Security Coordination Centre SCC Ltd. Belgrade

Regional security analyses

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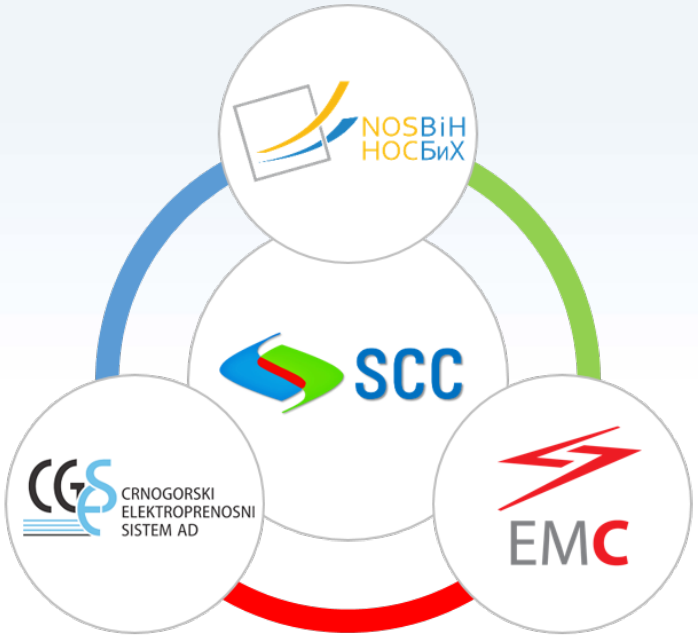
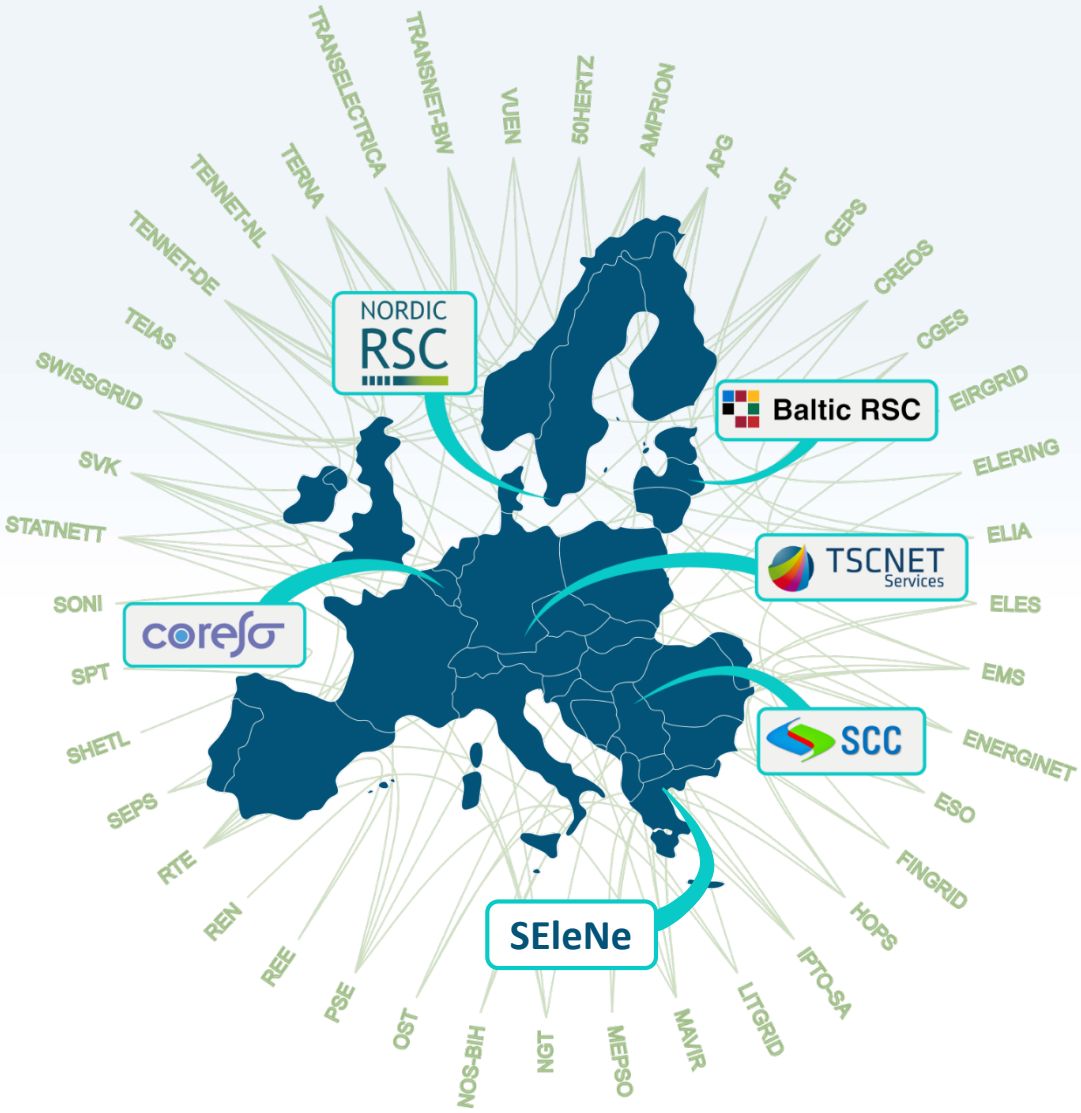
Introduction – Foundation of SCC

- **SEE region was not covered by existing RSC(I)s (TSCNET and 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.**



Introduction – RSC Status

- There are 5 operational Regional Security Coordinators (RSCs) accross Europe:
  - Coreso (2008)
  - TSCNET (2008)
  - SCC (2015)
  - Nordic RSC (2016)
  - Baltic RSC (2016)
- From May 2020, SEleNe CC was established in Thessaloniki as the 6th RSC.

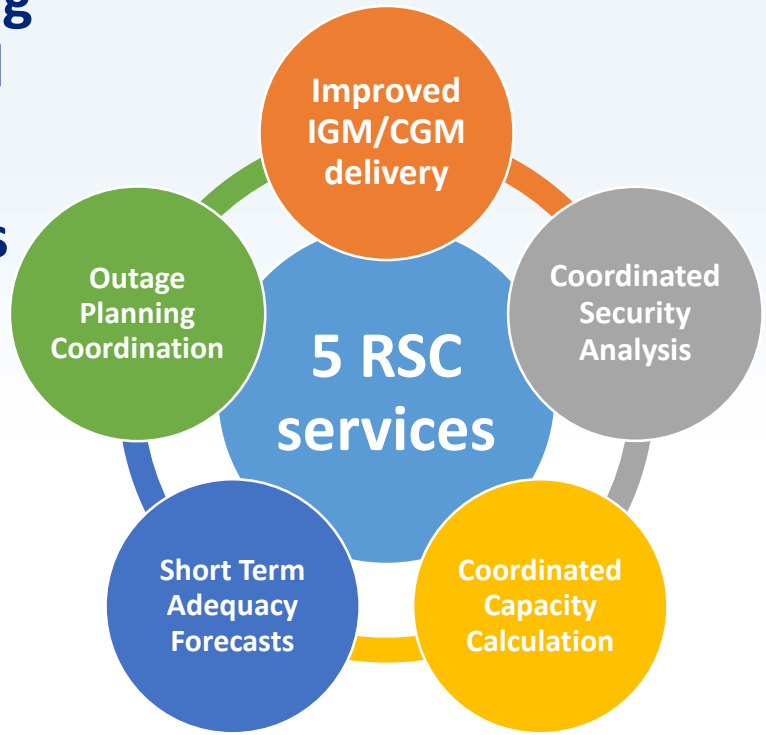


Introduction – SCC service users

Services and main activities – 5 RSC functions

- **Services and main activities:**

1. **Validation and correction of IGMs, including merging of IGMs into CE SA CGM (IDCF and DACF timeframe)**
2. **Security analysis without Remedial Actions (RAs)**
3. **Coordinated capacity calculation (CCC) for day ahead timeframe (dry run process)**
4. **Short Term Adequacy (STA),**
5. **Outage Planning Coordination (OPC),**
6. **Consistency Check of Power System Defense Plans (NC ER),**
7. **Coordination in Critical Grid Situations (CGS)**



Security analysis in SCC – CSA process

- **Service: Security analyses without RAs**
- **Timeframes: IDCF (3 times per day) and DACF**
- **Input: CGMs merged by SCC, Contingency and Monitoring lists provided by TSOs**
- **Process:**
  - **Simulate disconnection of Contingency in the base case CGM**
  - **Perform load flow calculation on altered CGM**
  - **Check for overload in all Monitoring elements**

Function results

Area	Type	00-24	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
UX	AC LF		OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
UX	N-1 VIOLATION																									
UX	N-1 DIV																									
UX	N-X VIOLATION		38	36	18	17	15	29	40	36	46	42	120	60	45	46	38	27	40	50	52	34	56	24	25	21
UX	N-X DIV		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UX	FB																									
UX	NTC																									

Security analysis in SCC – CSA results

- **Output: unique report for each TSO service user is provided on local FTP server**

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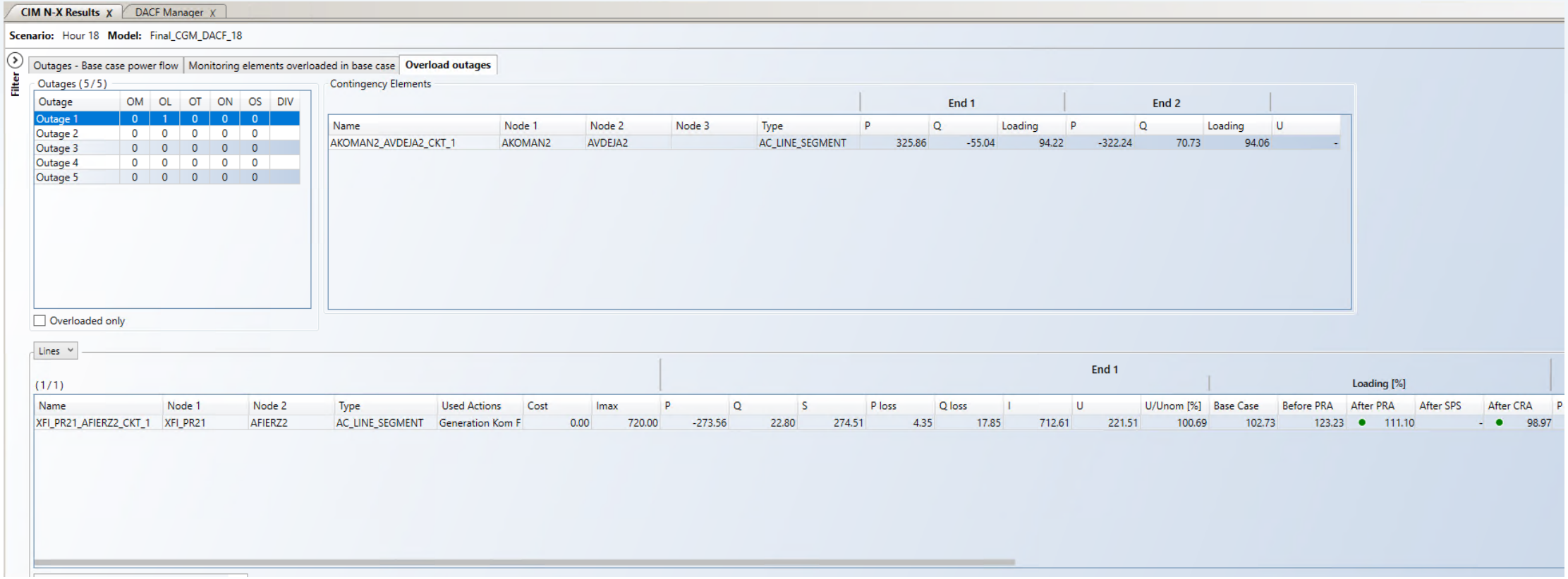
N-X security analysis statistics

N-X STATISTICS SORTED BY LOADING

Year	Month	Day	Time stamp	CO Name	CB Name	Loading_BC[%]	Loading after outage[%]
2020	12	5	13:30	OHL 400kV Lastva - Podgorica 2	TIE 220kV Trebinje - HE Perućica (ME)	78.70071411	150.2637177
2020	12	5	13:30	OHL 400kV Lastva - Podgorica 2	TIE 220kV Trebinje - HE Perućica (BA)	78.50879669	150.1313324
2020	12	5	12:30	TIE 400kV Tirana 2 - Podgorica 2	TIE 220kV Koplik - Podgorica 1 (ME)	90.82427216	149.2278748
2020	12	5	12:30	TIE 400kV Tirana 2 - Podgorica 2	TIE 220kV Podgorica 1 - Koplik (AL)	90.82794189	149.2178497
2020	12	5	14:30	OHL 400kV Lastva - Podgorica 2	TIE 220kV Trebinje - HE Perućica (ME)	78.84809113	148.568634
2020	12	5	14:30	OHL 400kV Lastva - Podgorica 2	TIE 220kV Trebinje - HE Perućica (BA)	78.68067169	148.4224243
2020	12	5	15:30	TIE 400kV Tirana 2 - Podgorica 2	TIE 220kV Koplik - Podgorica 1 (ME)	89.48891449	146.4434662
2020	12	5	15:30	TIE 400kV Tirana 2 - Podgorica 2	TIE 220kV Podgorica 1 - Koplik (AL)	89.49533844	146.437973
2020	12	5	09:30	TIE 400kV Trebinje - Lastva	TIE 110kV Trebinje - Herceg Novi (BA)	63.58753204	146.106369
2020	12	5	12:30	OHL 400kV Lastva - Podgorica 2	TIE 220kV Trebinje - HE Perućica (ME)	75.2040329	146.0702362
2020	12	5	12:30	OHL 400kV Lastva - Podgorica 2	TIE 220kV Trebinje - HE Perućica (BA)	74.99388123	145.9416962
2020	12	5	15:30	OHL 400kV Lastva - Podgorica 2	TIE 220kV Trebinje - HE Perućica (ME)	75.87887573	145.9414063
2020	12	5	15:30	OHL 400kV Lastva - Podgorica 2	TIE 220kV Trebinje - HE Perućica (BA)	75.66265869	145.7680206
2020	12	5	09:30	TIE 400kV Trebinje - Lastva	TIE 110kV Trebinje - Herceg Novi (ME)	63.1661911	145.1638489
2020	12	5	21:30	TIE 400kV Trebinje - Lastva	TIE 110kV Trebinje - Herceg Novi (BA)	60.85035324	142.7915649
2020	12	5	21:30	TIE 400kV Trebinje - Lastva	TIE 110kV Trebinje - Herceg Novi (ME)	60.36781693	141.7870636
2020	12	5	13:30	TIE 400kV Tirana 2 - Podgorica 2	TIE 220kV Koplik - Podgorica 1 (ME)	85.00988007	141.2351532
2020	12	5	13:30	TIE 400kV Tirana 2 - Podgorica 2	TIE 220kV Podgorica 1 - Koplik (AL)	85.03018188	141.2272797
2020	12	5	14:30	TIE 400kV Tirana 2 - Podgorica 2	TIE 220kV Koplik - Podgorica 1 (ME)	85.5019455	141.1092834
2020	12	5	14:30	TIE 400kV Tirana 2 - Podgorica 2	TIE 220kV Podgorica 1 - Koplik (AL)	85.51781464	141.1021729
2020	12	5	15:30	OHL 400kV Lastva - Podgorica 2	OHL 220kV Podgorica 1 - HE Perućica	81.3140564	140.6238251
2020	12	5	12:30	OHL 400kV Lastva - Podgorica 2	OHL 220kV Podgorica 1 - HE Perućica	81.13952637	140.3695068
2020	12	5	20:30	TIE 400kV Trebinje - Lastva	TIE 110kV Trebinje - Herceg Novi (BA)	60.95094299	139.0588837
2020	12	5	13:30	OHL 400kV Lastva - Podgorica 2	OHL 220kV Podgorica 1 - HE Perućica	78.4940567	138.3211212
2020	12	5	20:30	TIE 400kV Trebinje - Lastva	TIE 110kV Trebinje - Herceg Novi (ME)	60.4927597	138.0959167
2020	12	5	14:30	OHL 400kV Lastva - Podgorica 2	OHL 220kV Podgorica 1 - HE Perućica	78.54597473	136.8559265
2020	12	5	16:30	OHL 400kV Lastva - Podgorica 2	TIE 220kV Trebinje - HE Perućica (ME)	69.50298309	135.7446747

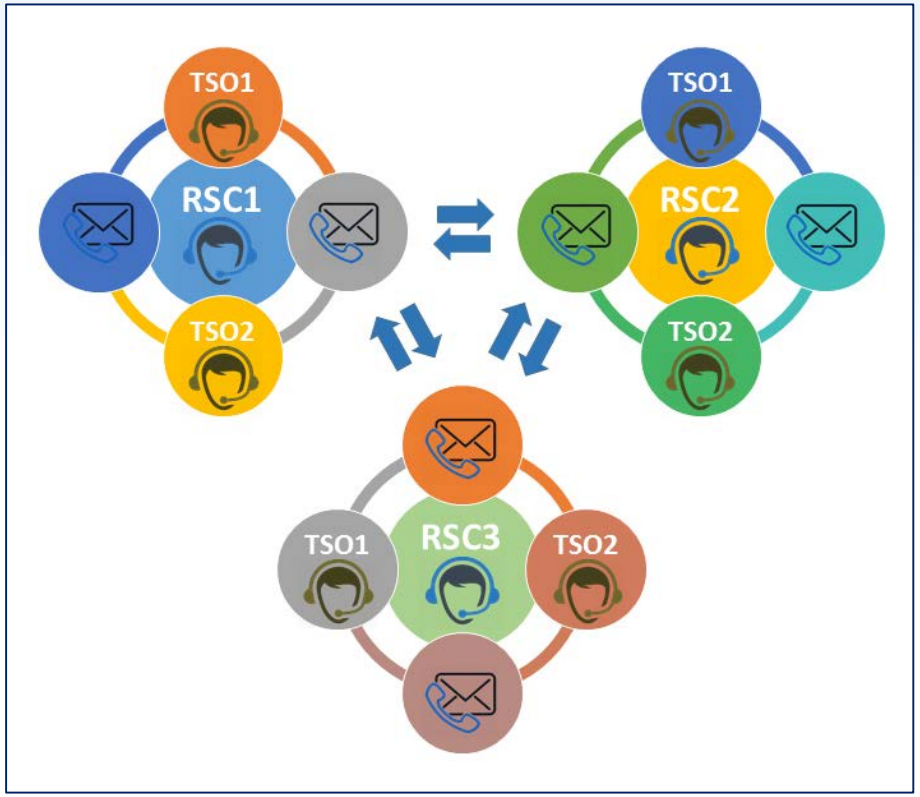
Security analysis in SCC – RA function

- From 14th of December 2020 SCC is starting to use new operational tool that has posibility to include RA function in security analysis.



Regional challenges for CSA implementation

- **However, regardles of the posibility, security analyses in SCC will remain the same, since on the SEE level there are two main issues:**
  - **Missing Capacity Calculation Region (CCR) for non-EU TSOs in SEE**
  - **Missing regional methodology for Coordinated Security Analysis (CSA)**
- **Close cooperation among all RSCs and TSOs in the region is required in order to overcome these obstacles.**



CSA methodology – Basic info

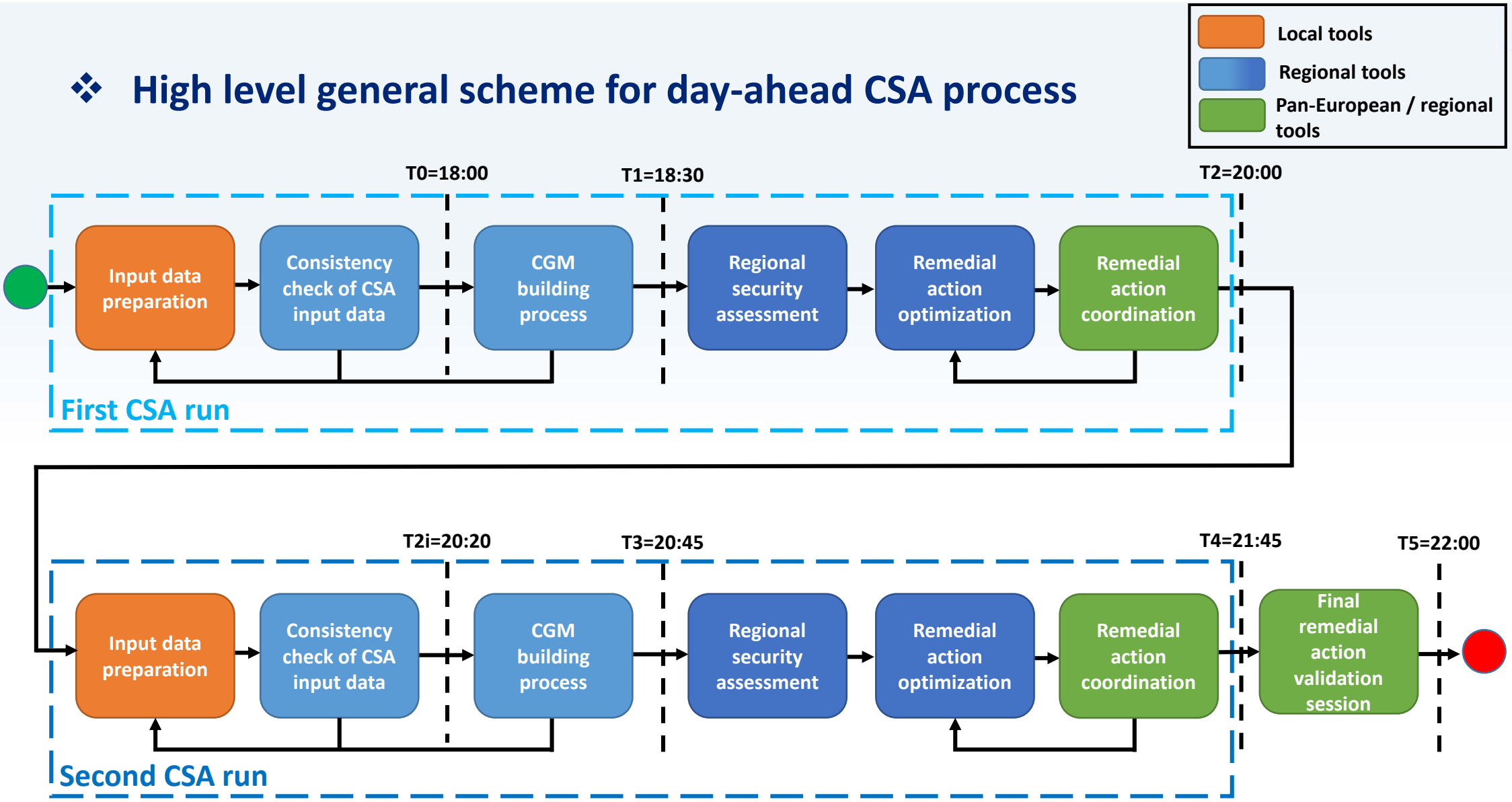
- **Each CCR is developing regional CSA methodology based on document: *All TSOs' proposal for a methodology for coordinating operational security analysis in accordance with Article 75 of Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (a.k.a. CSAm)***
- **However, that is not the case for WB6 TSOs since there is no formal CCR.**
- **Starting point for regional CSA methodology in WB6 is also CSAm since it:**
  - **covers the coordination of operational security analysis at Pan-European level**
  - **is developed in accordance with Article 75 of SO GL**
  - **is also aligned with CGM methodology and CACM**
  - **applies to all TSOs, RSCs, (C)DSOs and SGUs**

CSA methodology – Most impothant topics

- **CSAm covers the following topics:**
  - Determination of influencing elements (influence factor determination, identification of observability area elements and external contingencies)
  - Principles of coordination (establishment and sharing of contingency lists, coordinated operational security assessment, coordination of remedial actions, cross-border impact assessment, exchange of results)
  - Management of uncertainties (forecast of intermittent generation and load)
  - Risk assessment
  - Inter-RSC coordination
  - Governance and implementation
- **CSAm covers operational security analysis for 3 timeframes: intraday, day-ahead and long term studies (year-ahead up to week-ahead).**

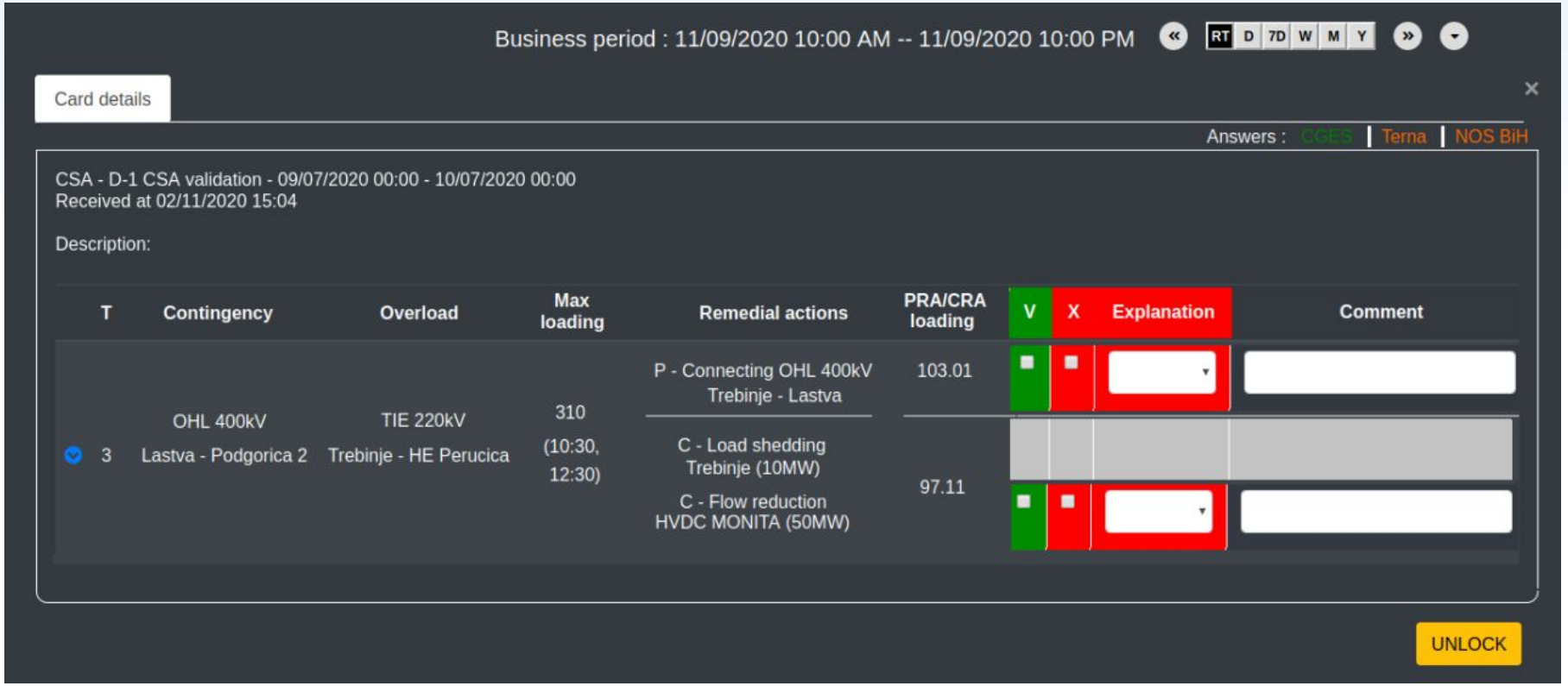
CSA process – DA timeframe

High level general scheme for day-ahead CSA process



Coordination function from TRINITY

- Cooperation between RTE-group and SCC
- TRINITY is Horizon 2020 project: http://trinityh2020.eu/
- Goal is to enhance cooperation and coordination among SEE TSOs



- Picture source: https://www.linkedin.com/feed/update/urn:li:activity:6740295531311972352/

Conclusion

- There is need for close cooperation between SEE TSOs and RSCs.
- RSCs and TSOs are partners and collaborators on the same task of ensuring the highest security of electricity supply standards in Europe.
- RSCs are key actors for enabling TSO coordination in Europe and should encourage mutual cooperation.
- There are 2 main obstacles in order to fully implement CSA in SEE region:
  - Establishment of non-EU CCR in SEE region (in line with EnCS paper “Concept for implementation of the CACM and FCA Regulations in the Energy Community” from July 2020);
  - Creation of regional methodology for CSA process.

Thank you for your attention!

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