Security Coordination Centre ltd. Belgrade

SCC – Present and future

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PART 1 – SCC

- ❖ **Brief company history**
- ❖ **Services**
- ❖ **Application and Specialized Tools**
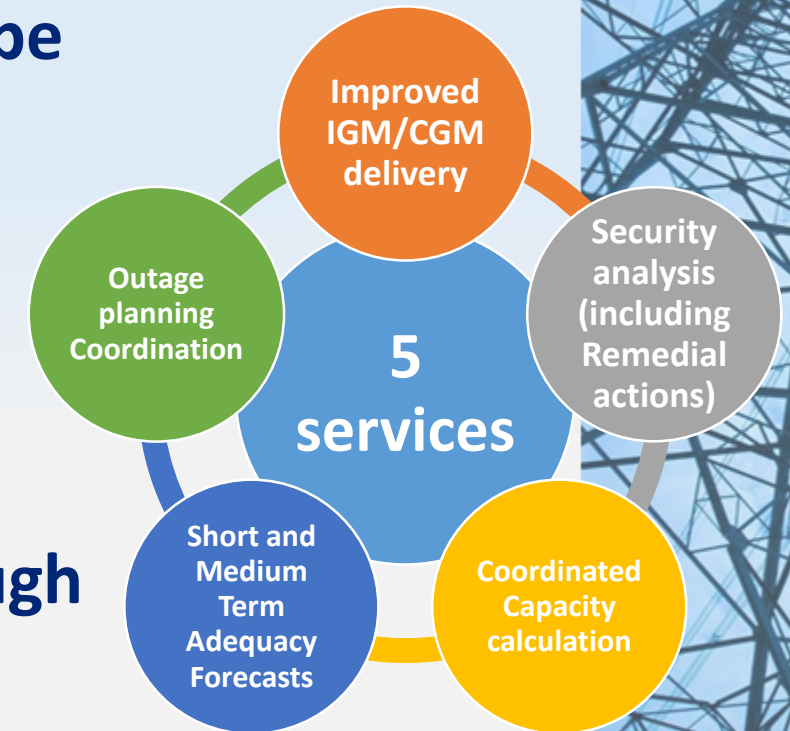- ❖ **Future development**

Brief company history

- ❖ **Region of SEE was not covered by existing RSC(I)s (TSCNET, CORESO).**

- ❖ **Following the form defined by ENTSO-E's Policy Paper *"Core strategy for TSO Coordination"* and European NC/GL, SEE TSOs recognized the need for regional cooperation.**

- ❖ ***April 2015:* EMS, CGES and NOSBiH established SCC as the first RSC(I) in SEE, based in Belgrade.**

- ❖ ***1st of August 2015:* SCC started operational activities.**

Services

❖ **Services and main activities:**

1. **Validation of DACF and IDCF Continental Europe (CE) IGMs/creation and delivery of CE CGMs**

2. **N-1 security analysis for TSOs founders of SCC**

3. **Test Run of daily NTC Calculations for TSOs founders of SCC**

4. **Contribution to SEE Maintenance Group through model creation and N-1 security analysis**

5. **Participation in ENTSO-E projects SMTA & OPC**

5 services

- Improved IGM/CGM delivery
- Security analysis (including Remedial actions)
- Coordinated Capacity calculation
- Short and Medium Term Adequacy Forecasts
- Outage planning Coordination

Additional services

- ❖ **SCC is open to provide additional services to TSO members as well as to other parties like ENTSO-E.**

- ❖ **The example of such a service is analysis of loop flow indicators for Continental Europe based on PTDF data for 2015, on an hourly resolution (for bidding zone and country levels) done for ENTSO-E upon their request.**
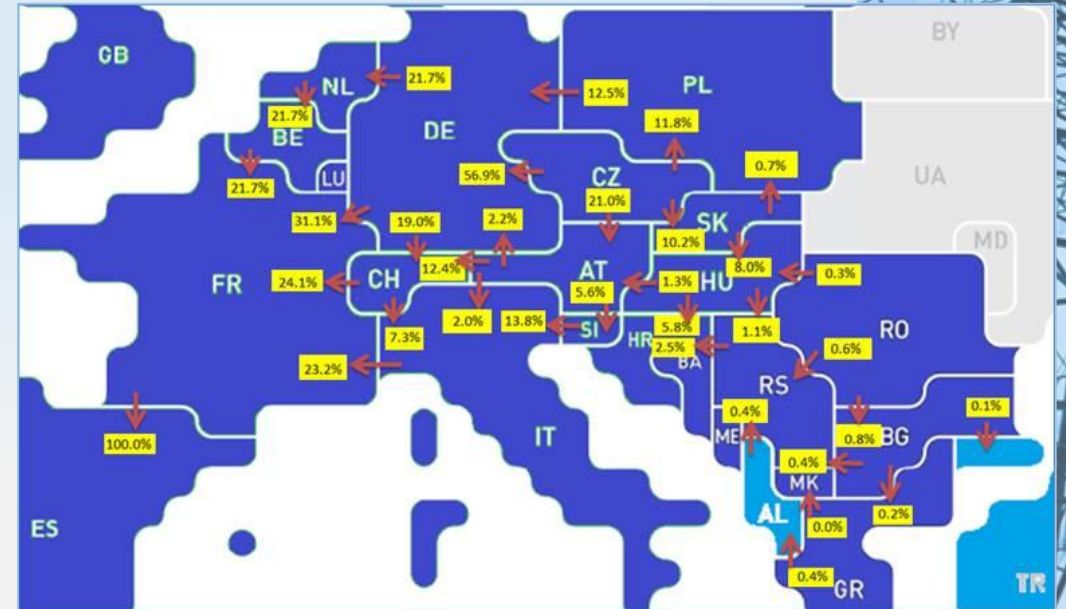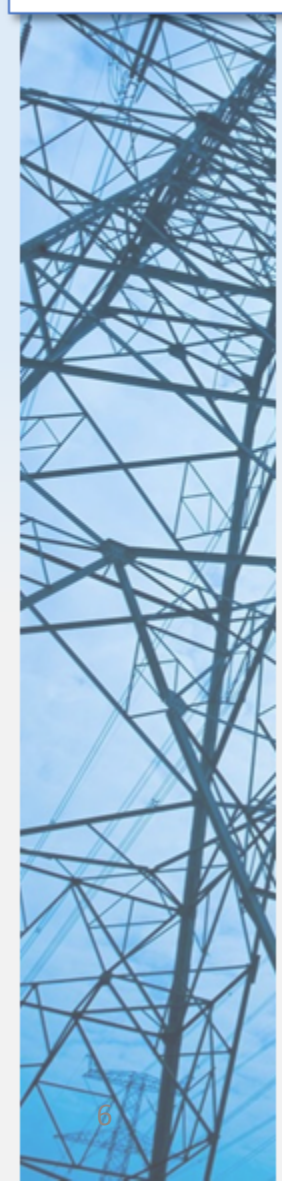
Application and Specialized Tools

❖ **TNA (Transmission Network Analyzer)**
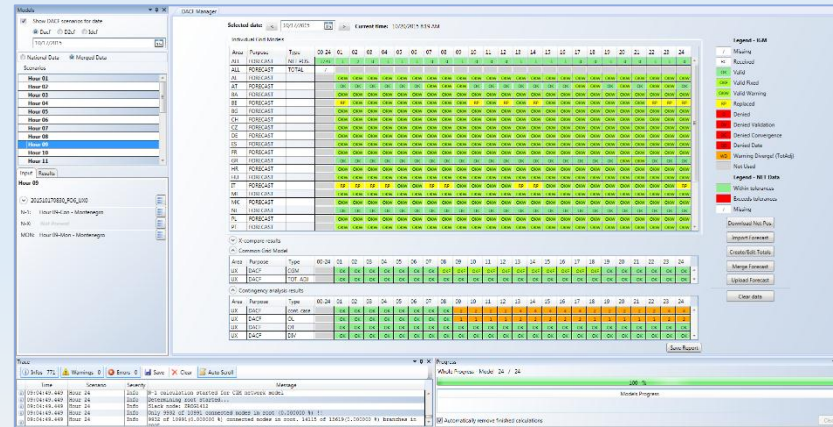
❖ **QAS Portal (Quality Assessment Service)**

Future development

❖ **SCC plans to develop the following services:**

- **Upgrade of software tools for IGM validation and CGM merging process according to latest ENTSO-E EMF (European Merging Function) requirements.**

- **Extension of Security analysis with Remedial actions functionality,**

- **Coordinated Capacity Calculations,**

- **Outage Planning,**

- **System Adequacy Assessment.**
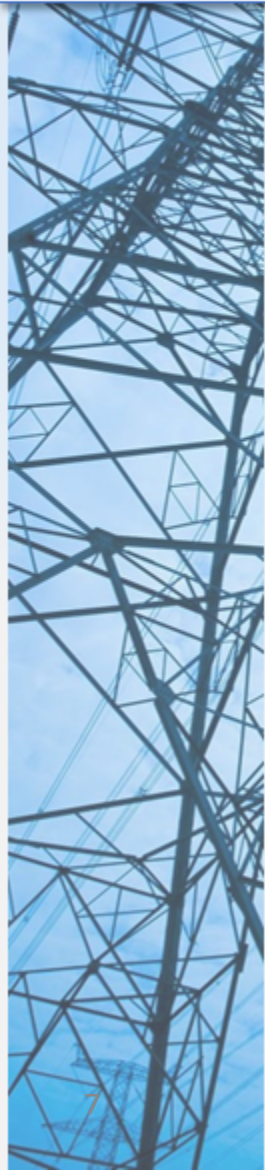
Upgrade of SW for IGM validation and CGM creation according to EMF

❖ **All RSCs have to upgrade their software according to ENTSO-E EMF requirements**

- **Core functions required for IGM and CGM validation and merging already supported by TNA tool**

- **CGMES compliant tool (import and merge supported)**

- **Upgrade of validation according to ENTSO-E QoD for CGMES in progress**

- **Non-functional EMF requirements will be implemented within the project that is scheduled to start in the beginning of 2017**

- **Additional requirements will be also implemented within same project**

Security analysis including Remedial Actions

- ❖ **Actual practice in SEE: Remedial Actions are agreed upon on bilateral agreement between TSOs.**

- ❖ **Different models of security analysis that include RA are being used in Coreso and TSCNET.**

- ❖ **ENTSO-E activities towards defining of Pan-European Remedial Action coordination process.**

- ❖ **Necessary close cooperation among all RSCs and especially between neighboring RSCs.**

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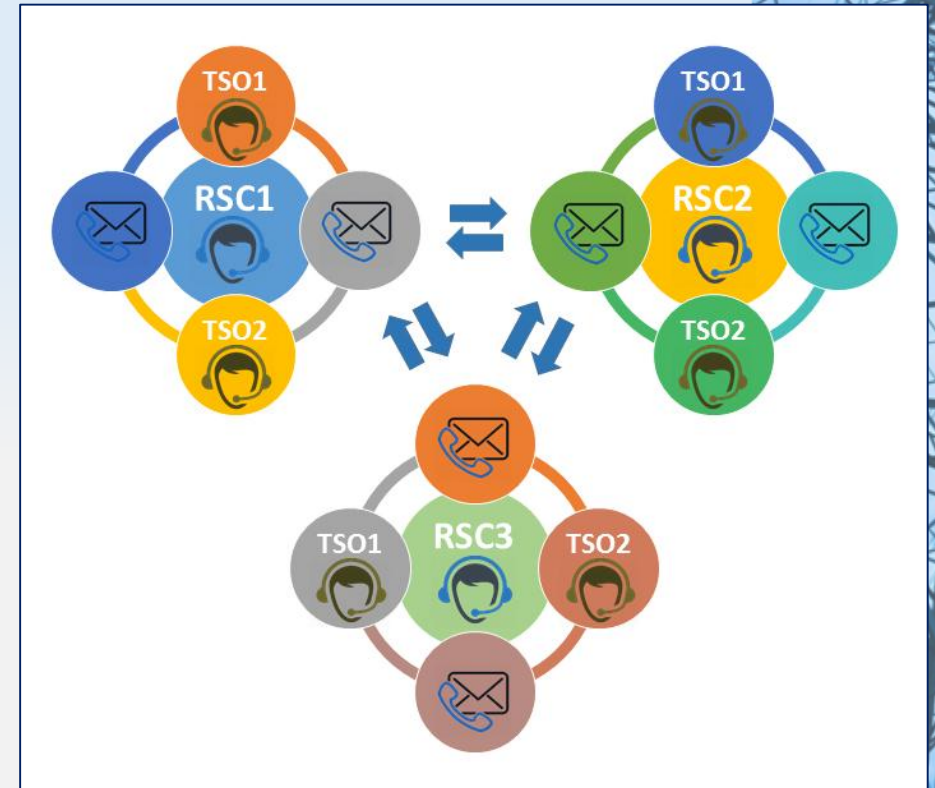
OPC – From SEE to Pan-European concept

Concept before 2016

-Based on expert's experiences
-Security analysis:
- during preparation of Annual Maintenance Plan
- if some important changes happen (in relation to Annul Plan)

SEE TSOs

Concept in 2016

-Based on expert's experiences
-Security analysis:
- during preparation of Annual Maintenance Plan
-Regular N-1 security analysis performed by SCC

SEE TSOs

IGMs   N-1 CGMs

SCC

Future Concept

-SEE OPC based on uniform Pan-European OPC concept and common SW

All TSOs
All RSCs

SEE RSCs

SEE TSOs

Short and Medium Term Adequacy (SMTA) – Dry Run

- ❑ **Deterministic approach**
  - • **Remaining capacity RC**
  - • **Net Transfer Capacity NTC**
- ❑ **Control area can:**
  - • **Import energy**
  - • **Export energy**
  - • **Be a transit area**
- ❑ **All transactions are limited by NTC values.**
- ❑ **SMTA Winter Dry Run Report 2015-2016** ✓
- ❑ **High Level Business Process document** ✓
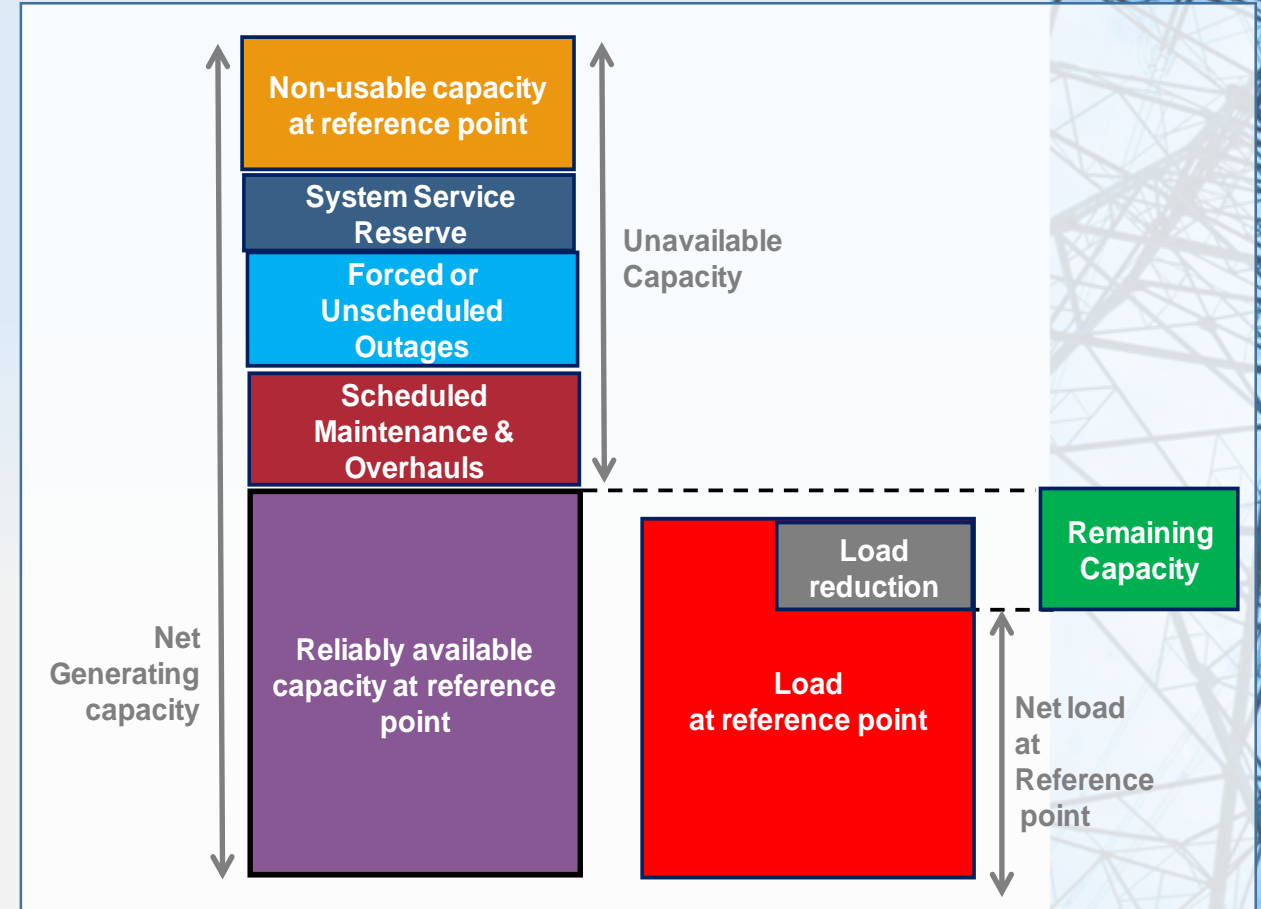
PART 2 - COORDINATING CAPACITY CALCULATION

- ❖ **EC Regulations**
- ❖ **Regions for Coordinating Capacity Calculation (CCC)**
- ❖ **Methods of Capacity Calculation**
- ❖ **CCC in SEE region**
- ❖ **CCC in SCC**
- ❖ **CCC– SCC possibilities and next steps**
- ❖ **Conclusion**

EC Regulations

❖ **Capacity Allocation and Congestion Management (CACM)**

Subject matter and scope

This Regulation lays down detailed guidelines on cross-zonal capacity allocation and congestion management **in the day-ahead and intraday markets**, including the requirements for the establishment of **common methodologies for determining the volumes of capacity simultaneously available between bidding zones**, criteria to assess efficiency and **a review process for defining bidding zones**.

❖ **Forward Capacity Allocation (FCA)**

Subject matter and scope

This Regulation lays down detailed rules on cross-zonal capacity allocation in the **forward markets**, on the establishment of a **common methodology to determine long-term cross-zonal capacity,** on the establishment of a single allocation platform at European level offering long-term transmission rights, and on the possibility to return long-term transmission rights for subsequent forward capacity allocation or transfer long-term transmission rights between market participants.

Regions for Coordinating Capacity Calculation

❖ **ENTSO-E's has submitted the proposal for Capacity Calculation Regions (CCRs) in Europe to ACER**

❖ **ACER has defined CCRs (November 17, 2016), following should be pointed out:**

• **CCR 3: Core (merging of CWE and CEE CCRs into one CCR)**

• **CCRs shall include a bidding zone border between Germany/Luxembourg and Austria in defining the bidding zone borders**

CCRs
1. Nordic
2. Hansa
3. CWE
4. Italian north borders
5. Italian borders 2
6. CEE
7. SWE
8. IU
9. Channel
10. Baltic
11. SEE
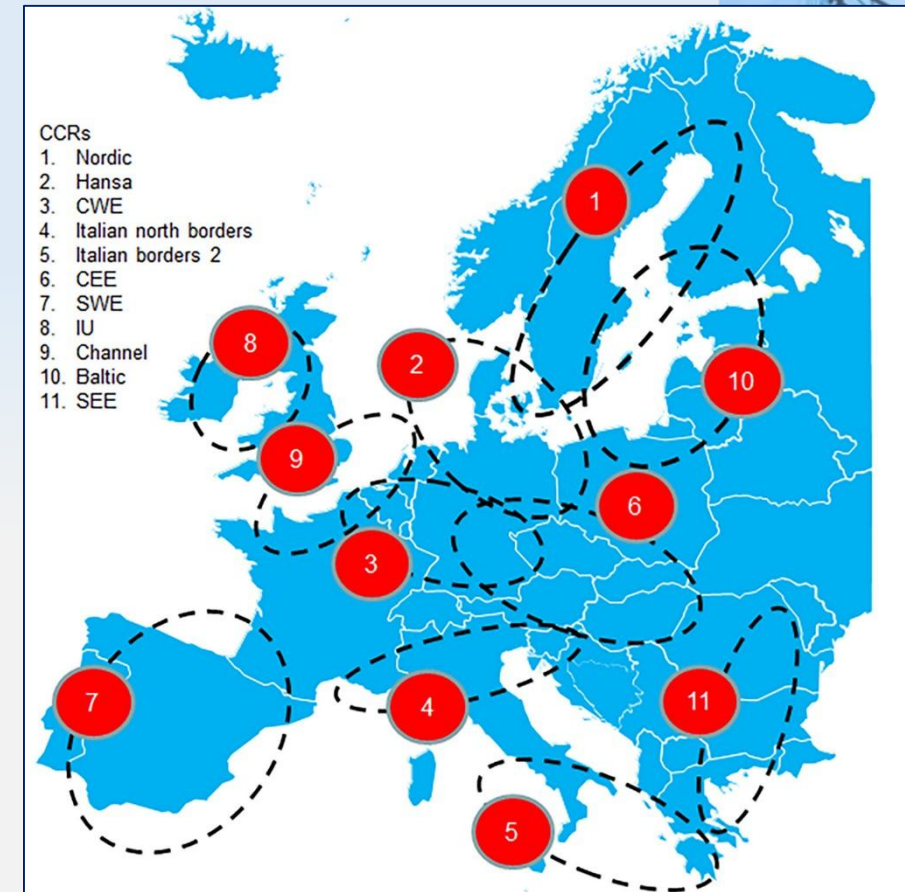
Coordinating Capacity Calculation in SEE

❖ **Specificity of SEE:**

- **EU TSOs (mandatory implementation of CACM and FCA)**

- **NON-EU TSOs ("early implementation" of CACM and FCA?)**

❖ **SEE Coordinated Capacity Calculation methodology and business process - to be defined and developed.**

❖ **Cooperation between SEE RSCs is necessary.**

❖ **Coreso and TSCNET future common Coordinated Capacity Calculations for Core CCR (based on MoU of CWE and CEE TSOs) could be an example for SEE**
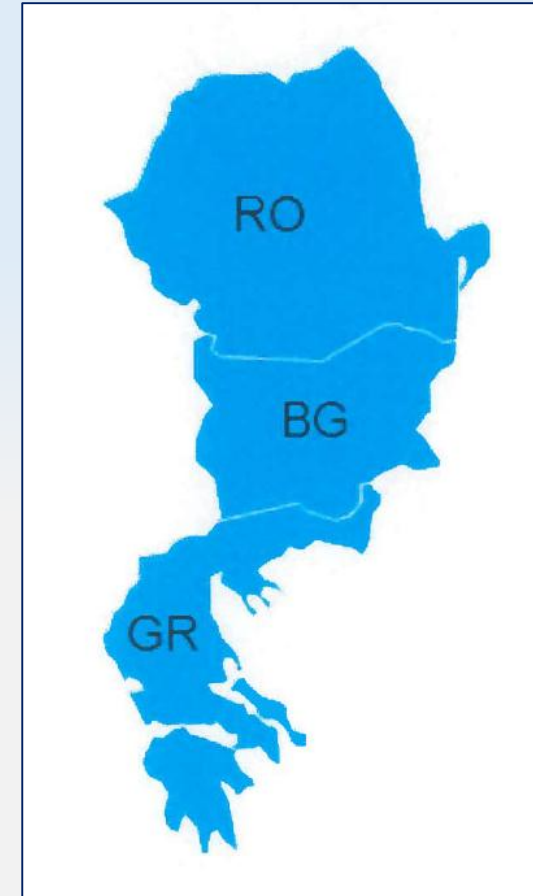
Methods of Capacity Calculation

- ❖ **NTC(ATC)-based calculation and allocation is widely applied across Europe (in SEE at all borders)**

- ❖ **Flow-based approach is the main future option for strongly meshed grids (as Continental Europe is, including SEE)**

- ❖ **Flow-based calculation and FB-Market Coupling applied in Central West Europe since May 2015**

- ❖ **Further spreading FB approach is expected**
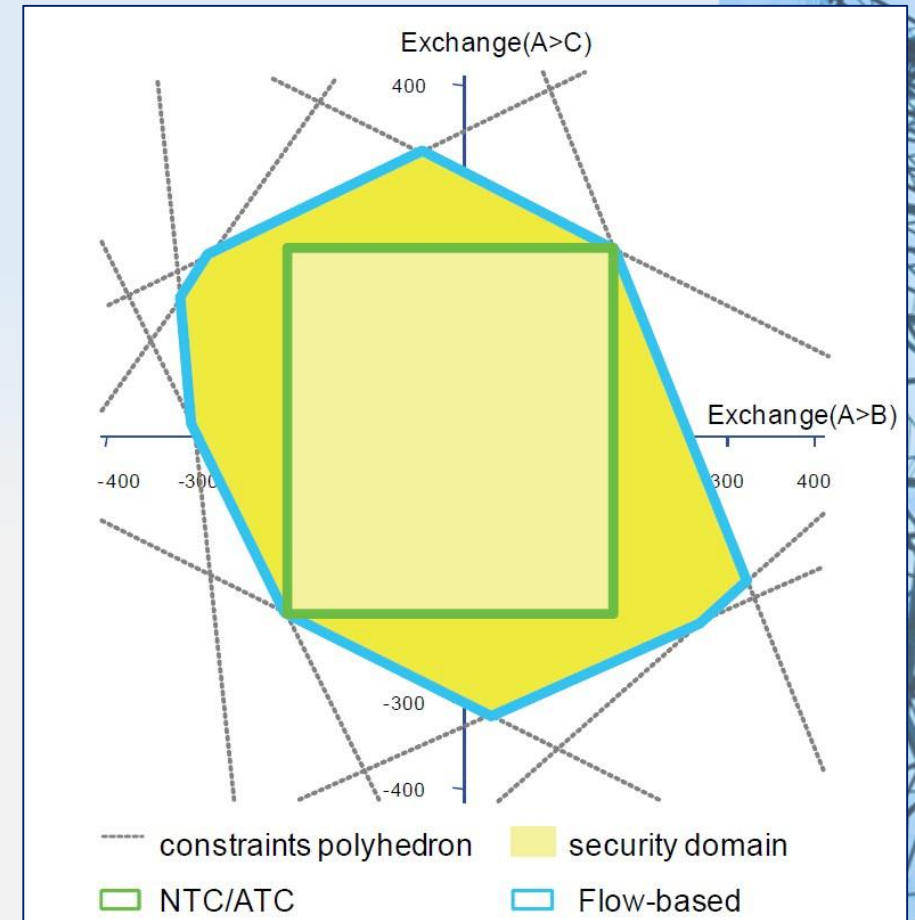
Methods of Capacity Calculation

NTC, i.e. ATC-based:
single program constraint per border for commercial transactions

Flow-based (PTDF/MF):
set of physical constraints MF per network elements, and sensitivity factors (PTDF)

Coordinating Capacity Calculation in SCC

- ❖ **Test run process on NTC capacity calculation is being performed every Monday on D2CF models of SEE region for Wednesday.**

- ❖ **Results of NTC calculation is delivered to TSOs.**

- ❖ **Aim is gaining of experience for this process**

Coordinating Capacity Calculation in SCC

❖ **SCC has aplication software for NTC (Y/M) and NTC for day-ahead allocation, tailored to D-2 calculation process (automated calculation for 24 hours)**

❖ **SCC is testing 24 hours automatic NTC calculation, for all borders of SCC TSOs**

❖ **SCC has application software for Flow-based capacity calculation solution**

SCC – 24h automatic NTC calculation

Capacity Calculation – SCC possibilities and next steps

- ❖ **In cooperation with its TSOs, SCC is developing application software for automatic deployment of Remedial Actions into contingency analyses and NTC calculation**

- ❖ **SCC is prepared and ready to start providing its services as Capacity Calculation Calculator when requested by potential users**

- ❖ **Especially, time-demanding 24xNTC processes is suitable to be transferred to RSC**

- ❖ **SCC is ready to cooperate with other RSC(I)s on regional as well as on pan-European level**

- ❖ **SCC has skilled personnel constantly in cooperation with TSO experts**

- ❖ **Next steps – awaiting TSOs decisions and requests**

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Conclusion

❖ **SCC has developed procedures and tools, and trained engineers to perform capacity calculations for TSOs both:**

- **NTC-based (as currently applied in SEE)**
- **and Flow-based (as obvious target model)**

❖ **SEE Coordinated Capacity Calculation methodology and business process have to be defined and developed.**

❖ **There is need for close cooperation between SEE TSOs and RSCs.**

❖ **TSOs, ENTSO-E, EnCS, SEE CAO and RSC(s) can jointly facilitate further development and coordination of Capacity Calculation and Allocation procedures in SEE**

Thank you for your attention!

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