

Are buyers overbidding for French VPP?

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Overview

During the liberalization of the European energy sector, the historic operators were not forced to divest generation capacity as had been done in other countries, because it was believed that economies of scale and entry barriers were sufficiently small in the enlarged market. Instead specific remedies were introduced to encourage competition in different regions. Virtual power plants, VPP for short, were one such measure that was brought in following EDF's purchase of 34.5% of the German utility, EnBW. Given EnBW's strategic location in south-west Germany, the European Union judged the purchase to be anti-competitive. EDF agreed to provide access to 6000 MW of generation capacity located in France to competitors: 5000MW in the form of virtual power plants and 1000MW in the form of back-to-back agreements to existing cogeneration power purchase agreements. Starting in 2001, more than 25 auctions have been held to date to sell the VPP under EU supervision. The initial agreement which ran for 5 years was extended, with minor amendments, for a further 4 years.

In 2007, VPP were introduced in Spain. Although its market had been opened up to competition in 1998, most independent retailers gave up because regulated tariffs continued to apply to almost all consumers. Only retailers with generation capacity could survive. So the Spanish government established a new tariff policy and introduced VPP auctions like those in France.

In December 2007 independent retailers in France, led by Direct Energie and supported by industry groups, obtained a judgment from the French antitrust authority, against EDF for tariff practices that constituted an abuse of its dominant position in the sectors of electricity generation and

wholesale selling. As a result of the judgment, EDF agreed to provide competitors with baseload electricity from its nuclear power stations at non-discriminatory prices so as to allow independent retailers to supply clients. Fixed prices apply for the first five years – 2008 through to 2012. During a second period up to 2020, the prices are indexed on the costs of EDF's new nuclear power station, Flamanville 3. A tender process similar to the VPP auctions will be used to allocate this power.

These developments highlight the increasing importance of VPP in electricity markets in Europe. Since the inception of VPP in 2001, electricity prices have increased sharply in line with energy prices in general. Utilities are making record profits. But what has happened to those who purchased power through the French VPP? Are they making a profit too? As the quantities of power provided by EDF are limited, these quantities are auctioned. As with all auctions, there is a real risk of overbidding.

Method

EDF provides access to 5000 MW of generation capacity in the form of drawing rights on virtual power plants while retaining the operational control of the plants. Two types of virtual power plants exist: baseload and peakload. The price for energy from baseload VPP is set to reflect the marginal cost of running a nuclear plant (initially it was 8 euros per MWh, and now it is 9 euros); similarly the price per MWh for peakload VPP reflects the marginal cost of peakload plants in France. Initially it was set to 26 euros but has risen in line with fuel price increases.

Auctions are held every 3 months; interested parties can bid for VPP for periods of 3, 6, 12, 24 or 36 months. Recently 48 month VPP contracts were also introduced. These contracts are options; that is, the owner has the right to purchase electricity at the strike price (e.g. 8 or 9 euros for baseload) up to the capacity that they have paid for, but they are not obliged to do so. If they wish to exercise the contract they must notify the EDF of the required load curve by 12 noon on the previous day. As the results of the day-ahead fixing are known at 11.15 a.m., VPP owners have 45 minutes to decide whether to take the power from the VPP or not.

On its website, EDF gives the results of each auction, namely, the premium in thousands of euros per MW per month, and the capacity for the different contract lengths for both baseload and peakload. By comparing the premiums paid by buyers to acquire the VPP capacity with the difference between the prices on the French day-ahead market, Pownext, and the strike price, we can judge whether buyers have made a profit or whether they have been overbidding.

Results & Conclusions

The first step in our analysis consisted of studying the premiums paid to obtain the different VPP:

1. Premiums have increased rapidly over the 5 year period.
2. Premiums for baseload contracts are systemically higher than those for peak-load.
3. Peakload premiums show more seasonality than those for baseload VPP.
4. Premiums paid at the June and September auctions for delivery in the fourth quarter can be quite different.

We then computed the profit made by owners of VPP. As relatively few of the VPP with long durations (24 months & 36 months) have ended, there are not enough of these contracts to draw statistically significant conclusions. So our analysis focussed on shorter duration VPP. We showed that profits have oscillated, with owners of VPP actually making losses at some auctions.

References

1. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002D0164:EN:HTML>
2. Intermoney (2007) *Spanish wholesale electricity market: Moving forward*, presented at Bidder's Conference held in Madrid on 25 April 2007, by Endesa & Iberdrola, <https://www.endesa-iberdrola-vpp.com/en/public>
3. Deloitte (2007) *A General Introduction*, presentation at a Bidder's Conference held in Madrid on 25 April 2007, by Endesa & Iberdrola, <https://www.endesa-iberdrola-vpp.com/en/public>

4. Information on Virtual Power Plants is available EDF's website:

<http://www.edf.fr/253m/txt/Accueil-fr/Encheres-de-capacite/Presentation.html>