

No Reason to Panic about Energy Prices

Most people and several energy magazines have noticed how the cost of electricity and petrol has increased since last year, but only few remember the prices for a longer period. A look at the monthly crude oil prices since 2009 suggests that the crude oil price in 2021 is rather normal than extreme (fig. 1).

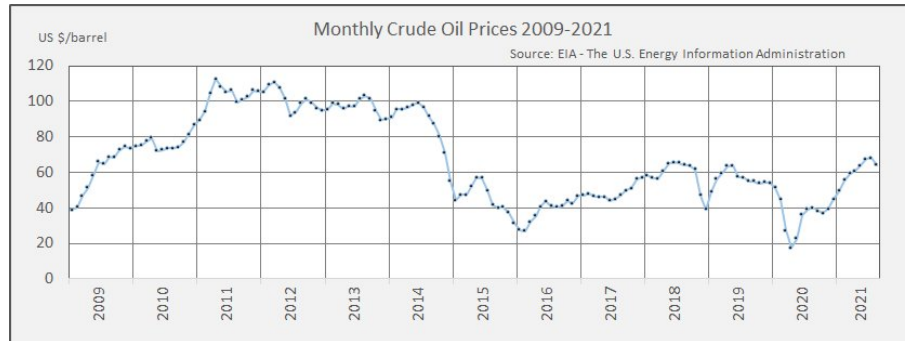


Fig. 1 - The crude oil price in 2021 has been quite normal

Even the present gas price seems to be at a reasonable level, when considered for several years (fig. 2).



Fig. 2 - The LNG market share some main trends with the oil market

However, reluctant investors in gas and oil exploration may bring a different balance with slightly higher average prices in gas and oil markets about.

Electricity prices depend on grid limitations

The recent development of Danish electricity prices is more dramatic with a steep rise in 2021 (fig. 3).

Electricity production based on fossil fuel plays a minor role in Denmark. Fuel prices have no longer the significant influence

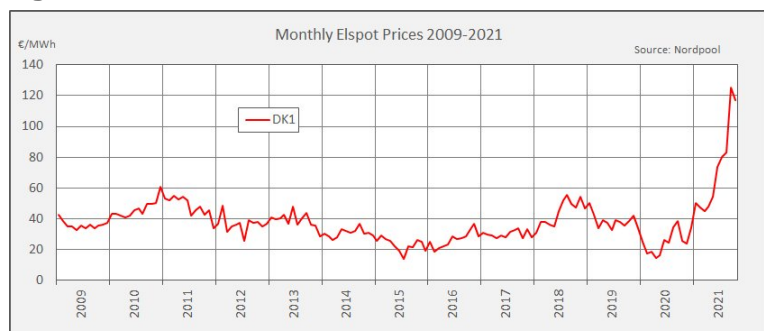


Fig. 3 - Average monthly spot prices over 100 €/MWh are unusual

on the spot prices. The prices are for most hours set by the conditions in neighbouring countries.

We compare the monthly prices in Denmark with the prices in South Norway (NO2) and North Norway (Tromsø) in order to demonstrate how spot prices depend on grid congestions.

The prices were equal and quite normal in 2019 (fig. 4). A surplus of electricity developed in Norway in 2020. However, it was cloistered behind a bottleneck between Norway and Denmark. The spot prices had to be set on either side of the bottleneck and different price levels developed. *The distance between the curves reflects the unbalance between Norway (NO2 and Tromsø) and the European continent (represented by DK2).*

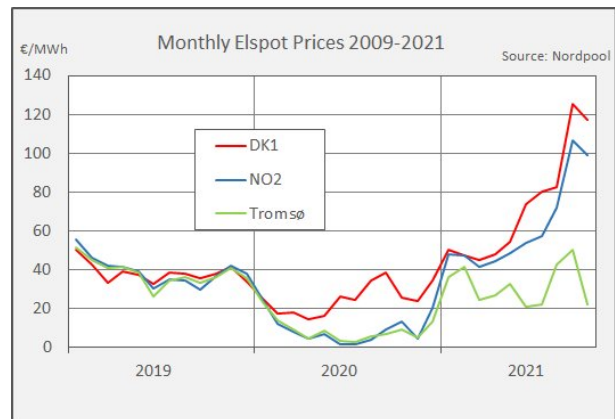


Fig. 4 - North Norway has maintained a normal price level in 2021

The scene changed completely at the beginning of 2021. North Norway maintained a normal price level, while the prices in South Norway and Denmark went up due to less water inflow, less wind, expensive natural gas and lack of fuel storages¹. The increasing price gap in 2021 indicates a bottleneck between north and south in Norway.

The spot prices in the UK, Germany and southern Norway can be analysed in the same way as above (fig. 5).

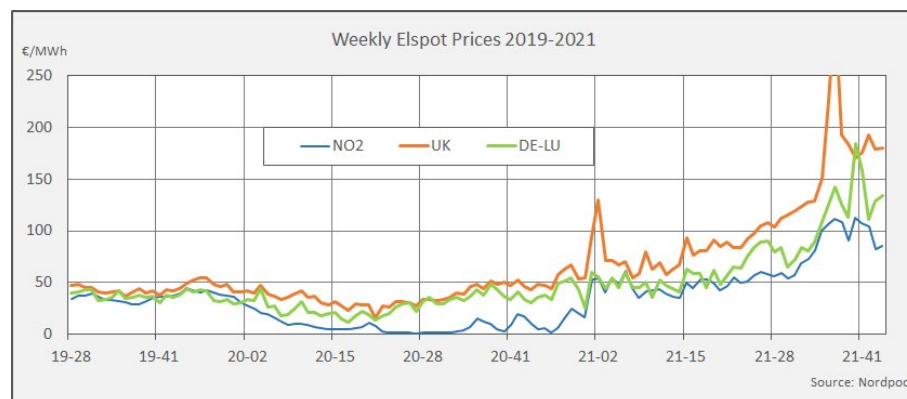


Fig. 5 - From energy surplus in 2020 to energy shortage in 2021

From fig. 4 we recognize the normal spot prices about 40 to 50 €/MWh in 2019 and the divided prices in 2020.

In 2021, the continental price (DE/LU) fluctuates between the NO2-price and the UK-price, but there is a price gap between the UK and Norway in both 2020 and 2021. There is apparently a need for export to the UK during both types of year.

¹ See http://pfbach.dk/firma_pfb/references/pfb_markets_challenged_by_wind_and_hydro_variations_2021_08_15.pdf

Fig. 5 will be updated until the spring flood in 2022.

Never trust an energy price forecast

A fuel price forecast is necessary in public energy planning in Denmark. Such forecasts are published every year by the Danish Energy Agency (DEA). It is very challenging to make a credible long-term price forecast based on the recorded data in fig. 1.

Fig. 6 shows the guiding Danish fuel price forecasts since 2011 compared with observed annual average prices from the U.S. Energy Information Administration (EIA).

The future fuel prices are supposed to be steadily increasing over time. An increasing energy cost improves the profitability of new energy projects. The result is that most forecasts have been higher than actual prices, where comparisons have been possible.

The Danish Train Fund is a special case. A new oil tax was supposed to finance a necessary improvement of the Danish railway systems. A targeted selection of previous prices made a further increase to 150 DKK/GJ credible. However, the crude oil price took a different direction, and the Train Fund is probably empty.

The future crude oil price will probably not be steadily growing as in the forecasts, but an oscillation between 20 and 120 \$/barrel. Therefore, the best advice for investors in energy projects is to prefer projects that are robust to price variations in that range.

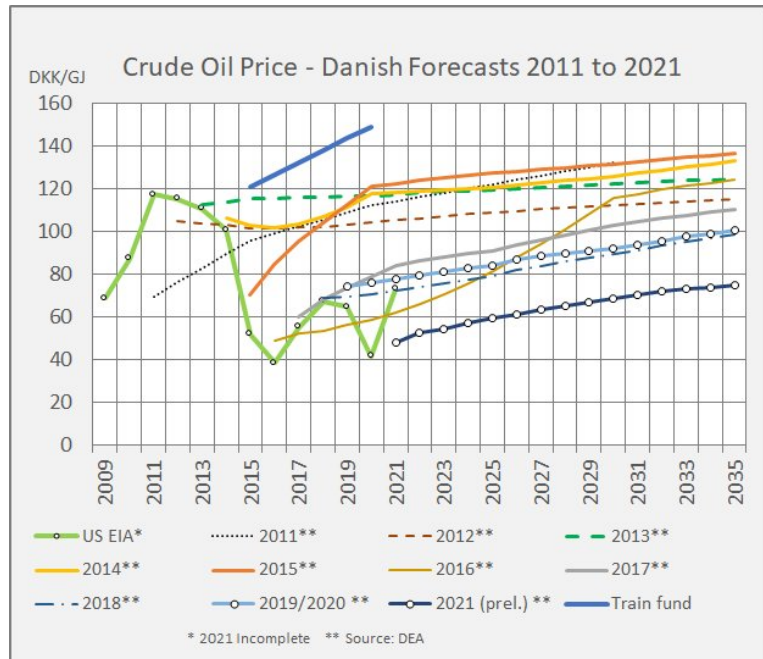


Fig. 6 - A wide range of forecasts for Danish energy planners