danske commodities

Seasonal and sub-seasonal forecasting for power trading

Case -story: Hydrological situation in the Alps
Insight: This is what is important for me

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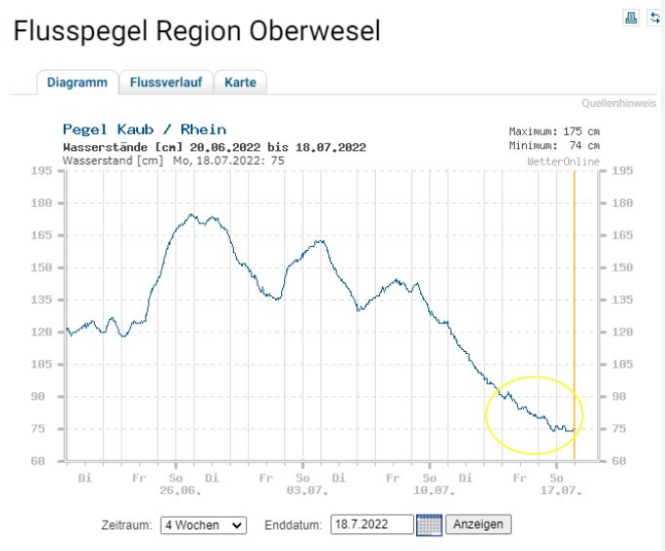
Some context

- Critical river levels in Central Europe during Summer 2022

During July 2022 the transportation of coal along the Rhine was stopped due to low river levels.

During August 2022 restrictions of the use of cooling water from the Rhone river reduced the power output from French nuclear power plants.



Source: wetteronline.de

EDF-2022-00278

Current version of the message - v1

Status : Active
Publication date : 02/08/2022 17:17:38
Start date : 02/08/2022 17:17:28
Company : EDF

Due to the high temperatures forecasts on Rhône river, production restrictions are likely to affect Saint Alban nuclear production from August 6, 2022. However for grid constraints the production will be at least 700 MW and it may change according to the grid needs.

EDF-2022-00286

Current version of the message - v1

Status : Active
Publication date : 07/08/2022 12:14:26
Start date : 07/08/2022 12:14:07
Company : EDF

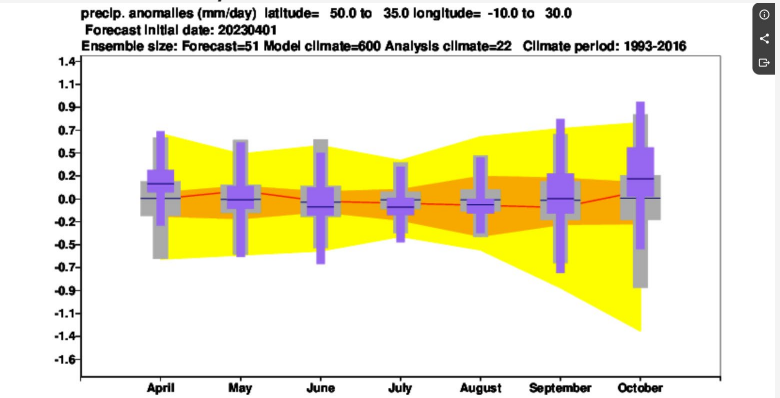
Cancel and replace message EDF-2022-00283
The "collège de l'ASN" approved the request for temporary modification of the thermal discharge limits of the Bugey, Saint Alban, Tricastin, Blayais and Golfech power plants, submitted by EDF at the request of the DGEC. The request has been approved by the competent minister. This derogation reduces the risk of production availability limitations in the coming days.

Source: edf.fr/.../messages -list

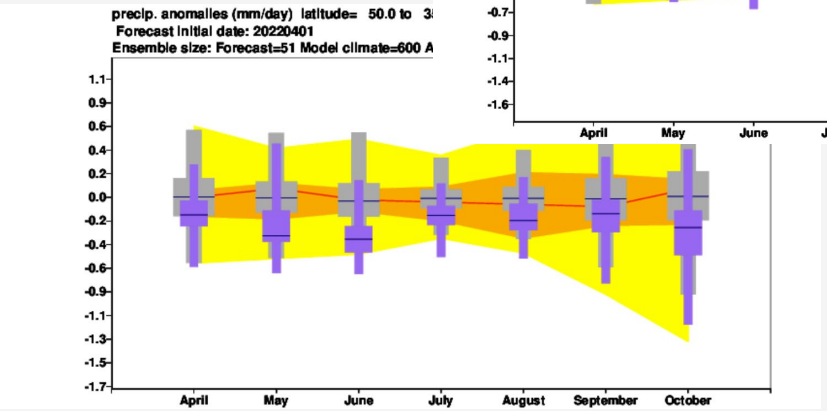
EC Seasonal, April 2023, Hydro forecast
Summer 2023 looking slightly dry

- Some dryness shown by the seasonal models – including the EC Seasonal from April 2023, however not as extreme as in 2022.
- The starting point (April 2022) still showing a clear lack of Water (snow)

EC Seasonal April 2023:

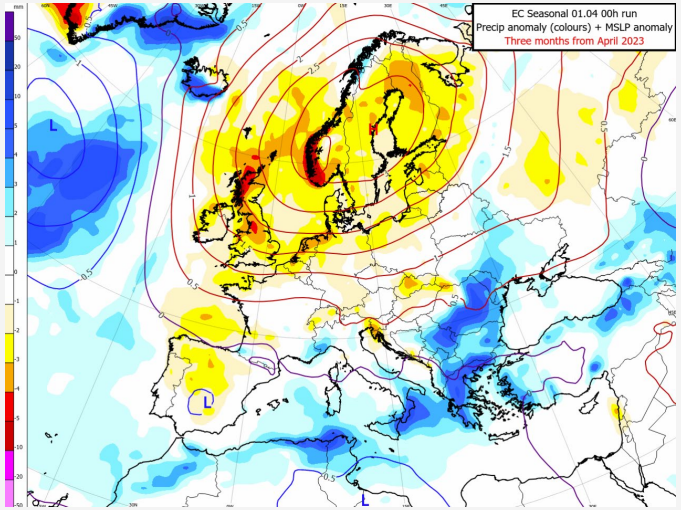


EC Seasonal April 2022:

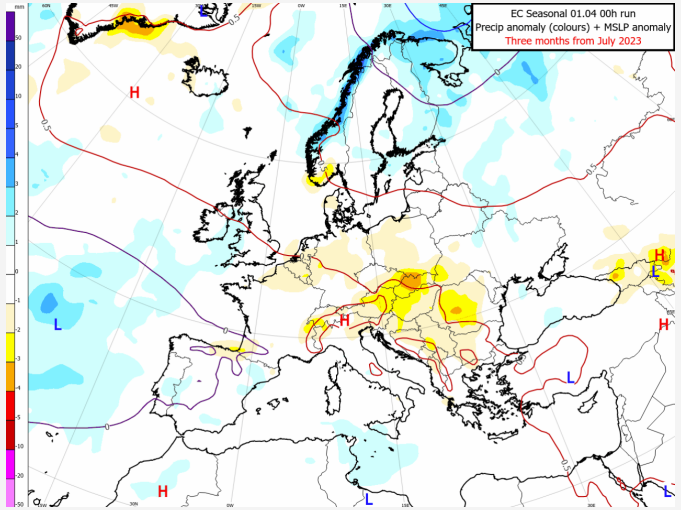


Source: ecmwf.int

EC Seasonal April 2023, q2 -2023:



EC Seasonal April 2023, q3 -2023:

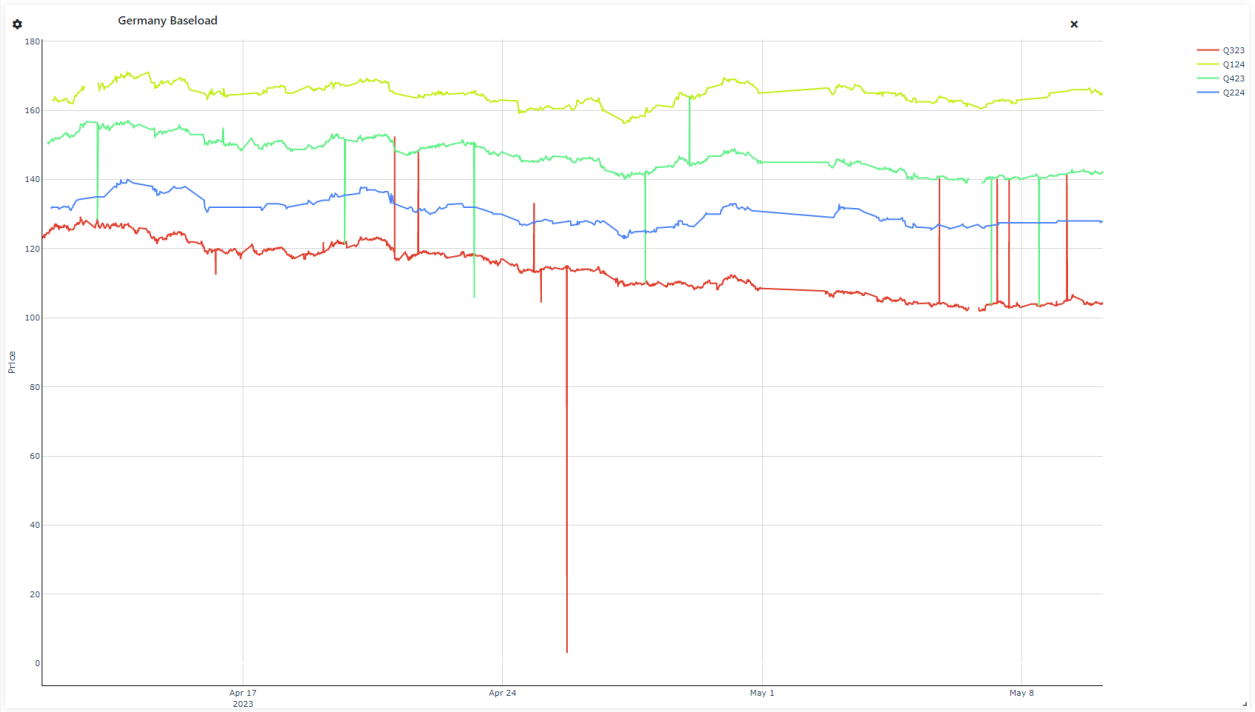


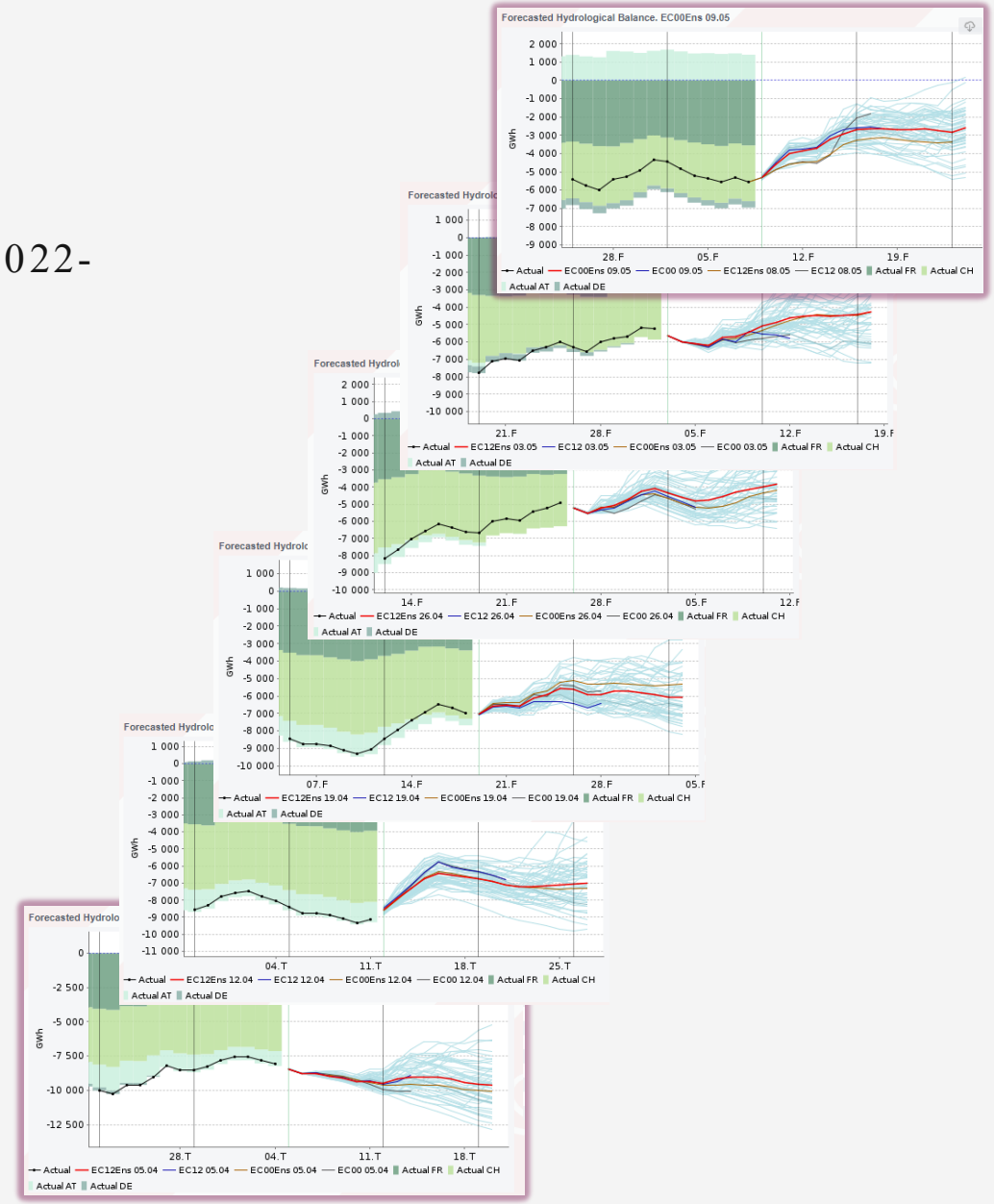
Source: MetDesk

Development during April 2023 of the hydro situation versus price development

As each and every low pressure system over the Alps exceeded expectations on precipitation during April, the risk for a new “2022-situation” has decreased to now being very low.

Quarterly power prices Germany coming four quarters:



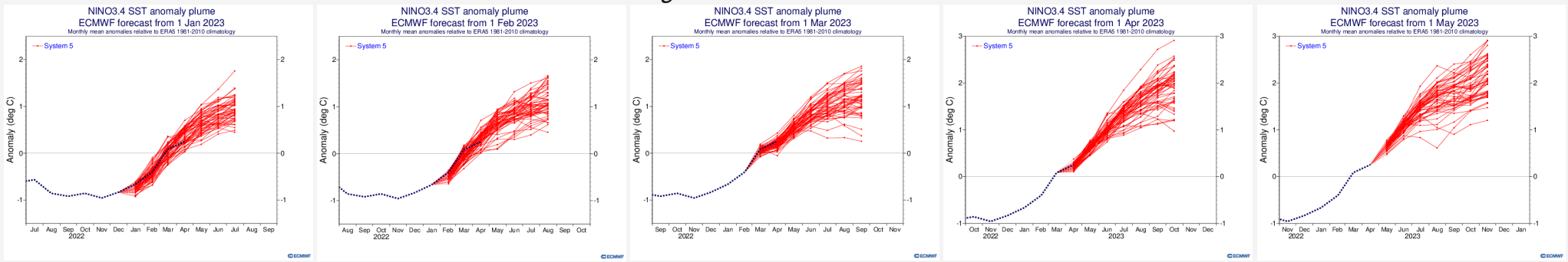


Source: Refinitiv

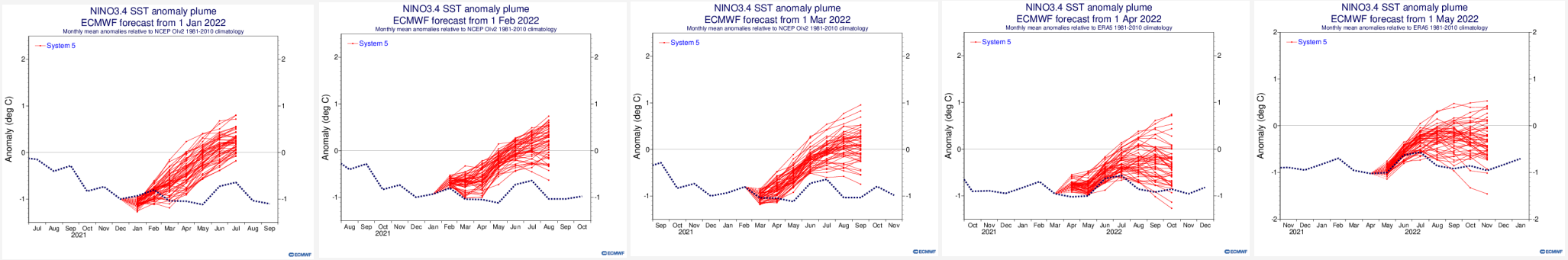
We focus on forecasting the trends of the forecasts

-Either as gradual trends or abrupt changes
, and the most value comes from the changes not expected by the market…

EC Seasonal ENSO forecast 2023. Gradual trend for a stronger El Niño:



EC Seasonal ENSO forecast 2022. Sudden change from weak El Niño to La Niña:



Source: ecmwf.int

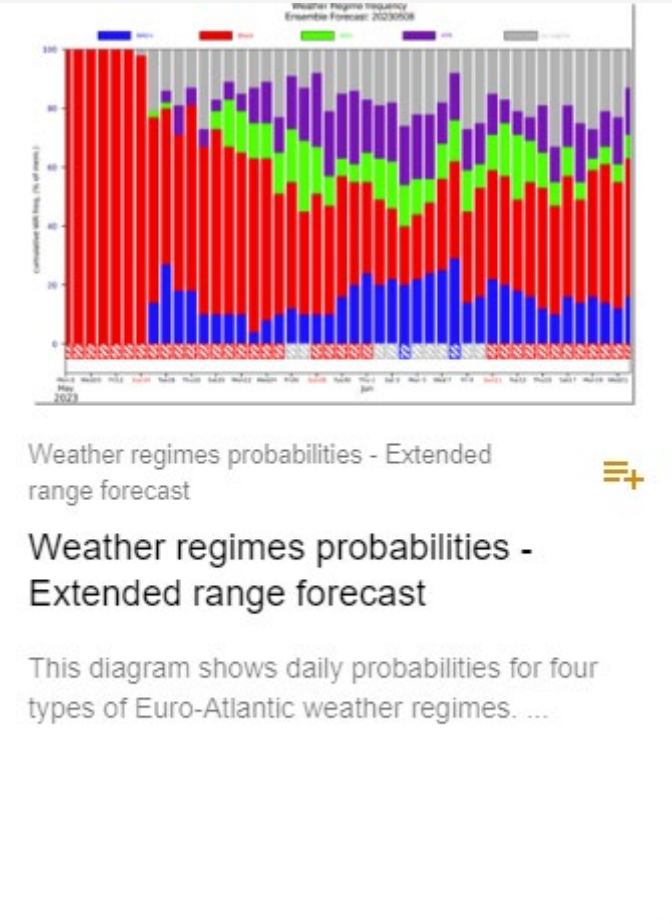
A wish list for future products

- A better understanding of what is changing behind the scenes of the forecasts for them to change the outlook.

- What has changed in the latest model update:
  - Change in Regime distribution
  - Change of the impact from change in ENSO
  - Change of the impact from change in MJO
  - ..and all the other known influencing factors.

- Known errors in the modelling of the above.

An example of a great tool:



Source: ecmwf.int

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