

NORDIC ELECTRICITY MARKET

27.5.2019 Markus Herranen, Gasum Portfolio Services Oy

DOWNWARD PRESSURE MAINTAINED BY RISING HYDRO BALANCE

Forecast to week 22:

ENOFUTBLQ3-19	📉 Bearish (<0%)
ENOYR-20	📉 Bearish (<0%)
NP System	📉 Bearish (<0%)
NEDEC9	↔️ Sideways (± 0,5%)

FORECAST TO WEEK 22

ELECTRICITY DERIVATIVES

Front quarter

The weather type is wet and rather cool for the time of year. The wet and cool weather type will prevail for the current week and the hydro balance will rise considerably. The forecasts for next week show warmer temperatures while at the same time indicating lower precipitation rates. The weather type shows signs of a turn for warmer weather but for the time being any persistent dry period still appears unlikely. We expect quarterly products to fall for the time being but can see potential for a turn in direction during the week if the signs of a high pressure strengthening are confirmed further.

Annual products

The rising hydro balance and falling quarterly products are putting downward pressure on annual products. Fuel prices also still remain weak and the weak price of natural gas is creating downward pressure on emission allowance prices. In addition, Brexit-related uncertainty is looming again after May's resignation speech. We expect a slight fall in annual product prices. However, we also foresee a possible turn in annual product prices during the week in the wake of quarterly products. In addition, the current week's scarce auction supply may provide support to emission allowance prices.

SPOT MARKET

The weather type is quite wet and cool for the time of year. Cool temperatures will prevail until a rise on Sunday to a level close to normal. Owing to the cool weather, melting has slowed down and flow rates have dropped below normal. Flow rates will remain below normal for the current week, but nuclear power production has increased. Nordic wind power production will be mostly above normal and, on Thursday in particular, wind power production levels will rise high. At the same time, Ascension Day public holiday will decrease electricity demand and we expect spot prices to settle low. We expect the system price to fall at the weekly level and to settle at an average of €32.5/MWh. Interconnection maintenance between Finland and Southern Sweden and weak Finnish wind power production in the first days of the week will keep the Finnish area price clearly higher than the system price. Finnish wind power production will, however, rise high after Wednesday. That is when we expect the Finnish area price to settle close to the system price. We expect the Finnish area price to settle at an average of €36.0/MWh at the weekly level.

EMISSIONS

Weak fuel prices will maintain downward pressure on the electricity market, which may also be reflected in emission allowance prices. Political uncertainty and fears of a hard Brexit have also increased since May announced her resignation. On the other hand, emission allowance prices are supported by the current week's scarce auction supply. Technically the market is in the €24.35–€27.21/t range and we expect the prices to continue their fluctuation within that range.

Market signals

	spot	Q3-19	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)
ENOFUTBLQ3-19	24.5.2019	37.30	-5.2%	-2.05
ENOFUTBLQ4-19	24.5.2019	42.00	-3.1%	-1.35
ENOFUTBLQ1-20	24.5.2019	43.95	-0.7%	-0.30
ENOFUTBLQ1-21	24.5.2019	40.15	-0.5%	-0.20
ENOYR-20	24.5.2019	35.55	-1.9%	-0.70
ENOYR-21	24.5.2019	33.30	-0.1%	-0.05
ENOYR-22	24.5.2019	32.20	-0.3%	-0.10
ENOYR-23	24.5.2019	32.68	0.2%	0.05
ENOYR-24	24.5.2019	32.10	0.3%	0.10
NEDEC9	24.5.2019	25.46	-0.4%	-0.10
NEDEC20	24.5.2019	25.71	-0.4%	-0.10

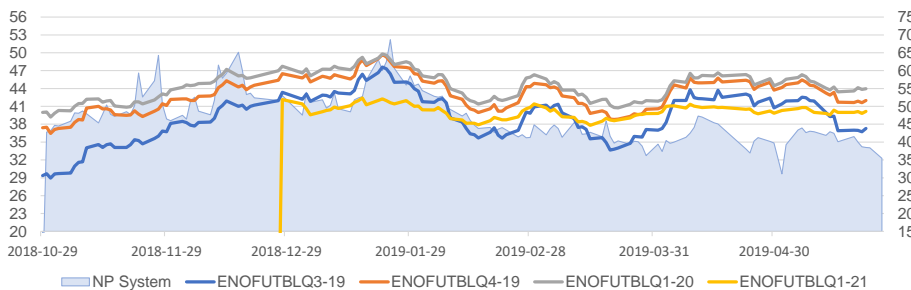
EPAD settlements

24.5.2019 (€/MWh)	2019	2020	2021	2022
SYHEL	4.25	3.30	3.25	3.43
SE1-NP System	-1.25	-2.00	-2.00	-2.00
SE2 - NP System	-1.25	-2.00	-2.00	-2.00
SE3 - NP System	1.48	1.30	1.33	1.50
SE4 - NP System	2.75	3.08	2.75	3.00

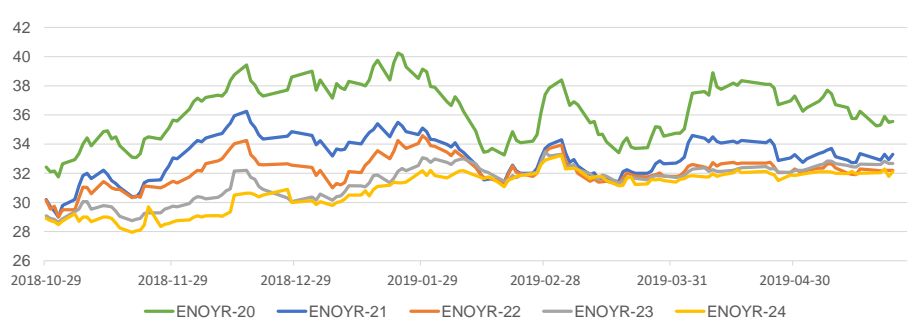
Week's spot price change

Price area (€/MWh)	Date	Value	% chg	Chg (EUR)
NP System	26.5.2019	37.49	-6.3%	-2.52
NP Area FI	26.5.2019	46.33	1.1%	0.51
NP Area SE1	26.5.2019	37.46	-2.4%	-0.91
NP Area SE2	26.5.2019	37.46	-2.4%	-0.91
NP Area SE3	26.5.2019	37.46	-2.4%	-0.91
NP Area SE4	26.5.2019	37.46	-2.4%	-0.91

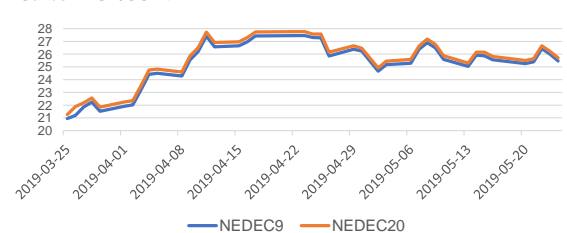
Quarters EUR/MWh (left), NP System EUR/MWh (right)



Years EUR/MWh



Carbon EUR/CO2 t



COMMENTS ON WEEK 21

ELECTRICITY DERIVATIVES

Front quarter

In the early part of last week, quarterly products plummeted as weather forecasts got much wetter and at the same time confirmed an end to the dry and warm weather type. Weather forecasts did not show any clear signs of the weather type becoming drier, and a clear improvement could be seen in the hydro balance on the basis of the weather outlook. After the first days of the week, the decline of quarterly products calmed down but at the weekly level quarterly products ended on a clear downward path.

Annual products

Last week, annual products fell in the first days, pulled down by quarterly products. The wet weather picture and rising hydro balance put downward pressure on the front-year product. Fuel prices also remained weak owing to abundant supply. Downward pressure on fuel prices was also created by the nervous market sentiment caused by tensions between the U.S. and China. However, emission allowance prices strengthened after Monday, lending support to annual product prices. Towards the end of the week, however, there was another fall in annual products as emission allowance and fuel prices dropped. At the weekly level the prices of annual products fell slightly.

SPOT MARKET

Last week, the weather was still very warm and dry during the first half of the week, but temperatures dropped close to the normal level after Wednesday. Precipitation rates rose higher than normal after Tuesday. Nordic wind power production was weak in the first days of the week but rebounded close to the normal level after Wednesday. Flow rates were high in the middle part of the week. After Wednesday, there was a big drop in temperatures and melting slowed down. This resulted in flow rates taking a downturn and falling to a level close to normal during the weekend. The system price dropped at the weekly level. Finnish wind power production was weak in the first days of the week but increased after Tuesday. The Finnish area price settled at a level clearly higher than the system price due to weaker-than-normal nuclear power production. The Finnish area price rose slightly at the weekly level.

EMISSIONS

Last week, market concern caused by tensions between the U.S. and China continued. The uncertainty also put downward pressure on emission allowance prices. The price of natural gas also stayed weak. Emission allowance prices were, however, strong considering the nervous market sentiment and weak natural gas price. The generally scarce auction supply and the following week's particularly scarce auction supply maintained support. At the weekly level, emission allowance prices ended up closing at a slight downward trajectory.

Indicator	ENOFUTBLQ3-19	ENOYR-20
Coal-fired production	41 %	58 %
Coal price	5 %	13 %
Gas price (NBP)	5 %	14 %
German price level	6 %	24 %
Spot	23 %	29 %
Crude oil Brent	3 %	8 %
Water reservoirs	1 %	7 %
EUR/USD FX rate	6 %	10 %
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	21	Chg	20	Chg
ENOFUTBLQ3-19	↘	-5.2%	↗	-6.2%
ENOYR-20	↘	-1.9%	↗	-1.2%
NP System	↘	-6.3%	↘	-6.5%
NEDEC9	↻	-0.4%	↗	-0.1%

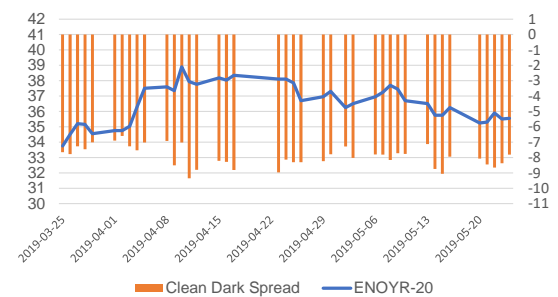
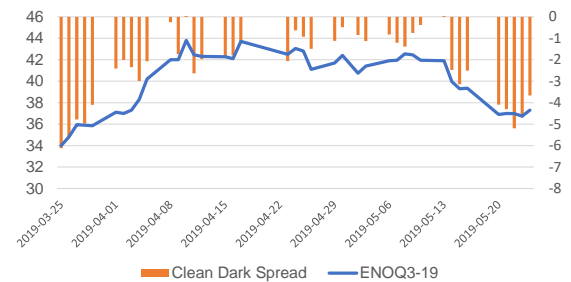
DETERMINANTS AFFECTING THE MARKET ON WEEK 22

RESTRICTIONS IN PRODUCTION AND TRANSMISSION CAPACITY

Oilkuuto 1 (890 MW), yearly maintenance 2.-11.6.2019, available 0 MW
 Forsmark 1 (984 MW), yearly maintenance 22.4-4.6.2019, available 0 MW

SE3-FI (1200 MW), maintenance 26.5.-9.6.2019, available 600 MW

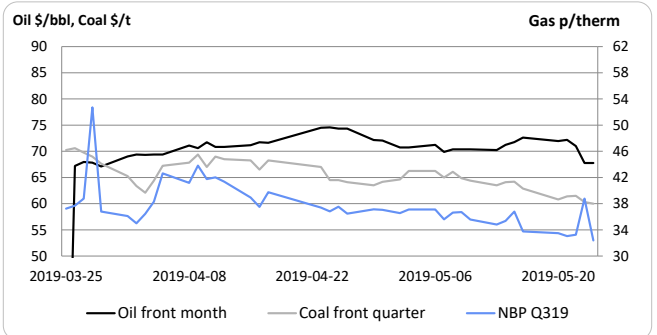
- The utilization rate of Nordic nuclear power plants is currently 92%
- RU-FI transfer profile varies due to capacity charges, average import from Russia last week was 63% of maximum



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	44.15
NP Area FI - NP System	5.50	3.10	6.40	8.70	5.54	3.78	2.81	1.10
NP Area SE1 - NP System	0.50	1.10	1.80	0.20	2.04	1.43	0.24	-1.23
NP Area SE2 - NP System	0.60	1.10	1.80	1.00	2.04	1.43	0.24	-1.23
NP Area SE3 - NP System	1.10	1.40	2.00	1.00	2.33	1.83	0.55	-0.96
NP Area SE4 - NP System	3.00	1.80	2.30	1.90	2.62	2.77	2.37	-0.49

*Average for period between 1.1.2019-27.5.2019.



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.