

NORDIC ELECTRICITY MARKET

16.9.2019 Markus Herranen, Gasum Portfolio Services Oy

WE EXPECT THE MARKET TO TURN BULLISH IN THE WAKE OF RISING FUEL PRICES

Forecast to week 38:

ENOFUTBLQ4-19	↗ Bullish (>0%)
ENOYR-20	↗ Bullish (>0%)
NP System	↗ Bullish (>0%)
NEDEC9	↗ Bullish (>0%)

FORECAST TO WEEK 38

ELECTRICITY DERIVATIVES

Front quarter

In the current week, the weather type has been considerably cooler than normal for the time of year. At the same time there is a brief dry spell in the weather. The temperatures and precipitation rates will rise towards the end of the week, however. The weather will turn warmer than normal at the weekend, and next week the weather will remain warmer than normal for the time of year. Precipitation rates will rise slightly above normal next week, and there are no clear signs of new dry spells in the weather type. The hydro balance has risen slightly above the long-term normal level, but there are no major changes in sight for the balance over the two-week forecast period. The weather picture and higher hydro balance exert downward pressure on quarterly products, but we expect quarterly products to rise slightly in the wake of the rising fuel and emission allowance prices and the uncertainties related to French nuclear power plants.

Annual products

The price of oil is surging due to the attacks on Saudi Arabia. The strikes have halved Saudi oil output, which means that around 5% of the global supply has been cut. Due to the uncertainties in the oil market and general situation, we expect fuel prices to remain bullish. Support for fuel and emission allowance prices may also be maintained by the uncertain situation of French nuclear plants. We expect a rise in annual product prices.

SPOT MARKET

Nordic wind power production is very abundant and flow rates are also high. However, precipitation rates will fall momentarily to a low level and there will be a steep drop in flow rates in the following days. Wind power production will also weaken and drop to a below-normal level in the second half of the week. We expect the system price to rise slightly at the weekly level and to settle at an average of €33.0/MWh. The Loviisa 2 nuclear power plant unit is operating at full capacity again and the interconnection maintenance between Southern Sweden and Lithuania has been completed. Finnish wind power production will, however, drop slightly below the normal level after Monday and nuclear power production will remain scater than normal due to the annual maintenance of the Loviisa 1 unit. We expect the Finnish area price to fall slightly at the weekly level and to settle at an average of €43.5/MWh.

EMISSIONS

The electricity market is supported by rising fuel prices, also exerting upward pressure on emission allowance prices. Upward pressure on emission allowance prices is also created by the uncertainty about possible extra servicing required by French nuclear power plants. We expect a hike in emission allowance prices.

Market signals

	spot	Q4-19	YR-20
Hydrologic balance	↓	↓	↓
Precipitation forecast	↓	↓	↓
Temperature forecast	↑	→	→
Spot	↔	↓	→
Production and transmission exch.	↓	→	→
Emissions allowance	↑	↑	↑
Coal price	↑	↑	↑
German prices	→	→	→
Technical analysis	↔	↑	↑

Product	Date	Value	% chg	Chg (EUR)
ENOFUTBLQ4-19	13.9.2019	37.90	5.7%	2.05
ENOFUTBLQ1-20	13.9.2019	42.45	6.8%	2.70
ENOFUTBLQ2-20	13.9.2019	33.73	6.5%	2.05
ENOFUTBLQ3-20	13.9.2019	29.93	5.6%	1.58
ENOYR-20	13.9.2019	35.65	5.7%	1.91
ENOYR-21	13.9.2019	34.00	2.3%	0.76
ENOYR-22	13.9.2019	33.05	1.4%	0.45
ENOYR-23	13.9.2019	32.78	0.5%	0.15
ENOYR-24	13.9.2019	32.80	0.5%	0.15
NEDEC9	13.9.2019	26.45	5.7%	1.42
NEDEC20	13.9.2019	26.59	5.3%	1.35

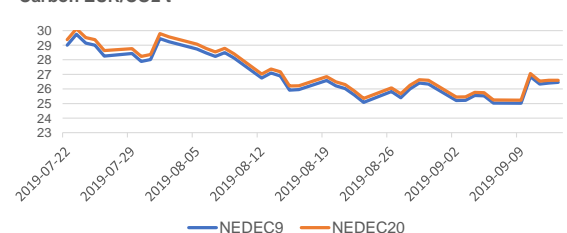
EPAD settlements

13.9.2019 (€/MWh)	2020	2021	2022	2023
SYHEL	7.30	4.63	4.03	4.38
SE1-NP System	-0.50	-1.50	-2.25	-2.25
SE2 - NP System	-0.50	-1.50	-2.25	-2.25
SE3 - NP System	1.88	1.25	1.35	1.35
SE4 - NP System	3.40	2.60	2.60	2.60

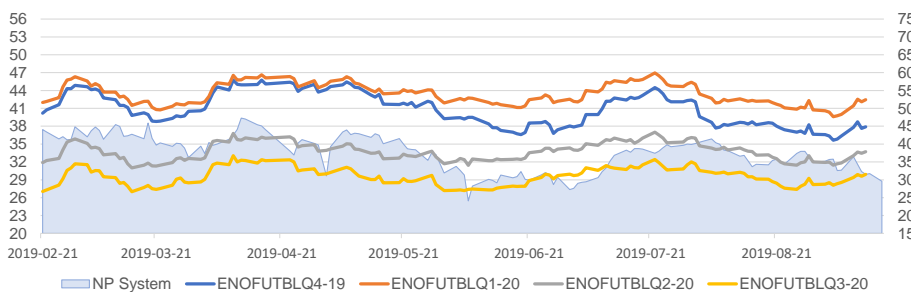
Week's spot price change

Price area (€/MWh)	Date	Value	% chg	Chg (EUR)
NP System	15.9.2019	31.19	-8.8%	-2.99
NP Area FI	15.9.2019	45.37	-10.5%	-5.32
NP Area SE1	15.9.2019	32.12	-10.4%	-3.74
NP Area SE2	15.9.2019	32.12	-10.4%	-3.74
NP Area SE3	15.9.2019	32.40	-11.7%	-4.28
NP Area SE4	15.9.2019	32.40	-11.7%	-4.28

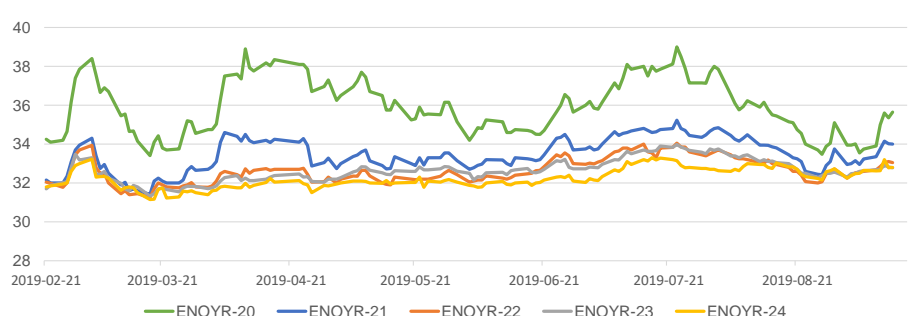
Carbon EUR/CO2 t



Quarters EUR/MWh (left), NP System EUR/MWh (right)



Years EUR/MWh



COMMENTS ON WEEK 37

ELECTRICITY DERIVATIVES

Front quarter

Quarterly products took an upturn last week. Weather forecasts dried slightly over the weekend, triggering an upturn in quarterly products at the beginning of the week. The bullish trend strengthened on Tuesday when the energy firm EDF flagged possible faulty welding on nuclear power plant steam generators. It was still highly uncertain whether or not the plants require servicing, and the number of affected units was also uncertain. The uncertainty brought strong support to coal, natural gas and emission allowance prices, however. The rise in the French electricity market was very strong and was reflected in the German and also in part in the Nordic market. At the weekly level, quarterly products showed a strong increase.

Annual products

Last week, annual products took a strong upturn due to the uncertainty related to French nuclear power plants. The uncertainty pushed the natural gas price in particular to a very strong increase. At the same time there was a clear increase in coal and emission allowance prices, too, as nuclear power production may be scater than normal during the winter and may need to be replaced by fossil fuels.

SPOT MARKET

Spot prices plummeted last week. Downward pressure on spot prices was exerted by the wet weather picture and rising hydro balance. After Tuesday, Nordic wind power production rose to a level that is clearly above normal. Flow rates increased strongly towards the end of the week and spot prices fell to a low level during the weekend. The restart of the Loviisa 2 unit was delayed but the unit was operational again on Friday morning. The Finnish area price dropped a little more at the weekly level than the system price, narrowing the gap between the area price and the system price. At the weekly level, however, the price difference was still considerable.

EMISSIONS

Last week, emission allowance prices took a strong upturn due to the uncertainty related to French nuclear power plants. The upward pressure was boosted by the strong bullish trend of the electricity markets. In addition, the technical picture of emission allowance prices strengthened as prices climbed above the highest trading figures of August-September.

Indicator	ENOFUTBLQ4-19	ENOYR-20
Coal-fired production	70 %	70 %
Coal price	47 %	12 %
Gas price (NBP)	67 %	35 %
German price level	11 %	45 %
Spot	34 %	14 %
Crude oil Brent	59 %	20 %
Water reservoirs	7 %	0 %
EUR/USD FX rate	3 %	2 %
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	37	Chg	36	Chg
ENOFUTBLQ4-19	↗	5.7%	↘	-6.3%
ENOYR-20	↗	5.7%	↘	-3.9%
NP System	↘	-8.8%	↘	-6.4%
NEDEC9	↗	5.7%	↘	-5.0%

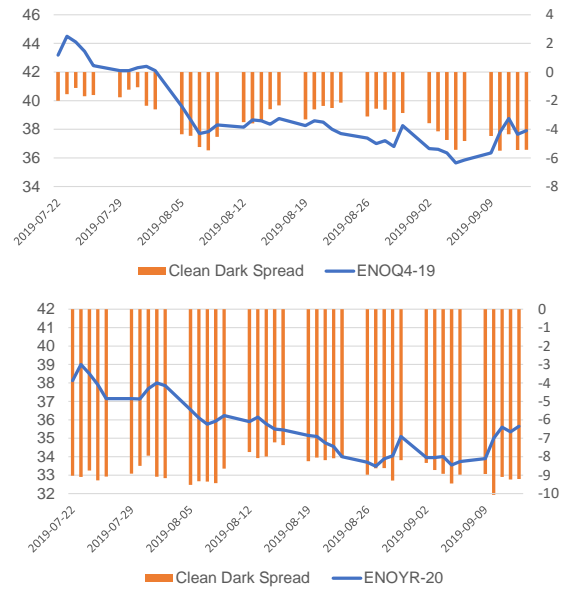
DETERMINANTS AFFECTING THE MARKET ON WEEK 38

RESTRICTIONS IN PRODUCTION AND TRANSMISSION CAPACITY

Ringhals 2 (852 MW), maintenance 7.9.-30.12.2019, in use 300 MW
Loviisa 1 (507 MW), maintenance 7. - 25.9.2019, 0 MW in use
Ringhals 4 (1103 MW), maintenance 28.8.-1.10.2019, 0 MW in use
Oskarshamn 3 (1400 MW), maintenance 30.8.-23.9.2019, 0 MW in use

NO1-SE3 (2145 MW), maintenance 30.7. – 18.10.2019, 1845 MW in use
RU-FI (1300 MW), maintenance 8.-29.9.2019, in use 1100 MW

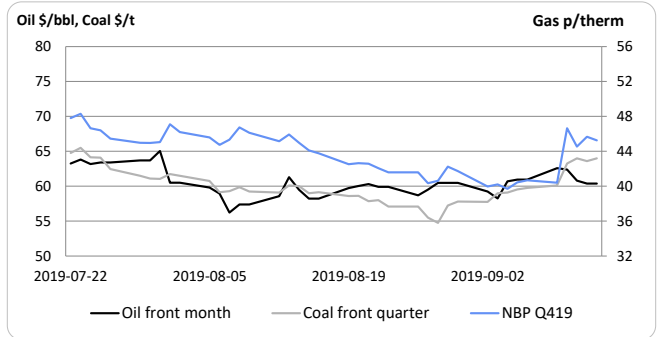
- Nordic nuclear power plants are currently operating at a capacity utilization rate of 70%
- RU-FI transmission profile varies due to capacity payments, average imports from Russia last week were 54% of the maximum



AVERAGE SPOT PRICE AND EPAD

Price area (€/MWh)	2012	2013	2014	2015	2016	2017	2018	2019*
NP System	31.20	38.10	29.60	21.00	26.91	29.41	43.99	39.34
NP Area FI - NP System	5.50	3.10	6.40	8.70	5.54	3.78	2.81	4.53
NP Area SE1 - NP System	0.50	1.10	1.80	0.20	2.04	1.43	0.24	-1.07
NP Area SE2 - NP System	0.60	1.10	1.80	1.00	2.04	1.43	0.24	-1.07
NP Area SE3 - NP System	1.10	1.40	2.00	1.00	2.33	1.83	0.55	-0.91
NP Area SE4 - NP System	3.00	1.80	2.30	1.90	2.62	2.77	2.37	0.33

*Average for period between 1.1.2019-16.9.2019.



Copyright 2019 Gasum Oy – All rights reserved
Source for data: intStream, Tilastokeskus

Disclaimer: This document is issued by Gasum Oy in jointly by its subsidiaries Gasum Portfolio Services Oy and intStream Oy. The information in this document, which is for private circulation only, was obtained from sources believed to be reliable but its accuracy or completeness cannot be guaranteed. No liability whatsoever is accepted for any direct or consequential loss arising from the use of this document. This document is not intended for the use of private customers. Do not distribute. If you received this from a third party that is not affiliated to Gasum Oy, please let us know. For all inquiries and notifications, contact us at support@intstream.fi.