

Precipitation levels in Romania + Serbia were 90% above normal, while in Greece they were 150% higher. Did that lead to record-high hydropower production as well?

Precipitation across Southeastern Europe (SEE) in weeks 1-7 were the highest on record, pushing hydropower production to record highs as well, at nearly twice the 2019 and 2020 levels. The exceptional high hydropower production over the first seven weeks of the year has likely lowered the Romanian spot price, a key reference for the region, by 5-8 €/MWh compared to a seasonal normal. That also meant the price spread between the SEE region and Austria + Italy was reversed, with lower prices in the SEE region.

### **Hydrology developments in 2021**

The best way to illustrate how exceptional precipitation has been so far this year is to compare this period with climate scenarios for the period 1980 - 2019: It shows that precipitation levels so far this year have been above the 40 yrs historical max for several weeks!

We see that the 2021 level to date is 4.7 TWh, or 42% higher than the previous max-level for the past 40 years, and 9.3 TWh, or 142% higher than the long-term normal. But precipitation has not been equally distributed across the region. We have checked the weekly production statistics since 2015 (see the chart below) and see that the 2021-curve does come out at the max-level, which is not surprising given the exceptional precipitation levels. Notice, however, that a large part of precipitation is stored in snow/groundwater, which limits the inflow and production condition during the wintertime.

Still, the production level at the end of week 7 was about 170%, or about 4,000 MW, above normal. For weeks 1-7, the average production was about 155% of normal, compared to 80% of normal for the same period last year. The high precipitation levels were not evenly distributed across the region, however. Notice that production was at its lowest in Serbia and Romania, downstream from Germany and Austria on the Danube.

### **Price sensitivity**

With normal hydropower conditions, we would usually see higher spot prices in the SEE region than in IT and AT, but that's been reversed over the first 7 weeks of this year: In 2021, hydropower production in SEE was about 160% of normal, compared to 85% of normal in 2019 and 2020 on average. Based on this, we estimate that high hydropower production lowered SEE prices so far this year by about 5-8 €/MWh, compared to normal. There are of course other factors than precipitation that impact prices in the region, but we do think this variation band of 5-8 €/MWh is a reasonable estimation.

Source: [energyquantified.com](http://energyquantified.com)