

APX, Belpex, EPEX SPOT – Joint Statement on negative prices in Belgium and France on 16 June 2013

As a result of negative prices on the Belgian and French electricity markets on 16 June 2013, a joint analysis of the circumstances leading to these prices was conducted. As part of the analysis, EPEX SPOT and Belpex have reviewed production, electric demand conditions and cross-border flows within CWE and explicit capacity allocation between France and Switzerland as well as the specific conditions of price formation for the Day-Ahead market prices of 15/06/13 (delivery date 16/06/13).

The negative prices stem from fundamentals marked by (1) low industrial consumption on Sunday, (2) low residential consumption on mild weather, and (3) abundant inflexible generation. The Day-Ahead market sent strong price indications signaling difficult balance conditions between (over) supply and (low) demand. Prices also wobbled on the French Intraday market as the process of adjusting planned supply to demand forecasts was undergoing, in Belgium negative prices were also observed on the intraday markets.

As electricity is not easily stored, transmission system operators must match supply and demand continuously to maintain grid reliability. In competitive wholesale markets, electricity prices are driven by the price at which supply is offered to the market, and how much electricity demand there is, helping to maintain the required balance and manage supply and demand. When demand increases, prices rise, signaling generators to produce more power. With low demand, prices fall signaling generators to reduce output to avoid overloading the grid. Typically, wholesale prices fall when demand is low and rise when demand is high.

In some circumstances, one may rely on negative prices to deal with a sudden oversupply of energy and to send appropriate market signals to reduce production. On Sunday 16 June 2013 French and Belgian negative Baseload prices were driven by such underlying physical and operational constraints and more precisely by a sudden loss of demand and abundant non-flexible generation availability. Even if demand was low and the production was not needed, non-flexible operators were forced to continue producing, and had to pay the buyers to take their unneeded and uneconomic power. Such inflexibility-driven negative prices are fundamentally compatible with, and in no way undermine, economic efficiency and the principals of competitive electricity wholesale markets.

Low electric demand prediction for Sunday 16 June 2013 (38.3 GW in France, 2nd lowest demand in 2013, and 6.9 GW in Belgium) combined with generators operating constraints (44 GW French nuclear availability, availability, and 5.4 GW Belgian nuclear availability and 7.3 GW non flexible (nuclear, solar, wind) Belgian total production forecast), resulted in negative EPEX France and Belpex Baseload prices.

It is also to note that explicit capacity allocation on the Swiss/French border (offered capacity for export from France to Switzerland has not been used completely), planned maintenance on IFA cable and lower available capacity on the French/Italian border did not help to reduce pressure on French negative prices.

French hydro producers have adapted as much as possible their output to the market situation

While hydro and run of river day-ahead production availabilities were at normal seasonlevels (respectively at 10.5 GW and 9.1 GW), hydro producers have adapted their output to the market situation as much as possible taking into account technical constraints. Hydro output on negative-priced hours for delivery Sunday 16 June 2013 was below Sunday 09 June 2013, Saturday 15 June 2013 and spring season (from 20 March 2013 through 16 June 2013) outputs on the same hours (red curve).

Finally, the analysis of EPEX SPOT France and Belpex order books showed that the aggregated curves associated to the hours with negative prices demonstrate steepness on the purchase side. This indicates that there were limited purchase volumes available in the market and that market resiliency was deteriorated on that day in the negative prices area.

Conclusion

Based on the evidence presented in this paper, it is apparent that the abundance of non-flexible production combined with low electricity demand have caused high prevalence of negative prices on Sunday 16 June 2013.