wider range of frequency deviations possible

## Operating voltage

- Nominal operating voltage for each voltage level
- Range for normal operating voltage
- Wider voltage range allowed
- Highest/lowest voltages, withstand voltage etc.

## Protection scheme

- Settings of devices shall be coordinated
- Back-up devices



# Technical framework for generation units

# Technical framework for generation units

## Characteristics of generation unit

- Equipment required for connection
- Reactances, step-up transformer and PSS
- Technical characteristics of synchronous generators, e.g. P/Q
- Tolerance to network faults
- Reactive power production and absorption
- Data for system stability studies

## Requirements for voltage control and reactive power management

- Primary control mode automatic control of voltage

# Technical framework for generation units

## Requirements for frequency and active power control

- For generators contributing to balancing services and automatically activated reserves

## House load operation

- For significant generation units

## Black start capability and island grid operation

- For contracted generation units

## Verification

- To the largest possible extent verified by full-scale tests
- Contents of the tests specified by the system operator



# Technical framework for consumption units



# Technical framework for consumption units

## General

- Equipment required for connection

## Requirements for reactive power

- Compensation of reactive power as far as possible

## Interference and electromagnetic perturbations / emissions

- No interference
- Methodologies for assessment of emission limits
- Disconnection of installations not meeting the limits set

# Technical framework for consumption units

## Demand response

- Consumption units shall be involved as much as possible for ancillary services

## Load shedding

- For critical operation states
- Applied in a non-discriminatory way

## Verification



# Technical framework for distribution system operators (DSOs)

# Technical framework for DSOs

## General

- Equipment required for connection
- Responsibility to transpose requirements set by the TSO
- Execute (manually or automatically) instructions given by TSO

## Requirements for reactive power

- Reactive flow between networks shall be avoided

## Load shedding

- Automatic or manual load shedding and reconnections according to the requirements set by the TSO
- Non-discriminatory as far as possible (selective load shedding)

# Technical framework for DSOs

## Specific requirements for distributed generation

- Information and data exchange
- Tripping of distributed generation shall be avoided as far as possible
- Coordinated protection schemes
- Islanded operation

## Exemptions under Article 7 of the Regulation (EC) 1228/2003 (“merchant lines”)

- Connection requirements set by TSOs shall be followed
- Transparent and non-discriminatory

Thank you for your attention!

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Mark your diary for the World Forum on Energy Regulation IV  
October 18-21, 2009, Athens, Greece

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