

An aerial photograph of a lush green forest landscape. A small, dark pond is nestled within the trees. Several high-voltage power lines run diagonally across the scene. In the background, a blue horizontal bar is visible.

Status update WCC

Stakeholder meeting on Capacities

Dec 4, 2020

Erik Ek

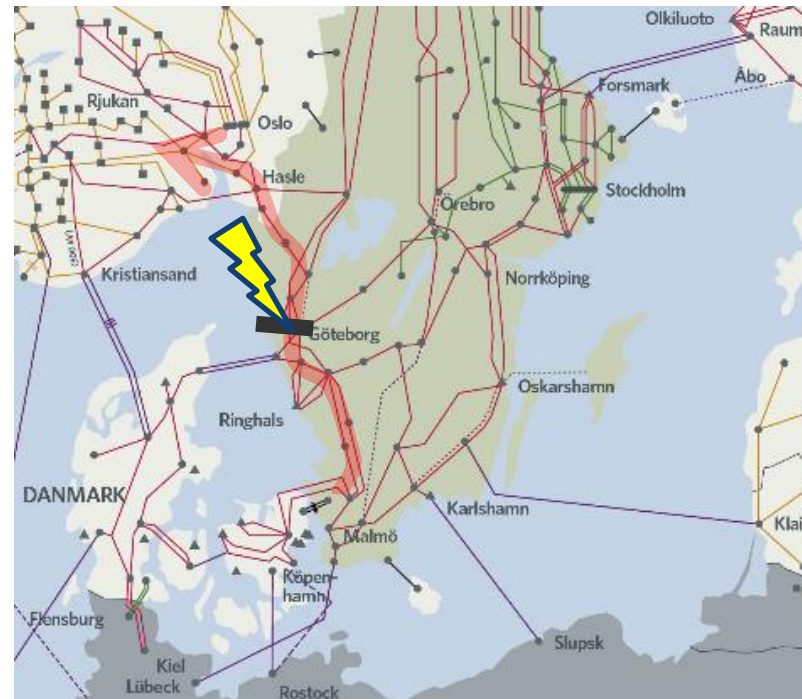


Agenda

- > Short recap WCC
- > Compliance with the 70% requirement and the limitations on the West Coast Corridor.
- > Current handling, including the derogation from EI, Swedish regulator.
- > Results/statistics from 2019, analysis for the changed method.

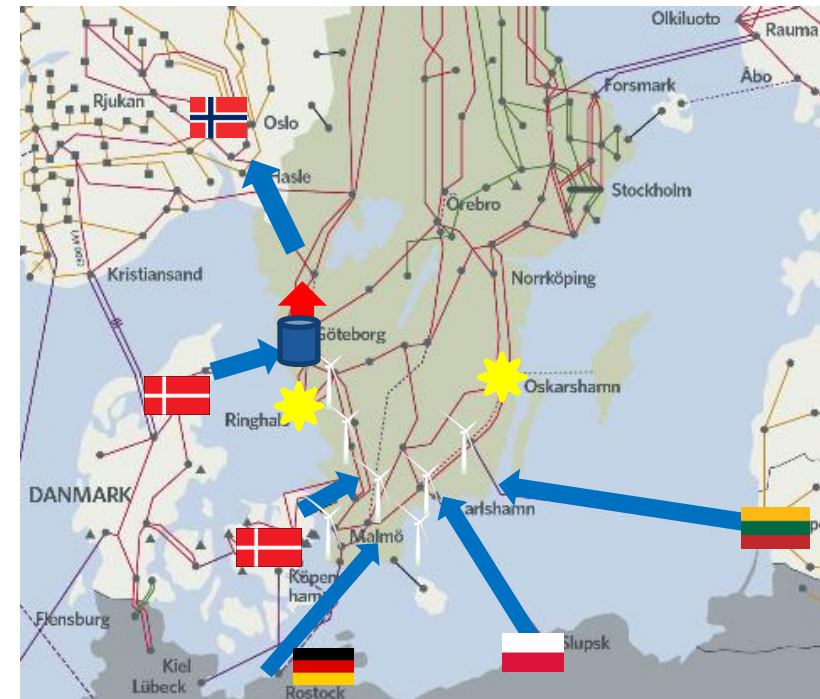
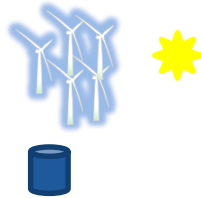
Introduction WCC: Grid limitation

- > Congestion in the west coast corridor
 - > Northbound flow
- > Technical limitations
 - > Overload after N-1 fault (SE3)
 - > Transient instability after N-1 fault (SE3-NO1)



The challenge occurs in select hours especially at nights and weekends

- > Expected flow on the West Coast Corridor
 - > Latest available prognosis data for domestic sources
 - > Wind- and nuclear power
 - > Load in Gothenburg and Malmö
 - > Expected possible flow
 - > Import from DK1, DK2, DE, PL and LT
 - > Export to NO1



Regulatory background - the CEP 70 % requirement

- > **Counter-trading and redispatch** shall be used to reach the requirement which was coming into force the first of January 2020
- > Transitory measures, i.e. action plans or derogations allow for the minimum capacity to be reached in a progressive **way by 2025**



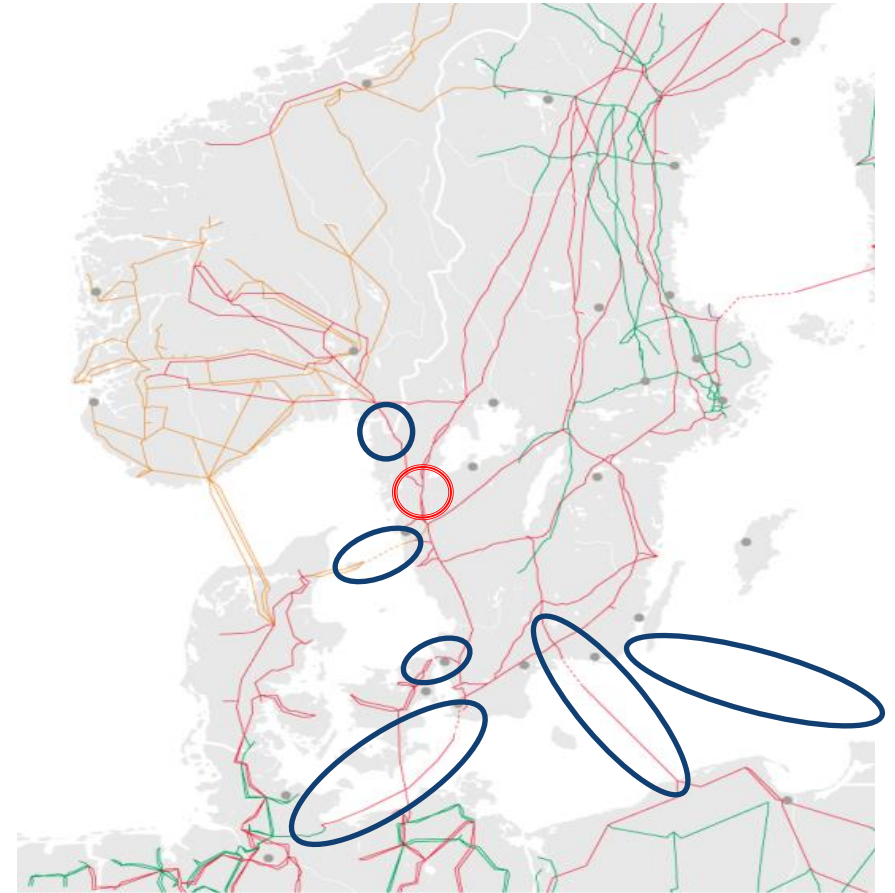
Regulatory background - Requirements for a derogation

- > Necessary on **foreseeable grounds** for maintaining operational security
- > **Strictly limited** to what is necessary to maintain **operational security**
- > **Avoid discrimination** between internal and cross-zonal exchanges
- > Not extend to more than **one year**



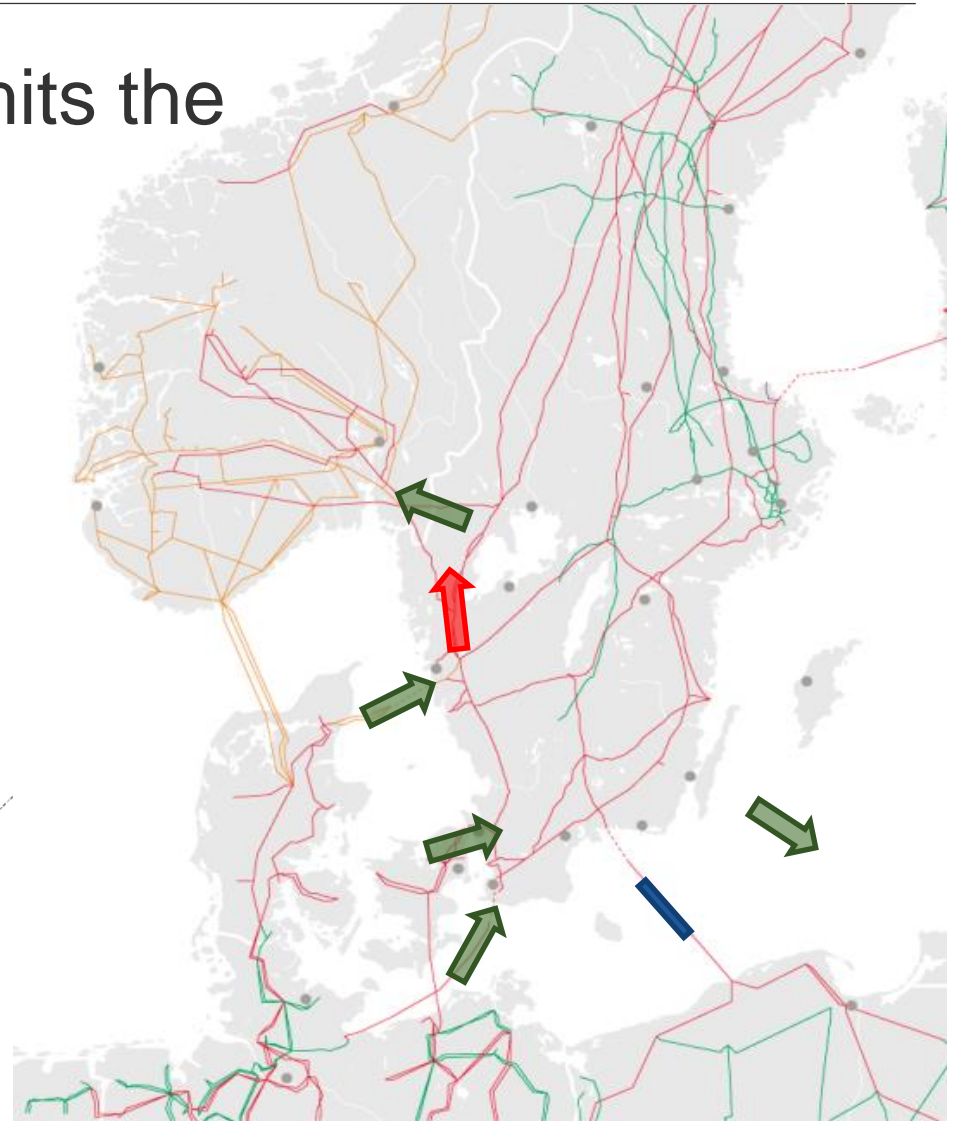
Svk's will submit a derogation request for 2021 based on the same foreseeable reasons as 2020

- > Lack of downregulation volumes makes it impossible to meet the CEP 70 %
- > Structural congestion at the West Coast Corridor (WCC) in BZ SE3 implies an ongoing need to curtail capacity on the following interconnectors: SE3→NO1, DK1→SE3, DK2→SE4, DE→SE4, PL →SE4 and LT→SE4



Lack of downregulation capacity limits the available tools

- > Operational security targets can not be met using countertrade and redispatching
- > Lack of downregulation capacity in SE4, DK1 and DK2
- > Situations may occur where the only available tool to ensure operational security is to curtail capacity on interconnectors

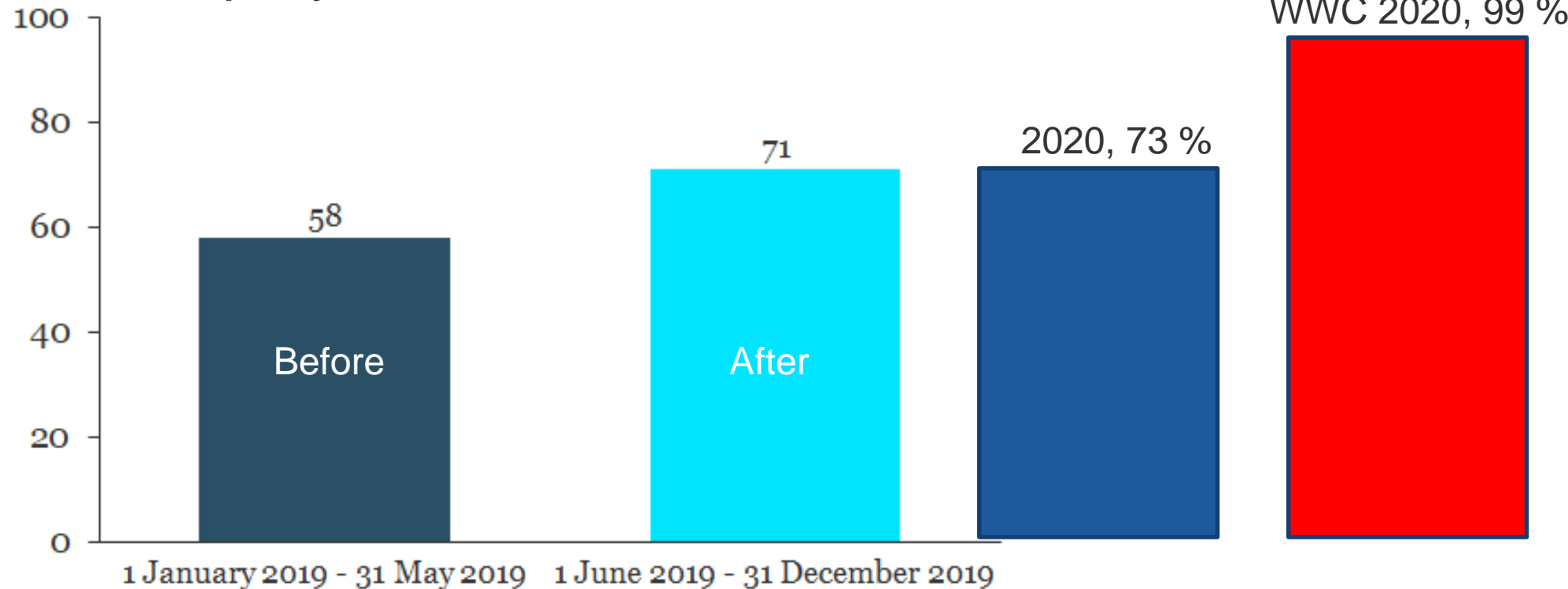


Measures and projects to reach the CEP 70 % requirement

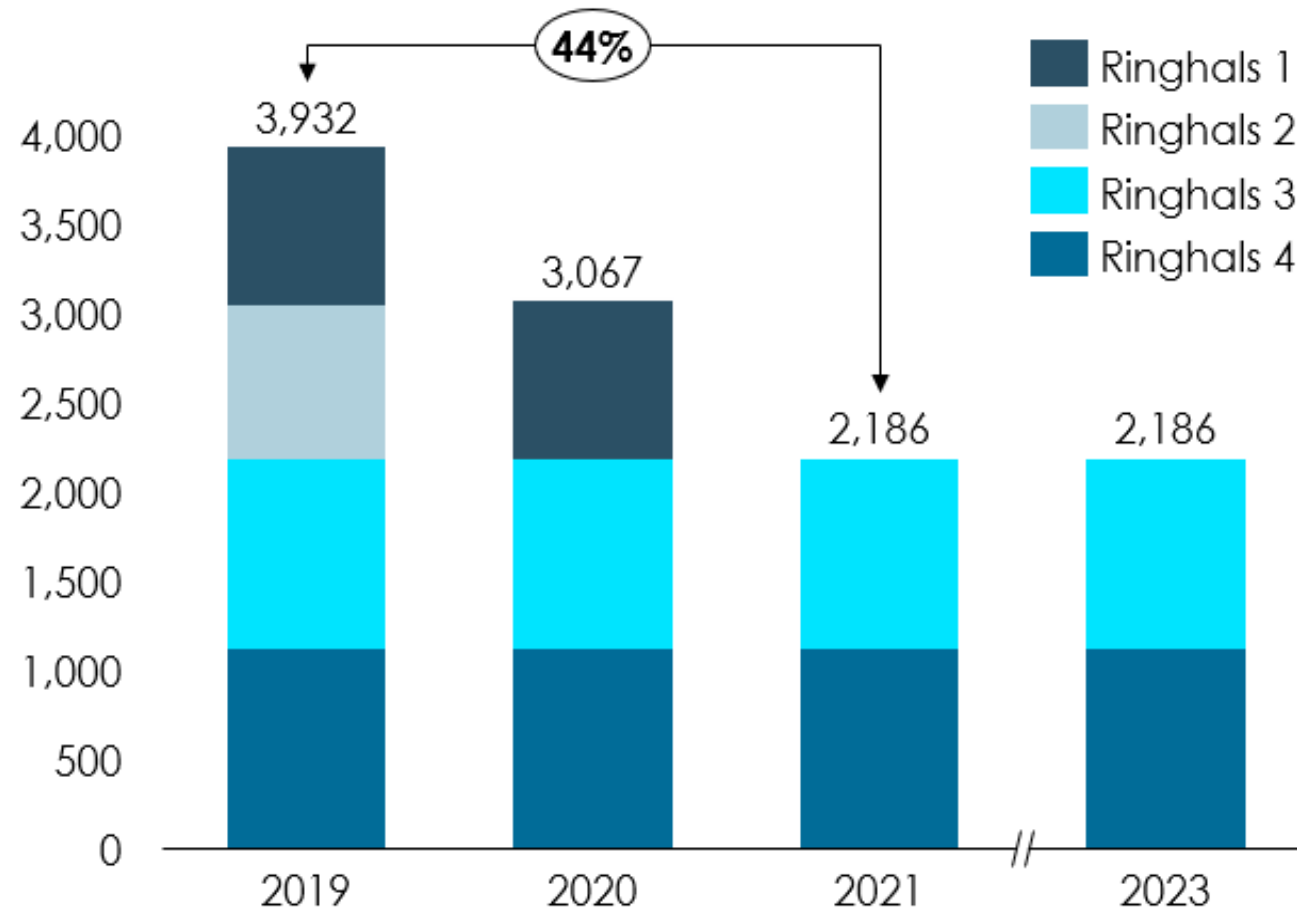
- > The closedown of the reactors Ringhals 1 (2021) and 2 (2020) will reduce the need for capacity reductions
- > Ongoing adjustment of the capacity has increased day-ahead capacity
- > The use of the counter trade as a tool in capacity allocation has been expanded
- > A more comprehensive and targeted communication and incentives to the market participants to develop the supply of downregulation resources in SE4
- > In 2025 a new transmission line from Stenkullen

Effect of Svk implementing enhanced market result predictions we saw last time we met!

Average available capacity in the DA market on the DK2-SE4 interconnector



Installed capacity at Ringhals nuclear power plant in MW



Ringhals 1 close down 2020/2021

-An easy calculation exercise

- > Installd cap. ~900 MW
- > **50-66 %** flows via WCC
- > → Available capacity in WCC 450 MW
- > → Used in one other XB (DK2 **40%** flows in WWC) → ~1125 MW extra import availability.

What happens next?

- > A request for derogation has been sent to EI and has been discussed with the relevant regulatory authorities
- > If any of the regulatory authorities oppose the request ACER is competent to adopt the decision



Change in allocation method for WCC, 28 october 2020

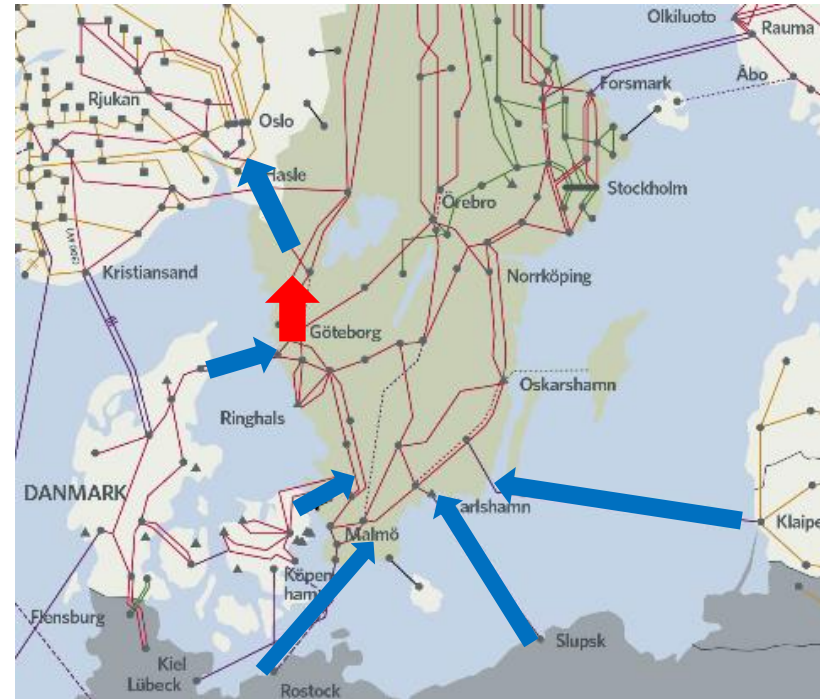
Erik Ek



**SVENSKA
KRAFTNÄT**

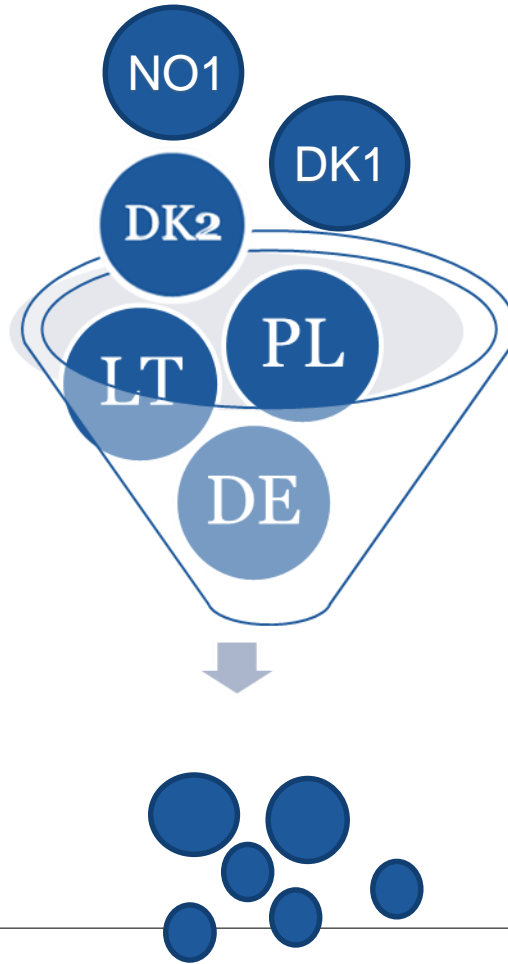
Maximum flow through WCC is "filled up" from each interconnector and made available to the DA-market

- > Available capacity allocated to each interconnector according to its NTC-size (pro-rata)



Illustrative example on possible capacity reduction between concerned interconnectors

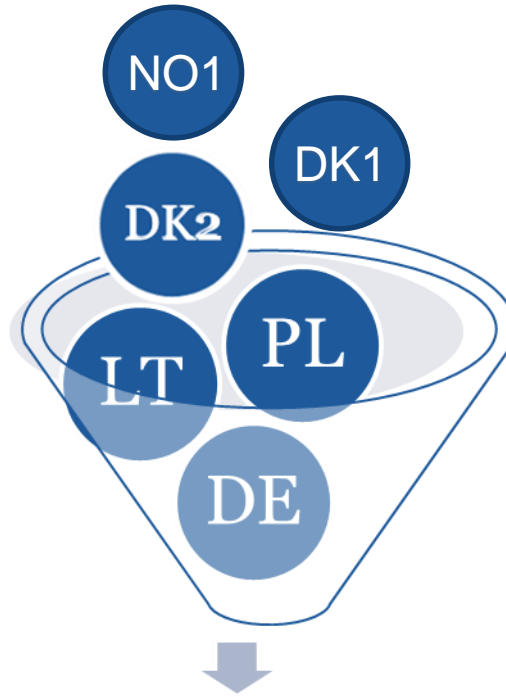
Previous allocation method for West Coast Corridor.



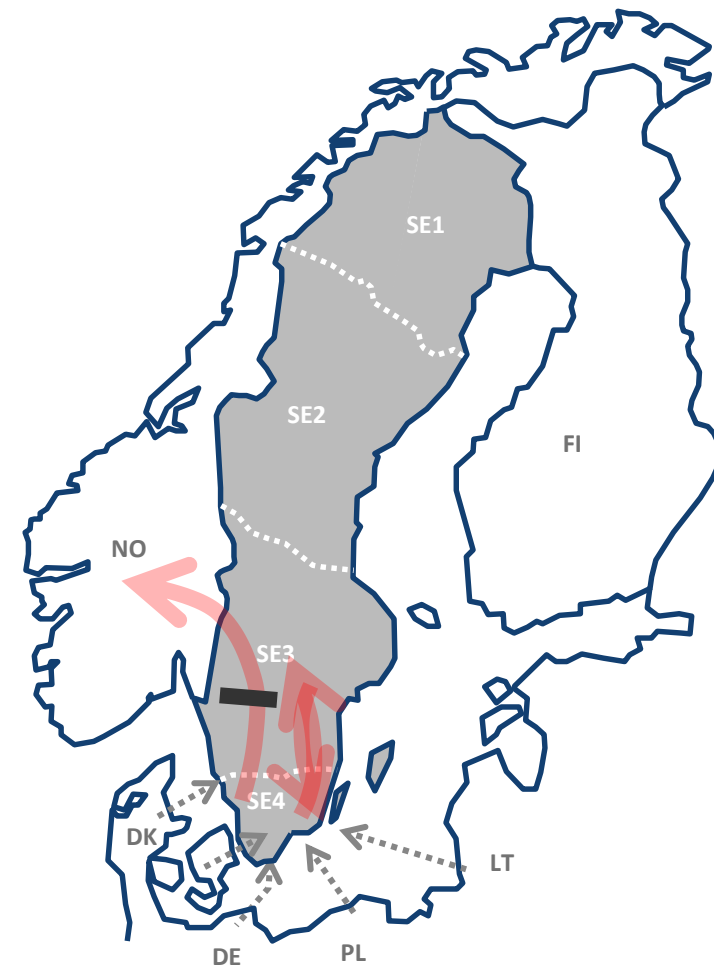
Out come 6 capacities based on % of installed capacity

Background of changed allocation method for West Coast Corridor.

Use of SE4→SE3?



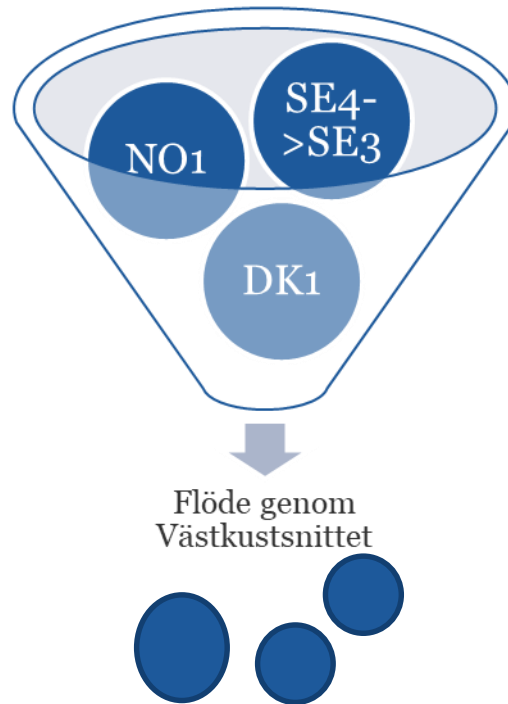
”Synchroniced” Northbound flow



Will a change in allocation method generate more trade and at the same time secure safe operation?

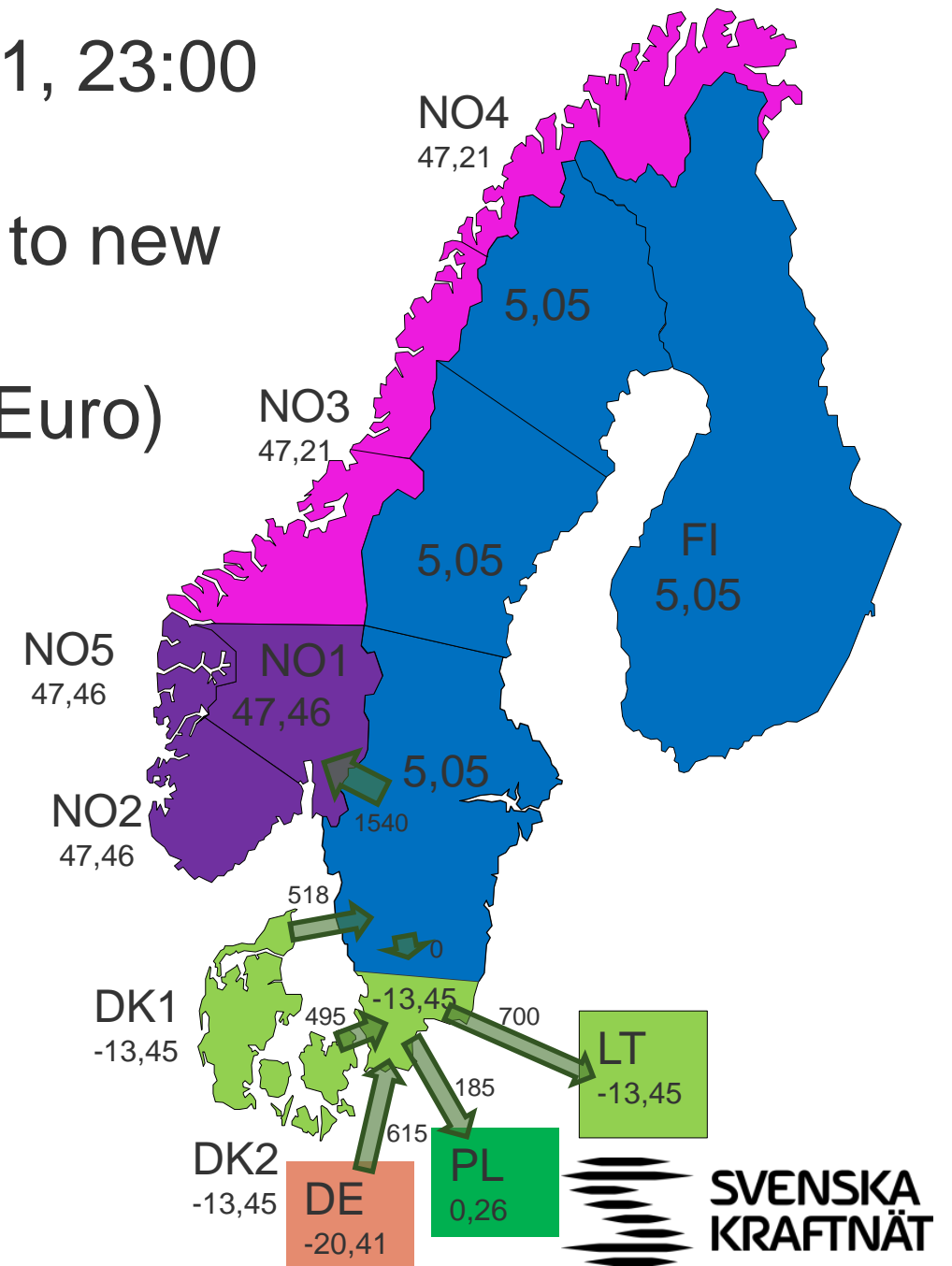
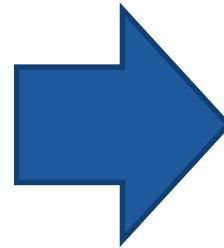
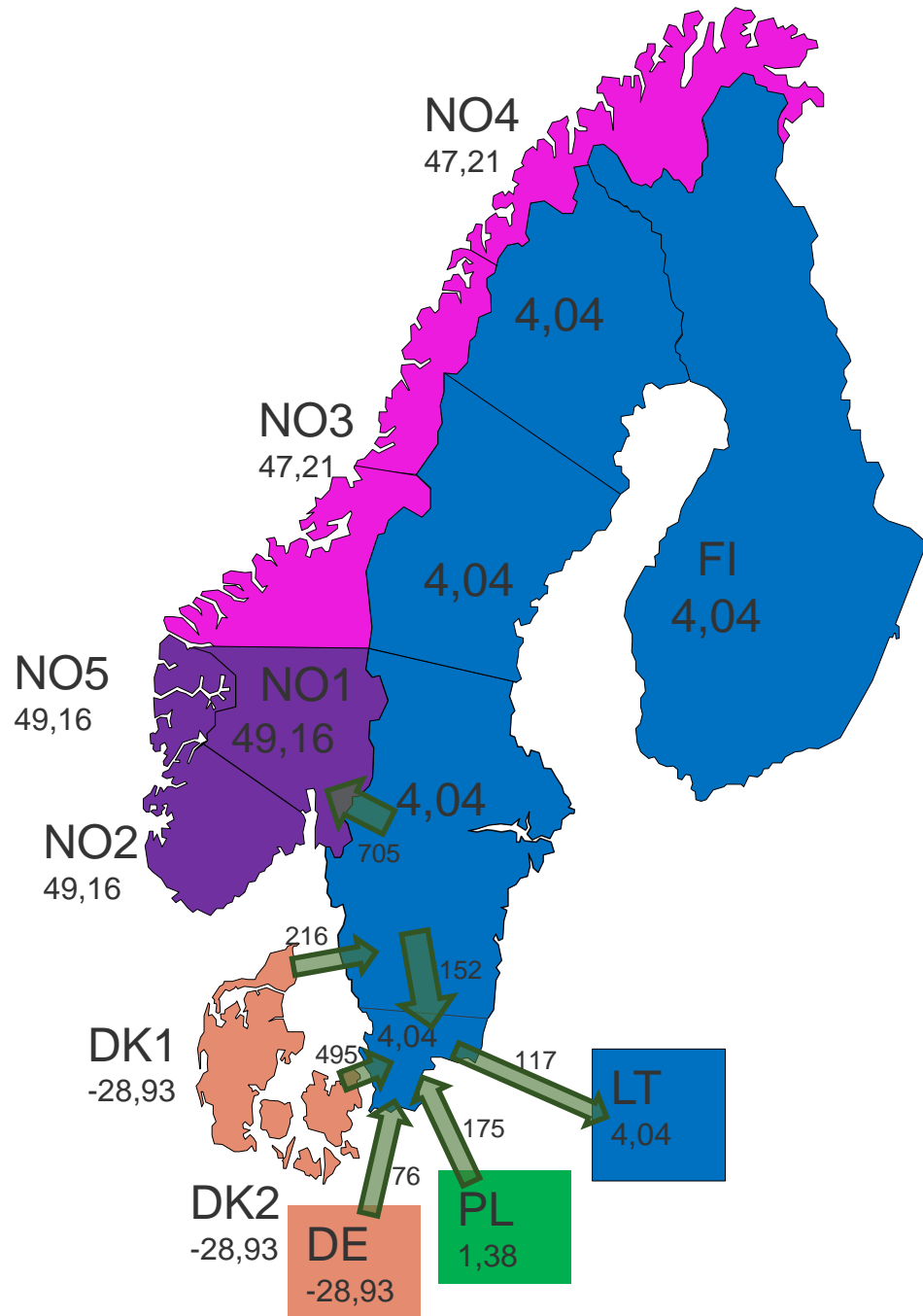
- > WCC flow is controlled and all XB connections to SE4 and SE4 will have access to trade with each other.
- > Prices and flows will be changed

New allocation take into account XB with boundary to bidding zone with the internal congestion, SE3



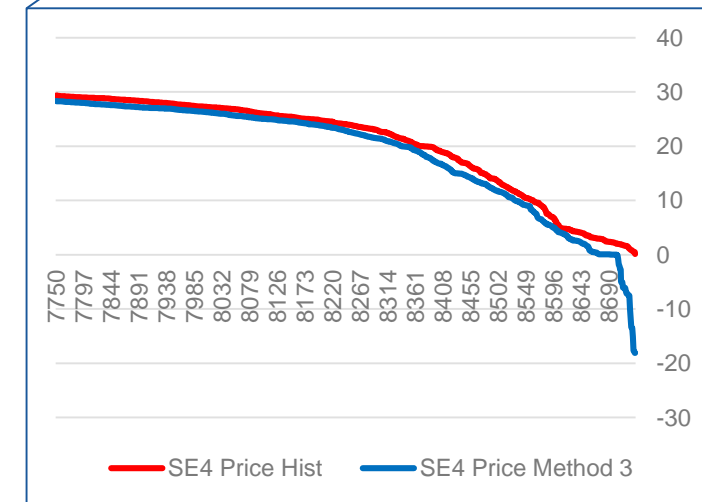
Out come 3 capacities based on % of installed capacity for DK1 and NO1 and SE4→SE3 will be set to zero.

2019-01-01, 23:00
Historical
compared to new
method.
(Prices in Euro)



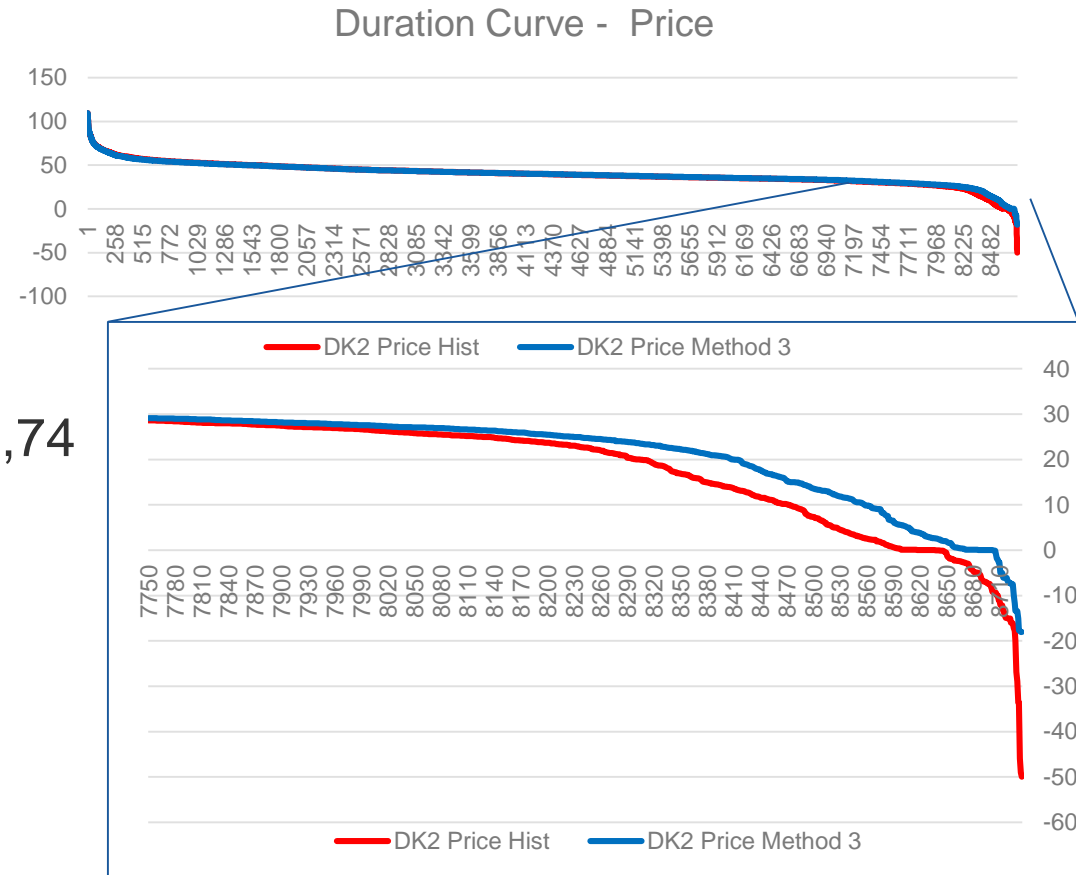
Results: Simulated prices for SE4 during 2019

- > Minor changes in price, but negative prices were noted during 17 hours 2019.
- > Mean for SE4 was historically EUR 39,76 compared to EUR 39,15 with the simulation.



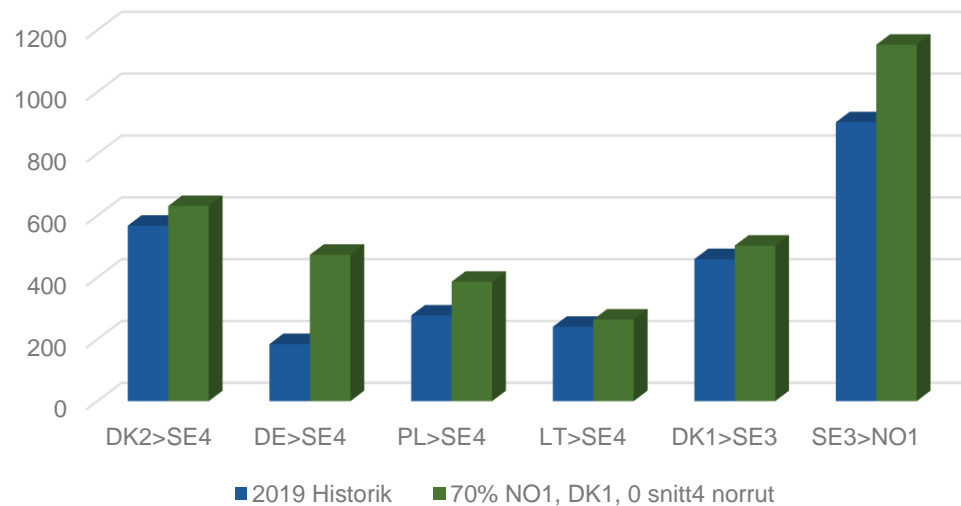
Results: Simulated prices for DK2 during 2019

- > Minor changes in price, but negative prices are slightly dampened.
- > Mean for DK2 was historically EUR 39,74 compared to Eur 40,14 with the simulation.

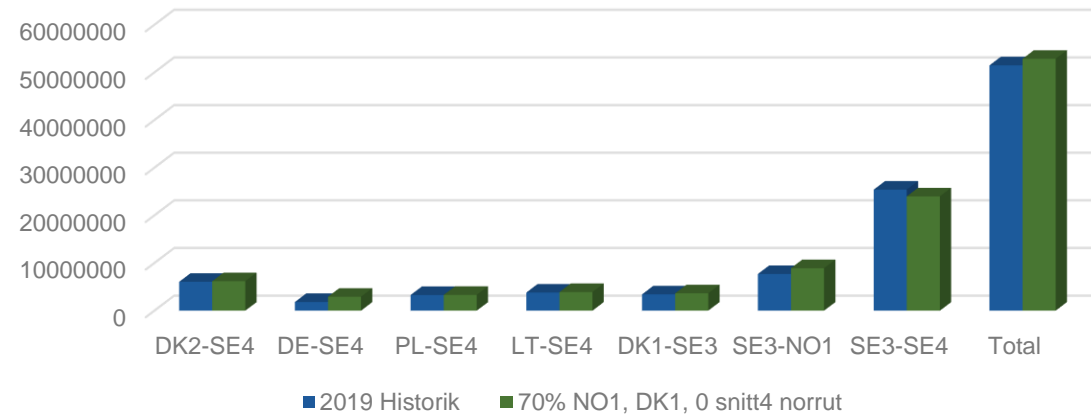


Result: Increased trade

Trade Flows (Mean 2019)



Trade flows (Total 2019)

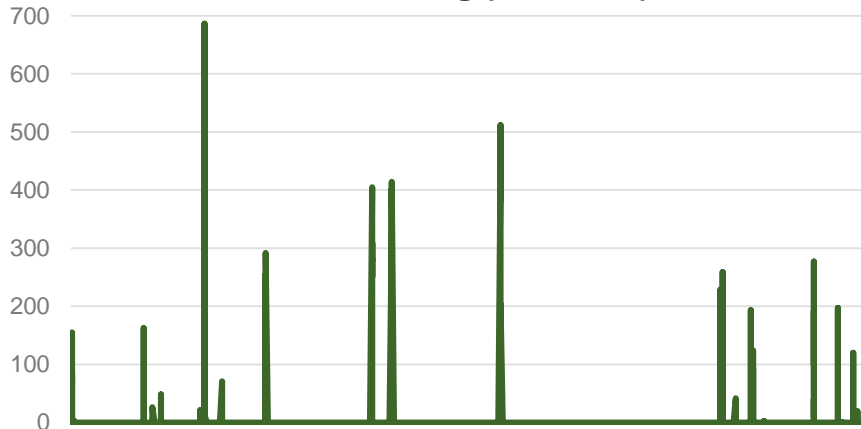


*The Big change in DE→SE4 influenced by DE internal congestions

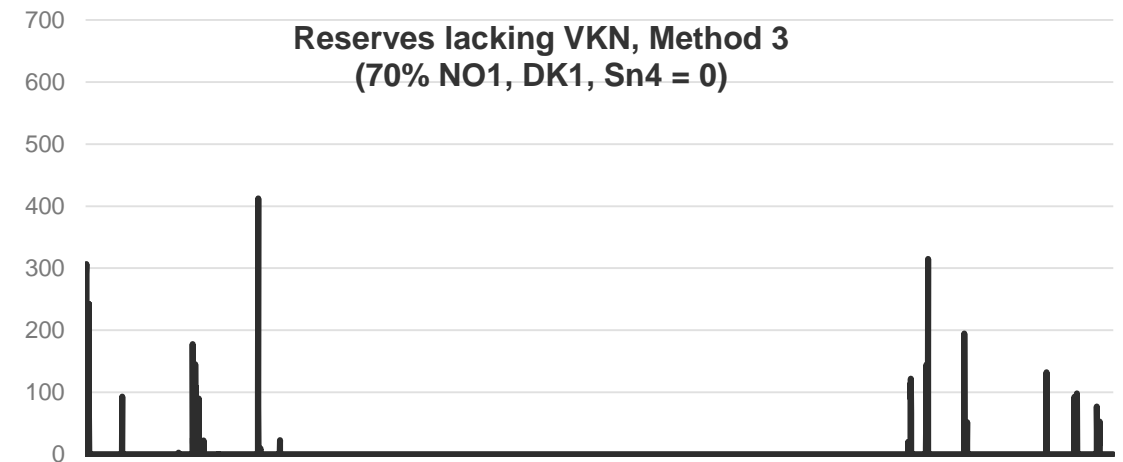
Effects on operational security: Is there enough reserves in case of a fault?

- > Downregulation volume in SE4, DK1, DK2 important for the handling a contingency on a transmission line in the WCC.

Reserves lacking (Historical)



Reserves lacking VKN, Method 3
(70% NO1, DK1, Sn4 = 0)



More bids needed on the RKM-market

- > Contertrade is used with the available bids helping WCC
- > Players are welcome to increase flexibility downwards.

NRA follow the evaluation in weekly reports

> Content:

- hours when capacities have been lower than 70% of maxNTC for XB connections LT, PL, DE, DK2, DK1 and NO1
- In addition to capacities which side of the boarder is congested and why (red.codes)
- Regulated volume
- Available volume for countertrade

TSO interest is hours when reserves don't cover the required volume for N-1 failure.