

The background of the slide is a faded, blue-tinted image of industrial electrical equipment, including large metal components, pipes, and what appears to be a transformer or generator. The text is overlaid on this background.

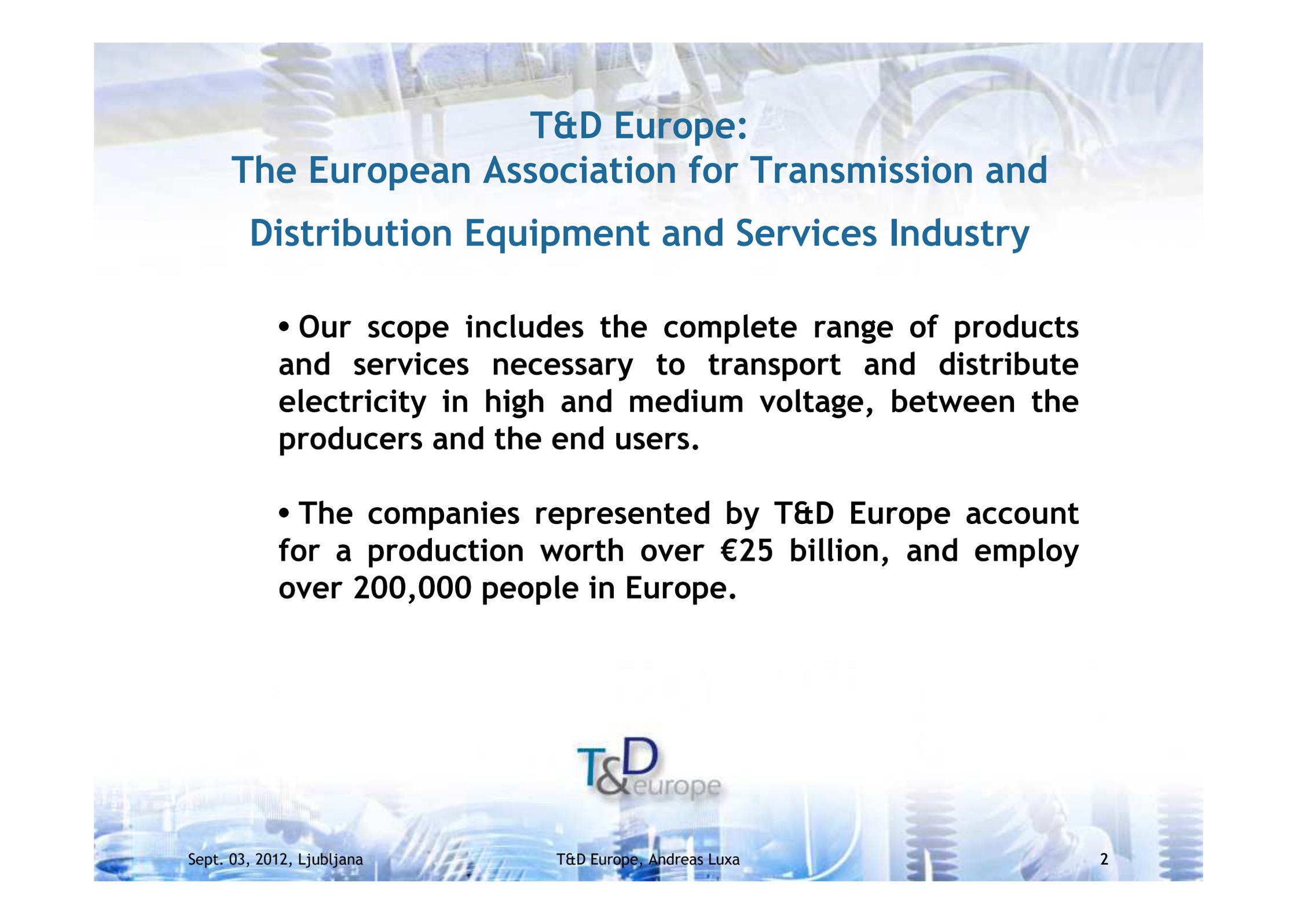
ACER Workshop on the Network Code for Requirements for Grid Connection Applicable to All Generators

T&D Europe - Comments

**Andreas Luxa,
Legislation and Directives Commission, Chair**

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T&D Europe: The European Association for Transmission and Distribution Equipment and Services Industry

- **Our scope includes the complete range of products and services necessary to transport and distribute electricity in high and medium voltage, between the producers and the end users.**
- **The companies represented by T&D Europe account for a production worth over €25 billion, and employ over 200,000 people in Europe.**



T&D Europe: The Members are all relevant European national manufacturer associations



T&D Europe and some of its partners & stakeholders

Equipment Manufacturers, e.g.



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Politics and regulators, e.g.

EU-Commission

DG (e.g. ENER, ENTR, ENV, CLIMA)

EU Technology Platform Smart Grids



* Belong to
ORGALIME
community



Grid operators/

User organizations, e.g.



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Comments on Potential impact for installed and new T&D equipment in the power grid (1)

NC RFG - FURTHER JUSTIFICATIONS, Chapter 5
with reference to CIGRE-Paper WG 33.10, ELECTRA, Aug. 17, 1998

Additions to be noted:

General comments

- Ageing effects for equipment may increase if temporary overvoltages (TOV) occur more frequently. Therefore, detailed monitoring/statistics are recommended
- Partial discharges may occur and sustain more frequently if overlaying TOV (e.g. switching OV, earth faults) are adding on increased level of actual (temporary) operating voltage.



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Comments on Potential impact for installed and new T&D equipment in the power grid (2)

HV and MV switchgear:

- The highest rated voltage of equipment may cover the extended operating voltage demands. However, the overall isolation coordination shall be carefully re-examined for the installed base and also for projecting new MV and LV switchgear - taking into account the occurring transformer ratios HV/MV and MV/LV. This applies especially for the extended voltage ranges ≥ 1.15 p.u..
- For HV and MV circuit breakers i.e. switching performance capability must be re-examined with special emphasis to demanding switching operations e.g. switching-off capacitor banks or back-to-back switching operation of capacitor banks. In case of doubt the next higher rated voltage should be taken into account.



Comments on Potential impact for installed and new T&D equipment in the power grid (3)

Transformers:

- The Network Code interferes with existing product standards:
Existing standards must be reflected for the application of the network code. Other terminology and/or parameters and definitions need to be reflected on product specifications and tests especially for installed base in order to avoid excessive cost .
- The Network Code results in details of implementation:
The network code defines the basic requirements; details need to be further developed through the standardization process open to all stakeholders
- Flexibility and future proof concept:
The network code is developed to minimize the security risk for the European Synchronous Areas. Automatic frequency disconnection settings need to be reflected on specifications and existing standards with focus on installed base.



**T&D Europe and it's member companies are ready
to support stakeholders**