





Value proposition of improved TSO-DSO communication and interaction

IEA ISGAN annex 6 – IEA PVPS joint workshop
 The use of variable renewables as flexible resources to support grid operation and Power Transmission and Distribution Interaction
 Hubert Lemmens, Vienna 18 May 2015



Elia Group - reliable and resilient networks



Ownership

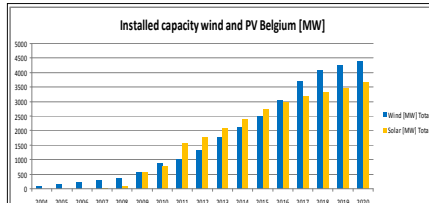
Elia

- 100% of 380-150kV network
- 94% of high voltage network (70-30kV)

50Hertz

- 100% of 380-220kV network
 - ◊ 34% of the German 380kV network
 - ◊ 19% owner of the German 220kV network

Installed capacity wind and PV Belgium [MW]



15 RELIABLE AND SUSTAINABLE POWER GRIDS CELEBRATING 10 YEARS

A voluntary association regrouping some of the 17 largest Grid Operators in the world, delivering power to over 3.5 billion customers from 6 continents

A worldwide network of over 150 experts working together on topics of common interest

- Integration of Distributed Resources
- Grid Infrastructure
- Finance and Regulation
- Communication and IT Systems
- Mutual Assistance and Crisis Management

A common goal: Security, Reliability and Resilience at a sustainable cost for all

Which data to communicate?

- **Grid related data, (topology, characteristics): enabling**
 - improved situational awareness
- **Load/ generation data: enabling:**
 - Optimized grid planning
 - Improved situational awareness
 - Congestion management
 - Improved asset use
 - Optimized defense and restoration plans
- **In different timeframes: long term, day ahead, real time.**

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Which data to communicate?

- **Market data (partially available on PX):**
 - Day ahead, intraday, real time prices
 - Enabling market parties to optimize generation/load portfolio
- **Metering data, enabling:**
 - Real time pricing
 - Imbalance settlement
 - Ancillary Services settlement

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Stakeholder value

- **Grid users:**
 - Lower Energy cost
 - Lower Grid usage fee
 - Improved reliability
 - New electricity applications
- **Regulators:**
 - Improved market functioning
 - Higher customer satisfaction

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Stakeholder value

- **Market players:**
 - Lower balancing costs
 - Increased market liquidity
 - Additional risk hedging options

- **Renewable generators:**
 - Additional income from Ancillary services
 - Lower barriers for penetration
 - Improved reliability

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Stakeholder value

- **Distribution system operators:**
 - Reduced operational risk
 - Improved asset performance
 - Reduced financial risk

- **Transmission system operators:**
 - Access to cheaper balancing resources
 - Improved asset performance
 - Reduced financial risk
 - Improved reliability
 - Optimized defence and restoration plans.

However, at the expense of increased complexity

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Conclusion

- **Distributed RES integration requires new relationships between TSO's and DSO's**
- **Enhanced information exchange and collaboration brings value to the grid users**
- **Increased efforts from grid operators have to be compensated by adequate grid tariffs.**

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Thank You !

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