

**Summary of replies to the public consultation on the
Virtual Power Plants (VPP) system implemented by EDF**

From 15th December 2005 to 13th January 2006, CRE organised a public consultation on the Virtual Power Plants (VPP) system implemented by EDF. The questions asked to the contributors concerned:

- their assessment of the effect of VPPs on the French market during the period 2001-2005;
- their suggestions concerning the continuation or stopping of the current system, or concerning the setting up of a new system of energy or generation capacity release by EDF.

Twenty-three players in the French electricity market answered this consultation:

<u>Producers</u> having generation capacities in France	Electrabel (<i>interviewed</i>) SNET (<i>interviewed</i>)
<u>Traders</u> without a supply activity in France, traders' representatives and marketplace operators	AEM Trading Barclays Capital Centrica EFET France (<i>interviewed</i>) Enipower Iberdrola Morgan Stanley (<i>interviewed</i>) Powernext (<i>interviewed</i>)
<u>Suppliers</u> of eligible customers in France	BP Gas and Power Direct Energie (<i>interviewed</i>) EGL (<i>interviewed</i>) ENEL (<i>interviewed</i>) HEW Poweo (<i>interviewed</i>) Total Gas & Power Limited (<i>interviewed</i>) Verbund
<u>Consumers</u>, consumers' representatives or intermediaries	Air Liquide Omya U-tech UNIDEN (<i>interviewed</i>)
<u>EDF</u>	EDF (<i>interviewed</i>)

The replies made by the various contributors to each question are very diversified. This document therefore presents the summary of replies received, question by question.

This summary maintains the confidentiality of opinions expressed by the contributors.

Subject 1: Assessment of the effect of VPPs on the French market

Question 1: *Has the setting up of VPPs contributed to the development of competition in the French market? Please indicate the main reasons for this success or failure.*

The majority of contributors consider that the VPP system was a major factor in developing competition in the wholesale and retail markets in France:

- by increasing the volumes available on the forward markets, VPPs allowed new supply market entrants to secure reliable supplies and thus enter the French retail market;
- by making the wholesale market more fluid, VPPs allowed robust price signals to emerge.

However, three contributors consider that VPPs made little contribution to the development of competition in the retail market which remains limited by other factors. These players point out that:

- while VPPs certainly increased the liquidity of the wholesale market, they did not change the overall physical balance of the French market;
- the very small proportion of consumers among VPP buyers may indicate that VPP products were not adapted to their needs.

Five players (the consumers and one supplier) consider that VPPs made no contribution to the opening of the supply market. According to them:

- VPPs, whose prices are aligned to market prices, are not an attractive alternative to purchasing power on the wholesale market;
- the products and contractual framework are not suited to the needs of eligible consumers.

Question 2: *Has the existence of VPPs enabled wholesale market players to find power which would not have been available on the markets without VPPs?*

The majority of players consider that the volumes of power sold by auction could not have been released on the market by EDF if VPPs had not existed.

Three players are convinced that EDF now sells few forward products and conducts most of its arbitraging on spot markets.

However, one producer considers that EDF does not have the possibility of selling more products than it currently does (and especially Peak-load products since its balancing perimeter is reduced during high-demand periods).

Question 3: *Were VPP products more or less attractive than similar products on the market?*

The majority of contributors (all the traders and suppliers and one producer) consider VPP products to be more attractive than products generally available on the OTC market and exchanges. According to these players:

- the fact that the VPPs are options is very attractive, especially for Peak-load products, since there are few optional products available on the wholesale market. However, six contributors point out that VPPs lose some of their optional nature due to the high level of wholesale prices;
- VPPs are complementary to standard market products. One trader finds the atypical delivery dates particularly useful, whereas one supplier considers that, on the contrary, they have little appeal;
- long maturity products (more than one year) have, for a long time, had no equivalent on the market and still remain uncommon outside VPP auctions.

On the other hand, the consumers, one producer and EDF consider that VPP products are not more attractive than other products sold on the market, pointing out that:

- as sales are occasional rather than continuous, it is impossible for a supplier to use VPPs to immediately cover the situation arising with the supply of new customers;

- the products are not adapted to the needs of eligible consumers;
- the procedures and contractual framework are complex.

According to EDF, VPPs were highly attractive when they were set up because they were options; however, the markets and exchanges now offer "*other flexible means of supply*".

Question 4: *Has the existence of VPPs had an impact on wholesale prices (spot and forward)?*

The contributors commented on two points: the impact of VPPs on the global level of market prices and price movements observed during the days preceding and following auctions.

Effect of VPPs on the global level of wholesale prices

According to seven players (four traders, two suppliers and one producer), VPPs have a moderating influence on prices. Three players explain this by the increase in volumes offered on the market, the four others by arbitrage arrangements between the use of VPPs and the purchase of power on wholesale markets. In particular, EDF and one trader mention that "*arbitrage arrangements*" by owners of VPPs generate thresholds on spot market prices which correspond to the different values of VPP energy prices.

On the other hand, three contributors consider that since VPPs have no influence on the physical parameters of the market, they have no effect on wholesale market prices.

The consumers and one supplier consider that VPPs tend to raise market prices. On one hand they consider that VPPs have resulted in EDF becoming a buyer on the wholesale market and therefore contributing to price increases, on the other hand that it is to the advantage of all participants in VPP auctions to see market prices increase regularly.

Price movements on days preceding and following auctions

Eight players refer to price movements during the days immediately preceding and following auctions. Among them one supplier observes that prices tend to decrease and three contributors note a price increase.

Five of these contributors, including EDF, consider that these movements are normal given the momentary injection of liquidity into the markets. According to EDF, as the auctions approach, players owning forward products tend to sell them to buy VPPs, more attractive because they are options.

The players noting a wholesale price increase, question the soundness of EDF's interventions on the market prior to auctions. One trader suggests that for 10 days prior to the auction, EDF should not be able to deal actively on the market.

Question 5: *Has the existence of VPPs had an impact on decisions to invest in generation means in France?*

The majority of contributors consider that VPPs have not had an impact on investment in generation means because of the short maturity periods of the products and the uncertainty concerning the sustainability of the mechanism.

However, four players consider that VPPs may have had a negative effect on investment:

- one producer and one consumer consider that any action likely to increase market regulation discourages investment by increasing uncertainty for the future;
- EDF points out that while in the past forward prices made it impossible to justify investment in generation means, this is no longer the case and consequently the negative effect of VPPs on investment may now be felt.

For four contributors, VPPs create a climate favourable to investment:

- according to two traders, the liquidity and transparency generated by VPPs could have made the price signal used by potential investors better known and of better quality;
- VPPs have allowed the positioning of alternative suppliers on the French market; they have therefore increased the number of potential investors;
- EDF points out that the mechanics of VPPs, which impose an obligation to produce power, give the operator an additional incentive to invest.

Question 6: *What is your assessment of the VPP governance system?*

EDF states that it is unaware of any complaint or dispute concerning the operation of VPPs.

Among the contributors commenting on this subject, eight find the system suitable while six express some dissatisfaction. Three contributors would like to see the governance system include all market players (traders, suppliers, consumers, regulator) so that they can participate in the drawing up and modification of the system and be better prepared for their implementation. Currently no market player is involved in the governance mechanism.

Question 7: *Do you consider that "other supply sources" effectively exist today? What are they? Are there a sufficient number to guarantee market liquidity? What annual volume of power do they approximately represent?*

With the exception of EDF and one producer, the contributors consider that the other sources of supply (interconnections, Powernext, OTC and alternative producers' generation) are insufficient, especially for long-term products:

- the liquidity of Powernext and OTC markets for forward products is insufficient;
- interconnections do not offer the opportunity of securing reliable supplies (import capacities) over a period of more than a year;
- the alternative generation actually available, excluding producers' long term commitments, is very limited.

The players have not quantified the power offered by these alternative sources.

However, according to EDF "sources of supply (...) have been able to develop and diversify" on the French market. The operator is referring to the following elements:

- interconnections, with an increasing import volume;
- new generation capacities of alternative producers, either operational or planned;
- the power supplied under long-term contracts with historical counterparts, which since the order of the Court of Justice of the European Communities of 7th June 2005, is now partially supplied to the French market;
- Powernext, which now allows any player to purchase an hourly load curve.

Question 8: *In general terms, what, in your opinion, would be the consequences of stopping VPPs on the French market? Would the impact depend on whether they were stopped suddenly or gradually?*

The majority of contributors (the seven traders, seven suppliers and one producer) reply that stopping VPPs would have a very negative effect on the French wholesale and retail markets, regardless of whether it was sudden or gradual.

However, one supplier stresses that the consequences of stopping VPPs would be reduced if EDF put at least equivalent forward volumes on sale through OTC or organised markets.

Three players (excluding EDF) consider that stopping VPPs would not be negative or would not have major consequences:

- according to one producer, since VPPs merely represent a new selling mode and not a physical supply source, stopping them would have no consequence on the French market;
- one supplier considers that the current system encourages the players to raise wholesale prices and considers that stopping it would be positive;
- according to one consumer, VPPs "*mask the monopolistic situation of French electricity generation*". Stopping them would allow "*real pressure to be exerted on EDF*".

For EDF, stopping VPPs would only have "*a minor impact*", since the market is "*sufficiently robust to meet the players needs under good conditions*" and would allow them to buy the same volumes of electricity via other market instruments.

EDF points out that VPPs would necessarily be gradually stopped since the capacities bought at the last auctions would continue to be delivered over the planned duration (up to 36 months).

Subject 2: Recommended developments if VPPs continue

If the VPP system or similar system is perpetuated, it might be desirable to modify the operating rules. The following questions aim at collecting the market players' recommendations with reference to the current system.

Question 9: *Is the current division of roles between those involved in organising the auctions satisfactory?*

All the players are globally satisfied with the mechanism; in particular they appreciate the availability and competency of EDF teams and the fact that they have a single contact.

However, one trader expresses certain reservations, finding it regrettable that buyers do not remain anonymous after the auctions. It is true that while anonymity is guaranteed during the auction (a fact much appreciated by the players), EDF is nevertheless aware of the identity of VPP buyers after the auctions.

This contributor favours the implementation of a system allowing EDF to cover its counterparty risk without knowing the identity of buyers (such as a "clearing house").

In addition, two traders insist on the determining role of the Trustee, an independent agent appointed by the European Commission and in charge of monitoring the auctions.

Question 10: *Is the contractual framework of the VPPs satisfactory? Would it be desirable for buyers to be able to resell their acquired rights more easily? What changes to the current system would make these transactions easier?*

The majority of players (all the traders and suppliers and one producer) say that they are generally satisfied with the contractual framework of VPPs. The main recommendation formulated is to simplify the contractual framework and bring it into line with standard market practices.

In addition, one contributor asks for cancellation of the withdrawal charge, which has no place in a market mechanism and represents an uncertain element for the buyer.

One player proposes that in the event of default by EDF, the EDF distribution grid operator should be jointly liable for the commitments of the seller EDF.

While five contributors pronounce themselves in favour of the possibility of reselling acquired rights, two of them nevertheless express reservations about the complexity of implementing this resale. Four contributors see no advantage in reselling rights or consider that it is already possible (as confirmed by EDF).

The consumers and one producer consider that the system is complex, constraining, lacks transparency and generates a high transaction cost.

Question 11: *Could the rules for determining the price of products be improved?*

Two consumers and one producer very much regret that prices are not based on generation costs but aligned to market prices through the auction mechanism.

Five contributors express their satisfaction with the operation of the mechanism. Two of them attach a great deal of importance to the guarantee of anonymity during the auction and stress that the price fixing mechanism is transparent and non-discriminatory.

Four players call into question the neutrality of the "indifference curve" used by EDF to establish a link between the prices of the various products. This curve is claimed to increase the attractiveness of short-term products and reduce that of long-term products which would be sold at prices above the market price. More generally, these contributors are not in favour of the "indifference curve" system as they consider that tensions affecting the short-term market should not be allowed to influence the long-term product price. The generally recommended solution is to separate the sale of the different products or at least of short- and long-term products.

One trader proposes doing away with the principle of auctioning a basket of products with the possibility of total retraction, as this allows a player to adopt strategic behaviour aimed at reducing EDF's real sales compared with the volumes proposed at the start of the auctions. On this subject, another contributor proposes the organisation of a second auction the day after the first in order to sell products not sold, in the form of monthly VPPs.

One supplier considers that the mechanism of auction in several rounds is inappropriate as it raises the risk of price manipulation; this player recommends single-round auctions. For the same reasons, one contributor considers that the duration of auction rounds could be significantly reduced.

Finally one supplier proposes announcing the auction parameters (price increments, etc.) the day before the auctions.

Question 12: Do the products sold correspond to buyers' needs? How could they be optimised? (volumes on sale, characteristics and duration of products, division of volumes offered between the various products, frequency of auctions, etc.)

The contributors make proposals concerning the volumes, characteristics and energy prices of the products as well as the auction methods.

Volumes put on sale

The majority of contributors (six suppliers, five traders and one producer) would like to see an increase in volumes put on sale (+25% to +100%), especially for Peak-load products. Three suppliers point out that the volume of 6,000 MW corresponded to the open market volume for 2001, but is now no longer suitable since the volume of the eligible customers market has grown and RTE and the distributor EDF now buy their losses on the market.

These contributors therefore propose aligning the volume of VPPs to the open market. Two traders would like this volume to be adapted on a regular basis to accompany the opening of the market.

Product characteristics

The majority of players propose that products of longer maturity, ranging from 5, 10, 15 years or more, should be put on sale. However, these players are not in favour of the disappearance of short-term VPPs which they consider to be very useful. One player considers that the product duration should be increased gradually and that the maturity of these products should only be defined after consulting the consumers.

Seven contributors ask for standardisation of the products, and especially the sale of calendar-based and quarterly products from a wider range of dates for the start of exercise.

Two suppliers propose the sale of products corresponding to end-customer needs (one of them proposes the sale of profiled products).

One supplier considers that PPA VPPs are particularly advantageous for suppliers as they are adapted to the needs of eligible customers whose contracts end on 31st October. On the other hand, one player considers that PPA products are not very suitable. He proposes stopping them and dividing the corresponding volumes between the other products. EDF confirms that PPAs have aroused little interest.

Three players would like to see firm Peak-load products put on sale during VPP auctions.

Energy prices

Four traders, two suppliers and two producers would like an increase in energy prices to reinforce the optional aspect of VPPs. EDF considers this revaluation to be incompatible with the purpose of VPPs, which are not intended to be an optional product but a "virtual means of generation".

In addition, four players would like energy prices to be indexed to the price of a primary energy source, to inflation or to the variable generation costs of a real power plant.

Auction conditions

Five contributors suggest holding more frequent auctions (at least monthly).

In addition, two traders would like more long-term visibility of the volumes put on sale at future sales.

Question 13: Would it be desirable to improve the flexibility of VPP products? (possibility of intra-day nominations, participation to the balancing market, etc.)

The majority of players pronounce themselves in favour of more flexibility, especially for the possibility of intra-day nominations. According to one supplier, this flexibility, which would allow suppliers to cover uncertainties linked to the consumption of their sites, would be likely to encourage the appearance of new entrants on the supply market.

Four players, including EDF, are not in favour of improving the flexibility of products. EDF mentions the extra costs that would be induced by the possibility of intra-day nominations, mainly because the operator would need to create additional operating margins; indeed, intra-day nominations represent an additional uncertainty for the operator's balance perimeter.

Four traders and one supplier consider participation in the balancing market to be an interesting possibility. Five players, including EDF, stress the complex nature of such a system. One supplier would like the flexibility available on volumes not nominated by the participants, which is valued by EDF on the balancing market, to give rise a financial indemnity for VPP buyers who have not nominated all their energy.

One contributor was dissatisfied that a player who had nominated volumes before the deadline was not free to correct them even if the nomination deadline had not expired.

Finally, one player would like the distinction between the single declaration (concerning withdrawal for one day) and the long-term declaration (programmed over several days) to be stopped; these two types of declaration currently operate with different notice and nomination conditions.

One player would like the deadline for single declarations to be extended as it currently leaves players only a few minutes to nominate VPPs after the results of Powernext Day Ahead are announced.

Question 14: Do you think it would be appropriate to widen the offer by including products representing other types of generation means? Should VPPs be aligned with the operation of real power plants?

Ten players (four suppliers, three traders, two consumers and one producer) are in favour of implementing VPPs that model other generation means in order to give alternative players the means of competing with EDF over all its generation. Generally this involves tying an energy price to the generation cost for a particular technology. In particular, these players propose the setting up of VPPs representing:

- all thermal power plants, especially oil-burning and super-peak-load plants. Currently, the energy price of Peak-load products is not based on the variable generation costs of a particular type of plant;
- hydraulic generation (one trader specifying that moreover, this would allow improvement of the transparency of certain information such as the level of hydraulic reservoirs);
- pumped hydraulic power storage facilities.

One producer suggests creating VPPs based on renewable energy generation, which would sanction the awarding of "green" or "renewable obligation" certificates.

On the other hand, three contributors, including EDF, consider that widening the offer would not be useful. EDF in particular believes that there would be no advantage in offering such products as it considers that it has no competitive advantage in generation fields other than nuclear.

No contributors are in favour of aligning VPPs with the operation of real generation plants, especially since this would lead to an imbalance of information between buyers and EDF concerning the availability of underlying generation means.

Question 15: Would you recommend continuing the VPP system for an indefinite duration, or on the contrary making it subject to achieving a pre-defined criterion? What limited duration or criterion would you propose?

The majority of players would like EDF to continue to put VPPs on sale while generation continues to be highly concentrated in France.

Two criteria for assessing this concentration are mentioned:

- the threshold value of the Herfindhal concentration index;
- the threshold value of EDF's market share in generation. In particular, one contributor suggests continuing VPPs while EDF's market share in generation remains superior to its share in the supply market.

These criteria are often combined with a minimum duration, generally 5 years.

Subject 3: Other possible systems by which power or generation capacities are released by the dominant player in the market

Question 16: *Do you consider that the existence of a system for putting power or generation capacities on sale by the dominant player in the French market is necessary for guaranteeing efficient operation of the market?*

The majority of contributors consider that the concentration of the generation market in France makes it essential to implement this kind of measure.

However, six players point out that the most suitable solution for remedying the extreme concentration of generation is still the sale of physical assets by EDF.

Question 17: *If so, would you recommend a system identical to VPPs? A different system? If not, please explain your recommendation:*

- *proposed products (power or generation capacities, duration, volume, etc.);*
- *methods of assigning and fixing prices;*
- *methods of governance.*

Four of the six players who recommend sale of assets by EDF consider that, if this kind of dismantling is ruled out, implementation of VPPs is the best alternative solution.

The majority of the other players (seven of the eight traders and six of the seven suppliers) also consider VPPs to be the best system for releasing power, provided the recommended changes are introduced.

On the other hand, one producer proposes replacing VPPs with an obligation for a certain number of market-makers to offer equivalent volumes in the form of forward products on organised markets.

One supplier proposes two other systems:

- EDF should put large volumes of very long-term products (more than 10 years) on sale at prices covering total generation costs; the financial commitment and product duration would limit demand, avoiding the need to use an auction mechanism;
- EDF should deliver a fixed volume of power confined to suppliers and consumers, at a pre-defined price for the duration of 1 year, distributed prorata on the basis of the previous year's observed consumption. This system is currently in force in Italy for electricity produced from renewable energy sources.

Finally, some consumers consider that if the system is continued it would only be efficient if the following changes were made:

- most of the products sold must have a maturity of at least 5 years;
- a large part of the volumes sold must be reserved for consumers, and no group, including subsidiaries, must be able to acquire more than 5% of the capacities offered;
- auctions must be conducted on the "pay as bid" basis and the identity of buyers must be made public.

Subject 4: Other comments

In this section contributors are invited to indicate any other point of view that they consider to be relevant to this consultation.

One supplier and one trader insist on the major role of transparency of generation information for the development of competition in France.

One producer considers that the way to improving operation of the wholesale market lies in:

- encouraging investment in generation;
- assisting single market integration by "market coupling", increased interconnection capacities and greater intra-day flexibility of imports-exports.

Finally, one supplier would like to see construction permits for new generation plants restricted to alternative operators.