



Study Committee No C2/C5

JWG C2/C5.5

<b>WG No :</b> SC C2/C5 JWG C2/C5.5	<b>Name of Convener :</b> Ole Gjerde, Norway
<b>TITLE of the WG: Development and Changes in the Business of System Operators</b>	
<b>Background :</b> <ul style="list-style-type: none"><li>• The WG shall focus on the development and future trends of System Operators in the competitive electricity market environment</li><li>• Monitor the evolution of the System Operator activities</li><li>• Describe different development paths and compare actual solutions</li><li>• Look into who the System Operators are serving, what are the services produced</li></ul> <p>The WG will concentrate its primary effort on:</p> <p><u>Organisation</u> of System Control in relation to <u>markets</u>: commodity markets versus system integrity, impact of institutional changes on operation. Effect of Open Trading on Operation and Control.</p> <p>but also:</p> <p>Operation <u>closer to limits</u>, with security; analysis of the operational risks and risk management; emergency and restoration control, will be discussed.</p> <p>and :</p> <p><u>Organisation</u> of operation of interconnected power systems, faced with liberalisation and competition will be considered.</p> <p>The number of members in the WG should be approximately 15 - 20 full members and an additional number of corresponding members</p> <p>Areas with competitive market development like Australia, Europe, South America, USA/Canada and others should be represented in the WG. There should be members from different actors on the new deregulated market scene.</p> <p><b>Scope :</b> WG C2/C5.5 will look into the following areas: Institutional frameworks, organisation of the System Operator function, interfaces with other market actors, tasks of System Operators.</p> <p>1) Institutional frameworks comprises questions like:</p> <ul style="list-style-type: none"><li>• What institutions are in place?</li><li>• What kind of regulation: Laws, Licences, Regulations, Guidelines and Grid Code.</li><li>• Governance and legal status of System Operators.</li><li>• The implementation processes.</li><li>• International Coordination between System Operators</li></ul> <p>2) Organisation of the System Operator function deals with questions on type of System Operator:</p> <ul style="list-style-type: none"><li>• TSO (Transmission System Operator), ISO (Independent System Operator) or other organisational solutions.</li><li>• Completely independent company by requirements in the law.</li></ul>	

- Separate accounts and management, but within old company.
- Intermediate solutions.
- Size of System Operators according to the functions they perform
- How is the ownership?
- How is the income regulated?
- How is the new operational structure?
- Division of responsibility between the System Operator function and G, T and D companies.

3) Market organisation and interfaces with other market actors covers:

- The solutions regarding Market Operator/Power Exchange
- Different markets; energy commodity, balancing or regulating, ancillary services.
- Interface to traditional suppliers (generators), traders, brokers and end consumers. How are the relationships among these actors?
- Not only the technical interface, but also contractual aspects of the interface should be looked into.
- Access to data, confidentiality of data and publication of data.
- Data exchange, both technical data and commercial data and audit requirements.
- Cooperation with other System Operators.
- Communication and interface with regulators.

4) Functions allocated to the System Operator should be studied. The focus should be on the organisational aspects of the functions. The starting point could be the basic tasks:

- To keep the power balance from minute to minute
- Ensure security and adequacy of the entire power system.
- Cross Border Transmission
- Congestion management

This could be further detailed by functions in the areas of:

- Long term planning, in this context from two weeks to one year.
- Scheduling, up to two weeks horizon.
- Dispatch, real time monitoring and control, managing ancillary services
- After the fact; metering, settlement, statistics, analysis.
- Support functions; control systems, telecommunications, etc.

**Deliverables :**

- Report on: "Interaction between Reliability Standards and Market Rules, and Challenges to System Operators". A technical brochure and an Electra article will be produced.

**Time schedule:**

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| • Drafting, reviewing and finalizing survey          | March 2018                   |
| • Collection of survey results                       | June/July 2018               |
| • Analysing survey results, discussing TB structure  | August 2018 (Paris session)  |
| • JWG meeting to review first draft of TB            | November 2018                |
| • Revised draft of TB to be developed                | Winter 2019                  |
| • Meeting to finalize TB and discuss Electra Article | June 2019 (Ålborg Symposium) |
| • TB and Electra Article finalized                   | Autumn 2019                  |

**Papers issued: 8 reports 2002 – 2009 and 7 presentations to Tutorials. 5 contributions to Cigre Sessions in Paris 2002 -2012. 3 workshops organized. 4 Technical Brochures and 4 Electra Articles finalized by 2017. Another Technical Brochure and Electra Article will be finalized in autumn 2019.**

**Approval by TC Chair: M. Waldron Date: , 2018**