



Feedback - Joint WG System Operations & Belgian Grid 03.03.2014

Users Group – 20/03/2014

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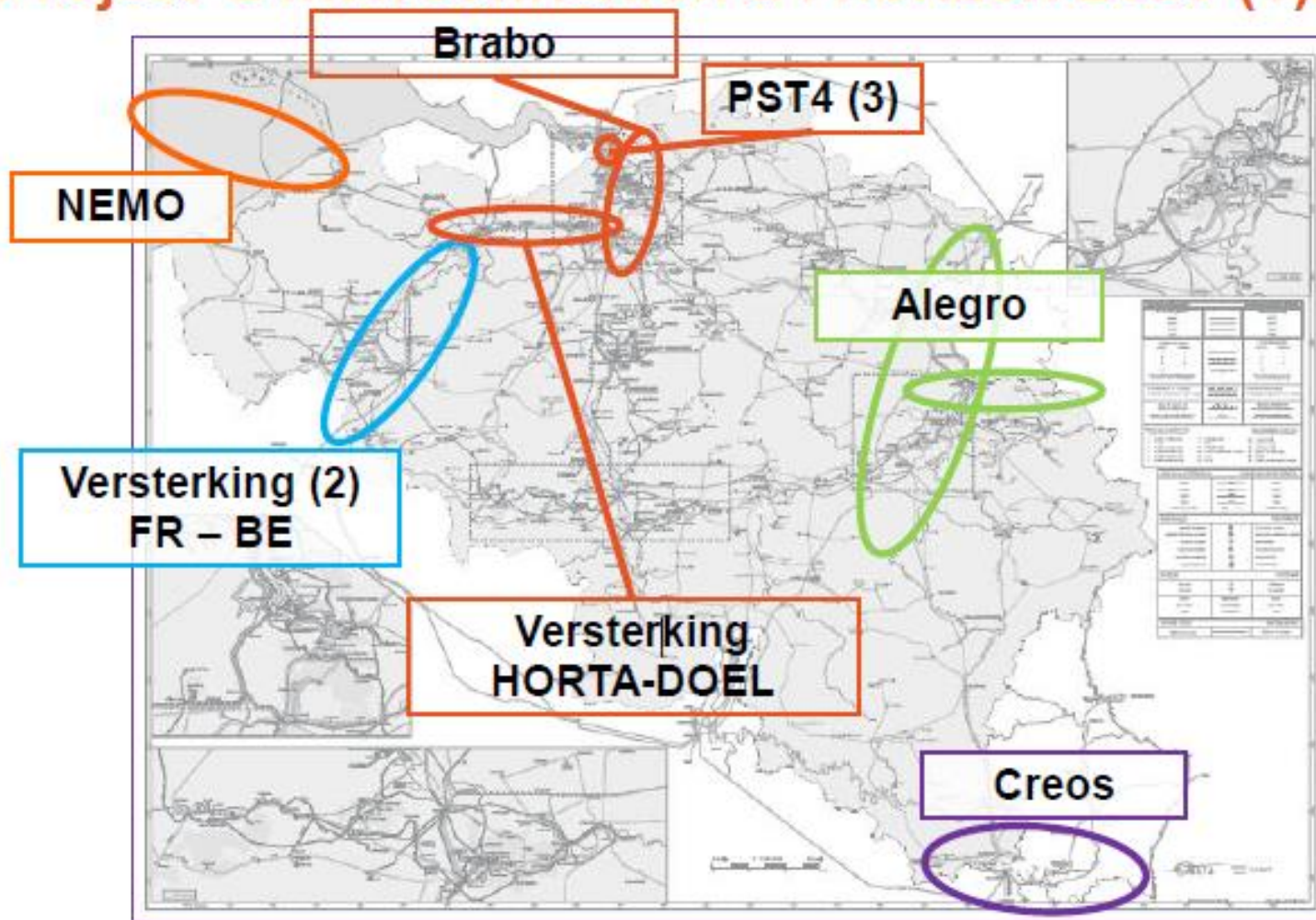


Agenda of WG BG & SO 03.03.2014

- **Influencing parameters in determining Physical & Commercial capacities:**
 - Dynamic aspects → global import/export limit
 - Physical capacities → border
 - Commercial capacities
 - Operational process: $Y \rightarrow M \rightarrow W-1 \rightarrow D-1$
 - Market coupling → market paths
 - Quid Flow based ?
- **Grid development projects in TYNDP: evolution of XB capacities**
- **Next steps**

Focus on evolution of the XB capacities & next steps

Projets d'interconnexion à l'horizon 2020 (1)



- (1) Voir aussi plan de développement fédéral 2010-2020 et TYNDP 2012-2022
- (2) Etude commune avec RTE en cours
- (3) Etude commune avec TenneT en cours

XB capacities and grid development

- **Investments in XB capacities: 4th PST Zandvliet, Brabo, Nemo, Alegro, south border:**
 - Give **more flexibility** in importing from the congestion management point of view
 - Give **more import** depending on other system limits (static & dynamic voltage, system protection, angular stability of synchronous machine,...)
- **BUT, other grid investments needed** to increase as far as possible all system limits: capacitor banks, transfos 380/150,...
- **Capacity \neq energy available on market**

XB capacities and grid development

- **First step: 4th PST in Zandvliet (2016) aims at compensating the shut down of NPP Doel 1&2 by import capacity while keeping the voltage and stability of the Belgian system is also secured**
 - From a congestion management perspective the impact of the 4th PST will be similar to the impact of the injection of Doel 1&2 in the BE system, **but...**
 - ... The 4th PST will not compensate the Mvar injection that will be lost !
- => additional investigations needed to **assess BE voltage behaviour** and identify potential need of additional reactive sources

Next: Alegro, Nemo, Brabo, South border aim at further increase BE import flexibility and capacity

When increasing import capacity we are in the same time decreasing the number and distribution of synchronous generating units in the Belgian system...

- **Less dynamic reactive sources are available in all BE regions**
Potential steady state or dynamic voltage issues which could require additional static or dynamic reactive means (Capacitor banks, selfs, SVCs, sync compensators,...)

- **Less short circuit power in the BE system**
Potential transient stability or protection efficiency issues which would require additional short circuit power sources

- ➔ Further analysis in 2014 to assess exact impact XB reinforcements and define necessary extra grid investments to secure import increase and flexibility.

Op korte termijn:

- Brabo is nuttig voor robuustere voeding Antwerpse haven 150 kV, en structurele versterking 380 kV tussen Zandvliet en Mercator, maar...
- Drijfveren voor deel Zandvliet-Lillo-Mercator minder uitgesproken dan bij oorspronkelijke hypothesen

Op langere termijn:

Noodzaak versterking Zandvliet – Lillo – Mercator om NTC te behouden, gedreven door :

1. Voedingszekerheid Antwerpse haven
2. En/of indien HVDC van de kust naar Doel of Zandvliet
3. En/of indien bijkomende productie in haven Antwerpen
4. En/of indien verdere toename fysische fluxen uit Nederland, (bvb door volledige sluiting Doel in 2025....)

Next steps

- **Finalize LT max import study** taking into account TYNDP and assess necessary investments to increase import level without jeopardizing BE system limits
- **Target date: end 2014**