

President and CEO

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European Commission
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COVER LETTER

Case no 39351 – Swedish interconnectors

With reference to Case no. 39351 Swedish Interconnectors, I hereby submit the fourteenth report in accordance with section 5 Monitoring Provisions in the Commitments as adopted and made legally binding by decision of the Commission on 14 April, 2010.

Sincerely yours


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Swedish Interconnectors

COMP Case No 39351

Monitoring Report No 14

Introduction

This report is submitted to comply with section 5 (Monitoring provisions) of Svenska kraftnät's Commitments (26 January 2010) under Article 9 of Council Regulation No. 1/2003 in connection with the European Commission investigation in Case COMP/39351 – Swedish Interconnectors. The Commitments were adopted and made binding by decision of the Commission on 14 April 2010. Regarding this, Svenska kraftnät would like to emphasize that that we are monitoring the development of the European Network Codes continuously and how they will relate to our Commitment.

The report is prepared in good faith and aims at providing any information the Commission may need in order to judge whether Svenska kraftnät is proceeding in accordance with the Commitments. Additional information can be provided to the Commission upon request.

In accordance with what was stated in last (thirteenth) monitoring report this fourteenth monitoring report has been submitted before 9th February 2018.

In order to have sufficient time for proper assessments (in line with what is stated in the Commitment) and internal processes the next (fifteenth) monitoring report will be submitted by 8 February 2019 at latest, covering the whole year of 2018.

Svenska kraftnät confirms that the report does not contain any confidential information and may be freely distributed to third parties.

Sundbyberg, February 5th 2018


Ulla Sandborgh

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1 Svenska kraftnät's commitment

As committed, Svenska kraftnät has subdivided the Swedish part of the Nordic electricity market into several bidding zones and the Swedish Transmission System is operated on this basis since November 1, 2011. Congestion in the Swedish Transmission System, with exception of Congestion in the West Coast Corridor, is generally managed without limiting Trading Capacity on Interconnectors. This can be seen in subsequent chapters, and is particularly evident in Table 3 in each chapter (there is one chapter per quarter).

2 Period January 1 - March 31, Q1 2017

This section describes operational experience and measures regarding allocation of trading capacity in the period January 1 to March 31, 2017.

In the period, totally 2 159 hours, the main direction of the power flow was southbound.

From February 15, 2017, maximum NTC for SE3->SE4 southbound was increased from 5 300 MW to 5 400 MW. Historically the maximum capacity SE3->SE4 has been related to voltage stability limitations and thermal overload. Based upon a review of recent operational experience and grid modifications, Svenska kraftnät determined that sufficient evidence existed to justify increasing the maximum NTC for SE3->SE4.

Table 1 below shows the average prices in Sweden and all neighbouring areas for the above mentioned period (excluding Germany and Poland). Table 2 summarises the number of hours where price differences occurred between the respective zones.

Table 1. Average, maximum, and minimum prices for areas within Nord Pool.

Area	Average Price Level (EUR)	Maximum Price (EUR)	Minimum Price (EUR)
SE1	31.68	117.12	4.05
SE2	31.68	117.12	4.05
SE3	31.76	117.12	4.05
SE4	32.88	117.12	4.05
DK1	30.03	117.12	-12.12
DK2	31.95	117.12	-9.69
FI	32.95	117.12	4.05
NO1	31.34	79.59	25.88
NO3	31.32	87.38	19.97
NO4	26.01	70.2	19.97
LT	34.82	117.12	4.05

Table 2. Number of hours where the price for the area in the row was higher than for the area in the column.

No of hours where price for row area greater than for column area	SE1	SE2	SE3	SE4	DK1	DK2	FI	NO1	NO3	NO4	LT
SE1	-	0	0	0	529	198	0	359	418	1 826	31
SE2	0	-	0	0	529	198	0	359	418	1 826	31
SE3	48	48	-	0	529	198	0	361	441	1 829	31
SE4	260	260	240	-	669	198	175	484	550	1 838	37
DK1	174	174	128	109	-	57	124	244	476	1 724	123
DK2	315	315	296	64	504	-	232	499	603	1 771	90
FI	456	456	433	311	840	505	-	672	717	1 892	39
NO1	467	467	426	425	586	425	421	-	747	1 964	427
NO3	173	173	173	173	544	304	173	286	-	1 830	190
NO4	43	43	43	43	308	183	43	72	0	-	54
LT	764	764	757	545	1 135	738	495	939	911	1 905	-

Summary of table 1 and 2:

- LT had the highest average price, followed by FI, SE4, DK2, SE3, SE1, SE2, NO1, NO3, DK1, and NO4.
- SE1 and SE2 had a common price during all hours.

2.1 Allocation of trading capacity

Table 3 below summarises how often Svenska kraftnät have allocated less trading capacity than maximum NTC for interconnectors and corridors between internal areas in the period.

Table 3. Limitations in trading capacity on interconnectors and corridors between internal areas as enforced by Svenska kraftnät. The columns with average reductions shows the average NTC divided by maximum NTC.

Interconnectors/ corridors between internal areas	No of limited hours		No of days with limitation		Average reduction	
	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound
SE1-SE2	36	0	3	0	0 %	0 %
SE2-SE3	354	0	17	0	1 %	0 %
SE3-SE4	540	0	26	0	1 %	0 %
SE1-FI	107	2 063	5	86	-2 %	3 %
SE1-NO4	24	35	1	2	1 %	2 %
SE2-NO3	0	0	0	0	0 %	0 %
SE2-NO4	0	96	0	4	0 %	1 %
SE3-DK1	107	1 609	7	89	1 %	31 %
SE3-FI	0	0	0	0	0 %	0 %
SE3-NO1	1 520	9	89	3	28 %	0 %
SE4-DE	0	1 528	0	89	0 %	30 %
SE4-DK2	8	1 557	3	89	0 %	31 %
SE4-PL	0	1 550	0	89	0 %	31 %
SE4-LT	473	1 741	20	90	22 %	48 %

The majority of the limitations of export capacity on the interconnector SE1-FI, enforced by Svenska kraftnät during the period, are because of that the NTC depends on forecasted transfer between Ivalo - Varangerbotn. The forecasted transfer can both increase and decrease the NTC.

Table 4 below summarises the time during which neighbouring TSOs have allocated less trading capacity than maximum NTC to interconnectors in the period.

Table 4. Limitations in trading capacity on interconnectors as enforced by neighbouring TSOs. The columns with average reductions shows the average NTC divided by maximum NTC.

Interconnectors/ corridors between internal areas	No of limited hours		No of days with limitation		Average reduction	
	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound
SE1-SE2	-	-	-	-	-	-
SE2-SE3	-	-	-	-	-	-
SE3-SE4	-	-	-	-	-	-
SE1-FI	100	2 063	5	86	-2 %	3 %
SE1-NO4	2 159	2 159	90	90	42 %	32 %
SE2-NO3	710	96	34	4	13 %	1 %
SE2-NO4	2 159	2 159	90	90	34 %	46 %
SE3-DK1	0	0	0	0	0 %	0 %
SE3-FI	0	0	0	0	0 %	0 %
SE3-NO1	80	2 159	4	90	2 %	55 %
SE4-DE	967	1 749	68	89	25 %	48 %
SE4-DK2	42	42	3	3	1 %	1 %
SE4-PL	812	1 941	90	90	31 %	64 %
SE4-LT	471	471	20	20	22 %	22 %

Table 5 below summarises the time during which capacities on interconnectors and corridors between internal areas have been reduced, taking into account reductions by both Svenska kraftnät and neighbouring TSOs.

Table 5. Final limitations in trading capacity on interconnectors and corridors between internal areas as enforced by both Svenska kraftnät and neighbouring TSOs. The columns with average reductions shows the average NTC divided by maximum NTC.

Interconnectors/ corridors between internal areas	No of limited hours		No of days with limitation		Average reduction	
	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound
SE1-SE2	36	0	3	0	0 %	0 %
SE2-SE3	354	0	17	0	1 %	0 %
SE3-SE4	540	0	26	0	1 %	0 %
SE1-FI	111	2 063	6	86	-2 %	3 %
SE1-NO4	2 159	2 159	90	90	42 %	32 %
SE2-NO3	710	96	34	4	13 %	1 %
SE2-NO4	2 159	2 159	90	90	34 %	46 %
SE3-DK1	107	1 609	7	89	1 %	31 %
SE3-FI	0	0	0	0	0 %	0 %
SE3-NO1	1 570	2 159	89	90	29 %	55 %
SE4-DE	967	2 072	68	90	25 %	58 %
SE4-DK2	50	1 561	6	89	1 %	31 %
SE4-PL	812	2 141	90	90	31 %	73 %
SE4-LT	473	1 741	20	90	22 %	48 %

Detailed information for each limitation is provided in the tables B1 to B4 in appendix B and in the attachment. This information includes the reason for each limitation.

2.2 Comments on each interconnector

2.2.1 SE1-FI, North Finland

Svenska kraftnät has reduced the export and import capacity for 107 and 2063 hours, respectively, on the interconnector between SE1 and FI, because the NTC depends on forecasted transfer between Ivalo – Varangerbotn. In total, the export

and import on the interconnector have been reduced for 111 and 2 063 hours, respectively.

2.2.2 SE1-NO4, North Norway

Svenska kraftnät has reduced the export and import capacity for 24 and 35 hours, respectively, because of network failure and maintenance on the interconnector between SE1 and NO4. In total, the export and import on the interconnector have been reduced during all hours.

2.2.3 SE2-NO3, Central Norway

Svenska kraftnät has not reduced the capacity on the interconnector between SE2 and NO3. In total, the export and import on the interconnector have been reduced for 710 and 96 hours, respectively.

2.2.4 SE2-NO4, North Norway

Svenska kraftnät has reduced the export and import capacity for 0 and 96 hours, respectively, because of overloaded power lines on the interconnector between SE2 and NO4. In total, the export and import on the interconnector have been reduced during all hours.

2.2.5 SE3-DK1, Western Denmark

Svenska kraftnät has reduced the export and import capacity for 107 and 1 609 hours, respectively, on the interconnector between SE3 and DK1. The reason for reductions set by Svenska kraftnät was mainly congestion in the West Coast Corridor. In total, the export and import on the interconnector have been reduced for 107 and 1 609 hours, respectively.

2.2.6 SE3-FI, Southern Finland

Svenska kraftnät has not reduced the capacity on the interconnector between SE3 and FI. In total, the capacity on the interconnector has not been reduced between SE3 and FI.

2.2.7 SE3-NO1, Southern Norway

Svenska kraftnät has reduced the export and import capacity for 1 520 and 9 hours, respectively, on the interconnector between SE3 and NO1. The reason for export reductions set by Svenska kraftnät was mainly congestion in the West Coast Corridor. In total, the export and import on the interconnector have been reduced for 1 570 and 2 159 hours, respectively.

2.2.8 SE4-DE, Germany

Svenska kraftnät has reduced the export and import capacity for 0 and 1 528 hours, respectively, on the interconnector between SE4 and DE. The main reason for reductions set by Svenska kraftnät was congestion in the West Coast Corridor. In

total, the export and import on the interconnector have been reduced for 967 and 2 072 hours, respectively.

2.2.9 SE4-DK2, Eastern Denmark

Svenska kraftnät has reduced the export and import capacity for 8 and 1 557 hours, respectively, on the interconnector between SE4 and DK2. The main reason for reductions set by Svenska kraftnät was congestion in the West Coast Corridor. In total, the export and import on the interconnector have been reduced for 50 and 1 561 hours, respectively.

2.2.10 SE4-PL, Poland

Svenska kraftnät has reduced the export and import capacity for 0 and 1 550 hours, respectively, on the interconnector between SE4 and PL. The main reason for reductions set by Svenska kraftnät was congestion in the West Coast Corridor. In total, the export and import on the interconnector have been reduced for 812 and 2 141 hours, respectively.

2.2.11 SE4-LT, Lithuania

Svenska kraftnät has reduced the export and import capacity for 473 and 1 741 hours, respectively, on the interconnector between SE4 and LT. The main reason for reductions set by Svenska kraftnät was congestion in the West Coast Corridor, but also due to cable faults in the interconnector. In total, the export and import on the interconnector have been reduced for 473 and 1 741 hours, respectively.

3 Period April 1 – June 30, Q2 2017

This section describes operational experience and measures regarding allocation of trading capacity in the period April 1 to June 30, 2017.

In the period, totally 2 184 hours, the main direction of the power flow was south-bound.

Table 6 below shows the average prices in Sweden and all neighbouring areas for the above mentioned period (excluding Germany and Poland). Table 7 summarises the number of hours where price differences occurred between the respective zones.

Table 6. Average, maximum, and minimum prices for areas within Nord Pool.

Area	Average Price Level (EUR)	Maximum Price (EUR)	Minimum Price (EUR)
SE1	28.50	52.23	1.70
SE2	28.50	52.23	1.70
SE3	28.51	52.23	1.70
SE4	29.01	52.23	1.70
DK1	28.25	56.95	-15.10
DK2	29.19	56.95	-15.10
FI	30.90	104.70	4.10
NO1	27.15	52.18	4.42
NO3	28.05	52.23	5.19
NO4	24.40	44.49	5.19
LT	34.06	130.05	4.10

Table 7. Number of hours where the price for the area in the row was higher than for the area in the column.

No of hours where price for row area greater than for column area	SE1	SE2	SE3	SE4	DK1	DK2	FI	NO1	NO3	NO4	LT
SE1	-	0	0	0	359	96	1	663	328	1 595	10
SE2	0	-	0	0	359	96	1	663	328	1 595	10
SE3	5	5	-	0	359	96	1	663	333	1 595	10
SE4	143	143	140	-	414	96	100	705	409	1 602	11
DK1	416	416	414	373	-	52	384	784	606	1 554	279
DK2	442	442	440	339	346	-	385	856	638	1 600	254
FI	499	499	498	465	699	530	-	949	724	1 702	17
NO1	220	220	220	220	376	223	191	-	301	1 572	196
NO3	173	173	173	173	430	202	148	504	-	1 528	156
NO4	59	59	59	59	258	122	33	119	1	-	34
LT	948	948	948	875	1 047	916	553	1 172	1 047	1 852	-

Summary of table 6 and 7:

- LT had the highest average price, followed by FI, DK2, SE4, SE3, SE1, SE2, DK1, NO3, NO1, and NO4.
- SE1 and SE2 had a common price during all hours.

3.1 Allocation of trading capacity

Table 8 below summarises how often Svenska kraftnät have allocated less trading capacity than maximum NTC for interconnectors and corridors between internal areas in the period.

Table 8. Limitations in trading capacity on interconnectors and corridors between internal areas as enforced by Svenska kraftnät. The columns with average reductions shows the average NTC divided by maximum NTC.

Interconnectors/ corridors between internal areas	No of limited hours		No of days with limitation		Average reduction	
	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound
SE1-SE2	369	0	18	0	3 %	0 %
SE2-SE3	2 004	0	86	0	6 %	0 %
SE3-SE4	1 709	0	74	0	10 %	0 %
SE1-FI	1 166	988	50	45	3 %	5 %
SE1-NO4	84	84	4	4	4 %	3 %
SE2-NO3	0	114	0	5	0 %	2 %
SE2-NO4	24	24	1	1	1 %	1 %
SE3-DK1	0	1 339	0	86	0 %	27 %
SE3-FI	56	56	5	5	2 %	2 %
SE3-NO1	1 688	450	87	21	31 %	6 %
SE4-DE	94	1 285	5	85	3 %	25 %
SE4-DK2	97	1 299	5	85	4 %	26 %
SE4-PL	157	1 350	8	86	5 %	29 %
SE4-LT	400	1 553	17	88	18 %	41 %

The majority of the limitations of export capacity on the interconnector SE1-FI, enforced by Svenska kraftnät during the period, are because of that the NTC depends on forecasted transfer between Ivalo - Varangerbotn. The forecasted transfer can both increase and decrease the NTC.

Table 9 below summarises the time during which neighbouring TSOs have allocated less trading capacity than maximum NTC to interconnectors in the period.

Table 9. Limitations in trading capacity on interconnectors as enforced by neighbouring TSOs. The columns with average reductions shows the average NTC divided by maximum NTC.

Interconnectors/ corridors between internal areas	No of limited hours		No of days with limitation		Average reduction	
	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound
SE1-SE2	-	-	-	-	-	-
SE2-SE3	-	-	-	-	-	-
SE3-SE4	-	-	-	-	-	-
SE1-FI	1 098	932	47	41	0 %	0 %
SE1-NO4	2 184	2 184	91	91	54 %	60 %
SE2-NO3	2 184	443	91	19	49 %	11 %
SE2-NO4	2 184	2 184	91	91	68 %	57 %
SE3-DK1	46	24	3	1	1 %	1 %
SE3-FI	44	44	3	3	1 %	1 %
SE3-NO1	1 349	2 184	57	91	18 %	41 %
SE4-DE	763	1 400	55	84	17 %	41 %
SE4-DK2	402	324	18	15	5 %	9 %
SE4-PL	898	2 093	90	91	31 %	76 %
SE4-LT	354	354	15	15	16 %	16 %

Table 10 below summarises the time during which capacities on interconnectors and corridors between internal areas have been reduced, taking into account reductions by both Svenska kraftnät and neighbouring TSOs.

Table 10. Final limitations in trading capacity on interconnectors and corridors between internal areas as enforced by both Svenska kraftnät and neighbouring TSOs. The columns with average reductions shows the average NTC divided by maximum NTC.

Interconnectors/ corridors between internal areas	No of limited hours		No of days with limitation		Average reduction	
	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound
SE1-SE2	369	0	18	0	3 %	0 %
SE2-SE3	2 004	0	86	0	6 %	0 %
SE3-SE4	1 709	0	74	0	10 %	0 %
SE1-FI	1 166	988	50	45	3 %	5 %
SE1-NO4	2 184	2 184	91	91	54 %	60 %
SE2-NO3	2 184	443	91	19	49 %	11 %
SE2-NO4	2 184	2 184	91	91	68 %	57 %
SE3-DK1	46	1 351	3	86	1 %	27 %
SE3-FI	56	56	5	5	2 %	2 %
SE3-NO1	2 042	2 184	91	91	36 %	41 %
SE4-DE	838	1 961	58	91	20 %	54 %
SE4-DK2	499	1 477	23	87	8 %	32 %
SE4-PL	996	2 183	90	91	35 %	81 %
SE4-LT	400	1 553	17	88	18 %	41 %

Detailed information for each limitation is provided in the attached tables C1 to C4 in appendix C and in the attachment. This information includes the reason for each limitation.

3.2 Comments on each interconnector

3.2.1 SE1-FI, North Finland

Svenska kraftnät has reduced the export and import capacity for 1 166 and 988 hours, respectively, on the interconnector between SE1 and FI, mainly because the NTC depends on forecasted transfer between Ivalo – Varangerbotn, but also due to

planned maintenance on the interconnector. In total, the export and import on the interconnector have been reduced for 1 166 and 988 hours, respectively.

3.2.2 SE1-NO4, North Norway

Svenska kraftnät has reduced the export and import capacity for 84 and 84 hours, respectively, on the interconnector between SE1 and NO4, because of planned maintenance on the interconnector and close to the interconnector. In total, the export and import on the interconnector have been reduced during all hours.

3.2.3 SE2-NO3, Central Norway

Svenska kraftnät has reduced the export and import capacity for 0 and 114 hours, respectively, on the interconnector between SE2 and NO3, because of outage on the interconnector between SE3 and NO1. In total, the export and import on the interconnector have been reduced for 2 184 and 443 hours, respectively.

3.2.4 SE2-NO4, North Norway

Svenska kraftnät has reduced the export and import capacity for 24 and 24 hours, respectively, on the interconnector between SE2 and NO4, because network failure. In total, the export and import on the interconnector have been reduced during all hours.

3.2.5 SE3-DK1, Western Denmark

Svenska kraftnät has reduced the export and import capacity for 0 and 1 339 hours, respectively, on the interconnector between SE3 and DK1. The main reasons for reductions set by Svenska kraftnät was congestion in the West Coast Corridor and planned maintenance near the interconnector. In total, the export and import on the interconnector have been reduced for 46 and 1 351 hours, respectively.

3.2.6 SE3-FI, Southern Finland

Svenska kraftnät has reduced the export and import capacity for 56 and 56 hours, respectively, on the interconnector between SE3 and FI. The reason for reductions set by Svenska kraftnät was outage of the interconnector because of planned maintenance on the interconnector. In total, the export and import on the interconnector have been reduced for 56 and 56 hours, respectively.

3.2.7 SE3-NO1, Southern Norway

Svenska kraftnät has reduced the export and import capacity for 1 688 and 450 hours, respectively, on the interconnector between SE3 and NO1. The reason for reductions set by Svenska kraftnät was mainly congestion in the West Coast Corridor. In total, the export and import on the interconnector have been reduced for 2 042 and 2 184 hours, respectively.

3.2.8 SE4-DE, Germany

Svenska kraftnät has reduced the export and import capacity for 94 and 1 285 hours, respectively, on the interconnector between SE4 and DE. The reason for reductions set by Svenska kraftnät was mainly congestion in the West Coast Corridor and planned outage near the interconnector. In total, the export and import on the interconnector have been reduced for 838 and 1 961 hours, respectively.

3.2.9 SE4-DK2, Eastern Denmark

Svenska kraftnät has reduced the export and import capacity for 97 and 1 299 hours, respectively, on the interconnector between SE4 and DK2. The reason for reductions set by Svenska kraftnät was mainly congestion in the West Coast Corridor. In total, the export and import on the interconnector have been reduced for 499 and 1 477 hours, respectively.

3.2.10 SE4-PL, Poland

Svenska kraftnät has reduced the export and import capacity for 157 and 1 350 hours, respectively, on the interconnector between SE4 and PL. The reason for reductions set by Svenska kraftnät was mainly congestion in the West Coast Corridor, in addition the capacity was reduced because of planned maintenance and failure. In total, the export and import on the interconnector have been reduced for 996 and 2 183 hours, respectively.

3.2.11 SE4-LT, Lithuania

Svenska kraftnät has reduced the export and import capacity for 400 and 1 553 hours, respectively, on the interconnector between SE4 and LT. The main reasons for reductions set by Svenska kraftnät was because congestion in the West Coast Corridor and due to planned maintenance and failure on the interconnector. In total, the export and import on the interconnector have been reduced for 400 and 1 553 hours, respectively.

4 Period July 1 – September 30, Q3 2017

This section describes operational experience and measures regarding allocation of trading capacity in the period July 1 to September 30, 2017.

In the period, totally 2 208 hours, the main direction of the power flow was south-bound.

Table 11 below shows the average prices in Sweden and all neighbouring areas for the above mentioned period (excluding Germany and Poland). Table 12 summarises the number of hours where price differences occurred between the respective zones.

Table 11. Average, maximum, and minimum prices for areas within Nord Pool.

Area	Average Price Level (EUR)	Maximum Price (EUR)	Minimum Price (EUR)
SE1	32.96	120.01	10.37
SE2	32.96	120.01	10.37
SE3	33.61	120.01	10.37
SE4	33.88	120.01	10.37
DK1	32.68	120.01	-12.18
DK2	34.87	120.01	10.37
FI	35.89	120.04	10.37
NO1	27.69	48.43	8.60
NO3	28.54	44.73	10.37
NO4	22.64	33.49	2.97
LT	37.11	120.04	10.75

Table 12. Number of hours where the price for the area in the row was higher than for the area in the column.

No of hours where price for row area greater than for column area	SE1	SE2	SE3	SE4	DK1	DK2	FI	NO1	NO3	NO4	LT
SE1	-	0	0	0	506	8	0	1 659	1 319	2 129	0
SE2	0	-	0	0	506	8	0	1 659	1 319	2 129	0
SE3	159	159	-	0	540	8	0	1 660	1 380	2 129	0
SE4	267	267	138	-	600	8	128	1 663	1 411	2 129	1
DK1	525	525	426	373	-	37	367	1 478	1 363	2 047	286
DK2	676	676	562	451	696	-	493	1 715	1 582	2 142	356
FI	712	712	586	572	978	501	-	1 749	1 525	2 133	6
NO1	13	13	8	8	171	10	8	-	603	2 084	6
NO3	9	9	9	9	394	9	9	1 035	-	2 085	9
NO4	0	0	0	0	112	6	0	61	0	-	0
LT	970	970	870	739	1 171	678	421	1 821	1 653	2 138	-

Summary of table 11 and 12:

- LT had the highest average price, followed by FI, DK2, SE4, SE3, SE1, SE2, DK1, NO3, NO1, and NO4.
- SE1 and SE2 had a common price during all hours.

4.1 Allocation of trading capacity

Table 13 below summarises how often Svenska kraftnät have allocated less trading capacity than maximum NTC for interconnectors and corridors between internal areas in the period.

Table 13. Limitations in trading capacity on interconnectors and corridors between internal areas as enforced by Svenska kraftnät. The columns with average reductions shows the average NTC divided by maximum NTC.

Interconnectors/ corridors between internal areas	No of limited hours		No of days with limitation		Average reduction	
	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound
SE1-SE2	1 838	0	77	0	5 %	0 %
SE2-SE3	2 184	0	91	0	11 %	0 %
SE3-SE4	2 208	0	92	0	23 %	0 %
SE1-FI	147	2 190	9	92	-3 %	5 %
SE1-NO4	18	999	1	56	1 %	4 %
SE2-NO3	0	1 763	0	74	0 %	17 %
SE2-NO4	18	0	3	0	0 %	0 %
SE3-DK1	404	925	18	60	16 %	25 %
SE3-FI	48	48	2	2	1 %	1 %
SE3-NO1	1 923	1 922	81	81	54 %	48 %
SE4-DE	624	968	26	61	28 %	32 %
SE4-DK2	140	486	7	42	5 %	9 %
SE4-PL	138	527	6	43	6 %	12 %
SE4-LT	396	779	17	47	18 %	26 %

The majority of the limitations of export capacity on the interconnector SE1-FI, enforced by Svenska kraftnät during the period, are because of that the NTC depends on forecasted transfer between Ivalo - Varangerbotn. The forecasted transfer can both increase and decrease the NTC.

Table 14 below summarises the time during which neighbouring TSOs have allocated less trading capacity than maximum NTC to interconnectors in the period.

Table 14. Limitations in trading capacity on interconnectors as enforced by neighbouring TSOs. The columns with average reductions shows the average NTC divided by maximum NTC.

Interconnectors/ corridors between internal areas	No of limited hours		No of days with limitation		Average reduction	
	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound
SE1-SE2	-	-	-	-	-	-
SE2-SE3	-	-	-	-	-	-
SE3-SE4	-	-	-	-	-	-
SE1-FI	26	2 190	2	92	-3 %	5 %
SE1-NO4	2 208	2 208	92	92	71 %	40 %
SE2-NO3	2 208	1 841	92	77	42 %	21 %
SE2-NO4	2 208	2 208	92	92	87 %	90 %
SE3-DK1	422	422	18	18	19 %	19 %
SE3-FI	67	67	3	3	2 %	2 %
SE3-NO1	2 208	2 208	92	92	60 %	56 %
SE4-DE	1 573	1 844	72	90	46 %	58 %
SE4-DK2	159	161	9	9	5 %	5 %
SE4-PL	185	2 157	11	92	7 %	62 %
SE4-LT	396	396	17	17	18 %	18 %

Table 15 below summarises the time during which capacities on interconnectors and corridors between internal areas have been reduced, taking into account reductions by both Svenska kraftnät and neighbouring TSOs.

Table 15. Final limitations in trading capacity on interconnectors and corridors between internal areas as enforced by both Svenska kraftnät and neighbouring TSOs. The columns with average reductions shows the average NTC divided by maximum NTC.

Interconnectors/ corridors between internal areas	No of limited hours		No of days with limitation		Average reduction	
	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound
SE1-SE2	1 838	0	77	0	5 %	0 %
SE2-SE3	2 184	0	91	0	11 %	0 %
SE3-SE4	2 208	0	92	0	23 %	0 %
SE1-FI	155	2 190	10	92	-3 %	5 %
SE1-NO4	2 208	2 208	92	92	72 %	41 %
SE2-NO3	2 208	1 907	92	80	42 %	22 %
SE2-NO4	2 208	2 208	92	92	87 %	90 %
SE3-DK1	428	949	19	61	19 %	28 %
SE3-FI	67	67	3	3	2 %	2 %
SE3-NO1	2 208	2 208	92	92	61 %	56 %
SE4-DE	1 573	2 005	72	92	47 %	62 %
SE4-DK2	161	551	10	46	6 %	11 %
SE4-PL	185	2 167	11	92	7 %	63 %
SE4-LT	396	779	17	47	18 %	26 %

Detailed information for each limitation is provided in the attached tables D1 to D4 in appendix D and in the attachment. This information includes the reason for each limitation.

4.2 Comments on each interconnector

4.2.1 SE1-FI, North Finland

Svenska kraftnät has reduced the export and import capacity for 147 and 2 190 hours, respectively, on the interconnector between SE1 and FI, because the NTC depends on forecasted transfer between Ivalo – Varangerbotn. In total, the

export and import on the interconnector have been reduced for 155 and 2 190 hours, respectively.

4.2.2 SE1-NO4, North Norway

Svenska kraftnät has reduced the export and import capacity for 18 and 999 hours, respectively, on the interconnector between SE1 and NO4, because of thermal overload and planned outage. In total, the export and import on the interconnector have been reduced during all hours.

4.2.3 SE2-NO3, Central Norway

Svenska kraftnät has reduced the export and import capacity for 0 and 1 763 hours, respectively, on the interconnector between SE2 and NO3, because of planned outage between SE3 and NO1. In total, the export and import on the interconnector have been reduced for 2 208 and 1 907 hours, respectively.

4.2.4 SE2-NO4, North Norway

Svenska kraftnät has reduced the export and import capacity for 18 and 0 hours, respectively, on the interconnector between SE2 and NO4, because of thermal overload. In total, the export and import on the interconnector have been reduced during all hours.

4.2.5 SE3-DK1, Western Denmark

Svenska kraftnät has reduced the export and import capacity for 404 and 925 hours, respectively, on the interconnector between SE3 and DK1. The reasons for reductions set by Svenska kraftnät were congestion in the West Coast Corridor and planned outage. In total, the export and import on the interconnector have been reduced for 428 and 949 hours, respectively.

4.2.6 SE3-FI, Southern Finland

Svenska kraftnät has reduced the export and import capacity for 48 and 48 hours, respectively, on the interconnector between SE3 and FI. The reason for reductions set by Svenska kraftnät was outage of the interconnector because of planned maintenance on the interconnector. In total, the export and import on the interconnector have been reduced for 67 and 67 hours, respectively.

4.2.7 SE3-NO1, Southern Norway

Svenska kraftnät has reduced the export and import capacity for 1 923 and 1 922 hours, respectively, on the interconnector between SE3 and NO1. The reasons for reductions set by Svenska kraftnät were congestion in the West Coast Corridor, planned outages on the interconnector and outage close to the interconnector. In total, the export and import on the interconnector have been reduced during all hours.

4.2.8 SE4-DE, Germany

Svenska kraftnät has reduced the export and import capacity for 624 and 968 hours, respectively, on the interconnector between SE4 and DE. The reasons for reductions set by Svenska kraftnät were congestion in the West Coast Corridor and outage on the interconnector. In total, the export and import on the interconnector have been reduced for 1 573 and 2 005 hours, respectively.

4.2.9 SE4-DK2, Eastern Denmark

Svenska kraftnät has reduced the export and import capacity for 140 and 486 hours, respectively, on the interconnector between SE4 and DK2. The reasons for reductions set by Svenska kraftnät were congestion in the West Coast Corridor, planned outage on the interconnector and planned outage near the interconnector. In total, the export and import on the interconnector have been reduced for 161 and 551 hours, respectively.

4.2.10 SE4-PL, Poland

Svenska kraftnät has reduced the export and import capacity for 138 and 527 hours, respectively, on the interconnector between SE4 and PL. The reasons for reductions set by Svenska kraftnät were congestion in the West Coast Corridor and planned outage. In total, the export and import on the interconnector have been reduced for 185 and 2 167 hours, respectively.

4.2.11 SE4-LT, Lithuania

Svenska kraftnät has reduced the export and import capacity for 396 and 779 hours, respectively, on the interconnector between SE4 and LT. The reasons for reductions set by Svenska kraftnät were congestion in the West Coast Corridor, cable fault in the interconnector, and planned outage. In total, the export and import on the interconnector have been reduced for 396 and 779 hours, respectively.

5 Period October 1 – December 31, Q4 2017

This section describes operational experience and measures regarding allocation of trading capacity in the period October 1 to December 31, 2017.

In the period, totally 2 209 hours, the main direction of the power flow was south-bound.

Table 16 below shows the average prices in Sweden and all neighbouring areas for the above mentioned period (excluding Germany and Poland). Table 17 summarises the number of hours where price differences occurred between the respective zones.

Table 16. Average, maximum, and minimum prices for areas within Nord Pool.

Area	Average Price Level (EUR)	Maximum Price (EUR)	Minimum Price (EUR)
SE1	30.22	114.70	2.99
SE2	30.22	114.70	2.99
SE3	31.05	130.05	2.99
SE4	32.93	130.05	2.99
DK1	29.36	114.70	-50.04
DK2	31.82	114.70	-50.04
FI	33.00	130.05	2.99
NO1	29.99	114.70	9.29
NO3	30.23	114.70	9.29
NO4	29.85	114.70	9.29
LT	34.52	130.05	2.99

Table 17. Number of hours where the price for the area in the row was higher than for the area in the column.

No of hours where price for row area greater than for column area	SE1	SE2	SE3	SE4	DK1	DK2	FI	NO1	NO3	NO4	LT
SE1	-	0	128	128	1 086	858	128	563	269	484	128
SE2	0	-	128	128	1 086	858	128	563	269	484	128
SE3	245	245	-	0	1 102	866	128	569	347	502	128
SE4	642	642	440	-	1 367	866	385	881	688	772	129
DK1	479	479	400	239	-	148	300	572	526	631	217
DK2	705	705	646	356	881	-	469	852	746	812	327
FI	809	809	715	535	1 507	1 217	-	968	839	943	139
NO1	317	317	287	285	1 023	886	287	-	323	514	280
NO3	199	199	199	199	1 101	880	199	546	-	406	195
NO4	198	198	198	198	1 091	875	198	489	130	-	194
LT	1 084	1 084	1 012	669	1 700	1 335	583	1 200	1 098	1 151	-

Summary of table 16 and 17:

- LT had the highest average price, followed by FI, SE4, DK2, SE3, NO3, SE2, SE1, NO1, NO4, and DK1.
- SE1 and SE2 had a common price during all hours.

5.1 Allocation of trading capacity

Table 18 below summarises how often Svenska kraftnät have allocated less trading capacity than maximum NTC for interconnectors and corridors between internal areas in the period.

Table 18. Limitations in trading capacity on interconnectors and corridors between internal areas as enforced by Svenska kraftnät. The columns with average reductions shows the average NTC divided by maximum NTC.

Interconnectors/ corridors between internal areas	No of limited hours		No of days with limitation		Average reduction	
	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound
SE1-SE2	1 627	0	68	0	10 %	0 %
SE2-SE3	2 185	0	92	0	10 %	0 %
SE3-SE4	2 209	0	92	0	16 %	0 %
SE1-FI	129	1 544	7	66	-2 %	3 %
SE1-NO4	13	64	1	6	1 %	1 %
SE2-NO3	0	96	0	4	0 %	1 %
SE2-NO4	42	42	2	2	2 %	2 %
SE3-DK1	177	1 277	9	89	5 %	26 %
SE3-FI	72	72	3	3	2 %	2 %
SE3-NO1	1 305	864	85	37	23 %	9 %
SE4-DE	267	1 081	12	83	10 %	21 %
SE4-DK2	420	1 151	19	87	12 %	22 %
SE4-PL	293	1 105	13	86	8 %	22 %
SE4-LT	258	1 176	11	85	11 %	28 %

The majority of the limitations of export capacity on the interconnector SE1-FI, enforced by Svenska kraftnät during the period, are because of that the NTC depends on forecasted transfer between Ivalo - Varangerbotn. The forecasted transfer can both increase and decrease the NTC.

Table 19 below summarises the time during which neighbouring TSOs have allocated less trading capacity than maximum NTC to interconnectors in the period.

Table 19. Limitations in trading capacity on interconnectors as enforced by neighbouring TSOs. The columns with average reductions shows the average NTC divided by maximum NTC.

Interconnectors/ corridors between internal areas	No of limited hours		No of days with limitation		Average reduction	
	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound
SE1-SE2	-	-	-	-	-	-
SE2-SE3	-	-	-	-	-	-
SE3-SE4	-	-	-	-	-	-
SE1-FI	178	1 508	11	64	-1 %	3 %
SE1-NO4	2 209	2 209	92	92	31 %	15 %
SE2-NO3	416	96	22	4	5 %	1 %
SE2-NO4	2 209	2 209	92	92	24 %	45 %
SE3-DK1	60	60	4	4	1 %	1 %
SE3-FI	72	72	3	3	2 %	2 %
SE3-NO1	389	1 750	18	74	5 %	12 %
SE4-DE	1 787	2 127	83	92	31 %	62 %
SE4-DK2	1 468	1 468	62	62	19 %	30 %
SE4-PL	301	1 774	22	83	9 %	51 %
SE4-LT	204	192	9	8	9 %	9 %

Table 20 below summarises the time during which capacities on interconnectors and corridors between internal areas have been reduced, taking into account reductions by both Svenska kraftnät and neighbouring TSOs.

Table 20. Final limitations in trading capacity on interconnectors and corridors between internal areas as enforced by both Svenska kraftnät and neighbouring TSOs. The columns with average reductions shows the average NTC divided by maximum NTC.

Interconnectors/ corridors between internal areas	No of limited hours		No of days with limitation		Average reduction	
	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound	Export/ South- bound	Import/ North- bound
SE1-SE2	1 627	0	68	0	10 %	0 %
SE2-SE3	2 185	0	92	0	10 %	0 %
SE3-SE4	2 209	0	92	0	16 %	0 %
SE1-FI	178	1 544	11	66	-1 %	3 %
SE1-NO4	2 209	2 209	92	92	31 %	15 %
SE2-NO3	416	96	22	4	5 %	1 %
SE2-NO4	2 209	2 209	92	92	24 %	45 %
SE3-DK1	231	1 337	12	91	6 %	27 %
SE3-FI	72	72	3	3	2 %	2 %
SE3-NO1	1 360	1 806	86	76	25 %	16 %
SE4-DE	1 787	2 175	83	92	37 %	66 %
SE4-DK2	1 644	1 821	70	90	23 %	40 %
SE4-PL	1 542	2 148	67	92	62 %	82 %
SE4-LT	270	1 176	12	85	11 %	28 %

Detailed information for each limitation is provided in the attached tables E1 to E4 in appendix E and in the attachment. This information includes the reason for each limitation.

5.2 Comments on each interconnector

5.2.1 SE1-FI, North Finland

Svenska kraftnät has reduced the export and import capacity for 129 and 1 544 hours, respectively, on the interconnector between SE1 and FI, because the NTC depends on forecasted transfer between Ivalo – Varangerbotn. In total, the

export and import on the interconnector have been reduced for 178 and 1 544 hours, respectively.

5.2.2 SE1-NO4, North Norway

Svenska kraftnät has reduced the export and import capacity for 13 and 64 hours, respectively, on the interconnector between SE1 and NO4, because of planned outage on the interconnector and planned outage near the interconnector. In total, the export and import on the interconnector have been reduced during all hours.

5.2.3 SE2-NO3, Central Norway

Svenska kraftnät has reduced the export and import capacity for 0 and 96 hours, respectively, on the interconnector between SE2 and NO3, because of planned outage between SE3 and NO1. In total, the export and import on the interconnector have been reduced for 416 and 96 hours, respectively.

5.2.4 SE2-NO4, North Norway

Svenska kraftnät has reduced the export and import capacity for 42 and 42 hours, respectively, on the interconnector between SE2 and NO4, because of planned outage. In total, the export and import on the interconnector have been reduced during all hours.

5.2.5 SE3-DK1, Western Denmark

Svenska kraftnät has reduced the export and import capacity for 177 and 1 277 hours, respectively, on the interconnector between SE3 and DK1. The reasons for reductions set by Svenska kraftnät were congestion in the West Coast Corridor and planned outage near the interconnector. In total, the export and import on the interconnector have been reduced for 231 and 1 337 hours, respectively.

5.2.6 SE3-FI, Southern Finland

Svenska kraftnät has reduced the export and import capacity for 72 and 72 hours, respectively, on the interconnector between SE3 and FI. The reason for reductions set by Svenska kraftnät was outage of the interconnector because of planned maintenance on the interconnector. In total, the export and import on the interconnector have been reduced for 72 and 72 hours, respectively.

5.2.7 SE3-NO1, Southern Norway

Svenska kraftnät has reduced the export and import capacity for 1 305 and 864 hours, respectively, on the interconnector between SE3 and NO1. The reasons for reductions set by Svenska kraftnät were congestion in the West Coast Corridor, planned outage on the interconnector, and planned outage near the interconnector. In total, the export and import on the interconnector have been reduced for 1 360 and 1 806 hours, respectively.

5.2.8 SE4-DE, Germany

Svenska kraftnät has reduced the export and import capacity for 267 and 1 081 hours, respectively, on the interconnector between SE4 and DE. The reasons for reductions set by Svenska kraftnät were congestion in the West Coast Corridor and planned outage near the interconnector. In total, the export and import on the interconnector have been reduced for 1 787 and 2 175 hours, respectively.

5.2.9 SE4-DK2, Eastern Denmark

Svenska kraftnät has reduced the export and import capacity for 420 and 1 151 hours, respectively, on the interconnector between SE4 and DK2. The reasons for reductions set by Svenska kraftnät were congestion in the West Coast Corridor, planned outage on the interconnector, and planned outage near the interconnector. In total, the export and import on the interconnector have been reduced for 1 644 and 1 821 hours, respectively.

5.2.10 SE4-PL, Poland

Svenska kraftnät has reduced the export and import capacity for 293 and 1 105 hours, respectively, on the interconnector between SE4 and PL. The reasons for reductions set by Svenska kraftnät were congestion in the West Coast Corridor, planned outage on the interconnector, planned outage near the interconnector, and disturbance on the interconnector. In total, the export and import on the interconnector have been reduced for 1 542 and 2 148 hours, respectively.

5.2.11 SE4-LT, Lithuania

Svenska kraftnät has reduced the export and import capacity for 258 and 1 176 hours, respectively, on the interconnector between SE4 and LT. The reasons for reductions set by Svenska kraftnät were congestion in the West Coast Corridor, planned outage near the interconnector, and cable fault on the interconnector. In total, the export and import on the interconnector have been reduced for 270 and 1 176 hours, respectively.

Appendix A –Explanation of Attachments

The attached spreadsheets contain data for each hour during the period. Each value in the spreadsheets is explained in the table below.

Table A1. Explanation of data in the attached spreadsheets.

Value	Explanation
Maximum NTC export/southbound (MW) Maximum NTC import/northbound (MW)	Maximum NTC for export/import, as agreed by TSOs on both sides, and maximum NTC for corridors between internal areas in south/north direction. These values normally only change after the network has been reinforced.
Svk NTC export (MW) Svk NTC import (MW)	Svenska kraftnät's view of NTC for export/import.
Svk Reduction export (Y/N) Svk Reduction import (Y/N)	Yes (Y), if Svenska kraftnät's view of NTC for export/import is lower than maximum NTC, otherwise No (N).
Svk Reduction export (MW) Svk Reduction import (MW)	Difference between maximum NTC and Svenska kraftnät's view of NTC.

Svk Reason for export reduction Svk Reason for import reduction	Reason codes for Svenska kraftnät's reduction of capacities. Reduction codes are according Nord Pool's instructions only reported when the reduction is greater than 100 MW. Because of this principle, there might be mismatches between the figures shown in table 3 and 5 and tables A2 to A5. See separate sheet in spreadsheet file for explanation of the codes.
Neighbouring TSO NTC export (MW) Neighbouring TSO NTC import (MW)	Neighbouring TSO's view of NTC for export/import.
Final NTC export/southbound (MW) Final NTC import/northbound (MW)	Final NTC for corridors between internal areas in south/north direction, and the minimum of Svenska kraftnät's view and the neighbouring TSO's view of the export/import NTC on interconnectors.
Final Reduction export/southbound (Y/N) Final Reduction import/northbound (Y/N)	Yes (Y), if the final NTC is lower than the maximum NTC, otherwise No (N).
Final Reduction export/southbound (MW) Final Reduction import/northbound (MW)	Difference between maximum NTC and final NTC.

<p>Final Reason for export/southbound reduction Final Reason for import/northbound reduction</p>	<p>Reason codes for reduction of the final capacities. Reduction codes are according Nord Pool's instructions only reported when the reduction is greater than 100 MW. Because of this principle, there might be mismatches between the figures shown in table 3 and 5 and tables A2 to A5. See separate sheet in spreadsheet file for explanation of the codes.</p>
<p>Registered physical flow (positive for imports and negative for exports/positive for southbound and negative for northbound)</p>	<p>Measured flow on interconnectors and corridors between internal areas.</p>
<p>Electricity price level SE1/SE2/SE3/SE4/DK1/DK2/NO1/NO3/NO4/FI/LT (EUR)</p>	<p>Price level in SE1, SE2, SE3, SE4, DK1, DK2, NO1, NO3, NO4, FI, and LT. Prices for DE and PL are not available, since they are not part of Nord Pool. Red figures indicate a higher price than neighbouring SE-area, and blue indicates a lower price.</p>
<p>Price difference (Y/N)</p>	<p>Yes (Y), if there is a price difference between neighbouring SE-area and current area, otherwise No (N). Blank for DE and PL.</p>

Appendix B – 2017 Q1

Tables B1 to B4 shows how of many hours the capacities have been reduced per type of reduction for each interconnector and corridor between internal areas for 2017 Q1. The reason codes are explained in the attached spreadsheet.

Table B1. Number of hours per type of export reduction (for interconnectors) and per type of southbound reduction (for corridors between internal areas) enforced by Svenska kraftnät.

	1010	1024	1125	1167	1267	1421	1422	1423	1426	1433	1457	1525	1555	1622	1623	1624	2214	2221	2323	2524	9999
SE1-SE2	2 123					21	11											4			
SE2-SE3	1 939						10							210							
SE3-SE4	1 943							2		2					210				2		
SE1-FI	2 148										11										
SE1-NO4	2 135												24								
SE2-NO3	2 159																				
SE2-NO4	2 159																				
SE3-DK1	2 124		9							2		24									
SE3-FI	2 159																				
SE3-NO1	690	1								2						1 386	2			59	19
SE4-DE	2 159																				
SE4-DK2	2 151								6	2											
SE4-PL	2 159																				
SE4-LT	1 688			15	456																

Table B2. Number of hours per type of import reduction (for interconnectors) and per type of northbound reduction (for corridors between internal areas) enforced by Svenska kraftnät.

	1010	1125	1167	1267	1414	1421	1426	1433	1525	1555	1624	2214	2226	2326	2424	2524
SE1-SE2	2 159															
SE2-SE3	2 159															
SE3-SE4	2 159															
SE1-FI	2 159															
SE1-NO4	2 124					11				24						
SE2-NO3	2 159															
SE2-NO4	2 159															
SE3-DK1	734	9						2	24		1 342					48
SE3-FI	2 159															
SE3-NO1	2 150				4			2			2	1				
SE4-DE	850							2			1 267					40
SE4-DK2	651						6	2			1 430		1	2	5	62
SE4-PL	809							2			1 305					43
SE4-LT	533		15	456							1 123					32

Table B3. Number of hours per type of export reduction as enforced by Svenska kraftnät and neighbouring TSOs (for interconnectors) and per type of southbound reduction (for corridors between internal areas) enforced by Svenska kraftnät.

	1010	1024	1125	1126	1157	1267	1421	1422	1423	1426	1433	1443	1445	1447	1450	1456	1457	1525	1599	1622	1623	1624	
SE1-SE2	2 123						21	11															
SE2-SE3	1 939							10													210		
SE3-SE4	1 943								2		2											210	
SE1-FI	2 144				4												11						
SE1-NO4	1 627														508				24				
SE2-NO3	1 426													167	515				24				
SE2-NO4	1 480													167	397	115							
SE3-DK1	2 124		9								2								24				
SE3-FI	2 159																						
SE3-NO1	662	1									2		65										1 349
SE4-DE	1 357																						17
SE4-DK2	2 109			32						6	2	10											
SE4-PL	1 359																						18
SE4-LT	1 688					24																	

	1947	1950	2214	2221	2323	2524	9999
SE1-SE2				4			
SE2-SE3							
SE3-SE4					2		
SE1-FI							
SE1-NO4							
SE2-NO3	15	12					
SE2-NO4							
SE3-DK1							
SE3-FI							
SE3-NO1			2			59	19
SE4-DE							785
SE4-DK2							
SE4-PL							782
SE4-LT							447

Table B4. Number of hours per type of import reduction as enforced by Svenska kraftnät and neighbouring TSOs (for interconnectors) and per type of northbound reduction (for corridors between internal areas) enforced by Svenska kraftnät.

	1010	1125	1126	1157	1267	1414	1426	1433	1445	1447	1450	1456	1525	1545	1599	1615	1624	1950	2226	2326	2424	2524	9999	
SE1-SE2	2 159																							
SE2-SE3	2 159																							
SE3-SE4	2 159																							
SE1-FI	2 155			4																				
SE1-NO4	1 426									167	515				24			27						
SE2-NO3	2 063															96								
SE2-NO4	1 433									167	413	95			24			27						
SE3-DK1	734	9						2					24				1 342						48	
SE3-FI	2 159																							
SE3-NO1	24					2		2	204					1 927										
SE4-DE	198							1									640						23	1 297
SE4-DK2	646		30				6	2									1 405		1	2	5	62		
SE4-PL	76																624						24	1 435
SE4-LT	533				24												1 123						32	447

Appendix C – 2017 Q2

Tables C1 to C4 shows how of many hours the capacities have been reduced per type of reduction for each interconnector and corridor between internal areas for 2017 Q2. The reason codes are explained in the attached spreadsheet.

Table C1. Number of hours per type of export reduction (for interconnectors) and per type of southbound reduction (for corridors between internal areas) enforced by Svenska kraftnät.

	1010	1114	1158	1162	1267	1414	1421	1422	1423	1431	1432	1433	1434	1455	1458	1462	1467	1522	1621	1622	1623	
SE1-SE2	1 816						10			112									240			
SE2-SE3	842							305			11	303									317	
SE3-SE4	793								393			86	34									534
SE1-FI	2 060						10			112												
SE1-NO4	2 100									60				24								
SE2-NO3	2 184																					
SE2-NO4	2 160																	24				
SE3-DK1	2 184																					
SE3-FI	2 128		34					10							10							
SE3-NO1	588	114				146					24	177										19
SE4-DE	2 090								54				40									
SE4-DK2	2 087								56				40									
SE4-PL	2 027			18					54				40			33						
SE4-LT	1 784				24				22								354					

	1624	1625	1632	1634	2022	2023	2033	2034	2214	2221	2222	2223	2226	2232	2321	2322	2323	2362	2523	2534	
SE1-SE2										1					5						
SE2-SE3			5		325		66				1			2		7					
SE3-SE4				30		6		12				2					2		196	96	
SE1-FI															2						
SE1-NO4																					
SE2-NO3																					
SE2-NO4																					
SE3-DK1																					
SE3-FI																2					
SE3-NO1	1 105	9							2												
SE4-DE																					
SE4-DK2													1								
SE4-PL																			12		
SE4-LT																					

Table C2. Number of hours per type of import reduction (for interconnectors) and per type of northbound reduction (for corridors between internal areas) enforced by Svenska kraftnät.

	1010	1024	1114	1158	1162	1267	1414	1421	1422	1424	1431	1433	1434	1455	1458	1462	1467	1522	1624	1625			
SE1-SE2	2 184																						
SE2-SE3	2 160								24														
SE3-SE4	2 184																						
SE1-FI	2 061							10			111												
SE1-NO4	2 100										60			24									
SE2-NO3	2 070		114																				
SE2-NO4	2 160																	24					
SE3-DK1	966												40							1 171	7		
SE3-FI	2 128			34					10						10								
SE3-NO1	1 827		114				79					144									18		
SE4-DE	1 047	5																			1 125	7	
SE4-DK2	948																					1 211	8
SE4-PL	967				18											33						1 147	7
SE4-LT	725					24				24							354					1 026	31

	2214	2321	2322	2362	9999
SE1-SE2					
SE2-SE3					
SE3-SE4					
SE1-FI		2			
SE1-NO4					
SE2-NO3					
SE2-NO4					
SE3-DK1					
SE3-FI			2		
SE3-NO1	2				
SE4-DE					
SE4-DK2					17
SE4-PL				12	
SE4-LT					

Table C3. Number of hours per type of export reduction as enforced by Svenska kraftnät and neighbouring TSOs (for interconnectors) and per type of southbound reduction (for corridors between internal areas) enforced by Svenska kraftnät.

	1010	1126	1150	1155	1158	1162	1225	1267	1414	1418	1421	1422	1423	1431	1432	1433	1434	1442	1443	1447	1450	1455	1456	1462	1467	1522	
SE1-SE2	1 816										10			112													
SE2-SE3	842											305			11	303											
SE3-SE4	793												393			86	34										
SE1-FI	2 084										10			88													
SE1-NO4	600		88	97						63				60							484	768	24				
SE2-NO3																					1 920	264					
SE2-NO4			88	104																	1 224	480		264		24	
SE3-DK1	2 119						24											22									
SE3-FI	2 128				44							10															
SE3-NO1	234								224						24	161											
SE4-DE	1 521												53				40										
SE4-DK2	1 667	292											56				40		31								
SE4-PL	1 217					18							36				33							33			
SE4-LT	1 784							24					22													330	

	1545	1621	1622	1623	1624	1625	1632	1634	2022	2023	2033	2034	2214	2221	2222	2223	2226	2232	2321	2322	2323	2362	2523	2534	9943	9999	
SE1-SE2		240												1					5								
SE2-SE3			317				5		325		66				1			2		7							
SE3-SE4				534				30		6		12				2					2		196	96			
SE1-FI																			2								
SE1-NO4																											
SE2-NO3																											
SE2-NO4																											
SE3-DK1					19																						
SE3-FI																				2							
SE3-NO1	552			19	959	9						2															
SE4-DE																										570	
SE4-DK2					18												1								79		
SE4-PL																						6				841	
SE4-LT																										24	

Table C4. Number of hours per type of import reduction as enforced by Svenska kraftnät and neighbouring TSOs (for interconnectors) and per type of northbound reduction (for corridors between internal areas) enforced by Svenska kraftnät.

	1010	1024	1126	1150	1155	1158	1162	1225	1267	1414	1418	1421	1422	1424	1431	1433	1434	1443	1447
SE1-SE2	2 184																		
SE2-SE3	2 160												24						
SE3-SE4	2 184																		
SE1-FI	2 085											10			87				
SE1-NO4				88	97														1 207
SE2-NO3	1 710									114									360
SE2-NO4				88	104						56								1 168
SE3-DK1	972							20									40		
SE3-FI	2 128					44							10						
SE3-NO1										125						16			
SE4-DE	385	5																	
SE4-DK2	787		256																32
SE4-PL	26						3												
SE4-LT	725								24					24					

	1450	1455	1456	1462	1467	1522	1545	1624	1625	2214	2321	2322	2362	9999
SE1-SE2														
SE2-SE3														
SE3-SE4														
SE1-FI											2			
SE1-NO4	768	24												
SE2-NO3														
SE2-NO4	535		209			24								
SE3-DK1								1 145	7					
SE3-FI												2		
SE3-NO1							2 025	17		1				
SE4-DE								646	7					1 141
SE4-DK2								1 097	8					4
SE4-PL				6				432	5				12	1 700
SE4-LT					330			1 026	31					24

Appendix D – 2017 Q3

Tables D1 to D4 shows how of many hours the capacities have been reduced per type of reduction for each interconnector and corridor between internal areas for 2017 Q3. The reason codes are explained in the attached spreadsheet.

Table D1. Number of hours per type of export reduction (for interconnectors) and per type of southbound reduction (for corridors between internal areas) enforced by Svenska kraftnät

	1010	1110	1114	1125	1126	1158	1162	1163	1167	1267	1414	1422	1423	1425	1432	1433	1434	1455	1463	1621
SE1-SE2	857														68	6				1 277
SE2-SE3	54											312			66	6				
SE3-SE4													102			6	96			
SE1-FI	2 208																			
SE1-NO4	2 190																	18		
SE2-NO3	2 208																			
SE2-NO4	2 208																			
SE3-DK1	1 870			188										144		6				
SE3-FI	2 160					48														
SE3-NO1	322	1	1 229								91				60	480				
SE4-DE	1 584							473									31		120	
SE4-DK2	2 068				96								42				1			
SE4-PL	2 070						138													
SE4-LT	1 836								12	360										

	1622	1623	2022	2033	2226	2314	2522	2523	2532	9999
SE1-SE2										
SE2-SE3	708		6	510			450		96	
SE3-SE4		1 698						306		
SE1-FI										
SE1-NO4										
SE2-NO3										
SE2-NO4										
SE3-DK1										
SE3-FI										
SE3-NO1						1				24
SE4-DE										
SE4-DK2					1					
SE4-PL										
SE4-LT										



Table D2. Number of hours per type of import reduction (for interconnectors) and per type of northbound reduction (for corridors between internal areas) enforced by Svenska kraftnät.

	1010	1114	1125	1126	1158	1162	1163	1167	1267	1321	1355	1414	1423	1425	1432	1433	1434	1455	1463	1467	1624	1625	2267	2314	2555	9999	
SE1-SE2	2 208																										
SE2-SE3	2 208																										
SE3-SE4	2 208																										
SE1-FI	2 208																										
SE1-NO4	2 109									5	46				13			18								17	
SE2-NO3	1 776	432																									
SE2-NO4	2 208																										
SE3-DK1	1 381		188										42	186		6	96					299	10				
SE3-FI	2 160				48																						
SE3-NO1	323	1 254										90			36	480									1		24
SE4-DE	1 327						473									6			120			274	8				
SE4-DK2	1 753			96												6	1					341	11				
SE4-PL	1 768					138										6						287	9				
SE4-LT	1 504							12	360							6					83	242		1			

Table D3. Number of hours per type of export reduction as enforced by Svenska kraftnät and neighbouring TSOs (for interconnectors) and per type of southbound reduction (for corridors between internal areas) enforced by Svenska kraftnät.

	1010	1114	1117	1125	1126	1158	1163	1167	1225	1267	1414	1422	1423	1425	1431	1432	1433	1434	1443	1445	1447	1450	1455	1621	1622
SE1-SE2	857															68	6							1 277	
SE2-SE3	54											312				66	6								708
SE3-SE4													102				6	96							
SE1-FI	2 192														16										
SE1-NO4			15																			2 175	18		
SE2-NO3		432	15																		888	873			
SE2-NO4			15																			2 193			
SE3-DK1	1 780			254					24					144			6								
SE3-FI	2 133					67									8										
SE3-NO1		491									1 130					60	113			390					
SE4-DE	677						17											31							
SE4-DK2	2 046				103								42					1	15						
SE4-PL	2 027																								
SE4-LT	1 836							12		288															

	1623	2022	2033	2226	2522	2523	2532	9999
SE1-SE2								
SE2-SE3		6	510		450		96	
SE3-SE4	1 698					306		
SE1-FI								
SE1-NO4								
SE2-NO3								
SE2-NO4								
SE3-DK1								
SE3-FI								
SE3-NO1								24
SE4-DE								1 483
SE4-DK2				1				
SE4-PL								181
SE4-LT								72

Table D4. Number of hours per type of import reduction as enforced by Svenska kraftnät and neighbouring TSOs (for interconnectors) and per type of northbound reduction (for corridors between internal areas) enforced by Svenska kraftnät.

	1010	1114	1117	1125	1126	1158	1163	1167	1225	1267	1355	1414	1423	1425	1433	1434	1443	1445	1450	1455	1467	1624	1625	2226
SE1-SE2	2 208																							
SE2-SE3	2 208																							
SE3-SE4	2 208																							
SE1-FI	2 208																							
SE1-NO4			15							4									2 171	18				
SE2-NO3	391	569										1 248												
SE2-NO4			15																2 193					
SE3-DK1	1 333			254					24				42	144	6	96						299	10	
SE3-FI	2 141					67																		
SE3-NO1		530										1 216			54			391						
SE4-DE	331						17								6							208	8	
SE4-DK2	1 688				145										6	1	14					341	11	2
SE4-PL	149														6							115	6	
SE4-LT	1 512							12		288					6						83	234		

	2267	9999
SE1-SE2		
SE2-SE3		
SE3-SE4		
SE1-FI		
SE1-NO4		
SE2-NO3		
SE2-NO4		
SE3-DK1		
SE3-FI		
SE3-NO1		17
SE4-DE		1 638
SE4-DK2		
SE4-PL		1 932
SE4-LT	1	72

Appendix E – 2017 Q4

Tables E1 to E4 shows how of many hours the capacities have been reduced per type of reduction for each interconnector and corridor between internal areas for 2017 Q4. The reason codes are explained in the attached spreadsheet.

Table E1. Number of hours per type of export reduction (for interconnectors) and per type of southbound reduction (for corridors between internal areas) enforced by Svenska kraftnät.

	1010	1114	1126	1155	1156	1158	1162	1226	1262	1267	1421	1422	1423	1432	1433	1434	1456	1610	1621	1622	1623	1624	1933	
SE1-SE2	582										78			11					1 538					
SE2-SE3	346											60		11	14					1 270				12
SE3-SE4	96															48						1 848		
SE1-FI	2 209																							
SE1-NO4	2 196			13																				
SE2-NO3	2 209																							
SE2-NO4	2 167				18												24							
SE3-DK1	2 032														177									
SE3-FI	2 137					72																		
SE3-NO1	1 074	72													154			1					888	
SE4-DE	1 942															267								
SE4-DK2	1 791		229					24							165									
SE4-PL	1 892						17		24				66			210								
SE4-LT	1 951									192			66											

	2022	2033	2034	2214	2222	2233	2522	2523	2524	2532
SE1-SE2										
SE2-SE3	48	253			2		121			72
SE3-SE4			24					169	24	
SE1-FI										
SE1-NO4										
SE2-NO3										
SE2-NO4										
SE3-DK1										
SE3-FI										
SE3-NO1				17		3				
SE4-DE										
SE4-DK2										
SE4-PL										
SE4-LT										

Table E2. Number of hours per type of import reduction (for interconnectors) and per type of northbound reduction (for corridors between internal areas) enforced by Svenska kraftnät.

	1010	1114	1126	1155	1156	1158	1162	1262	1267	1421	1433	1434	1456	1624	2214	2233	2326	2333	2424	
SE1-SE2	2 209																			
SE2-SE3	2 203										6									
SE3-SE4	2 209																			
SE1-FI	2 173									36										
SE1-NO4	2 160			13						36										
SE2-NO3	2 209																			
SE2-NO4	2 167				18								24							
SE3-DK1	1 065										95	227		822						
SE3-FI	2 137					72														
SE3-NO1	1 912	72									197	18			2	4			4	
SE4-DE	1 295										30	99		785						
SE4-DK2	1 123		48								106			921		3	8			
SE4-PL	1 273						17	24			101			794						
SE4-LT	1 195								201		89			707						17

Table E3. Number of hours per type of export reduction as enforced by Svenska kraftnät and neighbouring TSOs (for interconnectors) and per type of southbound reduction (for corridors between internal areas) enforced by Svenska kraftnät.

	1010	1114	1125	1126	1155	1156	1158	1225	1226	1262	1267	1421	1422	1423	1431	1432	1433	1434	1445	1446	1447	1450	1456	
SE1-SE2	582											78				11								
SE2-SE3	346												60			11	14							
SE3-SE4	96																	48						
SE1-FI	2 160														49									
SE1-NO4	1 811				13							35										20	258	
SE2-NO3	1 818																					87	280	
SE2-NO4	2 060					35																27	15	24
SE3-DK1	1 978		12					48									171							
SE3-FI	2 137						72																	
SE3-NO1	1 016	96															154		37	19				
SE4-DE	646																	232						
SE4-DK2	561			1 421					7								165							
SE4-PL	1 576									24					42			208						
SE4-LT	1 963										192			42										

	1550	1621	1622	1623	1624	1933	1955	2022	2033	2034	2214	2222	2233	2522	2523	2524	2532	9943	9999
SE1-SE2		1 538																	
SE2-SE3			1 270			12		48	253			2		121			72		
SE3-SE4				1 848						24					169	24			
SE1-FI																			
SE1-NO4	48						24												
SE2-NO3	24																		
SE2-NO4	48																		
SE3-DK1																			
SE3-FI																			
SE3-NO1					871						13		3						
SE4-DE																			1 331
SE4-DK2																		55	
SE4-PL																			359
SE4-LT																			12

Table E4. Number of hours per type of import reduction as enforced by Svenska kraftnät and neighbouring TSOs (for interconnectors) and per type of northbound reduction (for corridors between internal areas) enforced by Svenska kraftnät.

	1010	1114	1125	1126	1155	1156	1158	1225	1262	1267	1421	1433	1434	1445	1446	1447	1450	1456	1550	1624	1714	1745	1914	
SE1-SE2	2 209																							
SE2-SE3	2 203											6												
SE3-SE4	2 209																							
SE1-FI	2 173										36													
SE1-NO4	2 025				13						35					20	37		48					
SE2-NO3	2 113	96																						
SE2-NO4	2 067					35										27	25	24						
SE3-DK1	1 005		12					48				95	227								822			
SE3-FI	2 137						72																	
SE3-NO1	1 250	96										159	18	47	24							120	179	305
SE4-DE	286											17	72									208		
SE4-DK2	426			991								100										648		
SE4-PL	181								24			88										542		
SE4-LT	1 195									201		89										707		

	1950	1955	1956	2214	2233	2326	2333	2424	9943	9999
SE1-SE2										
SE2-SE3										
SE3-SE4										
SE1-FI										
SE1-NO4	7	24								
SE2-NO3										
SE2-NO4	7		24							
SE3-DK1										
SE3-FI										
SE3-NO1				6	2		3			
SE4-DE										1 626
SE4-DK2					1	8			35	
SE4-PL										1 374
SE4-LT								17		