

DK-SE capacity reductions

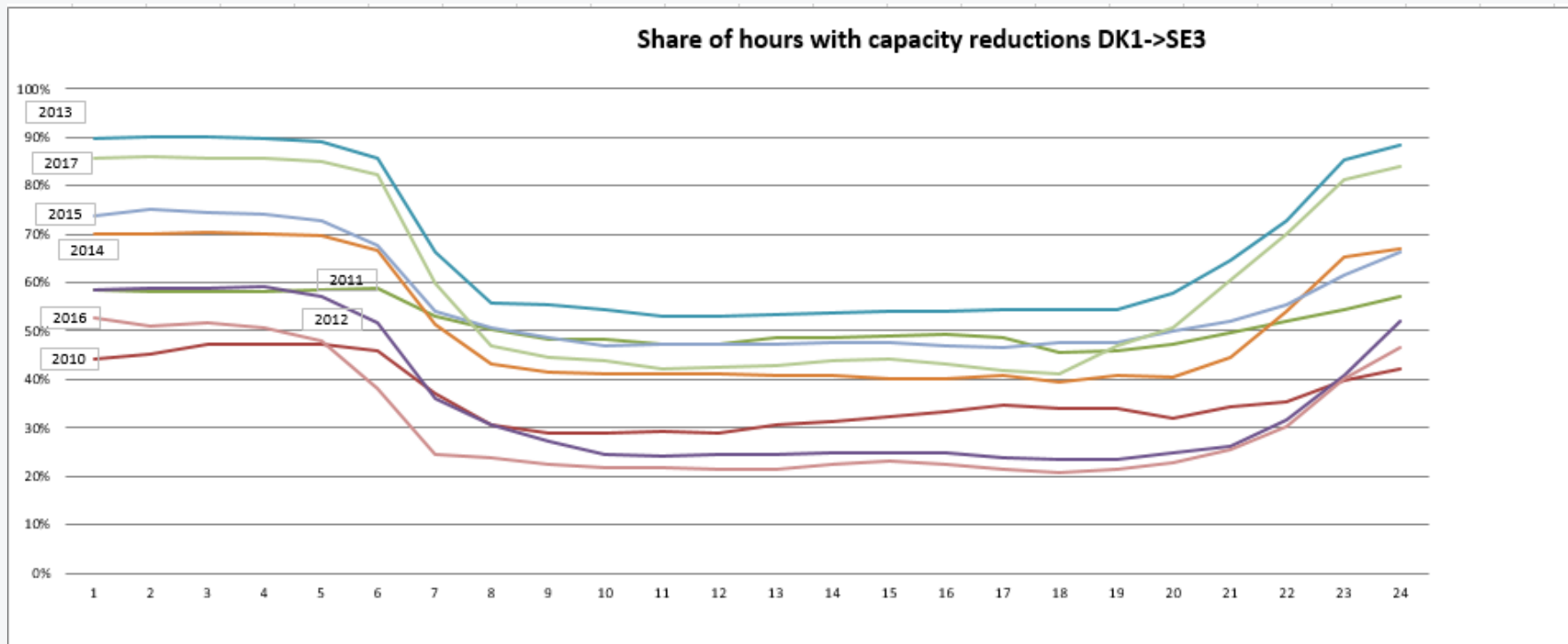
Orsted analysis and observations

Total loss generation DK1 & DK2

- Using Ørsted's internal simulation model to calculate effect of capacity reductions, we have performed 2 scenarios for **2017**:
 - One scenario with historic data on capacity on DK->SE interconnectors
 - One scenario with full capacity on DK->SE interconnectors
 - The simulation model calculates new hourly prices pr. Price area, taking into account increased capacity.
- The difference between the 2 scenarios gives the following DK market loss on generator side:
 - DK1 ~ 64 mio. DKK. ~ 9 mio. EUR
 - DK2 ~ 42 mio. DKK. ~ 6 mio. EUR

Share of hours with capacity reductions DK1->SE3

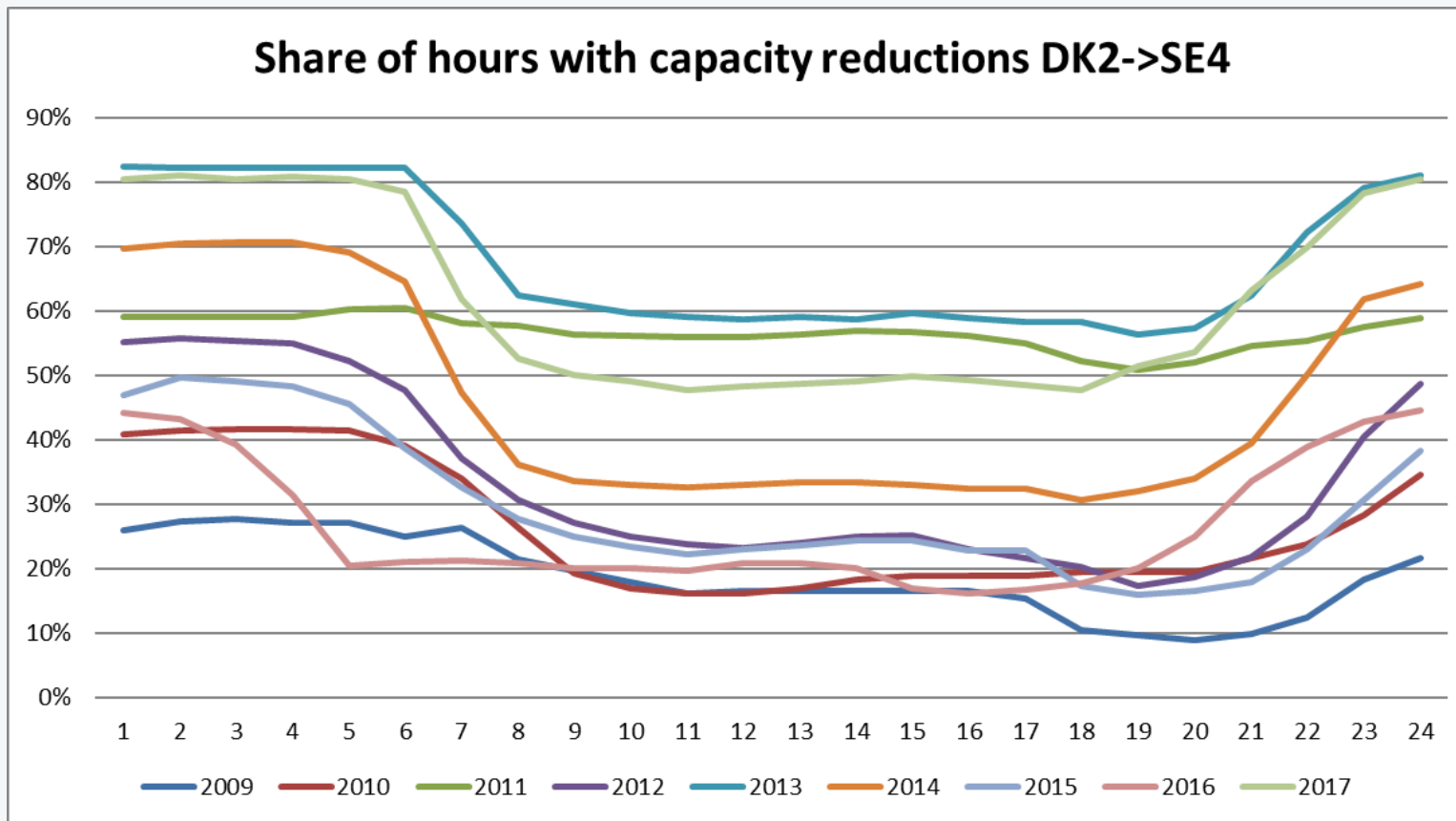
(hours with reduction >1 MW)



Every hour during a year is checked for reductions on DK1->SE3 interconnector. The size of reduction is not measured, only "reduction or no reduction". Hour 1 in the figure represents 365 (6) hour 1's during a year. The figure gives a good picture of the reduction profile. Conclusion: SVK is consistent when calculating capacities.

Share of hours with capacity reductions DK2->SE4

(hours with reduction >1 MW)



Every hour during a year is checked for reductions on DK2->SE4 interconnector. The size of reduction is not measured, only "reduction or no reduction". Hour 1 in the figure represents 365 (6) hour 1's during a year. The figure gives a good picture of the reduction profile. Conclusion: SVK is consistent when calculating capacities.

Electricity production from nuclear power plants in Germany in December 2017

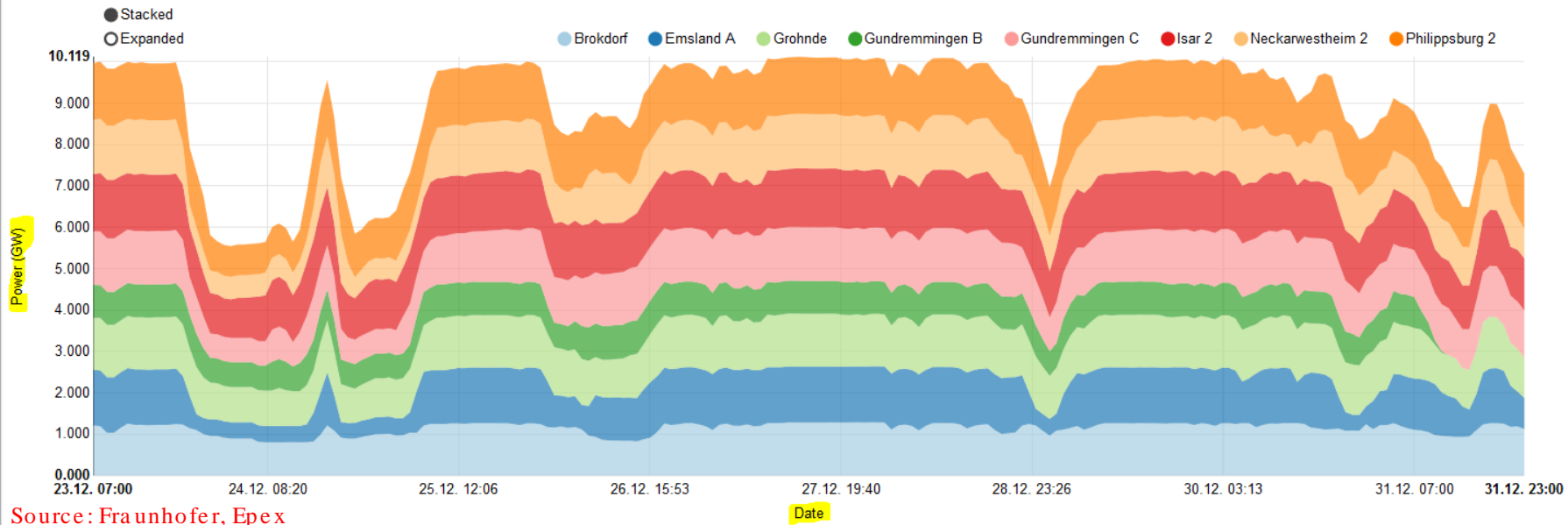
date selection

year: 2017

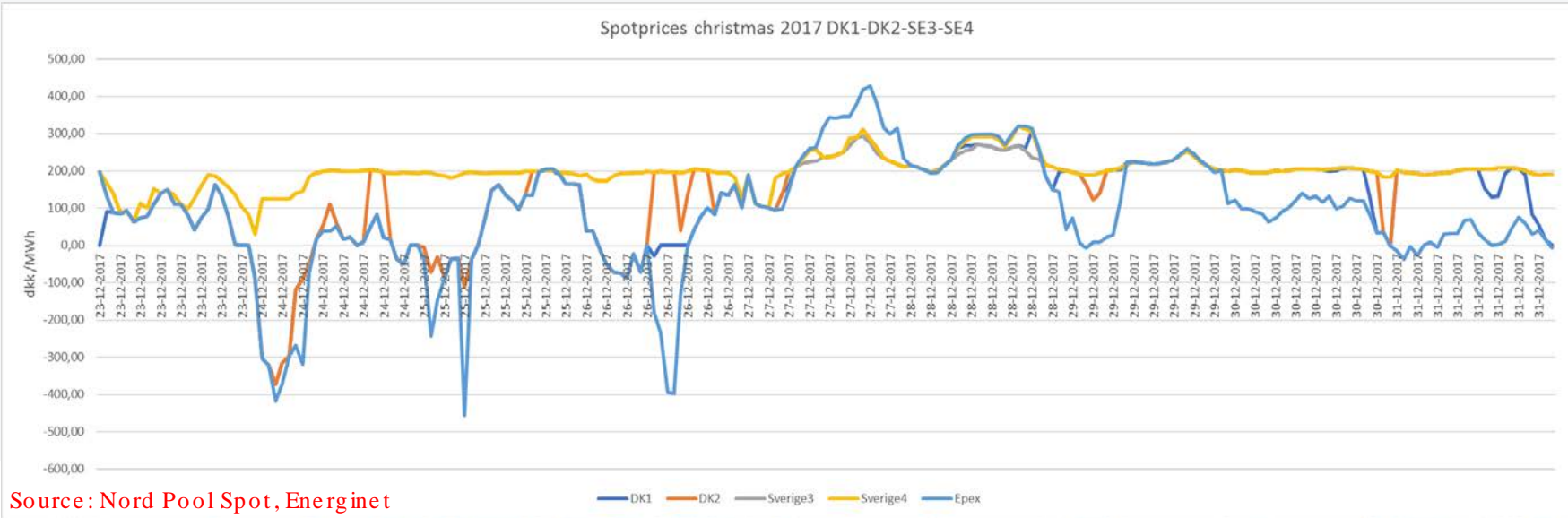
month: December

week:

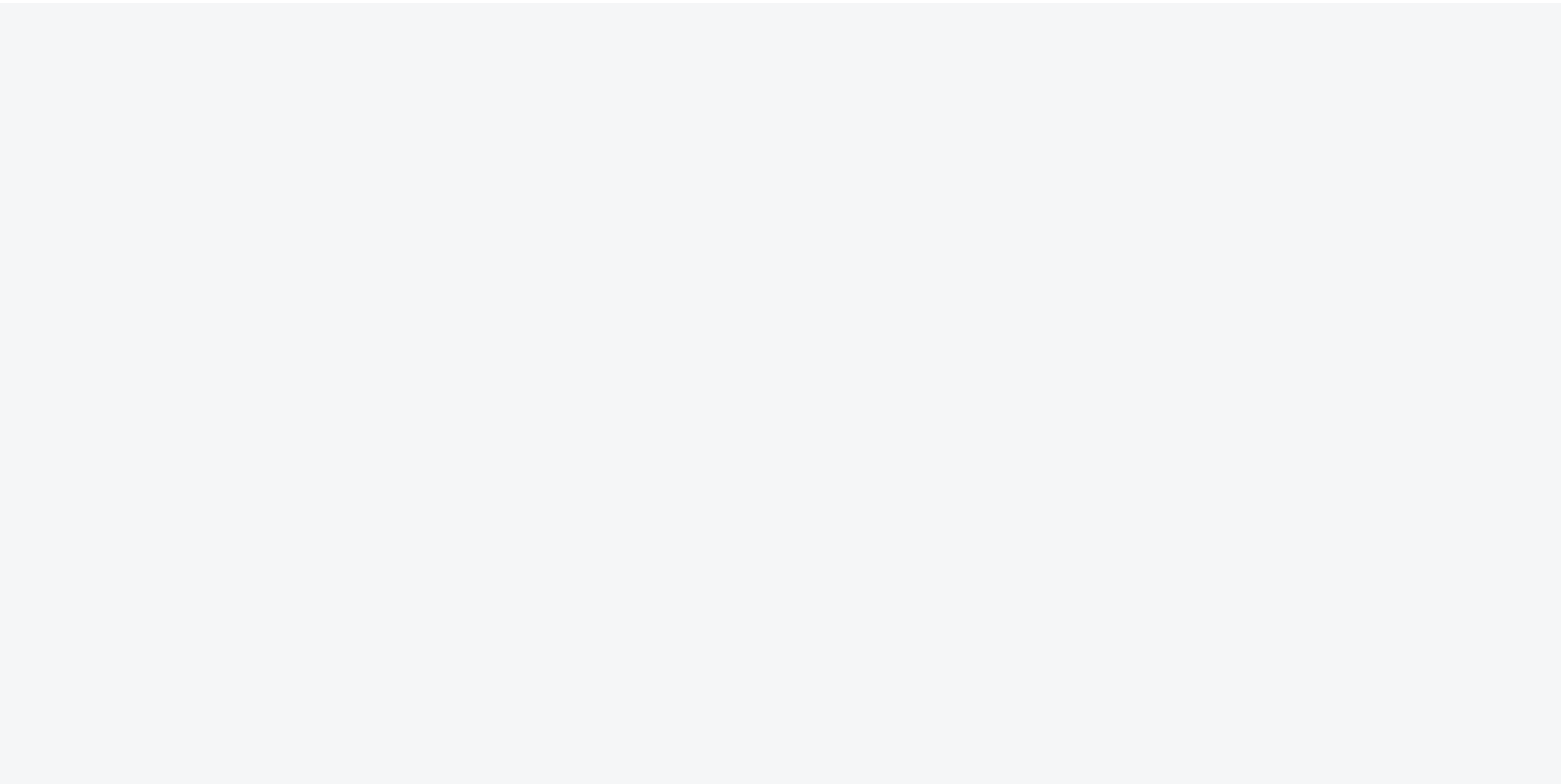
conv. >100 MW
 all sources
 solar, wind
 import, export
 run-of-river
 nuclear
 lignite
 lianite per unit



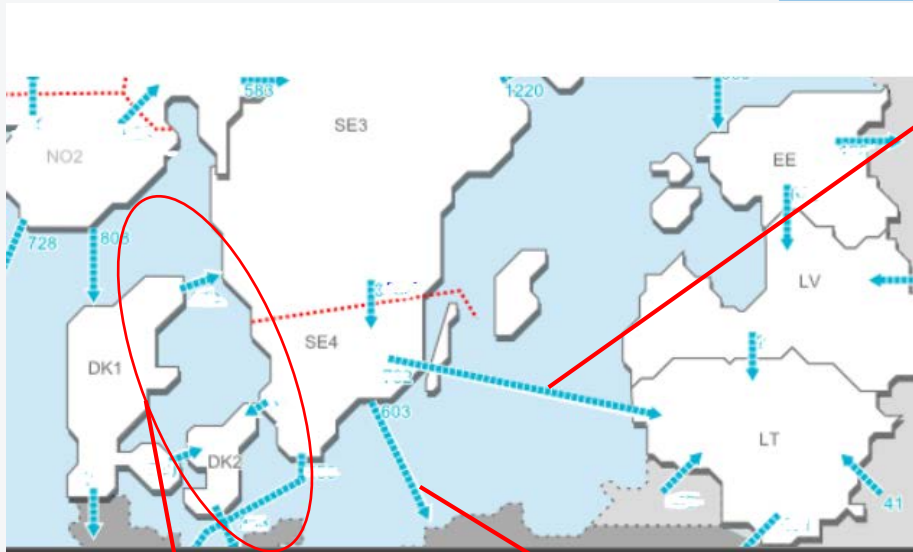
Source: Fraunhofer, Epex



Source: Nord Pool Spot, Energinet



Pro rata model - the model is not efficient



When price difference between DE/DK and SE occurs, up to 90% of capacity given to LT->SE4 is not used

Could DE-SE4, DK1-SE3 and DK2-SE4 benefit from shifting capacity from LT and PL to DE-DK1-DK2 interconnectors?

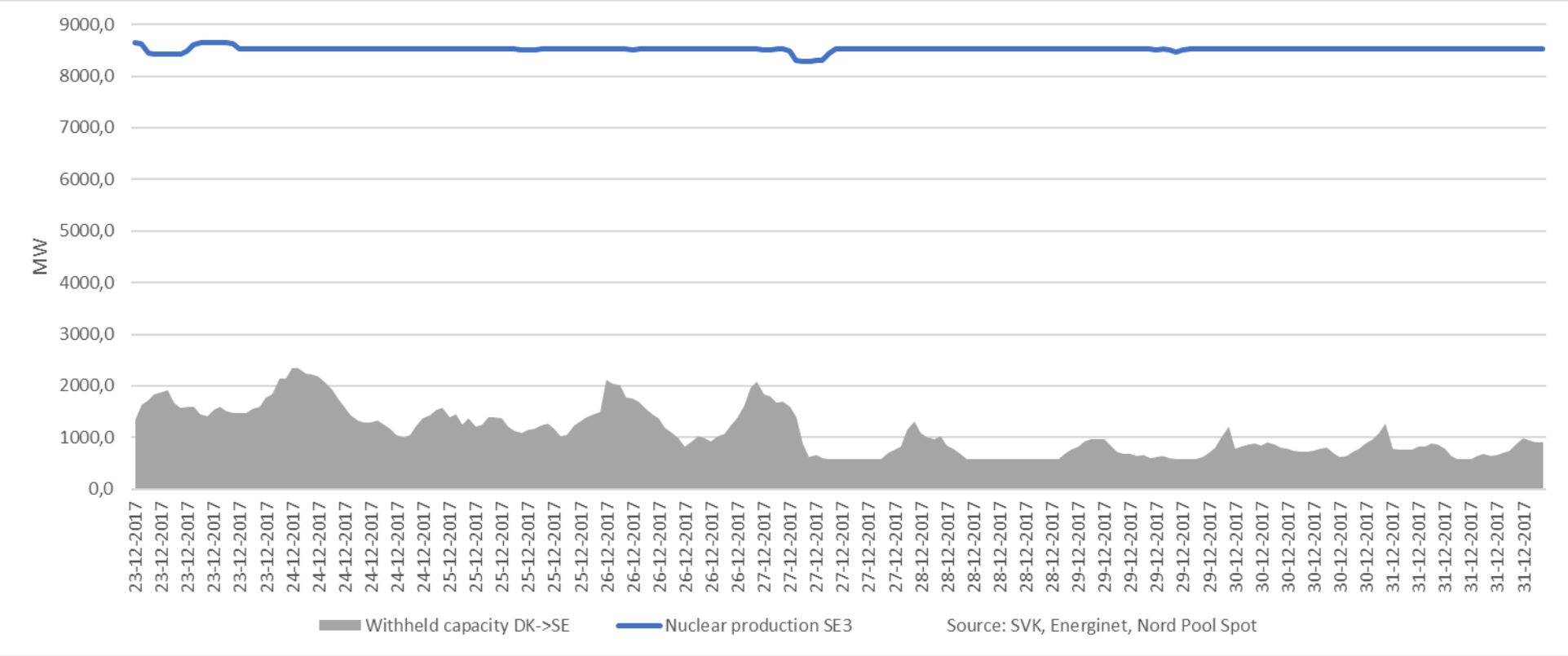
When price difference between DE/DK and SE occurs, up to 66% of capacity given to PL->SE4 is not used

Pro rata model - the model is not efficient

Following situation is present : DK2-spot < SE4 -spot				
20 18				
	LT>SE4	PL>SE4	DE>SE4	DK2>SE4
	MWh	MWh	MWh	MWh
Released capacity	240.278	131.879	33.651	364.110
Used capacity	51.212	55.756	31.505	364.110
Unused capacity [MWh]	189.066	76.123	2.146	0
Unused capacity [%]	79%	58%	6%	0%
Max. NTC [MW]	700	600	615	1700

Following situation is present : DK1-spot < SE3-spot				
20 18				
	LT>SE4	PL>SE4	DE>SE4	DK1>SE3
	MWh	MWh	MWh	MWh
Released capacity	74.1398	354.754	270.325	854.669
Used capacity	71.540	119.832	193.042	667.116
Unused capacity [MWh]	669.859	234.922	77.283	187.553
Unused capacity [%]	90%	66%	29%	0,2194
Max. NTC [MW]	700	600	615	740

Swedish production during christmas 2017



Electricity production from nuclear power plants in Germany in December 2017

date selection

year: 2017

month: December

week:

conv. >100 MW
 all sources
 solar, wind
 import, export
 run-of-river
 nuclear
 lignite
 lianite per unit

