

OVERVIEW OF THE CROSS-BORDER INITIATIVES 2019

ENTSO-E WGAS

April 2020

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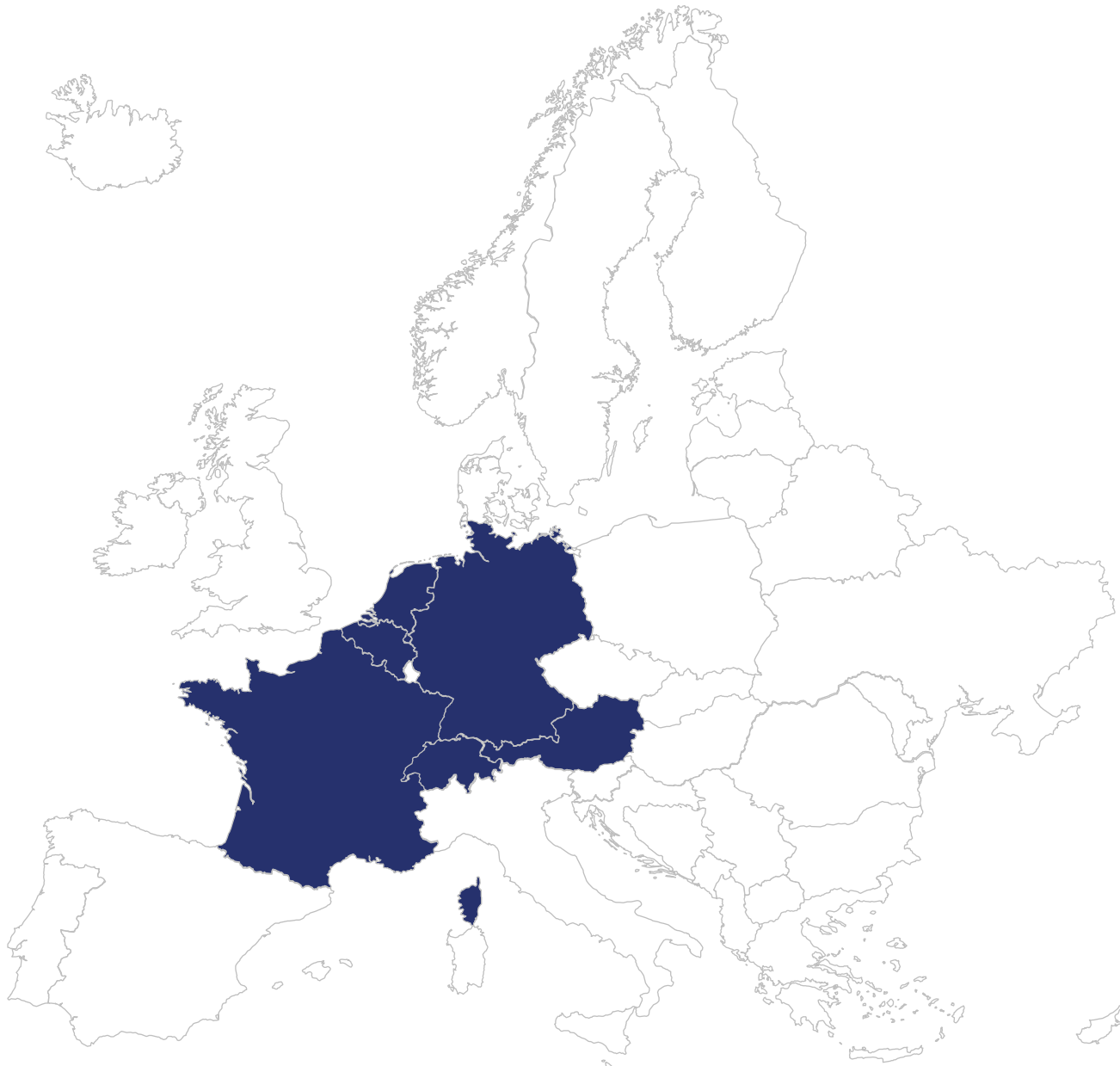
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Exchanges or Sharing of Balancing Capacity

FCR Cooperation between AT, BE, CH, DE, FR, and NL

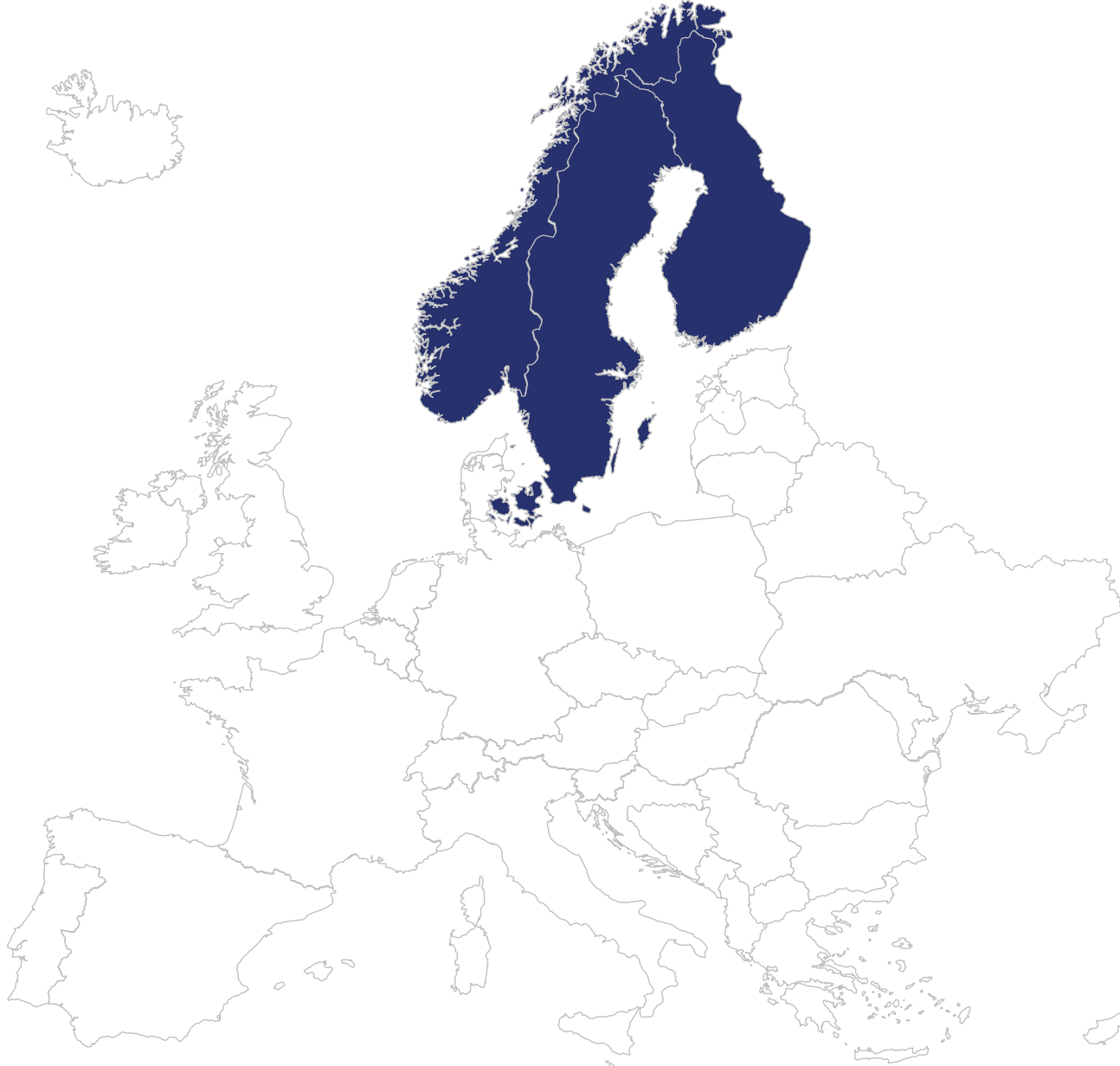
TSO's involved: 50Hertz, TransnetBW, Amprion, Tennet GER, TenneT TSO, APG, Swissgrid, ELIA & RTE



Question	Exchanges of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	Exchange of balancing capacity (TSO-TSO cooperation)
What products are used in the exchange mechanism?	Frequency Containment Reserve
Is there symmetry/reciprocity in the products exchanged?	Yes
Capacity reservation	
Cross-Border Capacity Reservation	No
If Yes, Method in Use	
Level of harmonisation	
What is the level of Harmonisation of national or local Products?	Some Harmonisation
Are the Gate Closure Times for TSO-TSO bids harmonised?	Yes
Are the Gate Closure Times for internal markets harmonised?	N/A (if initially the same)
Is the Imbalance Settlement Time Period harmonised?	N/A (if imbalance settlement period is already the same for exchanging parties)
Are the Settlement Rules harmonised?	Yes
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	Defined separately
Are there defined cost-sharing rules in place?	Yes
Additional information	
There is a common TSO-TSO Settlement scheme (same for all participants) but no harmonization for TSO-BSP Settlement.	

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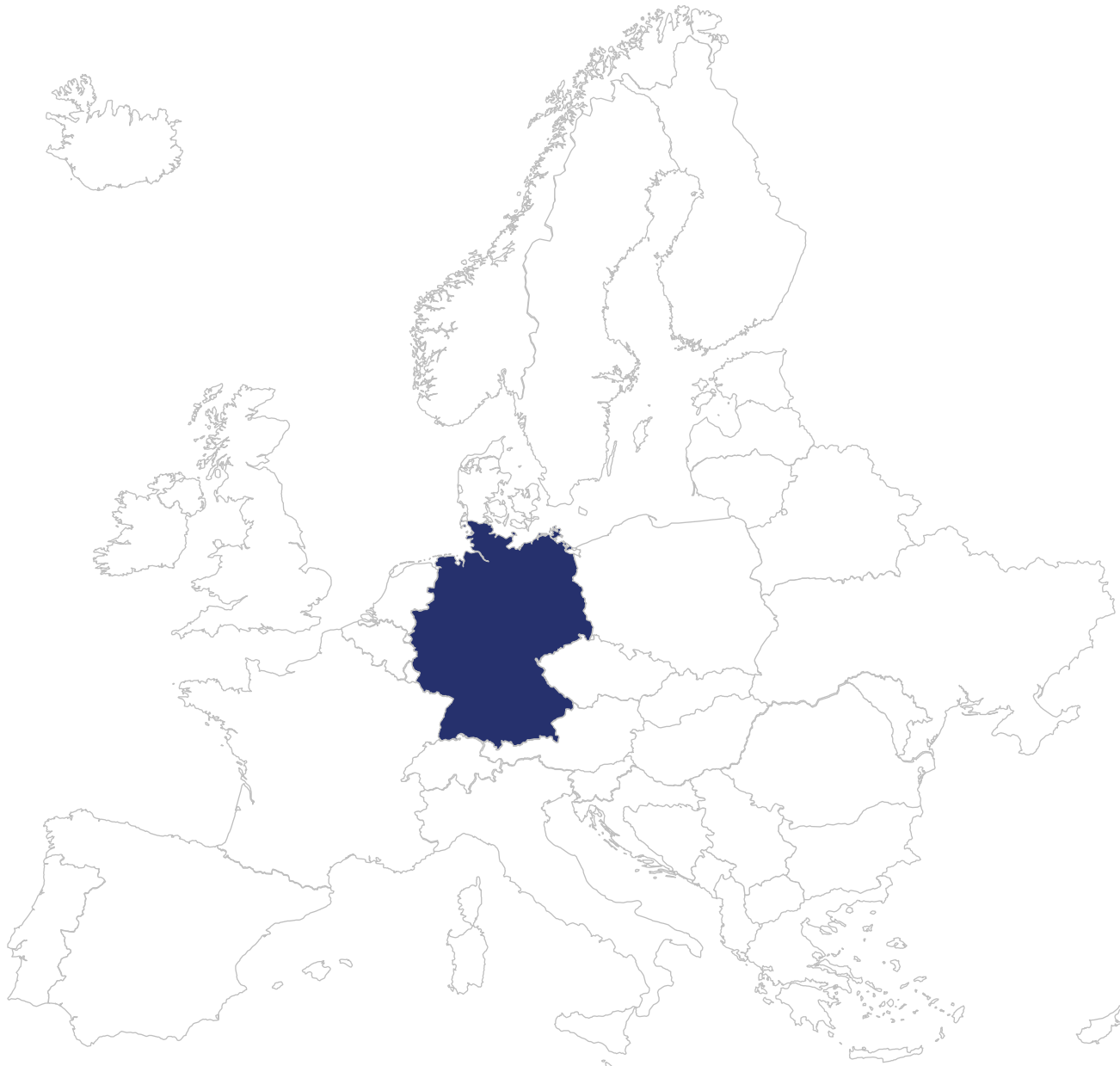
TSO's involved: Fingrid, Energinet.dk IPC, Svenska Kraftnät & Statnett



Question	Exchanges of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	Exchange of balancing capacity (TSO-TSO cooperation)
What products are used in the exchange mechanism?	Frequency Containment Reserve
Is there symmetry/reciprocity in the products exchanged?	Yes
Capacity reservation	
Cross-Border Capacity Reservation	No
If Yes, Method in Use	
Level of harmonisation	
What is the level of Harmonisation of national or local Products?	Some Harmonisation
Are the Gate Closure Times for TSO-TSO bids harmonised?	N/A (if initially the same)
Are the Gate Closure Times for internal markets harmonised?	Partially Harmonised
Is the Imbalance Settlement Time Period harmonised?	Yes
Are the Settlement Rules harmonised?	Yes
Are the imbalance pricing methods harmonised?	Some Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	Joint definition of reserves
Are there defined cost-sharing rules in place?	Yes
Additional information	

German Grid Control Cooperation (GCC)

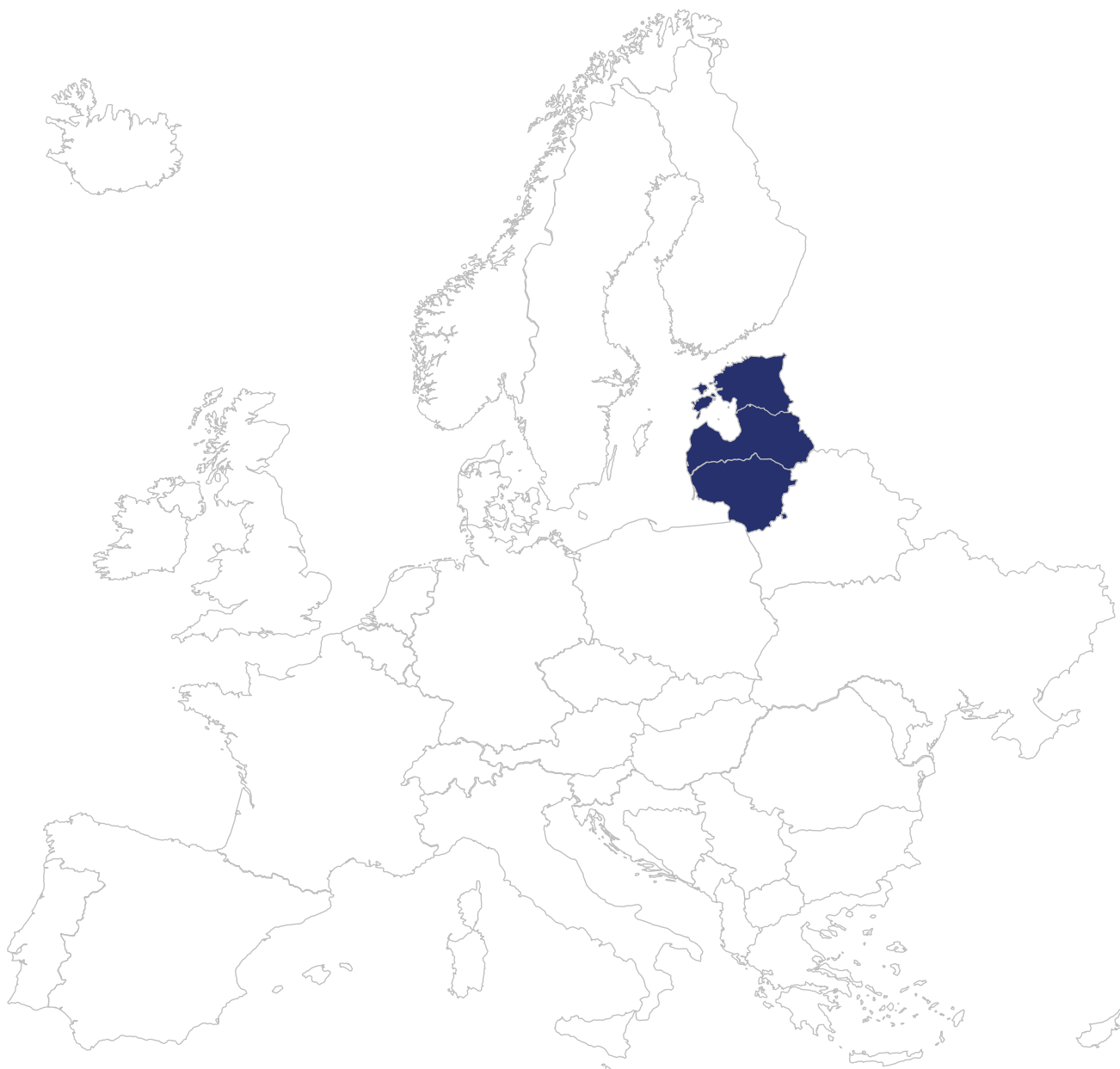
TSO's involved: 50Hertz, TransnetBW, Amprion & Tennet GER



Question	Exchanges of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO cooperation
What products are used in the exchange mechanism?	aFRR and mFRR (and FCR)
Is there symmetry/reciprocity in the products exchanged?	Yes
Capacity reservation	
Cross-Border Capacity Reservation	No
If Yes, Method in Use	
Level of harmonisation	
What is the level of Harmonisation of national or local Products?	Full Harmonisation
Are the Gate Closure Times for TSO-TSO bids harmonised?	Yes
Are the Gate Closure Times for internal markets harmonised?	Yes
Is the Imbalance Settlement Time Period harmonised?	Yes
Are the Settlement Rules harmonised?	Yes
Are the imbalance pricing methods harmonised?	Full Harmonisation
Are other items harmonised?	Yes
Reserves	
Responsibility in sizing	Joint dimensioning of reserves
Are there defined cost-sharing rules in place?	Yes
Additional information	
Common dimensioning and common procurement	

Baltic Coordinated Balancing Area (COBA)

TSO's involved: Elering AS, AS Augstsprieguma tīkls & LITGRID AB

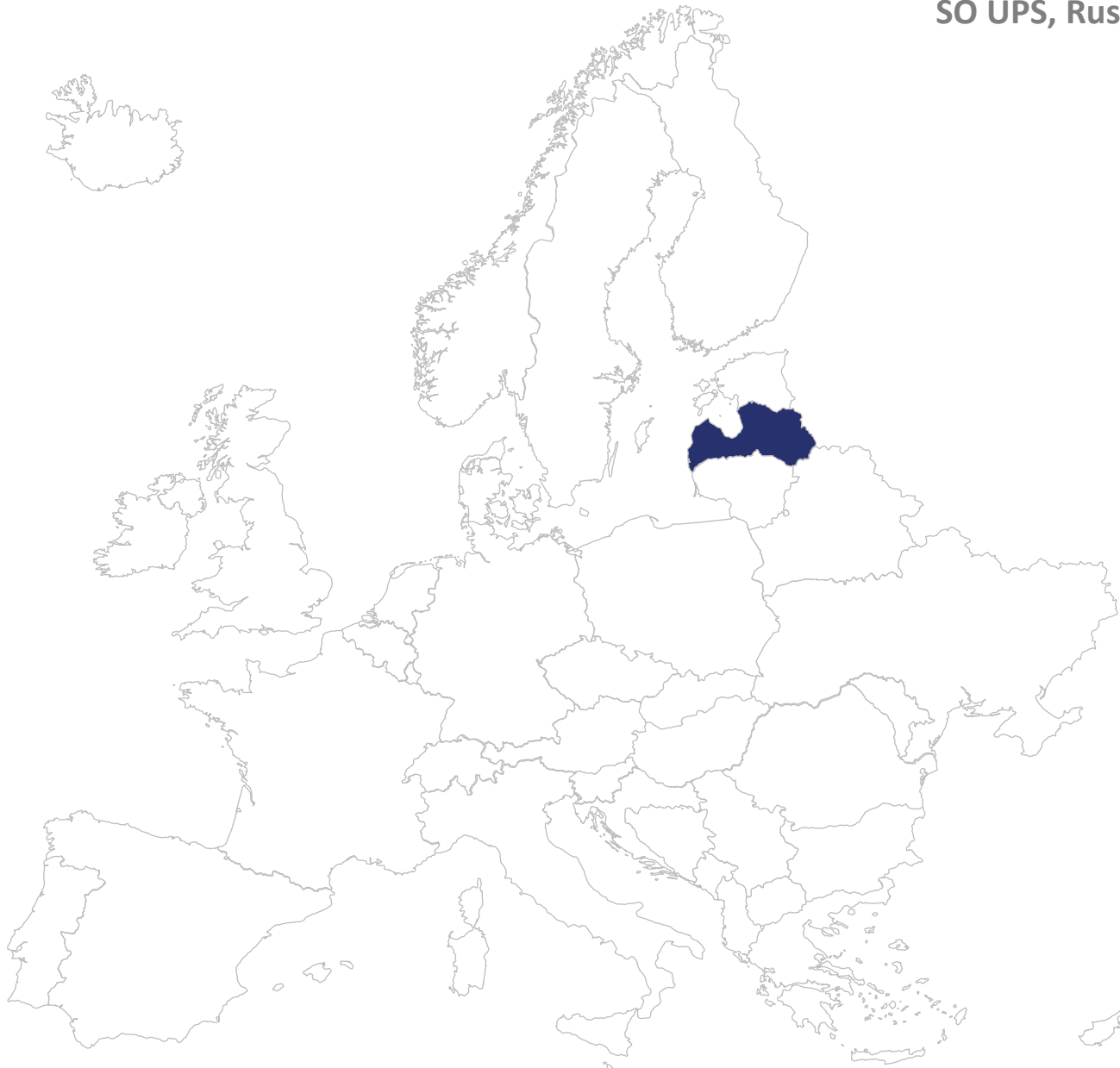


Question	Exchanges of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Capacity reservation	
Cross-Border Capacity Reservation	No
If Yes, Method in Use	
Level of harmonisation	
What is the level of Harmonisation of national or local Products?	Some Harmonisation
Are the Gate Closure Times for TSO-TSO bids harmonised?	Yes
Are the Gate Closure Times for internal markets harmonised?	Partially Harmonised
Is the Imbalance Settlement Time Period harmonised?	N/A (if imbalance settlement period is already the same for exchanging parties)
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	Joint definition of reserves
Are there defined cost-sharing rules in place?	No
Additional information	
Common Baltic mFRR balancing energy market	

Emergency reserves activation

TSO's involved: AS Augstsprieguma tīkls, Latvia

SO UPS, Russia

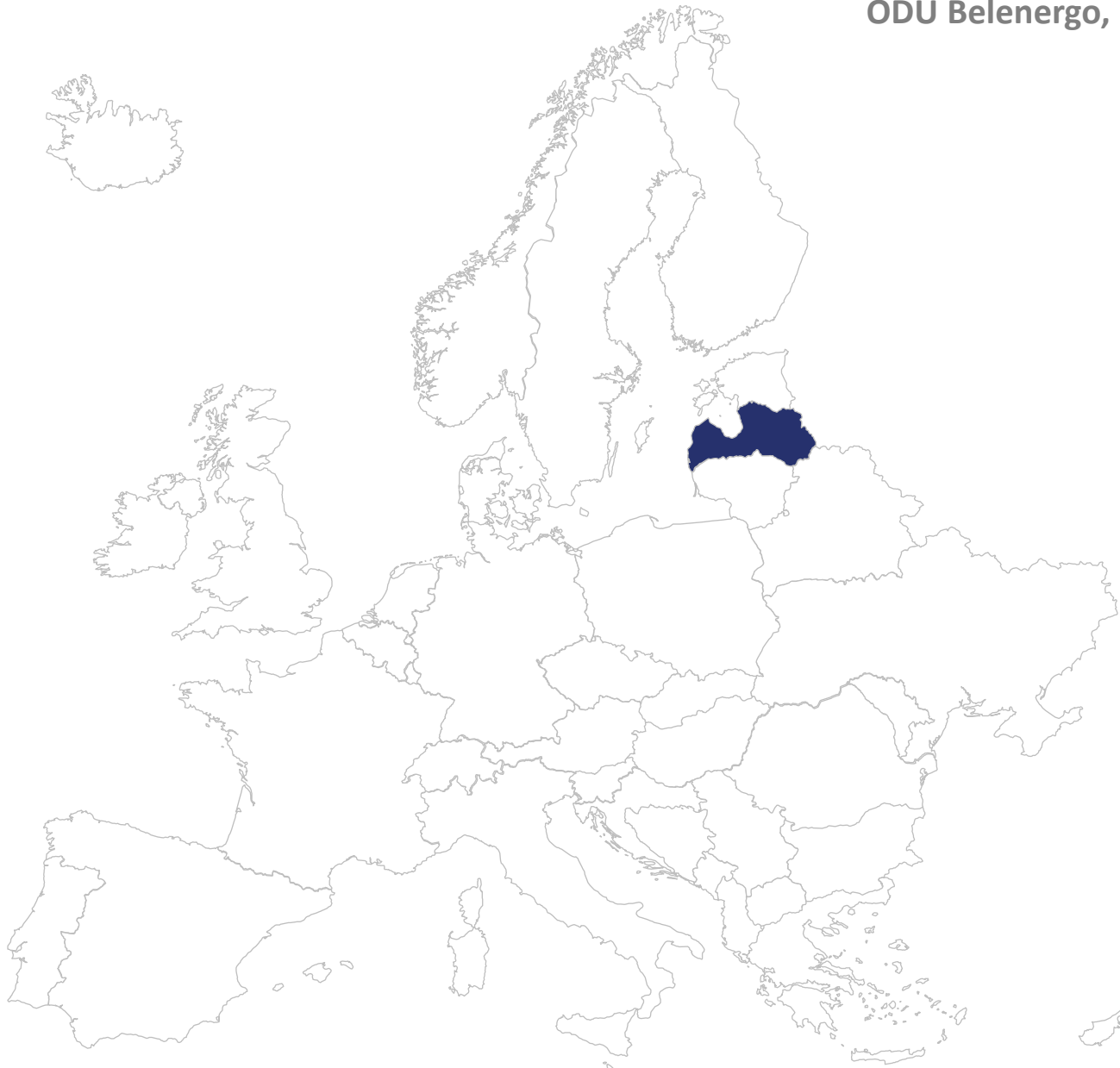


Question	Exchanges of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Capacity reservation	
Cross-Border Capacity Reservation	No
If Yes, Method in Use	
Level of harmonisation	
What is the level of Harmonisation of national or local Products?	No Harmonisation & creation of dedicated cross-border products
Are the Gate Closure Times for TSO-TSO bids harmonised?	Yes
Are the Gate Closure Times for internal markets harmonised?	No
Is the Imbalance Settlement Time Period harmonised?	N/A (if imbalance settlement period is already the same for exchanging parties)
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	Joint definition of reserves
Are there defined cost-sharing rules in place?	No
Additional information	

Agreement on the provision on the system service

TSO's involved: AS Augstsprieguma tīkls, Latvia

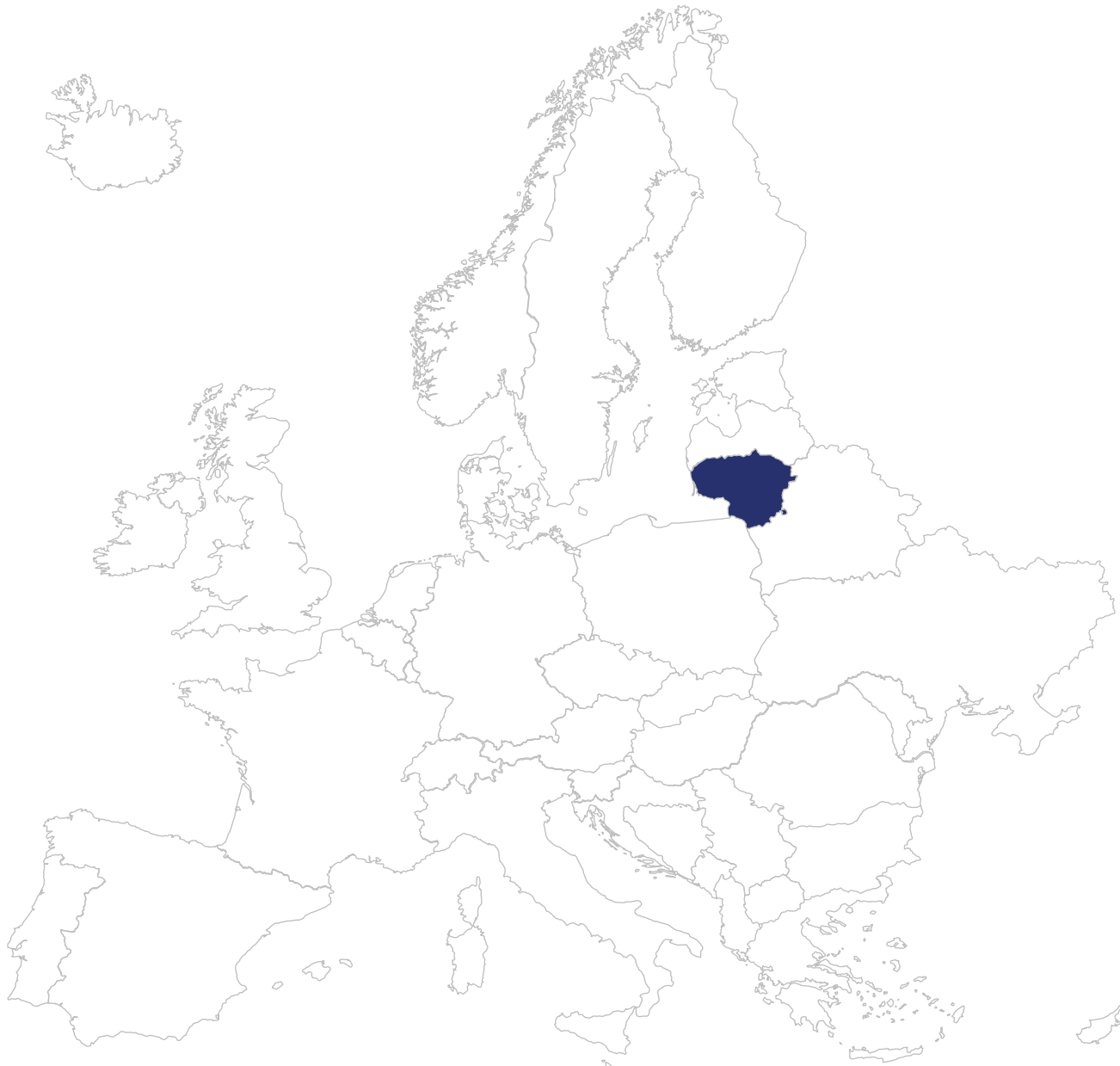
ODU Belenergo, Belarus



Question	Exchanges of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Capacity reservation	
Cross-Border Capacity Reservation	No
If Yes, Method in Use	
Level of harmonisation	
What is the level of Harmonisation of national or local Products?	No Harmonisation & creation of dedicated cross-border products
Are the Gate Closure Times for TSO-TSO bids harmonised?	Yes
Are the Gate Closure Times for internal markets harmonised?	No
Is the Imbalance Settlement Time Period harmonised?	N/A (if imbalance settlement period is already the same for exchanging parties)
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	Joint definition of reserves
Are there defined cost-sharing rules in place?	No
Additional information	

Agreement on provision of system services/Agreement on provision of regulation service

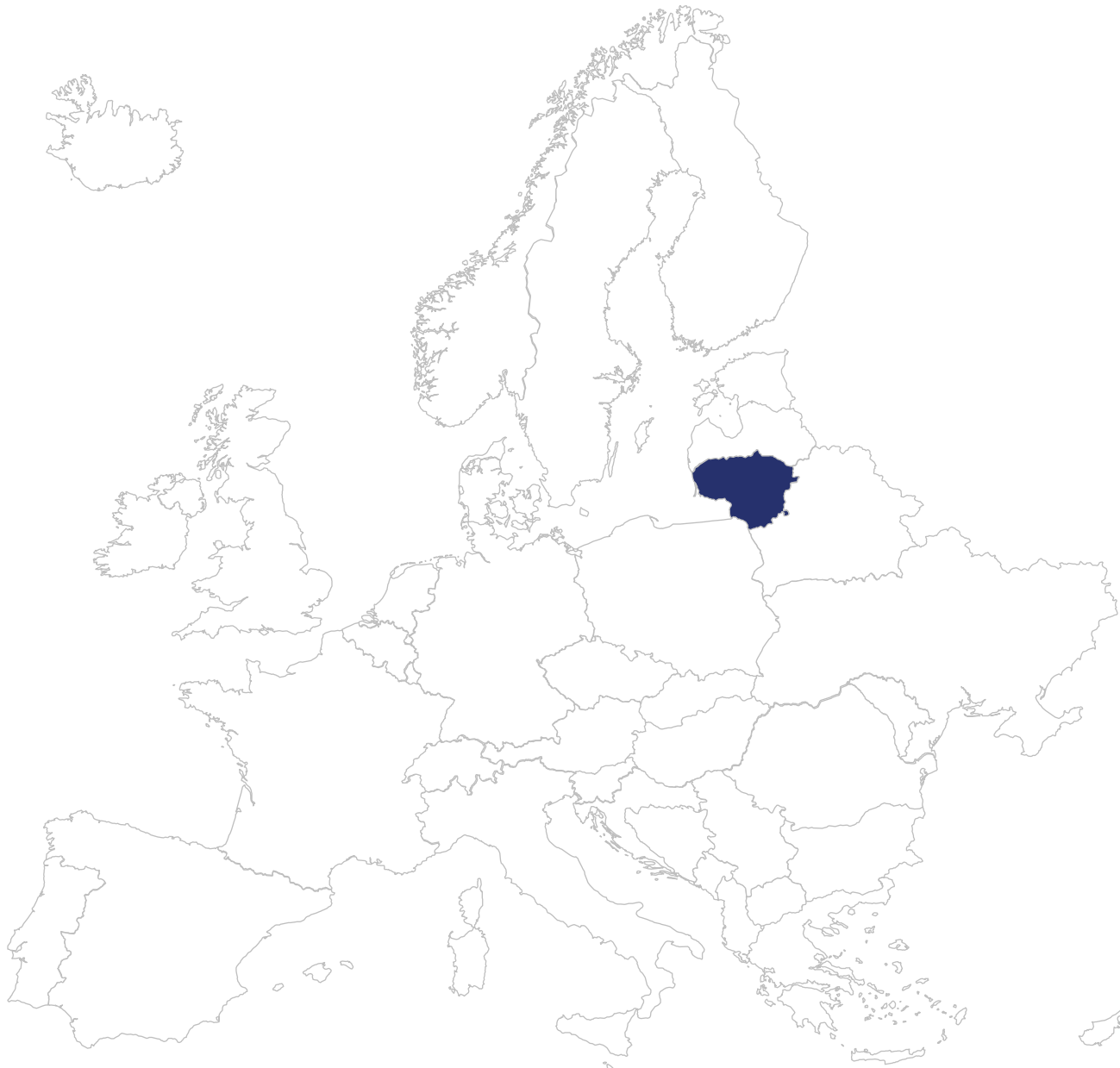
TSO's involved: LITGRID AB & ODU BELENERGO



Question	Exchanges of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Capacity reservation	
Cross-Border Capacity Reservation	No
If Yes, Method in Use	
Level of harmonisation	
What is the level of Harmonisation of national or local Products?	No Harmonisation & creation of dedicated cross-border products
Are the Gate Closure Times for TSO-TSO bids harmonised?	Yes
Are the Gate Closure Times for internal markets harmonised?	No
Is the Imbalance Settlement Time Period harmonised?	N/A (if imbalance settlement period is already the same for exchanging parties)
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	Joint definition of reserves
Are there defined cost-sharing rules in place?	No
Additional information	

Agreement on provision of system services/Agreement on provision of regulation and balancing service

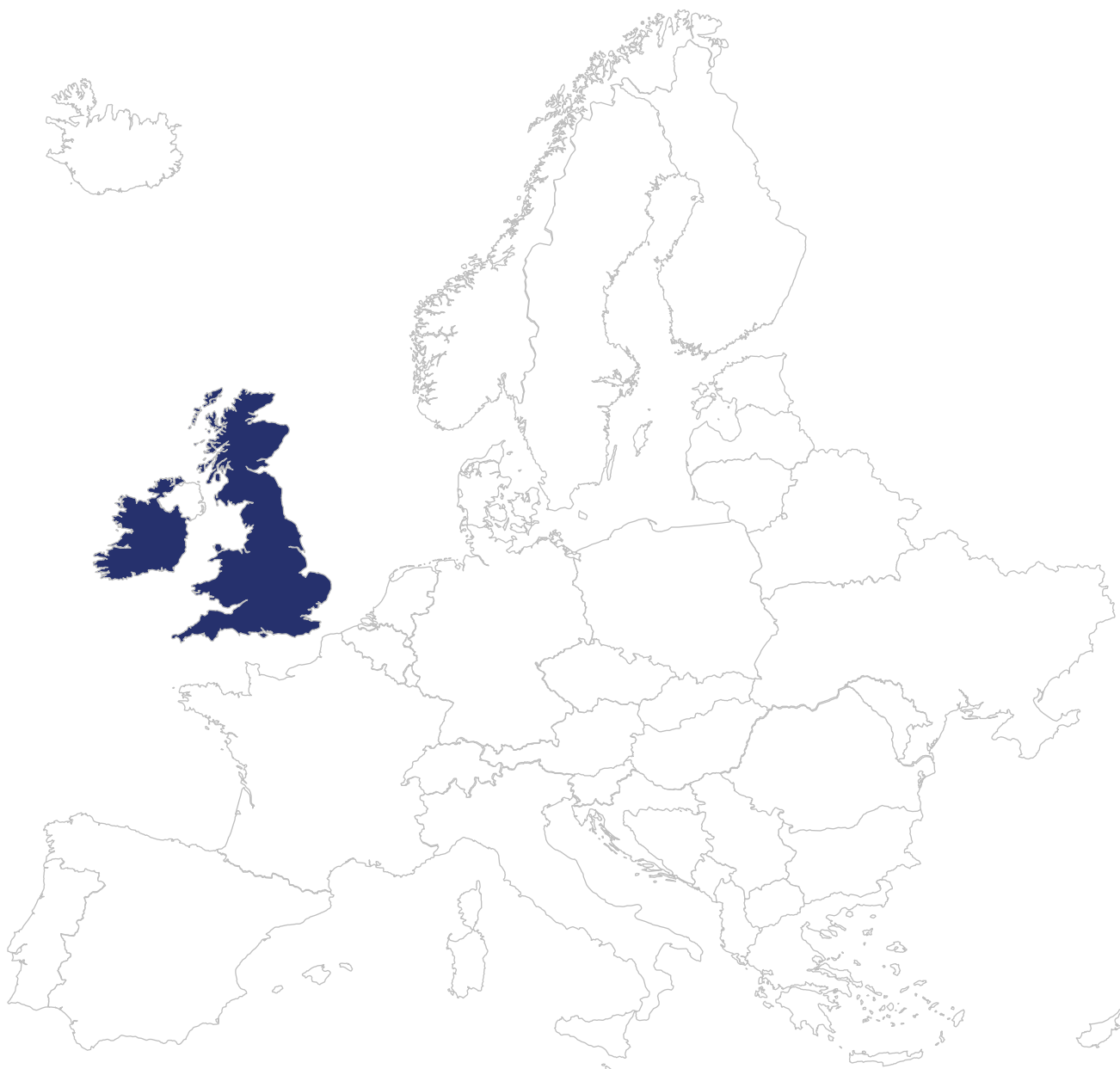
TSO's involved: LITGRID AB & CDU TEK



Question	Exchanges of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Capacity reservation	
Cross-Border Capacity Reservation	No
If Yes, Method in Use	
Level of harmonisation	
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Are the Gate Closure Times for TSO-TSO bids harmonised?	Yes
Are the Gate Closure Times for internal markets harmonised?	No
Is the Imbalance Settlement Time Period harmonised?	N/A (if imbalance settlement period is already the same for exchanging parties)
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	Joint definition of reserves
Are there defined cost-sharing rules in place?	No
Additional information	

Cross Border Balancing between Ireland & GB

TSO's involved: Eirgrid & National Grid



Question	Exchanges of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Containment Reserve
Is there symmetry/reciprocity in the products exchanged?	Yes
Capacity reservation	
Cross-Border Capacity Reservation	No
If Yes, Method in Use	
Level of harmonisation	
What is the level of Harmonisation of national or local Products?	No harmonisation
Are the Gate Closure Times for TSO-TSO bids harmonised?	Yes
Are the Gate Closure Times for internal markets harmonised?	No
Is the Imbalance Settlement Time Period harmonised?	Yes
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No
Are other items harmonised?	No
Reserves	
Responsibility in sizing	Defined separately
Are there defined cost-sharing rules in place?	No
Additional information	

Cross-border market for FCR: Czech Republic - Slovakia

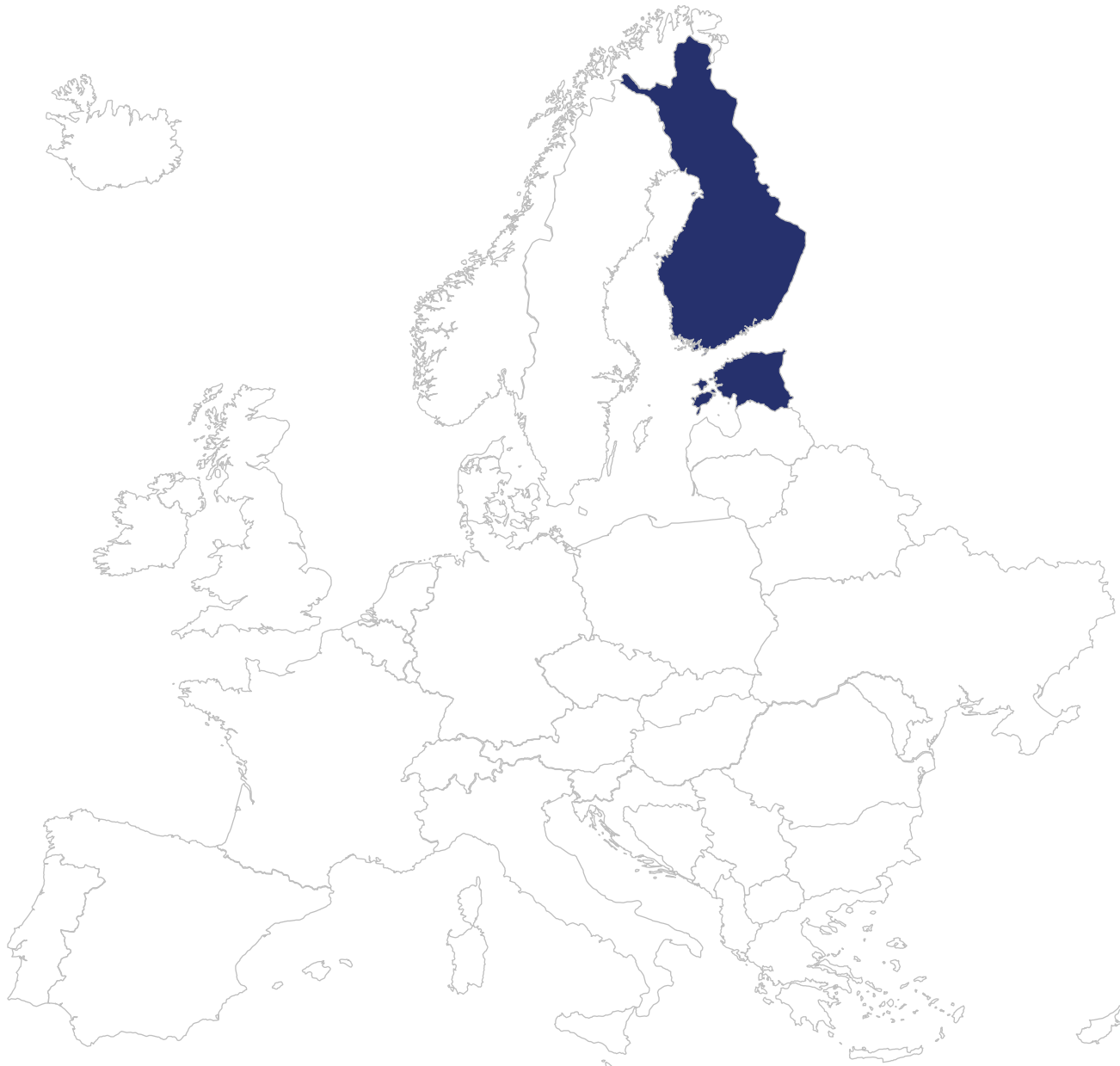
TSO's involved: ČEPS & SEPS



Question	Exchanges of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	Exchange of balancing capacity (TSO-TSO cooperation)
What products are used in the exchange mechanism?	Frequency Containment Reserve
Is there symmetry/reciprocity in the products exchanged?	Yes
Capacity reservation	
Cross-Border Capacity Reservation	No
If Yes, Method in Use	
Level of harmonisation	
What is the level of Harmonisation of national or local Products?	Some Harmonisation
Are the Gate Closure Times for TSO-TSO bids harmonised?	No
Are the Gate Closure Times for internal markets harmonised?	No
Is the Imbalance Settlement Time Period harmonised?	No, in Slovakia ISP is 15 min. In Czech Republic ISP is 60 min.
Are the Settlement Rules harmonised?	Yes
Are the imbalance pricing methods harmonised?	N/A
Are other items harmonised?	Yes
Reserves	
Responsibility in sizing	N/A
Are there defined cost-sharing rules in place?	N/A
Additional information	

Finland - Estonia

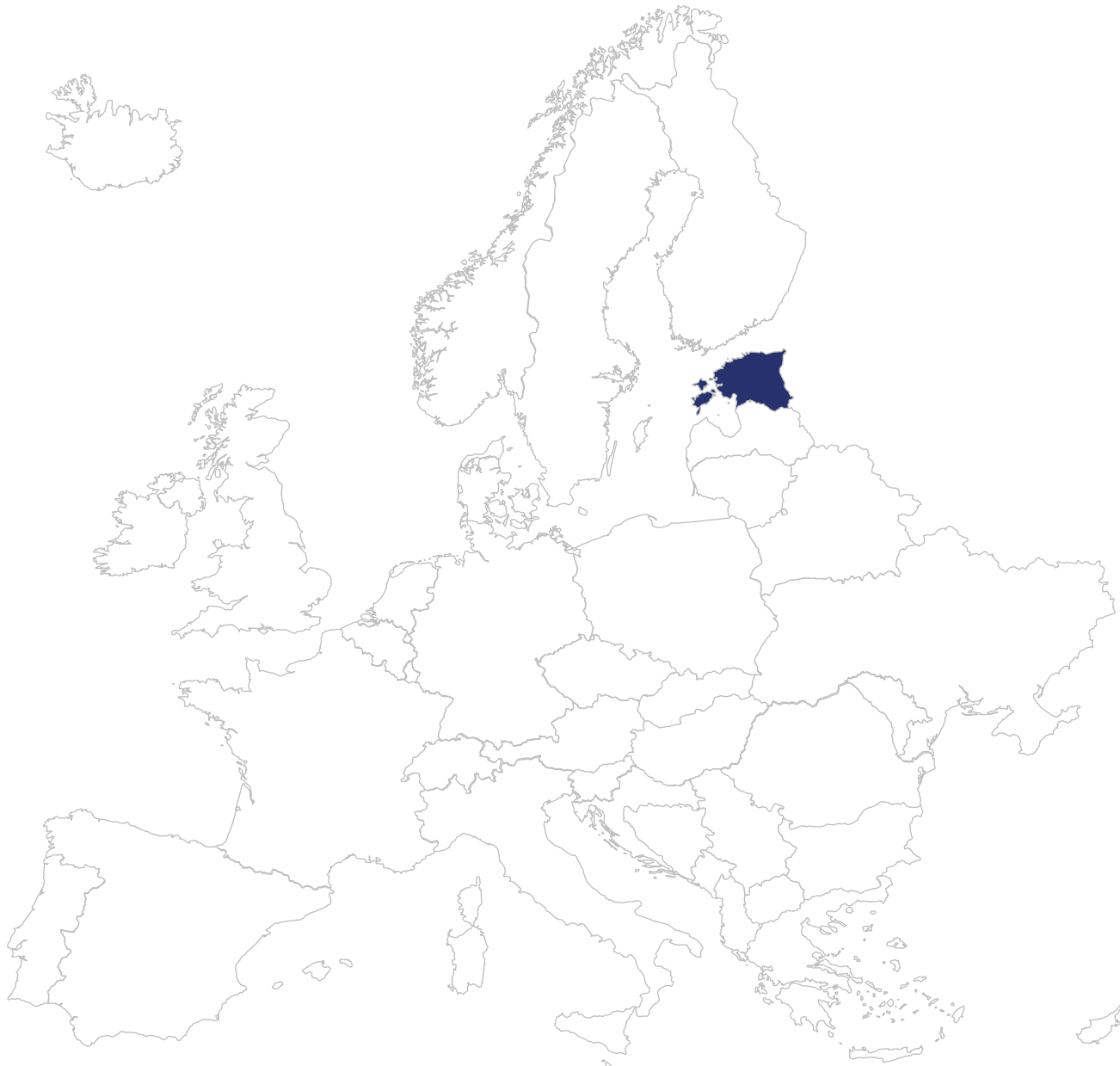
TSO's involved: Elering AS & Fingrid



Question	Exchanges of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	Exchange of balancing capacity (TSO-TSO cooperation)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Capacity reservation	
Cross-Border Capacity Reservation	No
If Yes, Method in Use	
Level of harmonisation	
What is the level of Harmonisation of national or local Products?	No Harmonisation & creation of dedicated cross-border products
Are the Gate Closure Times for TSO-TSO bids harmonised?	No
Are the Gate Closure Times for internal markets harmonised?	N/A (if initially the same)
Is the Imbalance Settlement Time Period harmonised?	No
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	Defined separately
Are there defined cost-sharing rules in place?	Yes
Additional information	
Using any other cross-border arrangement?	No

Emergency reserve activation agreement

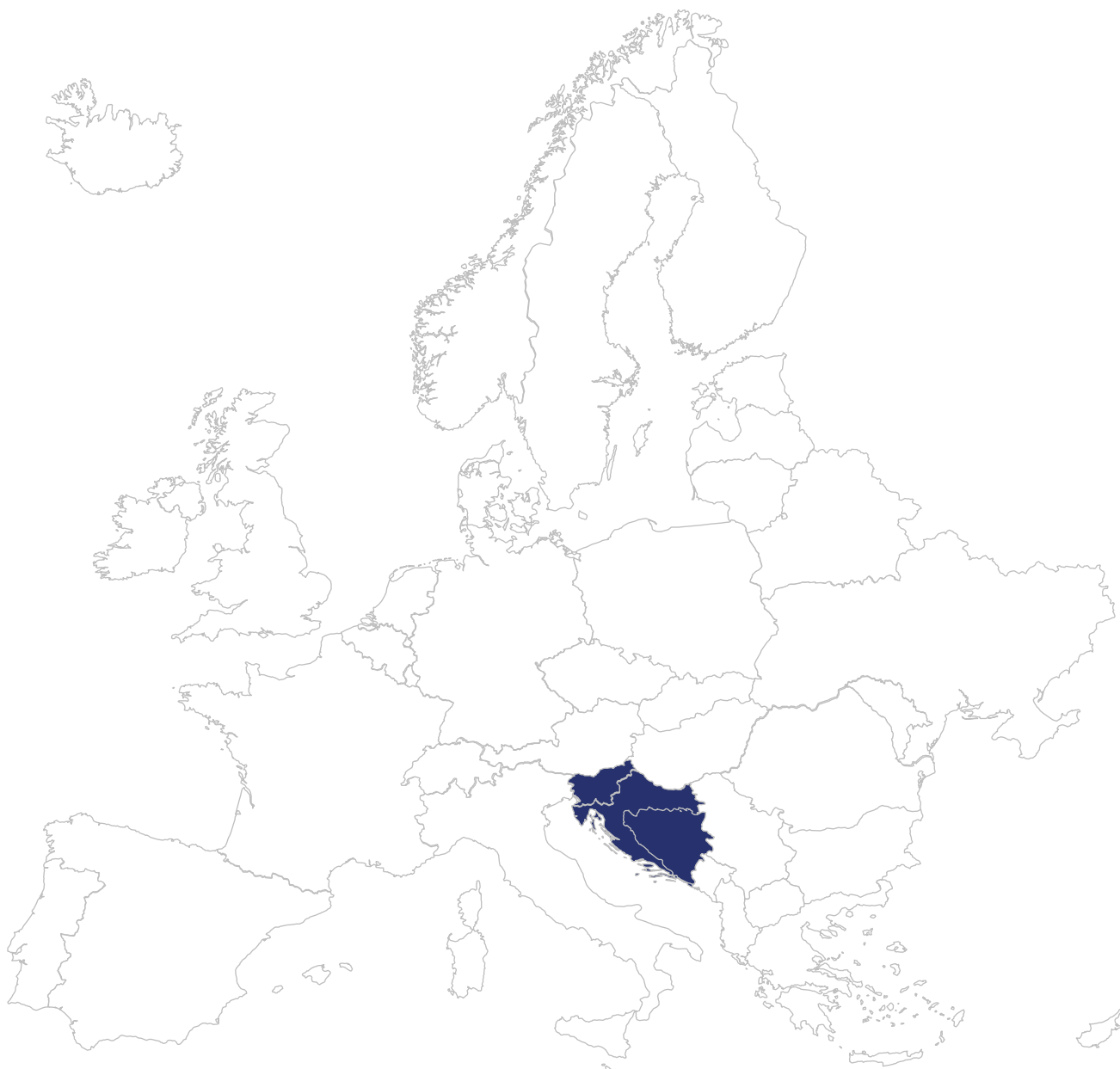
TSO's involved: Elering AS & ODU BELENERGO



Question	Exchanges of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Capacity reservation	
Cross-Border Capacity Reservation	No
If Yes, Method in Use	
Level of harmonisation	
What is the level of Harmonisation of national or local Products?	Some Harmonisation
Are the Gate Closure Times for TSO-TSO bids harmonised?	Yes
Are the Gate Closure Times for internal markets harmonised?	N/A (if initially the same)
Is the Imbalance Settlement Time Period harmonised?	No
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	
Are there defined cost-sharing rules in place?	
Additional information	

Agreement on common frequency control reserves in the control block SHB

TSO's involved: NOS BIH & ELES & HOPS



Question	Exchanges of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	No
Capacity reservation	
Cross-Border Capacity Reservation	No
If Yes, Method in Use	
Level of harmonisation	
What is the level of Harmonisation of national or local Products?	No Harmonisation & creation of dedicated cross-border products
Are the Gate Closure Times for TSO-TSO bids harmonised?	No
Are the Gate Closure Times for internal markets harmonised?	No
Is the Imbalance Settlement Time Period harmonised?	No
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	Joint definition of reserves
Are there defined cost-sharing rules in place?	No
Additional information	

Agreement on common frequency control reserves in the control block SHB

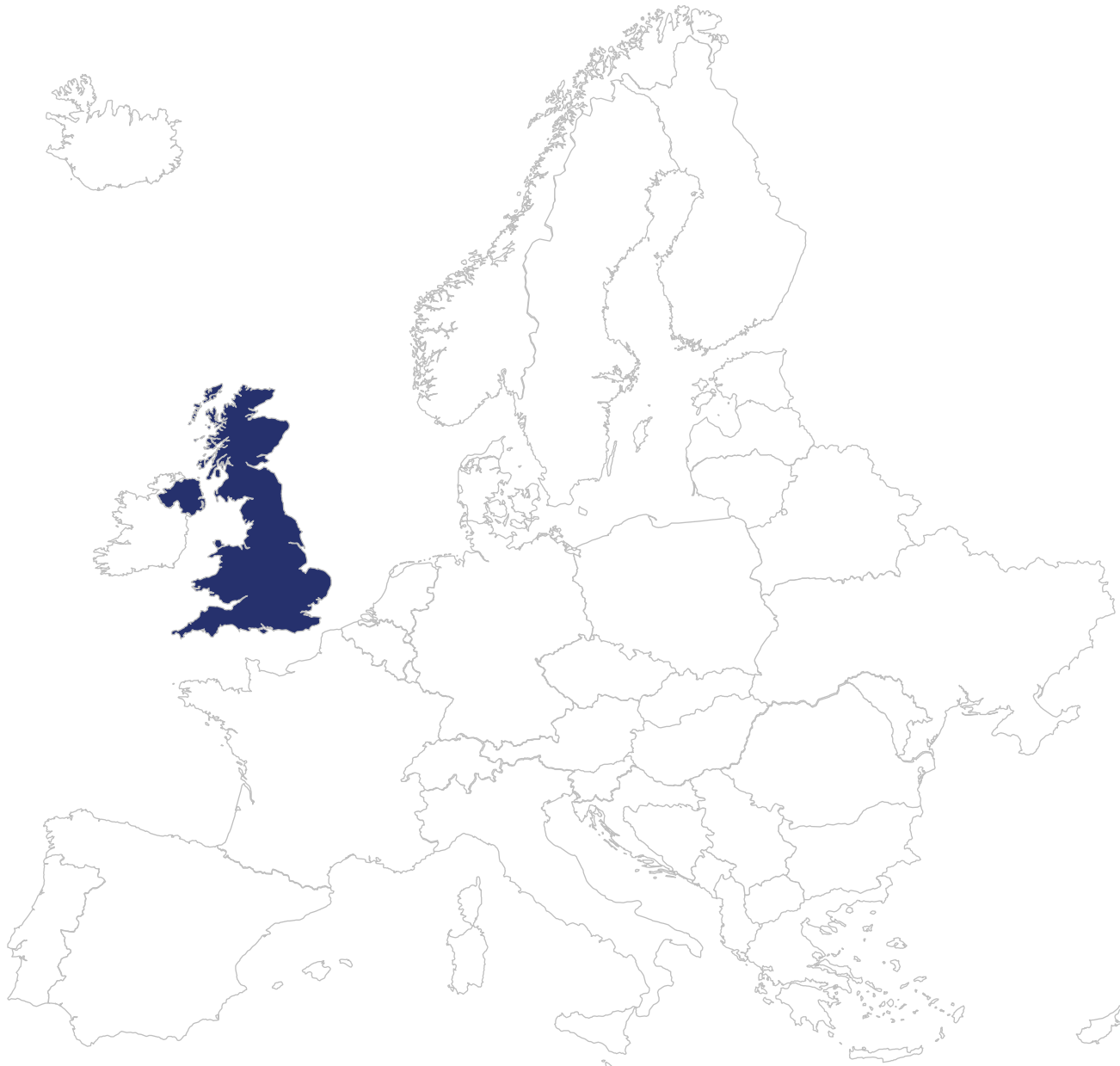
TSO's involved: NOS BIH & HOPS



Question	Exchanges of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	No
Capacity reservation	
Cross-Border Capacity Reservation	No
If Yes, Method in Use	N/A
Level of harmonisation	
What is the level of Harmonisation of national or local Products?	Some Harmonisation
Are the Gate Closure Times for TSO-TSO bids harmonised?	Yes
Are the Gate Closure Times for internal markets harmonised?	No
Is the Imbalance Settlement Time Period harmonised?	N/A (if imbalance settlement period is already the same for exchanging parties)
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	N/A
Reserves	
Responsibility in sizing	Joint definition of reserves
Are there defined cost-sharing rules in place?	Yes
Additional information	

Cross Border Balancing Northern Ireland & GB

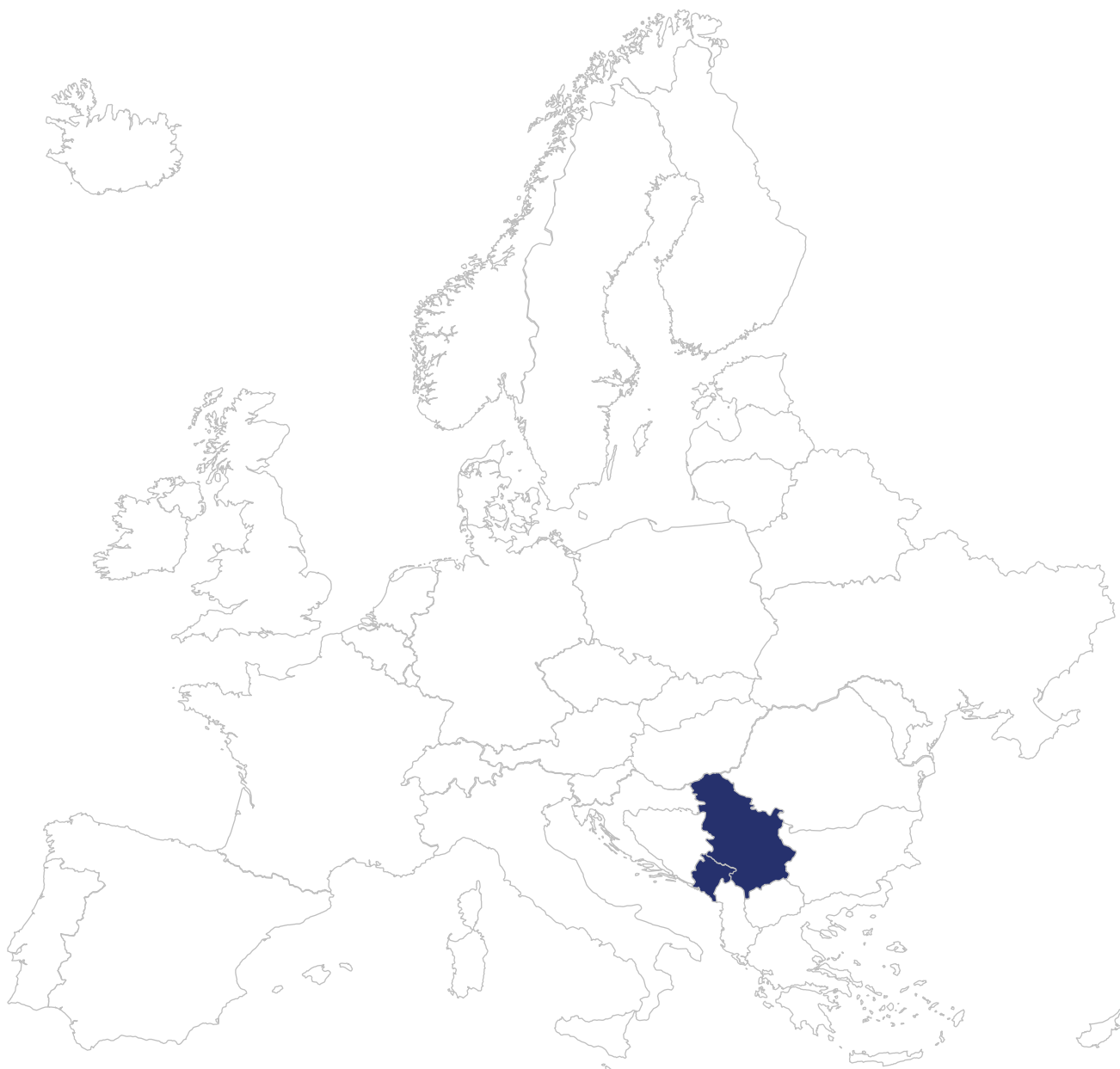
TSO's involved: SONI & National Grid



Question	Exchanges of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Containment Reserve
Is there symmetry/reciprocity in the products exchanged?	Yes
Capacity reservation	
Cross-Border Capacity Reservation	No
If Yes, Method in Use	
Level of harmonisation	
What is the level of Harmonisation of national or local Products?	No harmonisation
Are the Gate Closure Times for TSO-TSO bids harmonised?	Yes
Are the Gate Closure Times for internal markets harmonised?	No
Is the Imbalance Settlement Time Period harmonised?	Yes
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No
Are other items harmonised?	No
Reserves	
Responsibility in sizing	Defined separately
Are there defined cost-sharing rules in place?	No
Additional information	

Cross-border Tertiary Regulation

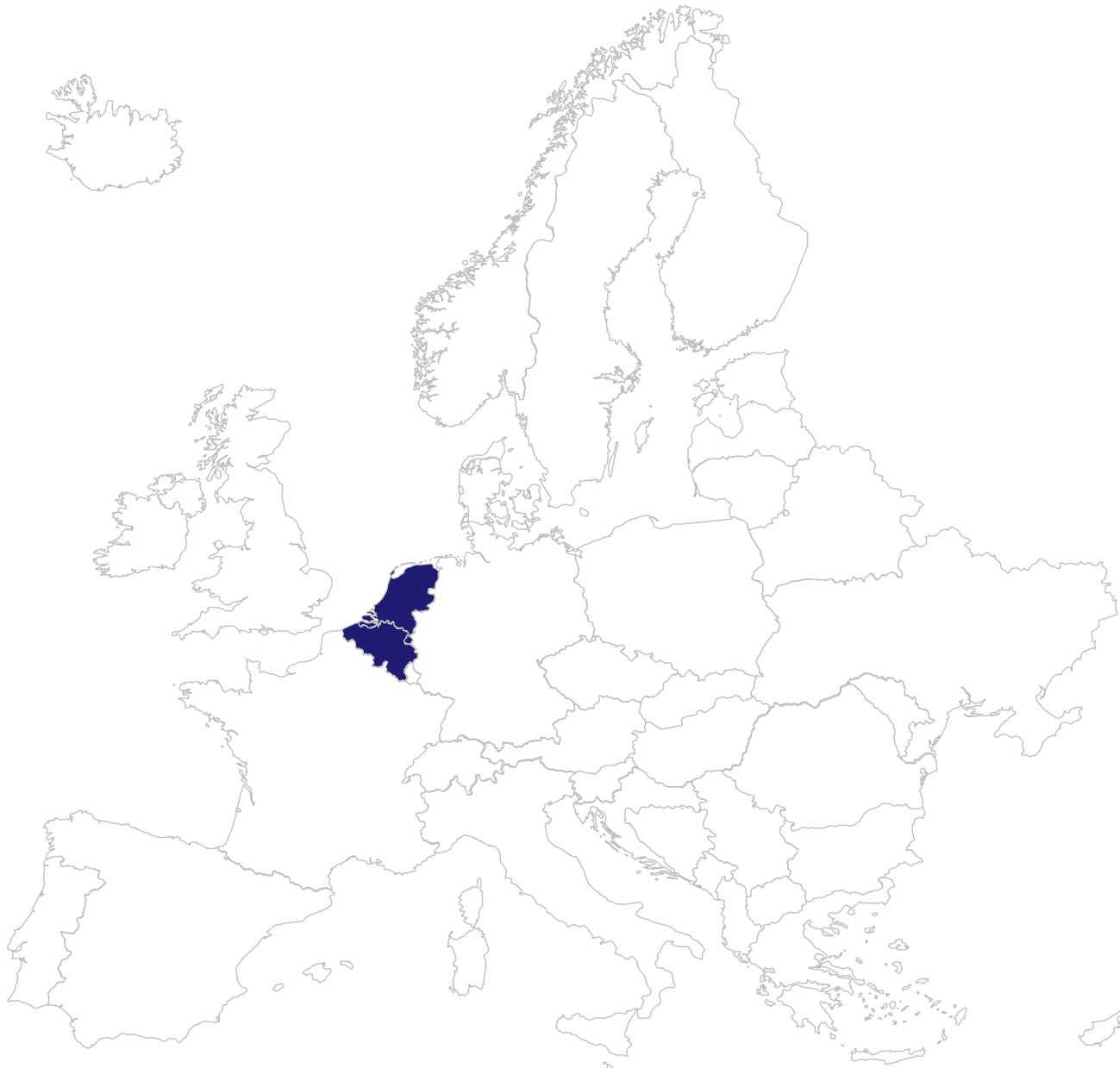
TSO's involved: EMS Serbia & CGES Montenegro



Question	Exchanges of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	No
Capacity reservation	
Cross-Border Capacity Reservation	No
If Yes, Method in Use	
Level of harmonisation	
What is the level of Harmonisation of national or local Products?	Full Harmonisation
Are the Gate Closure Times for TSO-TSO bids harmonised?	Yes
Are the Gate Closure Times for internal markets harmonised?	Yes
Is the Imbalance Settlement Time Period harmonised?	N/A (if imbalance settlement period is already the same for exchanging parties)
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	Yes
Reserves	
Responsibility in sizing	Defined separately
Are there defined cost-sharing rules in place?	Yes
Additional information	

Pooling of Power reserves and exchange of Control energy between TenneT and Elia

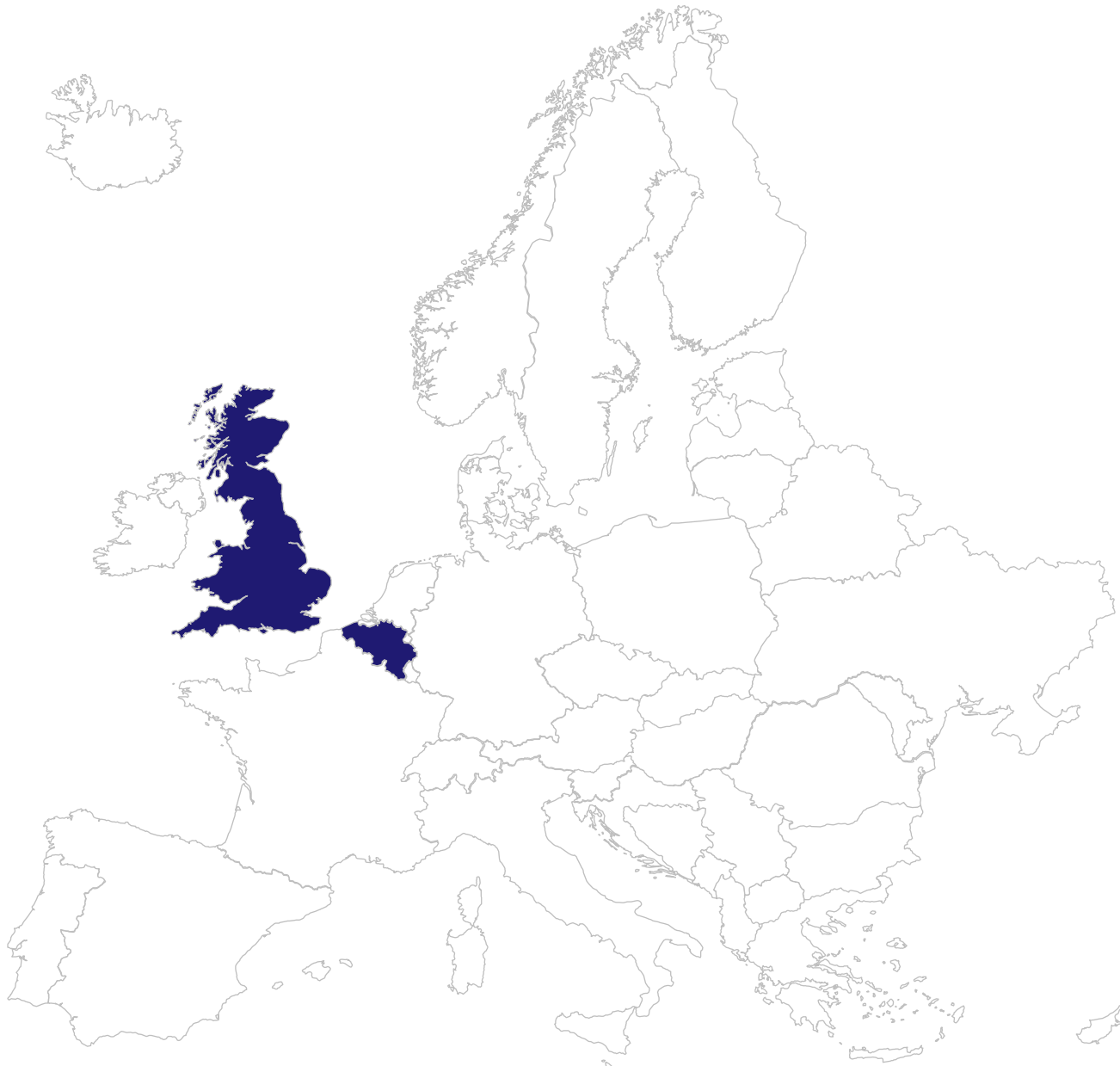
TSO's involved: Elia & TenneT NL



Question	Sharing of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the requesting TSO through the providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No
Are other items harmonised?	No
Reserves	
Responsibility in sizing	Defined separately
Are there defined cost-sharing rules in place?	No
Additional information	

Reserve Sharing Agreement between NGESO and Elia

TSO's involved: Elia & NGESO

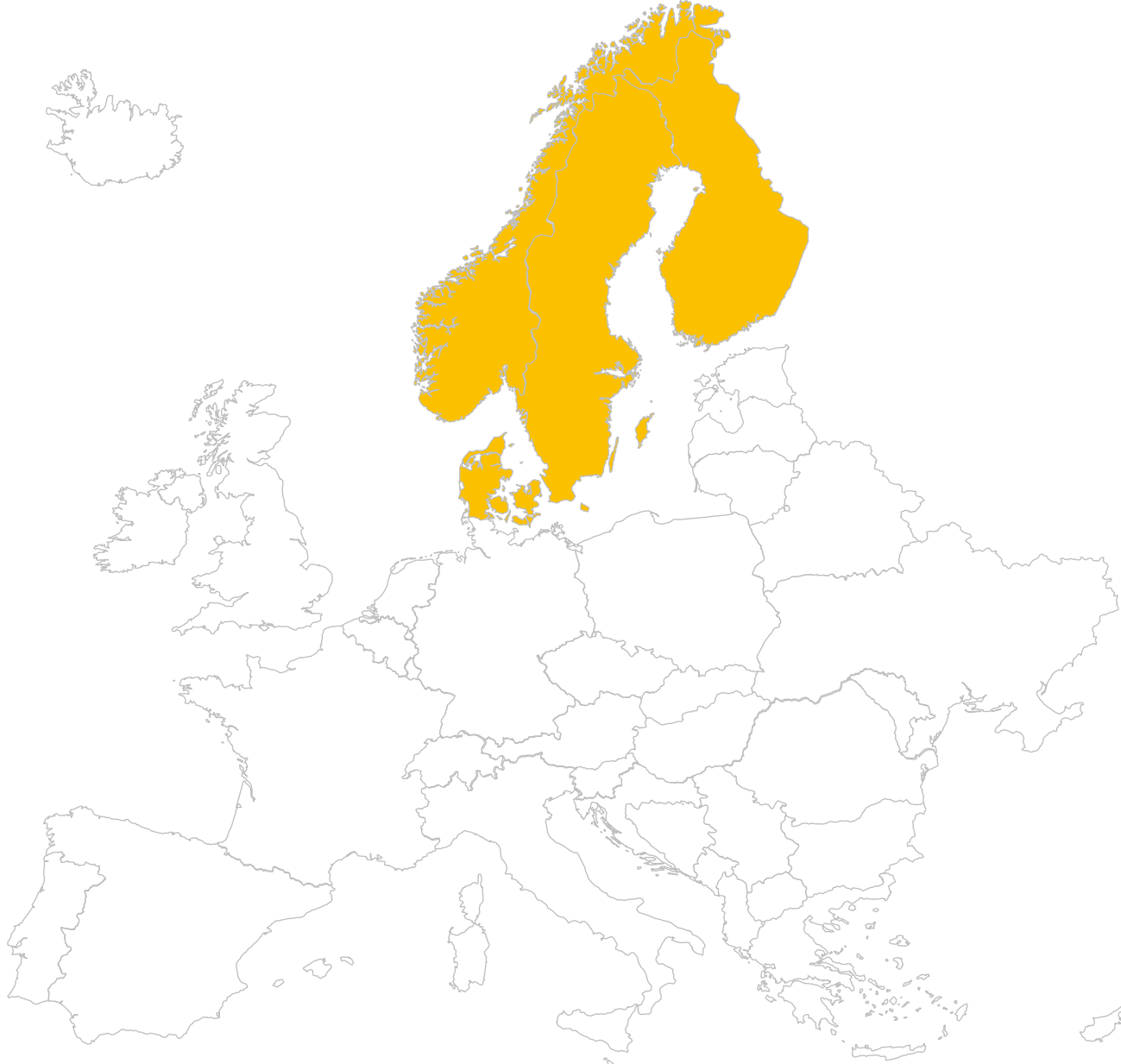


Question	Sharing of Reserves
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the requesting TSO through the providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No
Are other items harmonised?	No
Reserves	
Responsibility in sizing	Defined separately
Are there defined cost-sharing rules in place?	No
Additional information	

Exchanges of balancing energy

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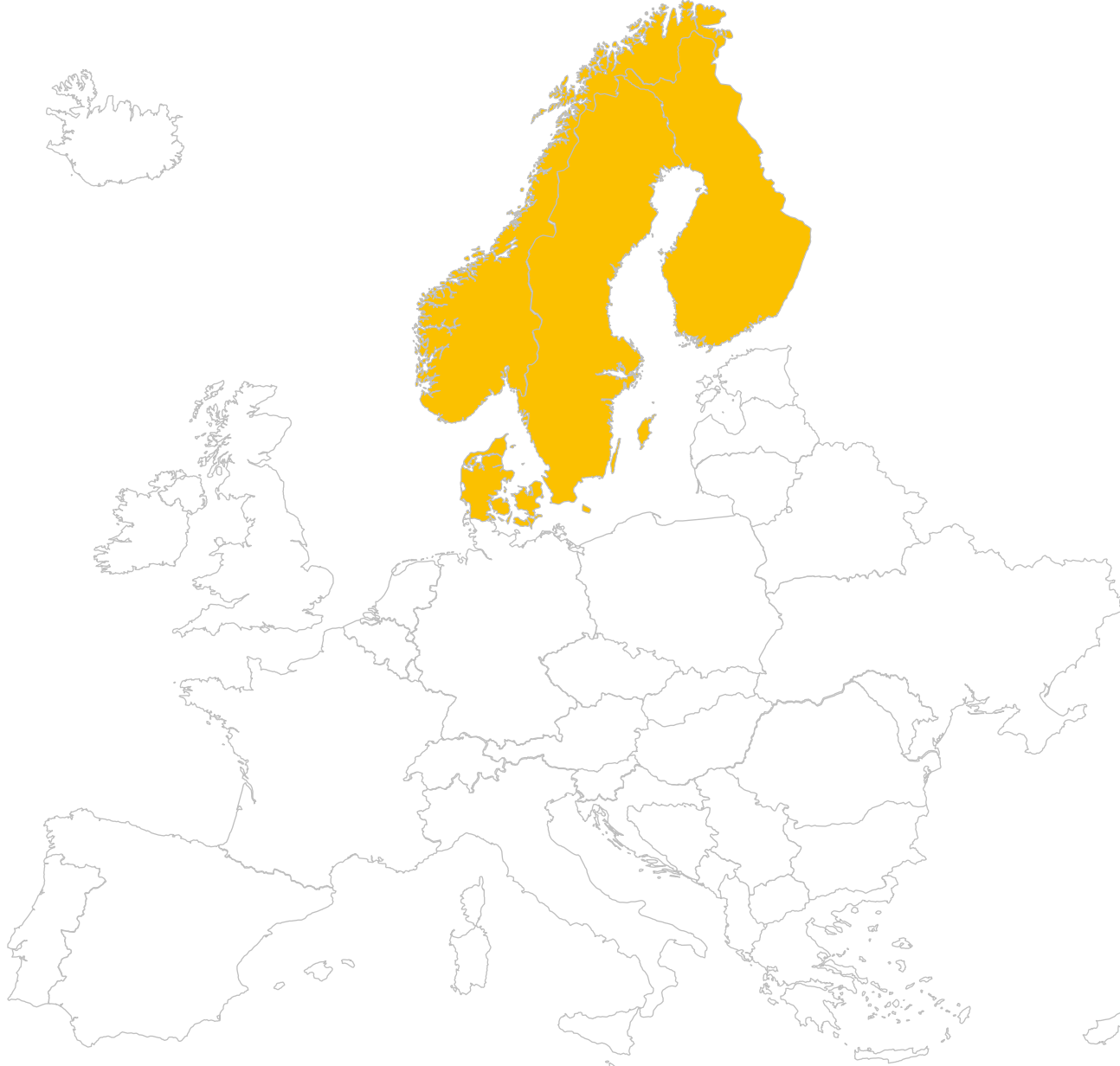
TSO's involved: Fingrid, Energinet.dk IPC, Svenska Kraftnät & Statnett



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	Yes
Are the imbalance pricing methods harmonised?	Some Harmonisation
Are other items harmonised?	Yes
Reserves	
Responsibility in sizing	
Are there defined cost-sharing rules in place?	
Additional information	
Using any other cross-border arrangement?	Yes

Nordic

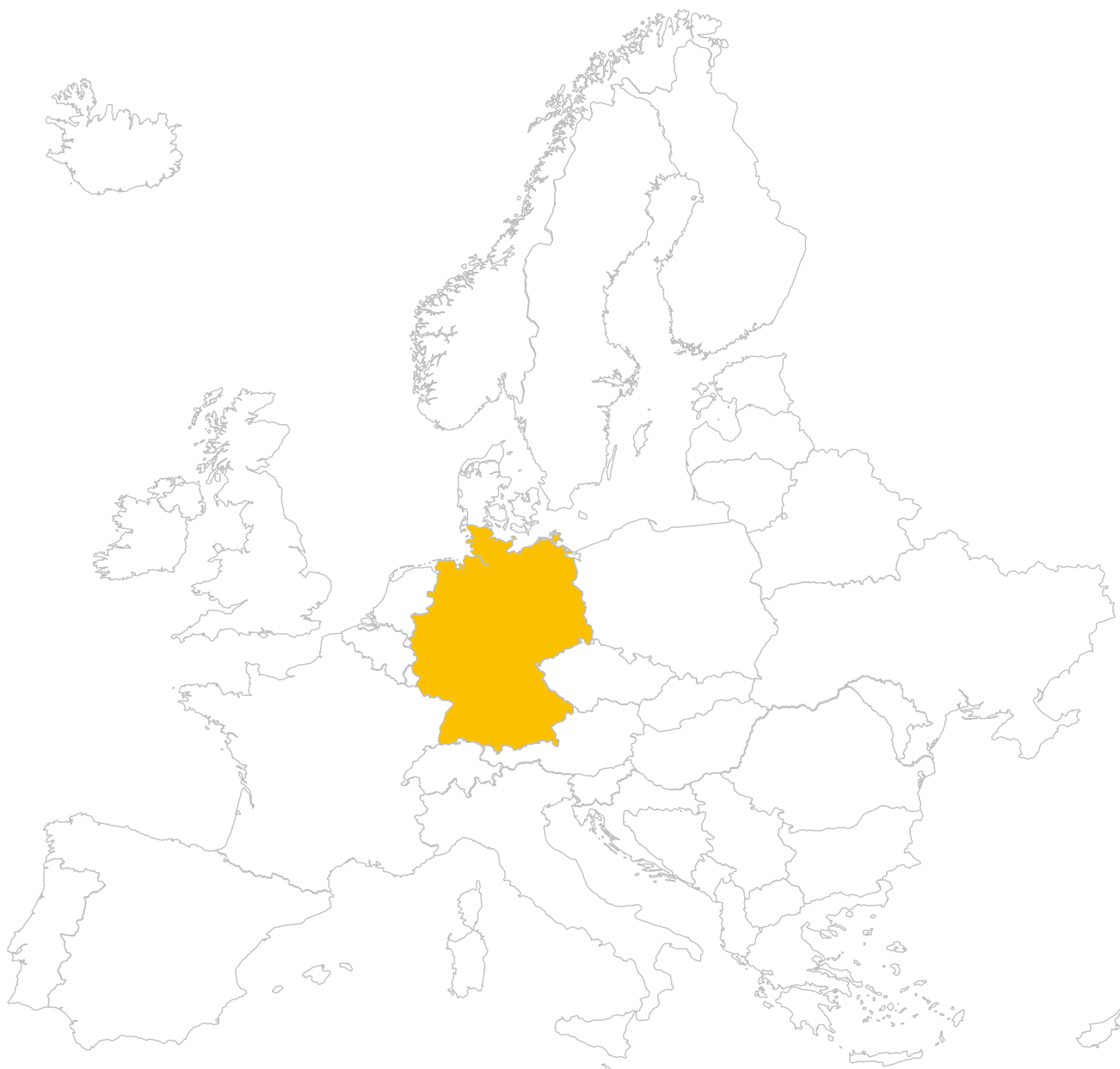
TSO's involved: Fingrid, Energinet.dk IPC, Svenska Kraftnät & Statnett



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	Yes
Are the imbalance pricing methods harmonised?	Some Harmonisation
Are other items harmonised?	Yes
Reserves	
Responsibility in sizing	
Are there defined cost-sharing rules in place?	
Additional information	

German Grid Control Cooperation (GCC)

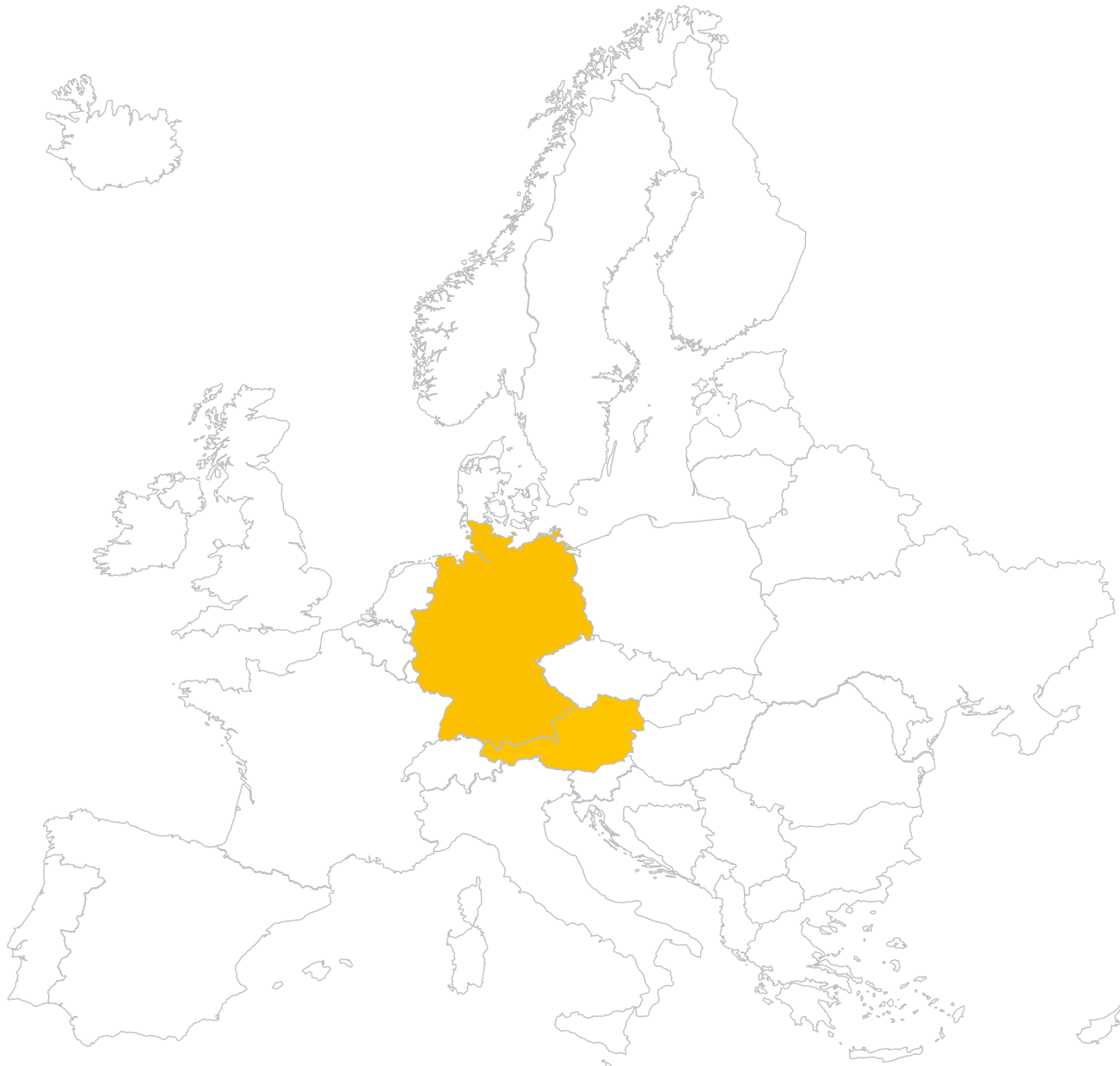
TSO's involved: 50Hertz, TransnetBW, Amprion & Tennet GER



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Automatic and Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	Yes
Are the imbalance pricing methods harmonised?	Full Harmonisation
Are other items harmonised?	Yes
Reserves	
Responsibility in sizing	Joint dimensioning of reserves
Are there defined cost-sharing rules in place?	Yes
Additional information	

FRR-Cooperation

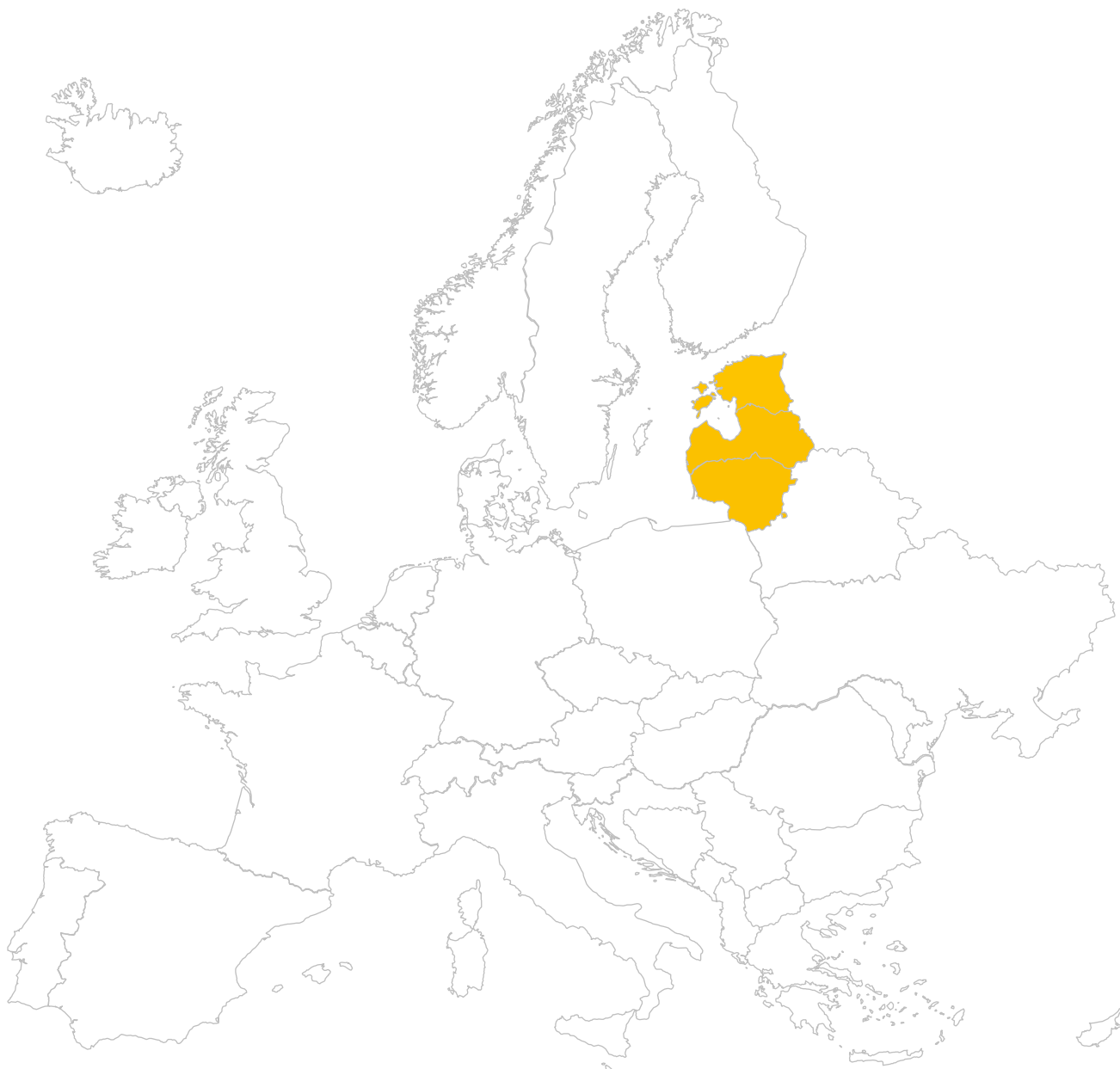
TSO's involved: 50Hertz, TransnetBW, Amprion & Tennet GER, APG



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (automatic and manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	Yes
Are the imbalance pricing methods harmonised?	No
Are other items harmonised?	No
Reserves	
Responsibility in sizing	Each country dimensions itself
Are there defined cost-sharing rules in place?	Yes
Additional information	
Additional: joined procurement of aFRR balancing capacity	

Baltic Coordinated Balancing Area (COBA)

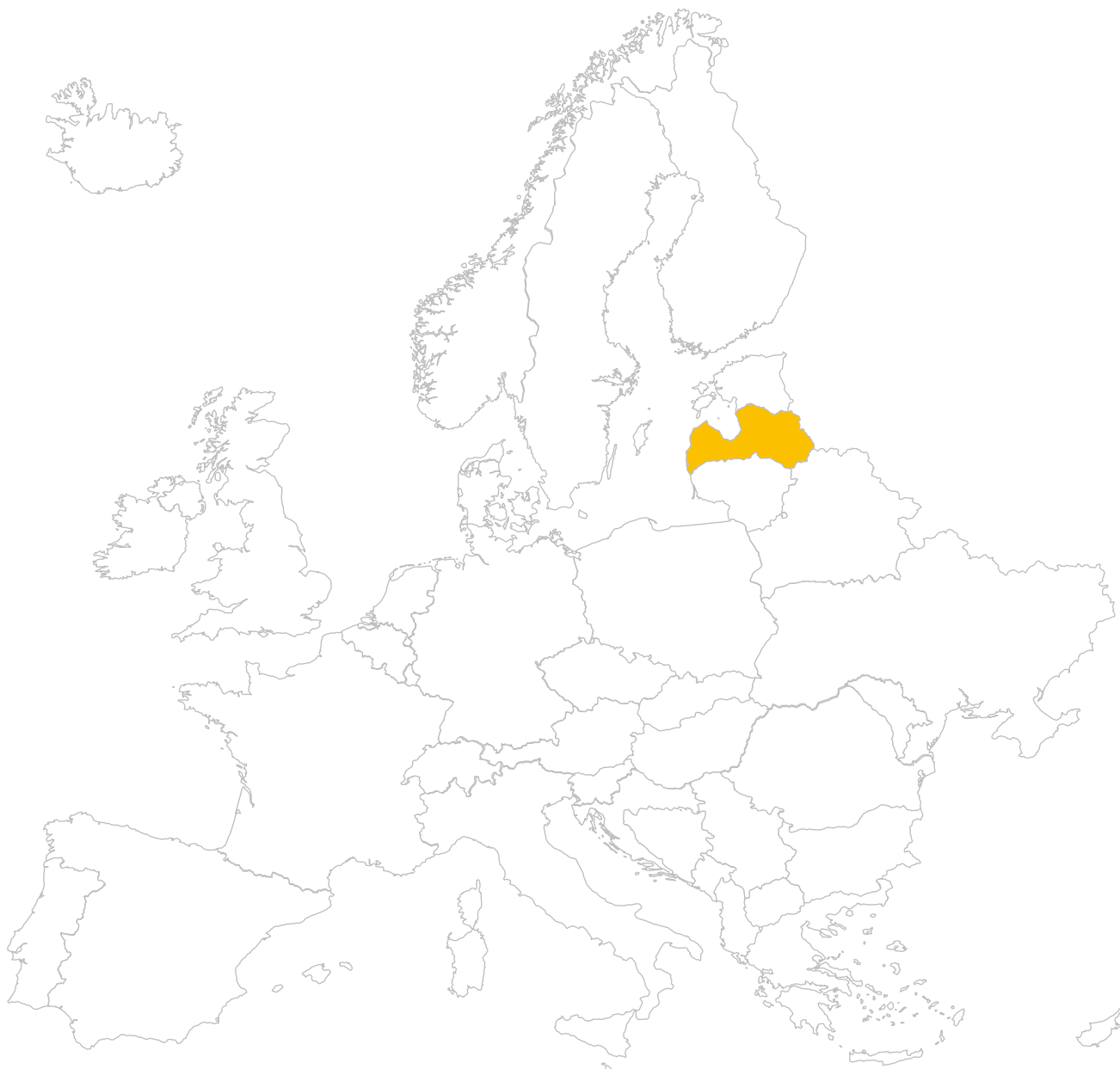
TSO's involved: Elering AS, AS Augstsprieguma tīkls & LITGRID AB



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	Yes
Are the imbalance pricing methods harmonised?	Yes
Are other items harmonised?	Yes
Reserves	
Responsibility in sizing	No
Are there defined cost-sharing rules in place?	No
Additional information	
Common Baltic mFRR balancing energy market	

Emergency reserves activation

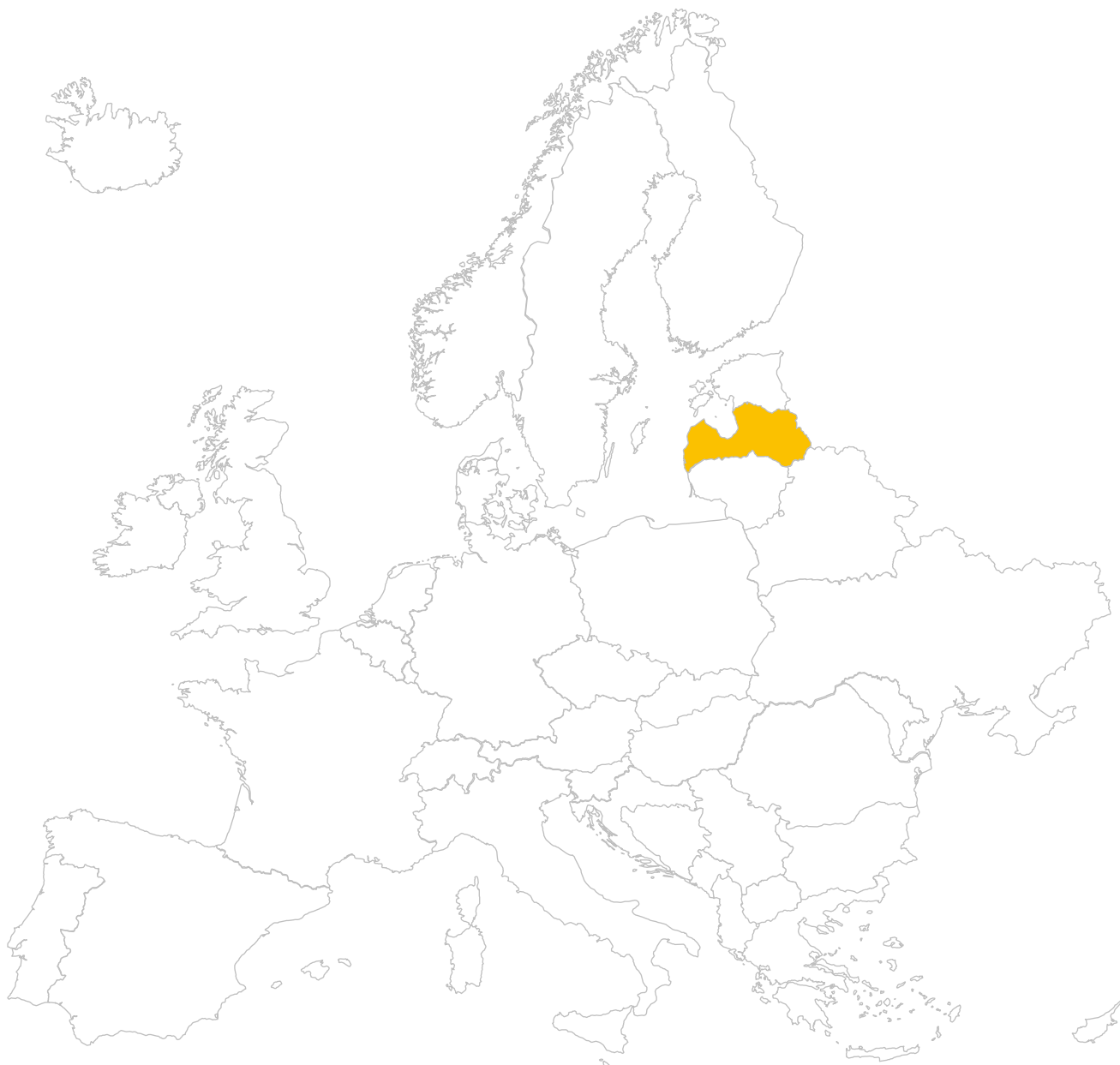
TSO's involved: AS Augstsprieguma tīkls Latvia, SO UPS Russia



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	
Are there defined cost-sharing rules in place?	
Additional information	

Agreement on the provision on the system service

TSO's involved: AS Augstsprieguma tīkls Latvia, ODU Belenergo Belarus



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	
Are there defined cost-sharing rules in place?	
Additional information	

Agreement on provision of system services/Agreement on provision of regulation service

TSO's involved: LITGRID AB & ODU BELENERGO



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	
Are there defined cost-sharing rules in place?	
Additional information	

Agreement on provision of system services/Agreement on provision of regulation and balancing service

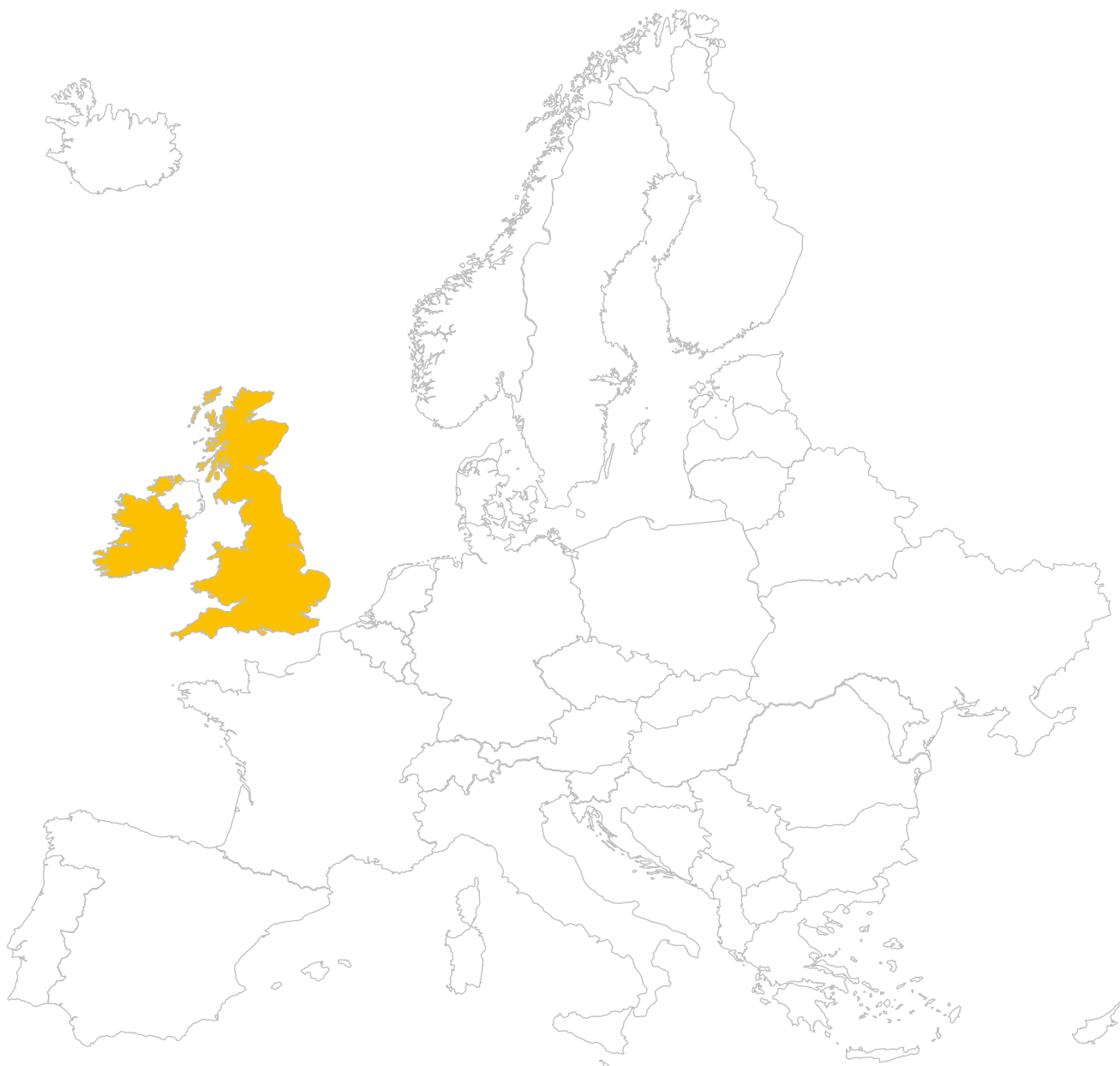
TSO's involved: LITGRID AB & CDU TEK



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	
Are there defined cost-sharing rules in place?	
Additional information	

Cross Border Balancing between Ireland & GB

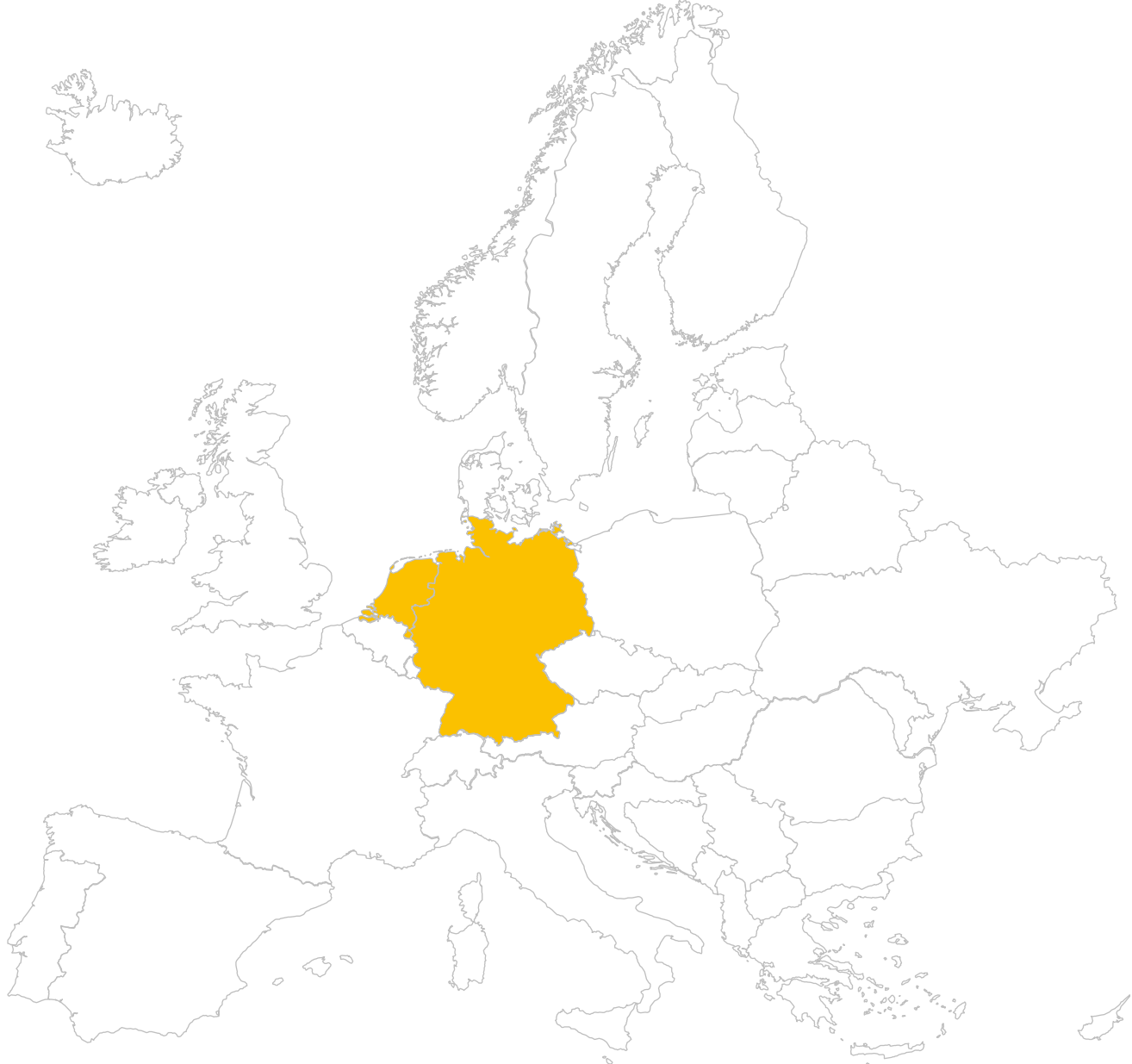
TSO's involved: Eirgrid & National Grid



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Replacement Reserve
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	Yes
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	Yes
Reserves	
Responsibility in sizing	
Are there defined cost-sharing rules in place?	
Additional information	

Inter-control area support with emergency reserve capacity

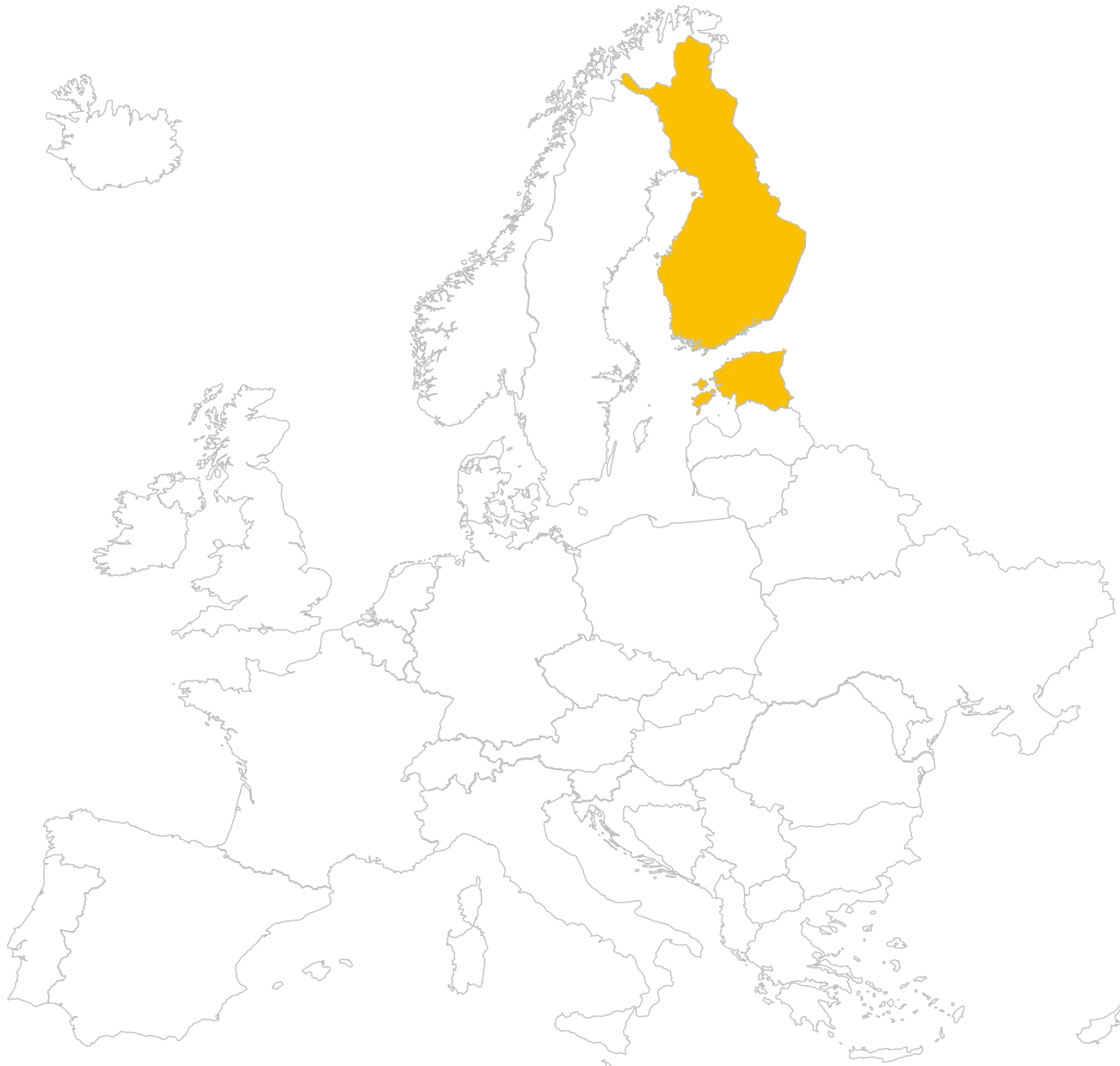
TSO's involved: TenneT GER & TenneT



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	
Are there defined cost-sharing rules in place?	
Additional information	

Finland - Estonia

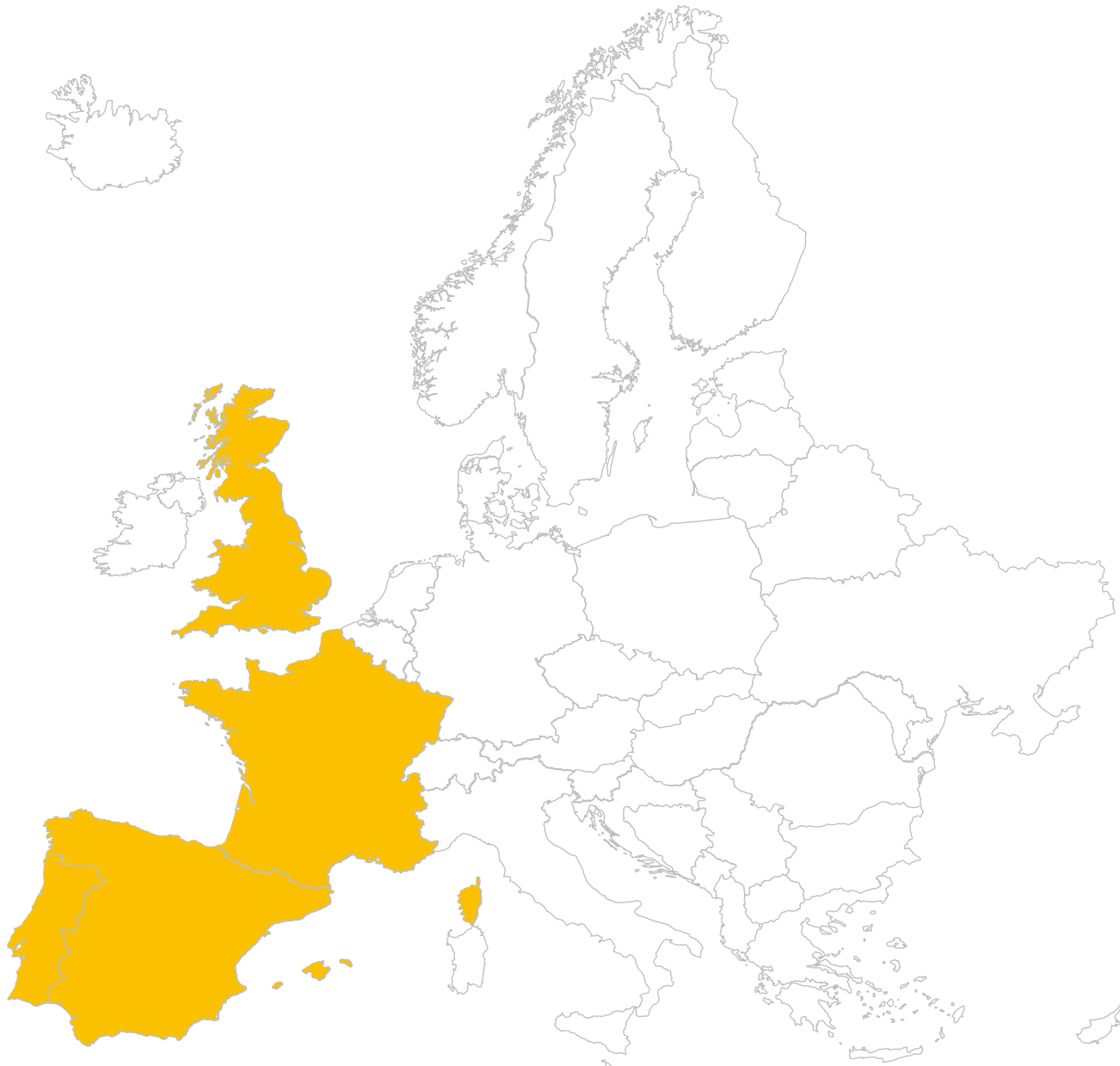
TSO's involved: Elering AS & Fingrid



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	
Are there defined cost-sharing rules in place?	
Additional information	
Using any other cross-border arrangement?	No

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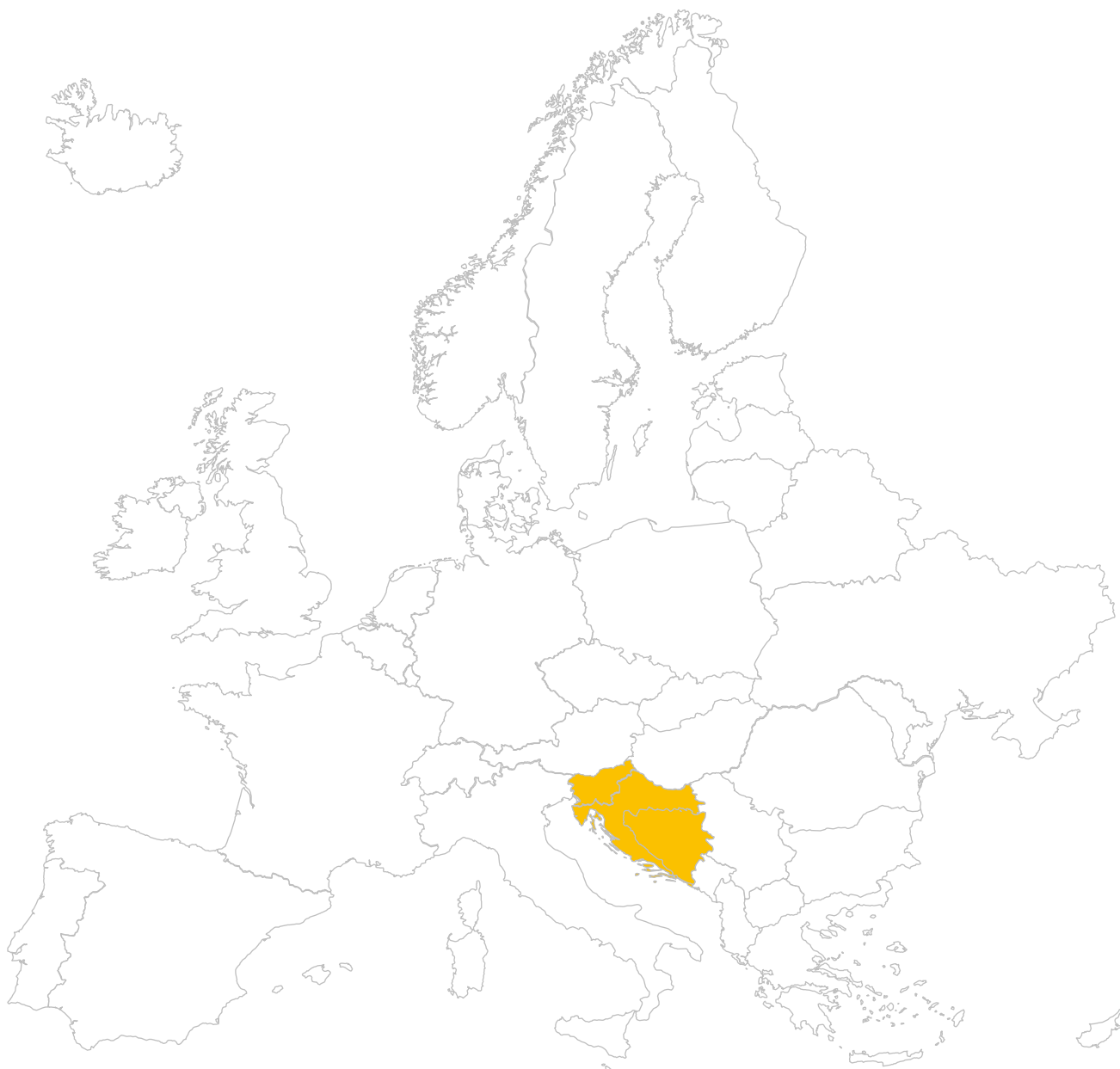
TSO's involved: RTE, REN, REE & National Grid



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Replacement Reserve
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	Yes
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	
Are there defined cost-sharing rules in place?	
Additional information	

Agreement on common frequency control reserves in the control block SHB

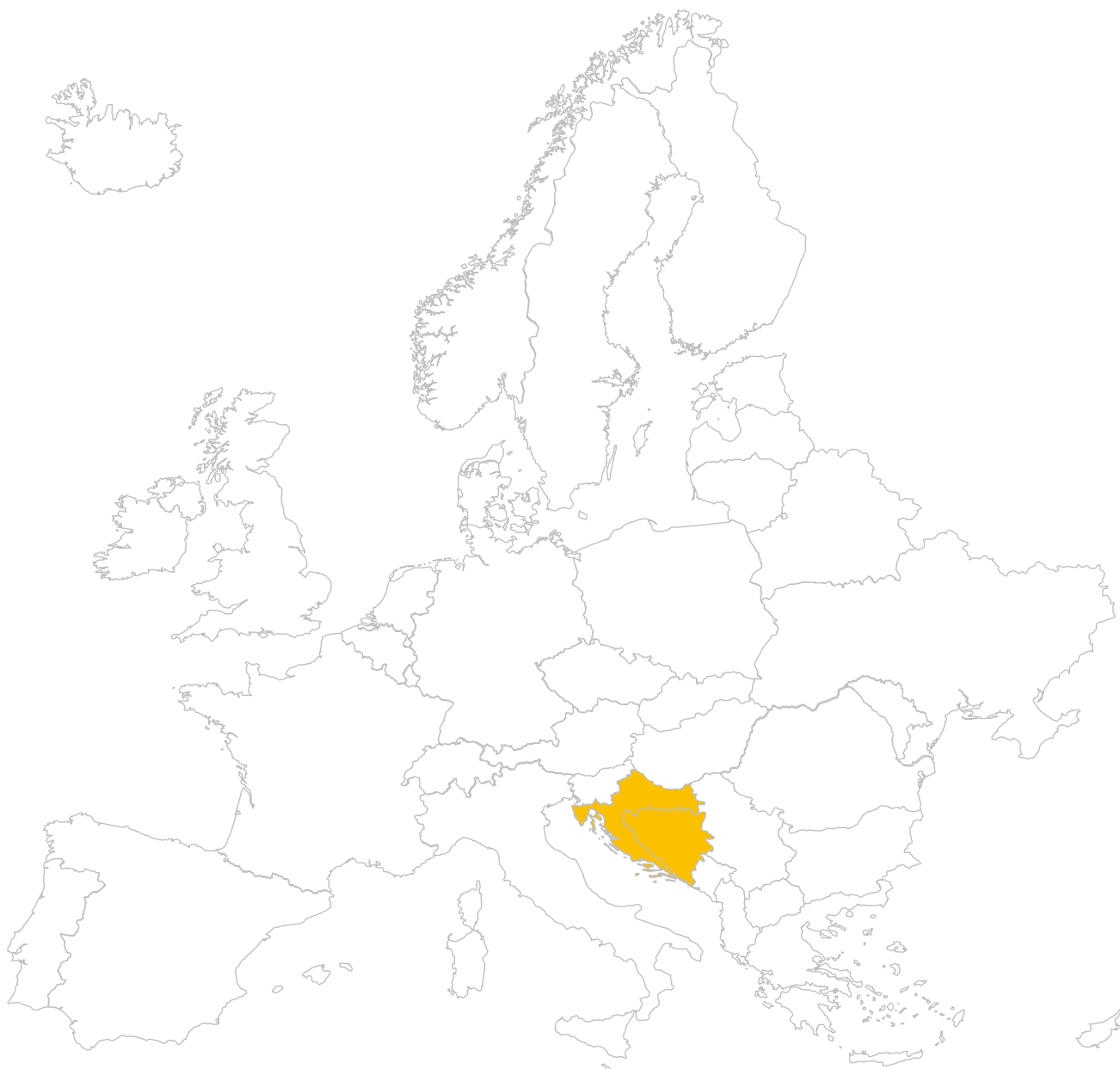
TSO's involved: NOS BIH & ELES & HOPS



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	No
Level of harmonisation	
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	N/A
Reserves	
Responsibility in sizing	
Are there defined cost-sharing rules in place?	
Additional information	

Agreement on common frequency control reserves in the control block SHB

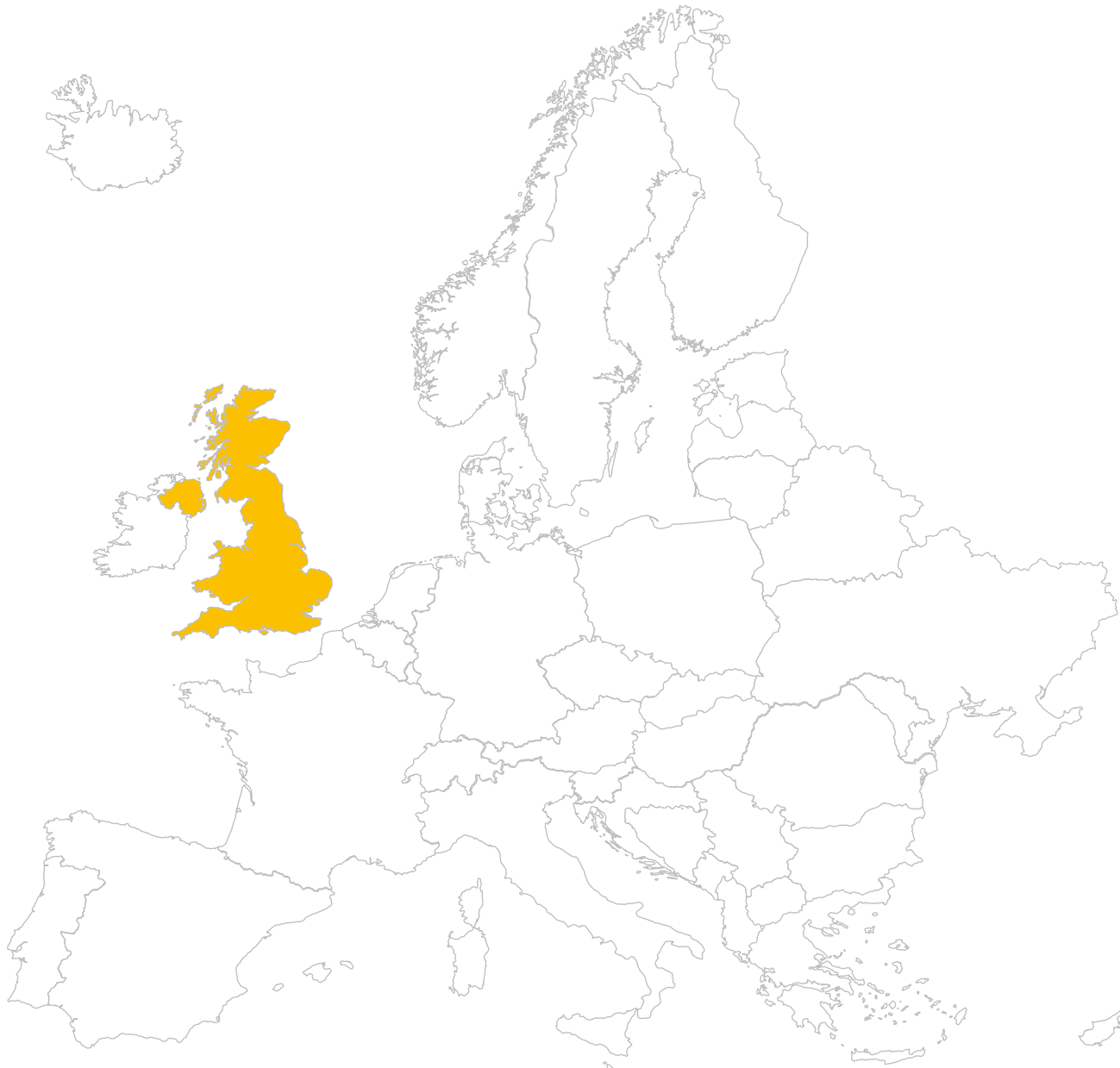
TSO's involved: NOS BIH & HOPS



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	No
Level of harmonisation	
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	N/A
Reserves	
Responsibility in sizing	
Are there defined cost-sharing rules in place?	
Additional information	

Cross Border Balancing Northern Ireland & GB

TSO's involved: SONI & National Grid



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	Yes
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	
Are there defined cost-sharing rules in place?	
Additional information	

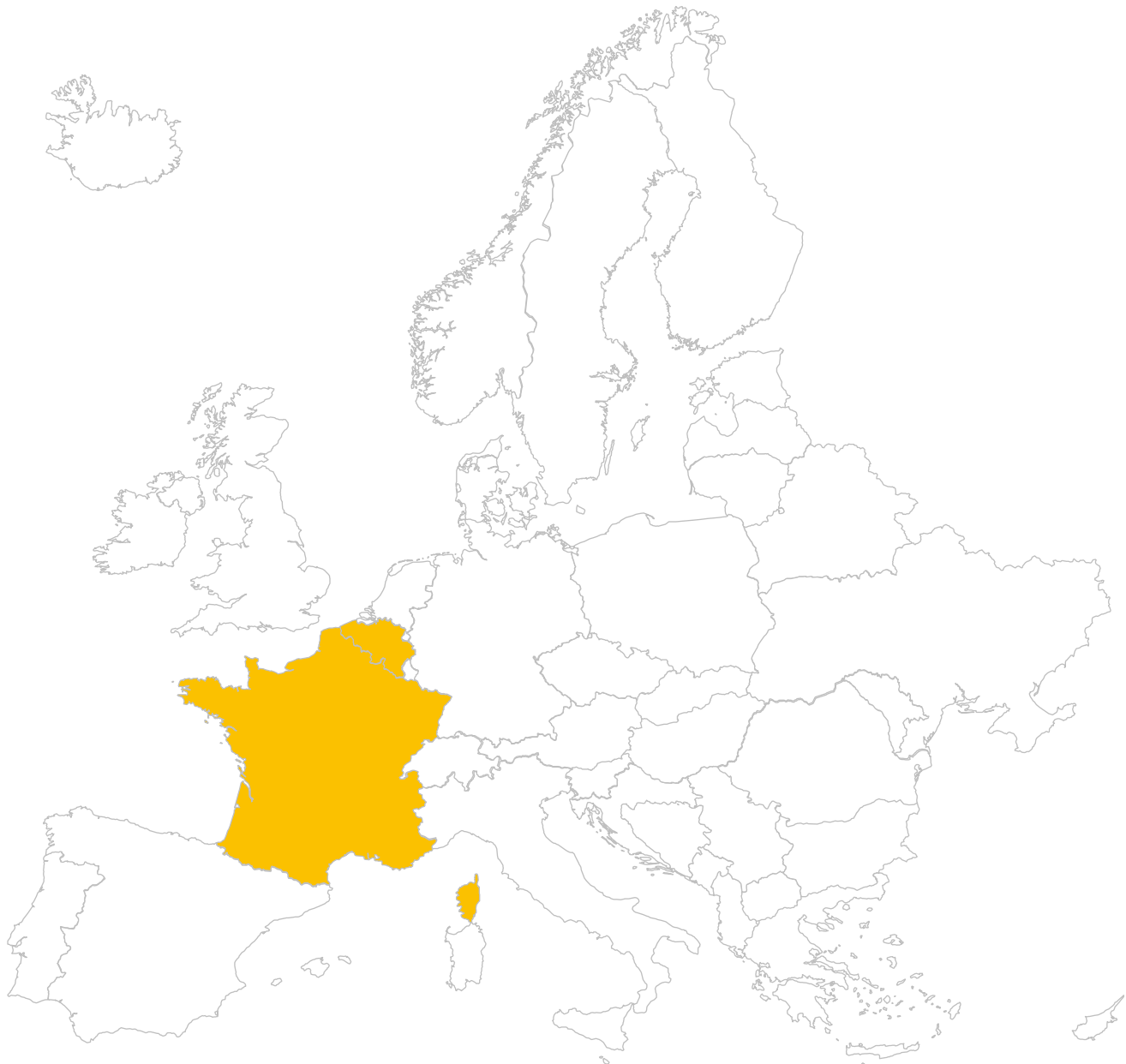
Cross-border Tertiary Regulation

TSO's involved: EMS Serbia & CGES Montenegro



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	No
Level of harmonisation	
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	Yes
Reserves	
Responsibility in sizing	
Are there defined cost-sharing rules in place?	
Additional information	

Mutual Energy Assistance between Elia & RTE
TSO's involved: Elia & RTE



Question	Exchanges of manual balancing energy
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the requesting TSO through the providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Manual)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No
Are other items harmonised?	Yes
Reserves	
Responsibility in sizing	Defined separately
Are there defined cost-sharing rules in place?	No
Additional information	

Exchanges for Imbalance netting

Imbalance Netting Cooperation

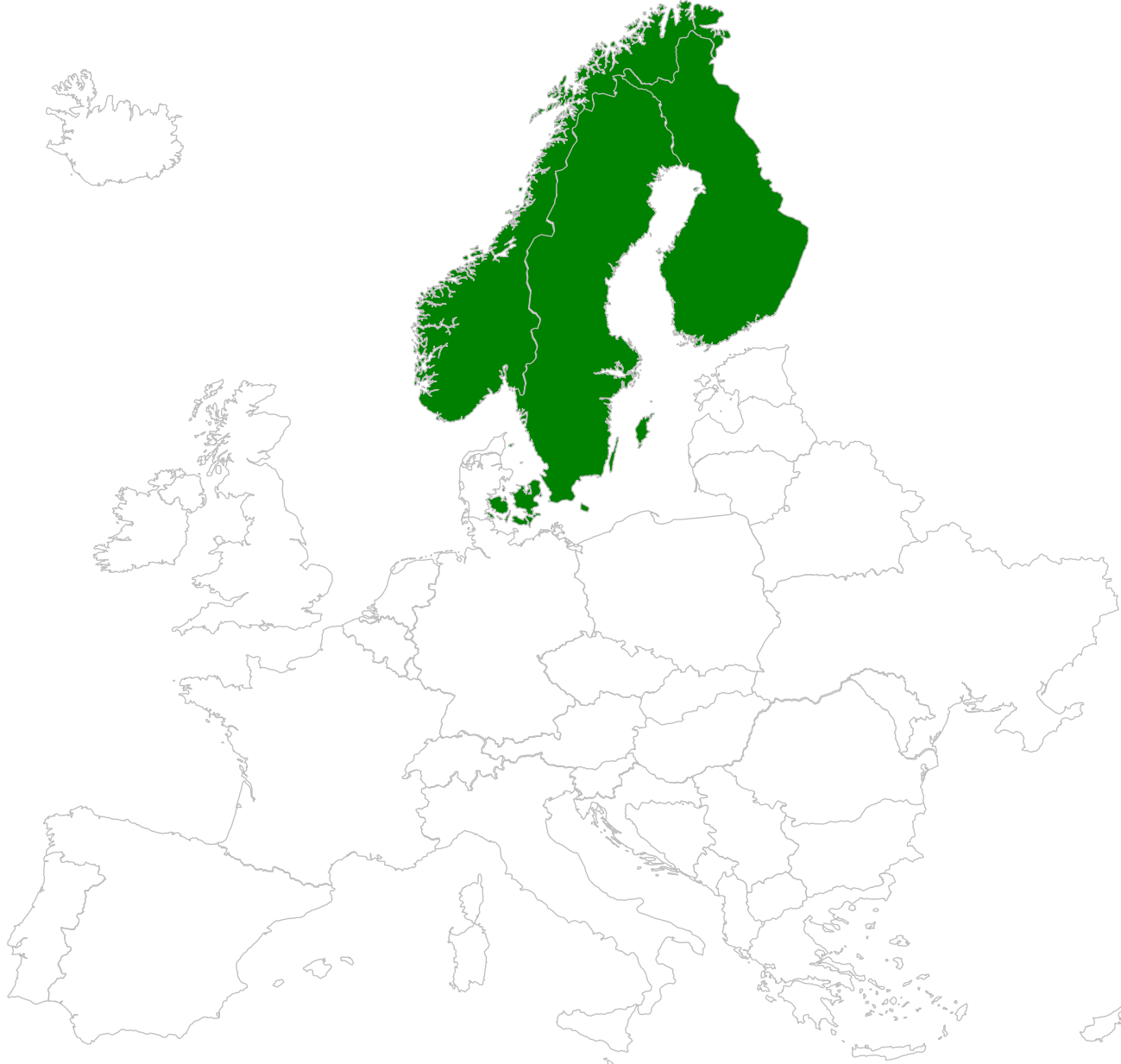
TSO's involved: APG & ELES & HOPS



Question	Exchanges for imbalance netting
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Automatic)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	Defined separately
Are there defined cost-sharing rules in place?	Yes
Additional information	
INC became part of IGCC in February 2019 as ELES and HOPS became operating members in IGCC.	

Nordic

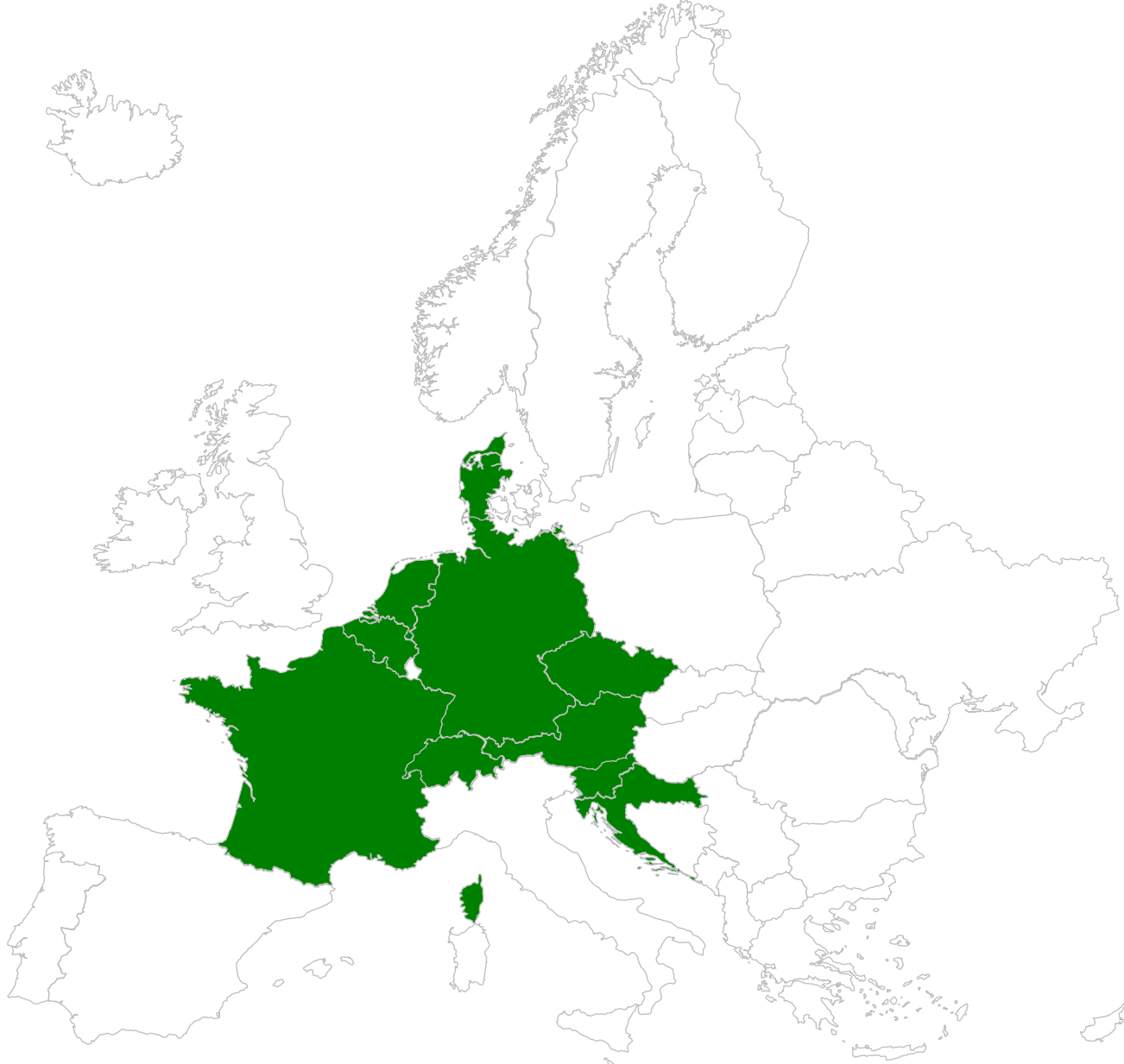
TSO's involved: Fingrid, Energinet.dk IPC, Svenska Kraftnät & Statnett



Question	Exchanges for imbalance netting
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	Yes
Are the imbalance pricing methods harmonised?	Full Harmonisation
Are other items harmonised?	
Reserves	
Responsibility in sizing	
Are there defined cost-sharing rules in place?	
Additional information	

International Grid Control Cooperation

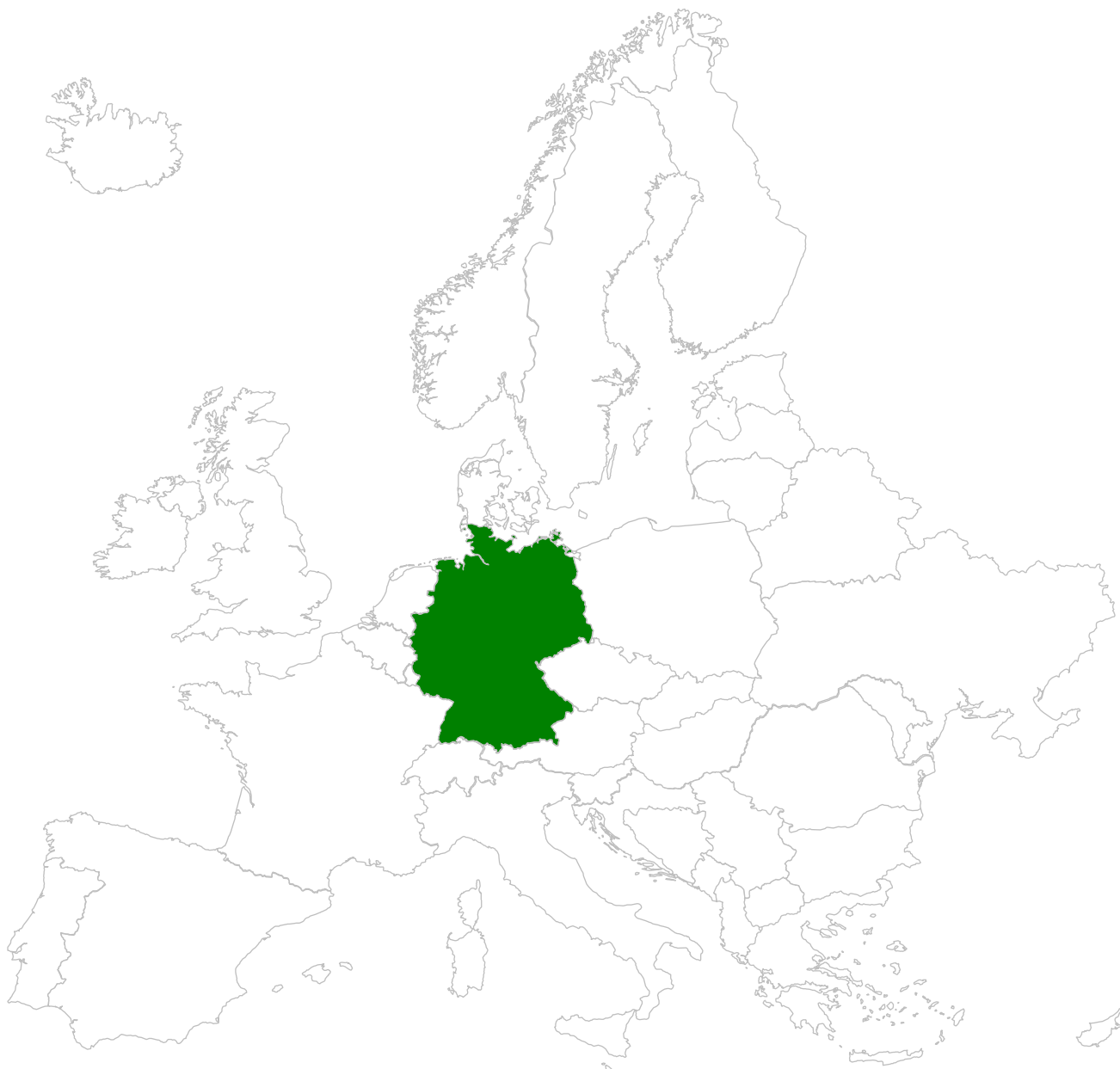
TSO's involved: 50Hertz, TransnetBW, Amprion, Tennet GER, TenneT TSO, ČEPS, Elia, Energinet.dk IPC, RTE, APG & Swissgrid



Question	Exchanges for imbalance netting
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Automatic)
Is there symmetry/reciprocity in the products exchanged?	N/A
Level of harmonisation	
Are the Settlement Rules harmonised?	Yes
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	Defined separately
Are there defined cost-sharing rules in place?	Yes
Additional information	
There is a common TSO-TSO Settlement scheme (same for all participants) but no harmonization for TSO-BSP or TSO-BRP Settlement.	

German Grid Control Cooperation (GCC)

TSO's involved: 50Hertz, TransnetBW, Amprion & Tennet GER



Question	Exchanges for imbalance netting
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Automatic)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	Yes
Are the imbalance pricing methods harmonised?	Full Harmonisation
Are other items harmonised?	Yes
Reserves	
Responsibility in sizing	Joined dimensioning
Are there defined cost-sharing rules in place?	Yeas
Additional information	

eGCC

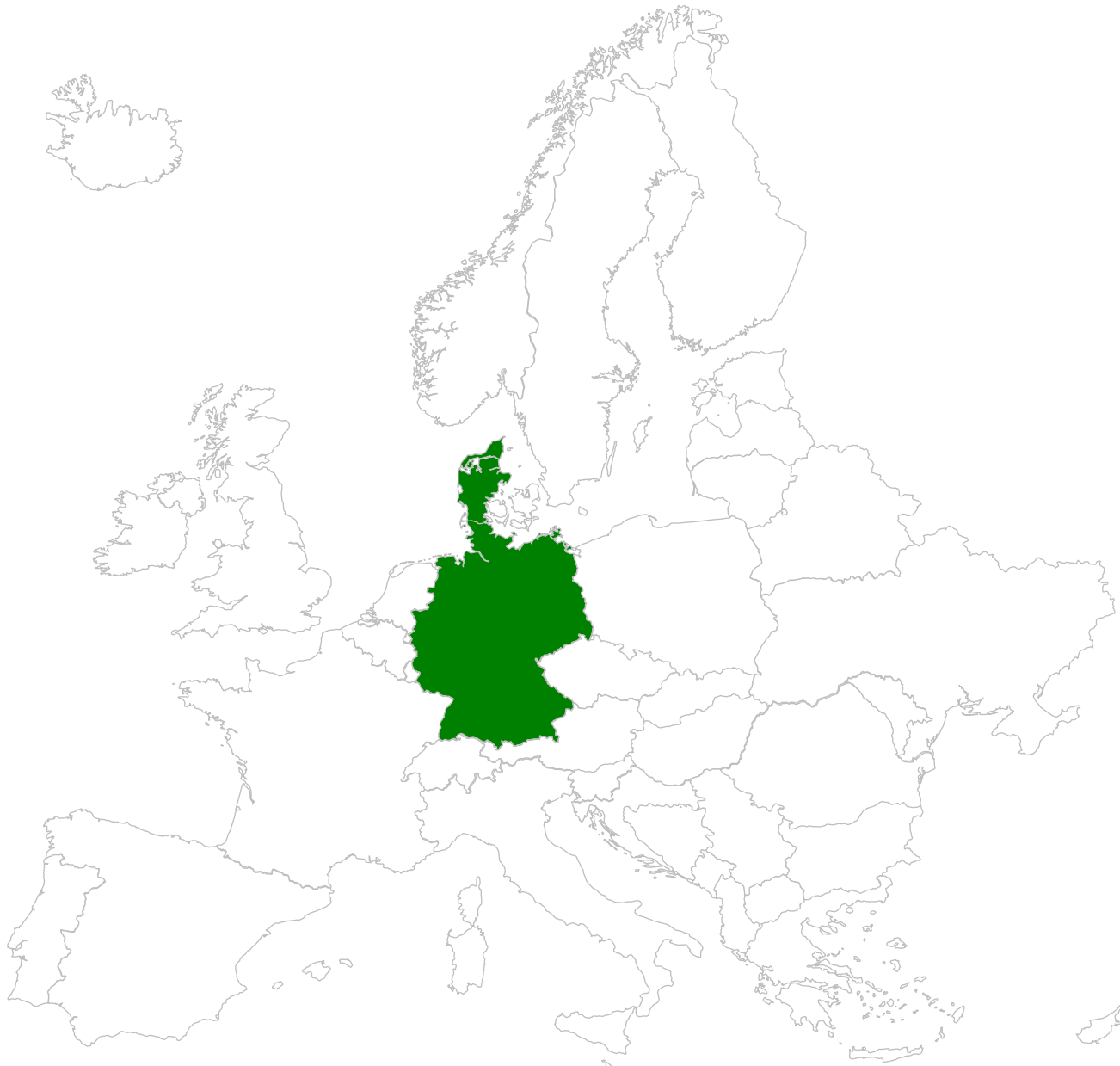
TSO's involved: ČEPS, SEPS & MAVIR



Question	Exchanges for imbalance netting
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Automatic)
Is there symmetry/reciprocity in the products exchanged?	Yes
Capacity reservation	
Cross-Border Capacity Reservation	No
If Yes, Method in Use	No Harmonisation
Level of harmonisation	No
Reserves	
Are the Gate Closure Times for TSO-TSO bids harmonised?	Defined separately
Are the Gate Closure Times for internal markets harmonised?	No
Additional information	

ENDK-W-Tennet Ger/ENDK-W view

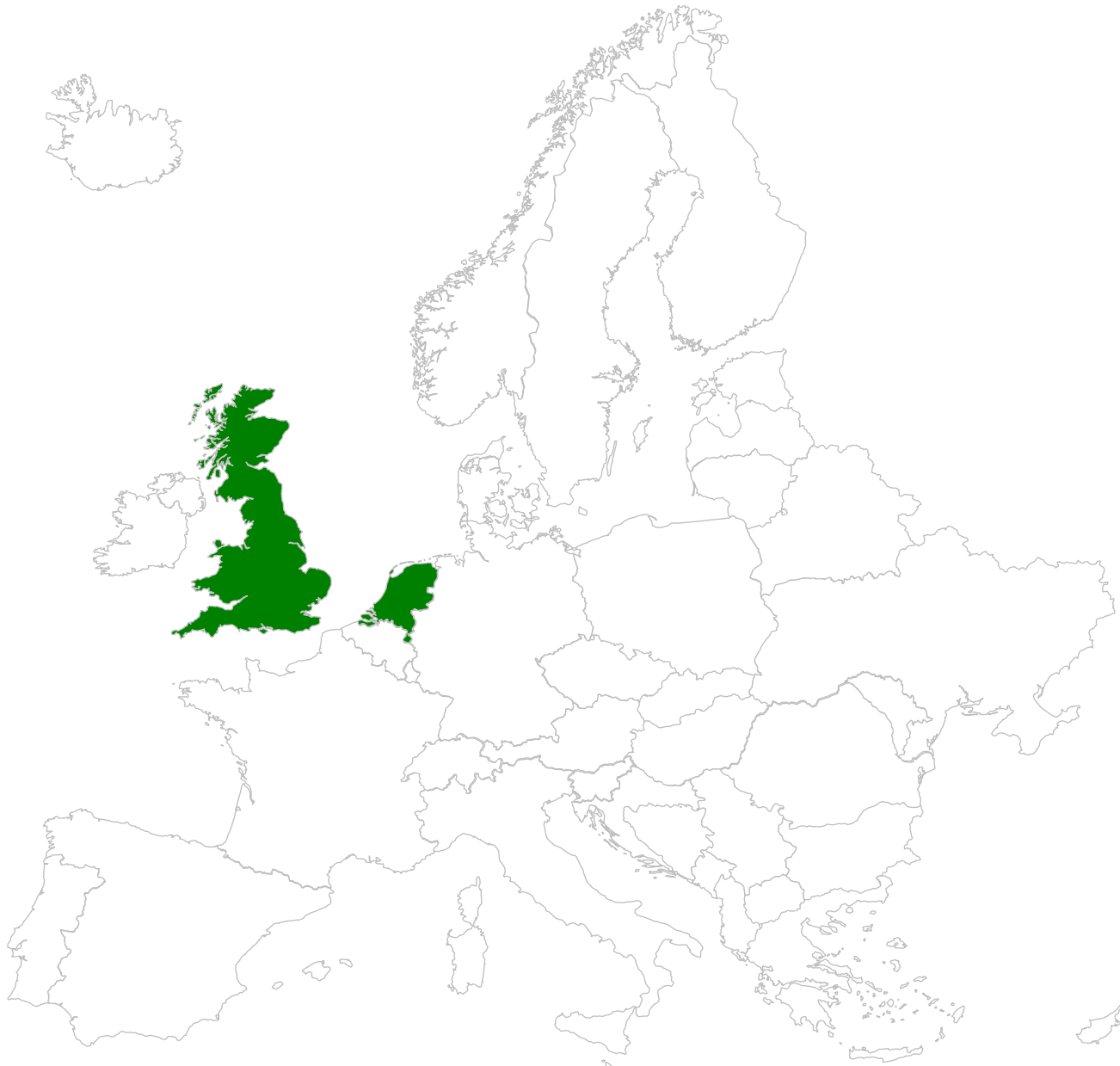
TSO's involved: Tennet GER & Energinet.dk IPC



Question	Exchanges for imbalance netting
Products & Models Involved	
Who participates in the cross border transaction?	TSO-TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	Frequency Restoration Reserve (Automatic)
Is there symmetry/reciprocity in the products exchanged?	Yes
Level of harmonisation	
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	
Are there defined cost-sharing rules in place?	
Additional information	

Imbalance Netting Cooperation – BritNed Frequency Coupling Trial

TSO's involved: Tennet & National Grid



Question	Exchanges for imbalance netting
Products & Models Involved	
Who participates in the cross border transaction?	TSO- Interconnector Owner - TSO (power request by the reserve requesting TSO through the reserve providing TSO)
What products are used in the exchange mechanism?	N/A
Is there symmetry/reciprocity in the products exchanged?	No
Level of harmonisation	
Are the Settlement Rules harmonised?	No
Are the imbalance pricing methods harmonised?	No Harmonisation
Are other items harmonised?	No
Reserves	
Responsibility in sizing	Defined separately
Are there defined cost-sharing rules in place?	No
Additional information	