

NORDIC ELECTRICITY MARKET

24.2.2020 Markus Herranen, Gasum Portfolio Services Oy

WEATHER FORECASTS DRIER AND COLDER

Forecast to week 9:	
ENOFUTBLQ2-20	↗ Bullish (>0%)
ENOYR-21	↗ Bullish (>0%)
NP System	↗ Bullish (>0%)
NEDEC20	↘ Bearish (<0%)

FORECAST TO WEEK 9

POWER FUTURES

Front quarter

The weather forecasts got drier and cooler over the weekend. The weather has turned dry and temperatures are also falling below normal after the early days of the week. The weekend will see a brief warmer spell and also a rise in precipitation rates. There is considerable uncertainty in next week's weather picture, but it is likely that precipitation rates and temperatures will be close to normal levels in the first week of March. The very rainy, windy and mild weather type has ended, at least for the time being, and the rise of the hydro balance has come to a halt. We expect quarterly product prices to rise.

Annual products

The drier and colder weather forecasts and upwardly correcting quarterly products are also providing support for the front-year product. However, support for annual products is restricted by coronavirus concerns hitting the market again and the resulting clear downturn of stock indices. The virus epidemic is feared to spread further and worries about its impacts on economic growth and commodity demand have emerged again. Fuel and emission allowance prices are declining amid the concerns. We expect the front-year product to rise only moderately and the further-ahead annual products to decline slightly.

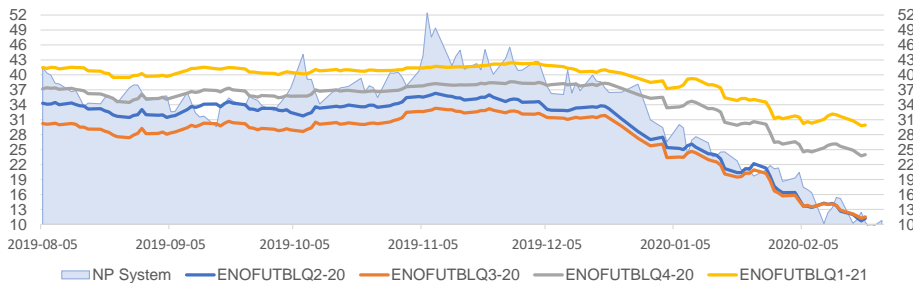
SPOT MARKET

Temperatures have taken a downturn, but the weather conditions will still be milder than normal in the first days of the week. After Tuesday, temperatures will drop to a level slightly below normal for the time of year but rise again during the weekend. Power demand will rise compared with last week's level. Precipitation rates will be below normal during the business week and flow rates will fall in the days ahead. Nordic wind power production will be slightly more abundant than normal during the first days of the week but will drop to a below-normal level after Tuesday. The weekend will see a rise in wind power output. We expect the system price to rise at the weekly level, but the climb will be restricted by the hydro balance being high. Nuclear power output will also increase after the early part of the week. We expect the system price to settle at an average of €12.0/MWh at the weekly level. Finnish wind power production will be abundant on Monday but weaker than normal for the rest of the week until Sunday. We expect the Finnish area price to rise at the weekly level and to settle at an average of €29.0/MWh.

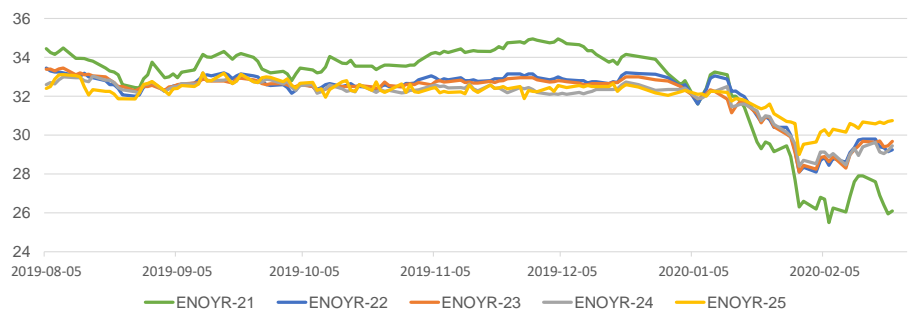
EMISSIONS

The bearish stock market is putting downward pressure on fuel prices, the German power market and also on emission allowance prices. Downward pressure on emission allowance prices is also created by the confirmation of the restart of the UK auctions on March 4. We expect a fall in emission allowance prices.

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



Years EUR/MWh



Market signals

	spot	Q2-20	YR-21
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)
ENOFUTBLQ2-20	21.2.2020	11.20	-18.5%	-2.55
ENOFUTBLQ3-20	21.2.2020	11.51	-16.4%	-2.25
ENOFUTBLQ4-20	21.2.2020	24.00	-8.2%	-2.15
ENOFUTBLQ1-21	21.2.2020	29.93	-6.5%	-2.07
ENOYR-21	21.2.2020	26.10	-6.5%	-1.80
ENOYR-22	21.2.2020	29.25	-1.8%	-0.55
ENOYR-23	21.2.2020	29.68	0.0%	0.00
ENOYR-24	21.2.2020	29.45	0.2%	0.05
ENOYR-25	21.2.2020	30.75	0.2%	0.07
NEDEC20	21.2.2020	25.54	5.1%	1.23
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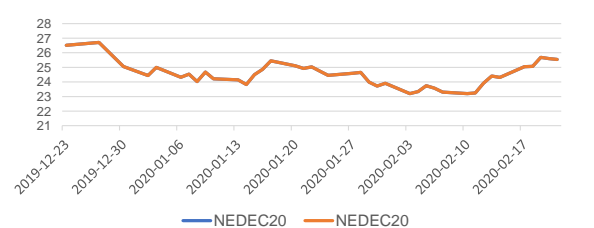
EPAD settlements

21.2.2020 (€/MWh)	2021	2022	2023
SYHEL	8.95	4.85	3.88
SE1-NP System	-1.50	-2.25	-2.25
SE2 - NP System	-1.50	-2.25	-2.25
SE3 - NP System	1.25	1.35	1.35
SE4 - NP System	2.60	2.60	2.60

Week's spot price change

Price area (€/MWh)	Date	Value	% chg	Chg (EUR)
NP System	23.2.2020	9.75	-21.4%	-2.65
NP Area FI	23.2.2020	19.14	-19.8%	-4.72
NP Area SE1	23.2.2020	9.94	-18.9%	-2.32
NP Area SE2	23.2.2020	9.94	-18.9%	-2.32
NP Area SE3	23.2.2020	13.51	-15.9%	-2.55
NP Area SE4	23.2.2020	13.51	-15.9%	-2.55

Carbon EUR/CO2 t



COMMENTS ON WEEK 8

POWER FUTURES

Front quarter

Last week, quarterly products were still declining in the wake of the rising hydro balance. The weather forecasts for the week ahead were showing slightly drier and cooler conditions and Friday saw quarterly products take a slight upturn. The weather forecasts did not, however, show any signs of the weather type turning dry or cold, so Friday's upward correction was only moderate. Quarterly products dropped clearly at the weekly level.

Annual products

Last week, the front-year product declined in the wake of the continued rise of the hydro balance and the weak quarterly products. Coal and natural gas prices were climbing in the first half of the week, but the rest of the week saw fuel prices decline again. In the German power market, annual products turned bearish after the first days of the week. Emission allowance prices climbed, however, which curbed the downward pressure on annual products. At the weekly level, the front-year product was clearly down, but there were no significant changes in the further-ahead annual products at the weekly level.

SPOT MARKET

Last week got off to a very mild and windy start. Temperatures dropped slightly after the start of the week, but the weather was very mild again at the weekend. Wind power production dropped after the first days of the week but rose to a high level towards the end of the week. Nuclear power supply was scanted, but the very rainy, windy and mild weather and the high hydro balance maintained a downtrend in spot prices. Finnish wind power production was variable over the week. During the windy days (Monday and the weekend) the Finnish area price was close to the system price. Between Tuesday and Thursday, however, the Finnish area price settled clearly above the system price. However, at the weekly level the Finnish area price dropped more than the system price.

EMISSIONS

The first half of last week saw a bullish German power market due to stronger fuel prices, which also lent support to emission allowance prices. After the first days of the week, fuels as well as the German power market took a downturn and the climb of emission allowance prices also halted. The rise of emission allowance prices was also restricted by the nearest resistance level at €26.0/t. Emission allowance prices climbed clearly at the weekly level.

Indicator	ENOFUTBLQ2-20	ENOYR-21
Coal-fired production	62 %	53 %
Coal price	67 %	56 %
Gas price (NBP)	73 %	59 %
German price level	6 %	85 %
Spot	87 %	78 %
Crude oil Brent	19 %	32 %
Water reservoirs	88 %	86 %
EUR/USD FX rate	16 %	19 %
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)

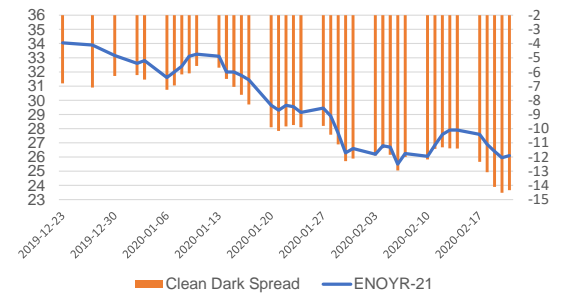
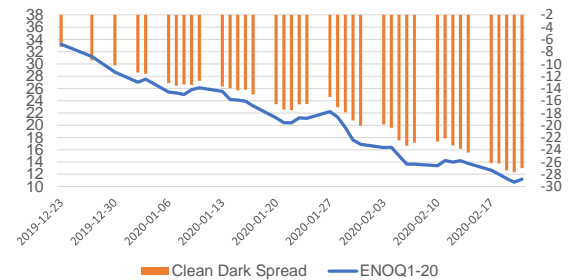
Forecast history	8	Chg	7	Chg
ENOFUTBLQ2-20	↓	-18.5%	↓	0.7%
ENOYR-21	↓	-6.5%	↓	6.3%
NP System	↓	-21.4%	↓	-7.0%
NEDEC20	↓	5.1%	↓	4.3%

DETERMINANTS AFFECTING THE MARKET ON WEEK 9

RESTRICTIONS IN PRODUCTION AND TRANSMISSION CAPACITY

Oskarshamn 3 (1400 MW), failure 20.-25.2.2020, in use 740 MW
Ringshals 3 (1063 MW), failure 14.-25.2.2020, in use 0 MW

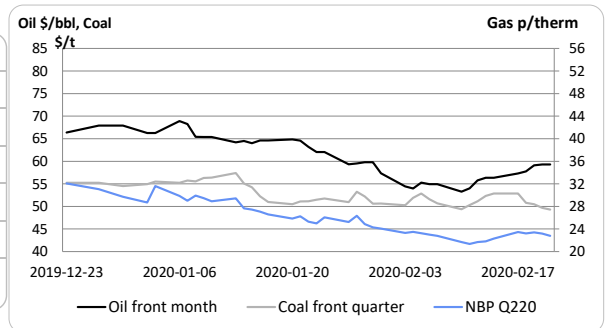
- Nordic nuclear power plants are currently operating at a capacity utilization rate of 84%
- RU-FI transmission profile varies due to capacity payments, average imports from Russia last week were 8% of the maximum



AVERAGE SPOT PRICE AND EPAD

Price area (€/MWh)	2012	2013	2014	2015	2016	2017	2018	2019	2020*
NP System	31.20	38.10	29.60	21.00	26.91	29.41	43.99	38.94	19.24
NP Area FI - NP System	5.50	3.10	6.40	8.70	5.54	3.78	2.81	5.10	6.10
NP Area SE1 - NP System	0.50	1.10	1.80	0.20	2.04	1.43	0.24	-1.00	-0.55
NP Area SE2 - NP System	0.60	1.10	1.80	1.00	2.04	1.43	0.24	-1.00	-0.55
NP Area SE3 - NP System	1.10	1.40	2.00	1.00	2.33	1.83	0.55	-0.58	1.45
NP Area SE4 - NP System	3.00	1.80	2.30	1.90	2.62	2.77	2.37	0.86	3.02

*Average for period between 1.1.2020-24.2.2020.



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Source for data: intStream, Tilastokeskus

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