

NORDIC ELECTRICITY MARKET

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THE TEMPERATURES START TO FALL AND THE WEATHER TURNS DRY

Forecast to week 46:	
ENOFUTBLQ1-19	↗ Bullish (>0%)
ENOYR-19	↗ Bullish (>0%)
NP System	↔ Sideways (± 0,5%)
NEDEC8	↗ Bullish (>0%)

Market signals	spot	Q1-19	YR-19
Hydrologic balance	↑	↑	↑
Precipitation forecast	↑	↑	↑
Temperature forecast	↑	↑	→
Spot		→	→
Production and transmission exch.	↑	→	→
Emissions allowance	↑	↑	↑
Coal price	↑	↑	↑
German prices	↑	↑	↑
Technical analysis		↑	↑

FORECAST TO WEEK 46
ELECTRICITY DERIVATIVES

The nearest quarter
The weather forecasts have dried during the weekend. The weather type turns dry and especially at the end of the week and during next week the precipitation is at low level except for the most northern parts. At the same time the temperatures fall close to seasonal normal. We expect the front contracts to increase with the dry weather outlook. The high pressure above the Scandinavia might exit at the end of November, which might limit the upward pressure during the week. However, the weather type change to wet seems very unlikely at the moment.

Annual products
The dry weather outlook and the increasing front contracts support the annual contracts. Generally, the weather turns significantly colder in Europe next week, which supports the fuel and emission prices. At the same time also the wind conditions are mainly clearly weaker than normal. The coal price is also supported by stronger oil price, which has started to increase when Saudi Arabia announced to cut the country's oil production by about half a million barrels per day starting in December. We expect the annual contracts to increase.

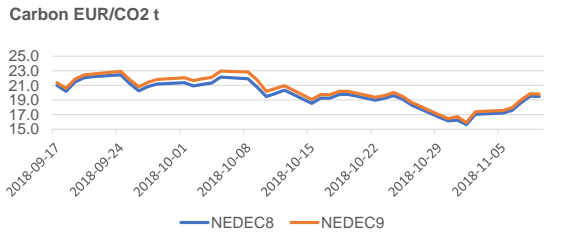
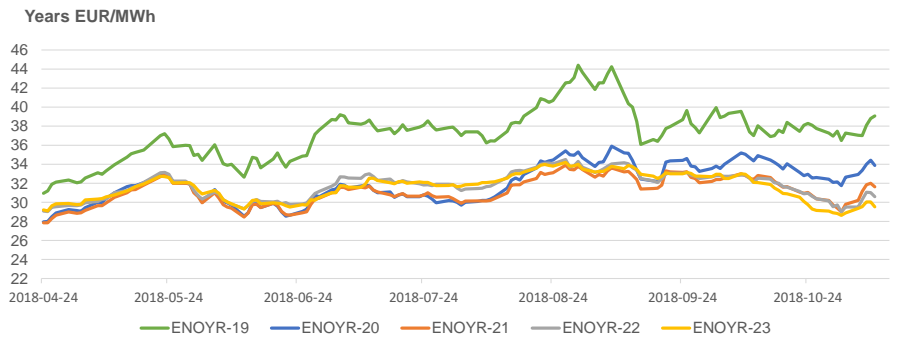
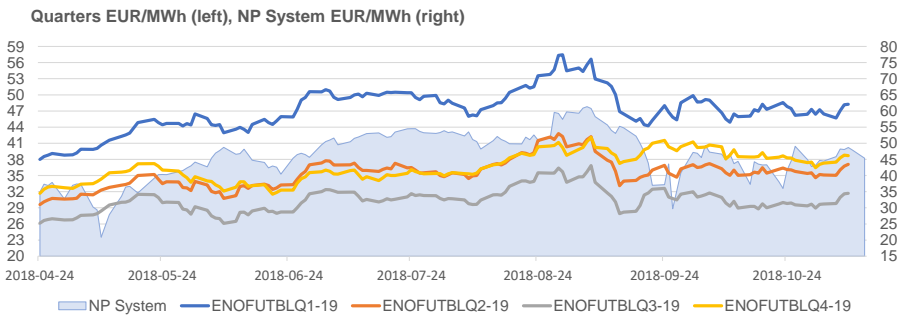
SPOT MARKET
The weather turns dry and the inflows start to decrease. The inflows are, however, still during the weekdays higher than seasonal normal due to high precipitation during the weekend. The Nordic wind power production is weaker than normal and it is still weakening towards the end of the week. However, the weather is still clearly warmer than seasonal normal during the weekdays, but at the weekend the temperatures fall close to normal. We expect the system price to stay close to last week's level at the weekly level. In Finland the wind power production is, except for Tuesday evening and Wednesday mainly higher than normal during the weekdays. We expect the Finnish area price to stay very close to Swedish area price (SE3). We expect the Finnish area price to slightly decrease at the weekly level and to realize at about 47,0 €/MWh.

EMISSIONS
The emission price has been correcting strongly up and on Monday the price turned to a bullish trend again when the resistance level of 20,0 €/t broke. In addition to the strengthened technical outlook, the upward pressure to emission price is caused by the weather that is turning colder widely in Europe. Also the auction supply is scarcer, when due to break in the agreement there will be no German auctions during the end of the week. We expect the emission price to increase. In the price there is technically upward potential till the resistance level of 22,6 €/t.

Product	Date	Value	% chg	Chg (EUR)
ENOFUTBLQ1-19	9.11.2018	48.25	2.1%	1.00
ENOFUTBLQ2-19	9.11.2018	37.10	5.4%	1.90
ENOFUTBLQ3-19	9.11.2018	31.70	6.9%	2.05
ENOFUTBLQ4-19	9.11.2018	38.70	4.3%	1.60
ENOYR-19	9.11.2018	39.08	4.9%	1.81
ENOYR-20	9.11.2018	33.88	3.8%	1.23
ENOYR-21	9.11.2018	31.63	6.1%	1.83
ENOYR-22	9.11.2018	30.60	3.7%	1.10
ENOYR-23	9.11.2018	29.53	2.3%	0.65
NEDEC8	9.11.2018	19.46	14.1%	2.41
NEDEC9	9.11.2018	19.82	13.9%	2.42

EPAD settlements				
9.11.2018 (€/MWh)	2019	2020	2021	2022
SYHEL	6.45	5.20	4.93	4.75
SE1-NP System	0.50	-1.15	-1.15	-1.15
SE2 - NP System	0.50	-1.48	-1.15	-1.15
SE3 - NP System	2.25	2.15	2.15	2.15
SE4 - NP System	3.50	3.50	3.50	3.50

Week's spot price change				
Price area (€/MWh)	Date	Value	% chg	Chg (EUR)
NP System	11.11.2018	45.95	4.6%	2.03
NP Area FI	11.11.2018	48.33	6.8%	3.08
NP Area SE1	11.11.2018	45.54	3.8%	1.65
NP Area SE2	11.11.2018	45.54	3.8%	1.65
NP Area SE3	11.11.2018	48.33	10.1%	4.43
NP Area SE4	11.11.2018	48.33	10.1%	4.43



COMMENTS ON WEEK 45

ELECTRICITY DERIVATIVES

The nearest quarter

At the beginning of last week the front contracts decreased sharply, when the weather forecasts were wet for the next week. At the same time the weather seemed to stay warm compared to seasonal normal and there were no clear signs of the change in the mild and wet weather type. However, during the second half of the week the weather forecasts turned drier and colder for the next week. The possible weather type change and the increasing emission price turned the front contracts strongly bullish. At the weekly level the front contracts closed clearly bullish.

Annual products

At the beginning of last week the closest annual contract looked for direction. At the beginning of the week the downward pressure to closest annual contract was caused by wet and mild weather forecasts, but at the end of the week the closest annual contract increased sharply with the possible weather type change and the front contracts. Also the following annual contracts increased strongly. The annual contracts were supported by strongly correcting emission price, but weak fuel prices limited the upward pressure to annual contracts. At the weekly level the annual contracts closed strongly higher.

SPOT MARKET

Last week the weather was dry during the working week and the inflows were at low level. At the same time the weather was with very little wind and the spot prices increased significantly at the weekly level. However, the upward pressure was limited by the weather warmer than seasonal normal. On Monday the electricity import from Russia to Finland was high due to holiday in Russia. After Monday the electricity import from Russia decreased and also the Finnish wind power production decreased on Wednesday and on Thursday to low level. Despite of the weak wind power production in Finland, the Finnish area price was attached to Swedish area price (SE3) during the whole week, but the area price difference against the system price increased slightly.

EMISSIONS

Last week the emission price turned strongly bullish. The emission price was supported by strong auctions. The support to emission price was also caused by widely falling temperatures in Europe. Additionally, the German power market started to increase strongly.

Indicator	ENOFUTBLQ1-19	ENOYR-19
Coal-fired production	17 %	41 %
Coal price	5 %	20 %
Gas price (NBP)	13 %	38 %
German price level	26 %	46 %
Spot	61 %	31 %
Crude oil Brent	2 %	1 %
Water reservoirs	58 %	49 %
EUR/USD FX rate	5 %	5 %
Temperature	8 %	5 %
Precipitation	16 %	13 %

Definition
The above figures measure the ability of market determinants to describe the price changes occurred in last 6 months. The affect is measured as Coefficient of Determination*. Each variable is evaluated independently. We use a color scale to demonstrate efficacy, green (strong), yellow (moderate), red (weak)

Forecast history	45	Chg	44	Chg
ENOFUTBLQ1-19	↘	2.1%	↘	-0.4%
ENOYR-19	↘	4.9%	↘	-1.3%
NP System	↗	4.6%	↗	-9.3%
NEDEC8	↘	14.1%	↘	-6.7%

DETERMINANTS AFFECTING THE MARKET ON WEEK 46

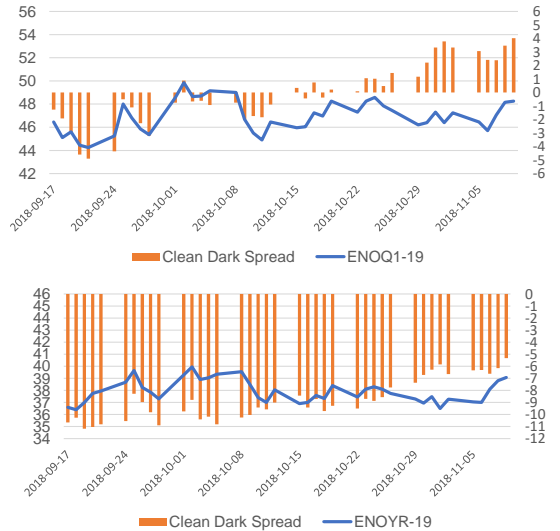
RESTRICTIONS IN PRODUCTION AND TRANSMISSION CAPACITY

Ringhals 2 (904 MW), 30.10.-29.11.2018 annual maintenance, available 0 MW

FI-EE (1016 MW) failure 4.-16.11.2018, available 658 MW

Nordic nuclear power plants are currently operating at 92%

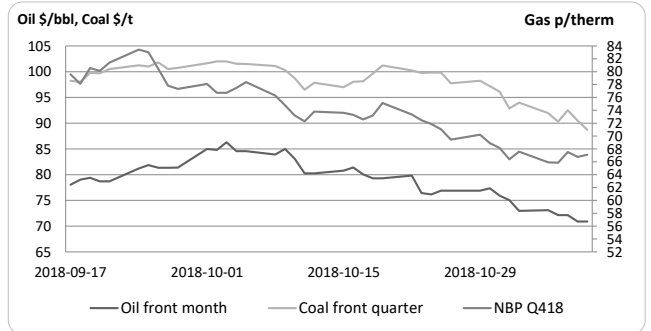
-RU-FI transfer profile varies due to capacity charges, on average imports from Russia last week were 71% of the maximum.



AVERAGE SPOT PRICE AND EPAD

Price area (€/MWh)	2012	2013	2014	2015	2016	2017	2018*
NP System	31.20	38.10	29.60	21.00	26.91	29.41	42.88
NP Area FI - NP System	5.50	3.10	6.40	8.70	5.54	3.78	3.06
NP Area SE1 - NP System	0.50	1.10	1.80	0.20	2.04	1.43	0.42
NP Area SE2 - NP System	0.60	1.10	1.80	1.00	2.04	1.43	0.42
NP Area SE3 - NP System	1.10	1.40	2.00	1.00	2.33	1.83	0.62
NP Area SE4 - NP System	3.00	1.80	2.30	1.90	2.62	2.77	2.39

*Average for period between 1.1.2018-12.11.2018.



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Source for data: intStream, Tilastokeskus

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