

# Direct marketing of Wind and PV in France

**VALOREM – Power Markets and Systems – Philippe ETUR**

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# PRESENTATION OUTLINE

1. Presentation of Valorem
2. The end of the FIT era : the new CR mechanism
3. Direct marketing of renewables in France : Market size and players
4. Prospective view

## VALOREM, a pioneer in Renewable Energies in France

One of the leading independent producers in France

- 22 years experience, 170 employees
- Multi market and multi energy approach
- Control over the whole value chain of Renewable Energies
- More than 1000 MW of projects developed, 550 MW built, 500 MW in operation, over 200 wind campaign measurements
- ISO 9001 and 14001 certified



## THE END OF THE FIT ERA : INTRODUCING THE NEW CR MECHANISM

- WIND :
  - Late 90's : Eole 2005 call for tenders
  - 2001 : 15y-FIT was introduced, and maintained at a level around 82 €/MWh until 2015
  - **2016 : The new « Complément de rémunération » mechanism was introduced, on a 15y-basis**
  - 2017 : Still awaiting new rules for :
    - ◇ New fixed 20y-CR for small projects
    - ◇ 20y-CR call for tenders for larger projects (> 6 wind turbines ?)

## THE END OF THE FIT ERA : INTRODUCING THE NEW CR MECHANISM

- Ground-mounted PV :
  - 2006 : 20y-FIT was introduced (very high tariff ...)
  - 2010 : Brutal stop in the subsidy system
  - 2011 : New 20y-FIT (120 €/MWh), decreasing every quarter
  - 2012-15 : Calls for tenders for 20y-FIT (AO CRE I, II, III)
  - **2016 : New calls for tenders for 20y-CR (AO CRE IV)**

## VARIATIONS OF THE CR STRUCTURE

### Classical Formulae :

$$CR = \sum_{i=1}^{12} E_i \cdot (\alpha T_e - M_{0i} + P_{gestion}) - (Nb_{capa} \cdot P_{ref\ capa})$$

$$CR = P \cdot (T_e - M_0) + MF - Nb\_capa \cdot P\_capa$$

- $T_e$  : Energy price (fixed by Arrêté, hence equivalent to a FIT)
- $M_0$  : Estimated monthly market value
- $P$  : Monthly power output
- $MF$  : Management Fee (covers agregation costs)
- $Nb\_capa \cdot P\_capa$  : Income derived from the new Capacity mechanism

### CR for Calls for tenders :

$$CR = P \cdot (T_e - M_0)$$

- Management Fees are not explicitly defined → each bidder has to assess its aggregation costs
- Capacity mechanism income will be added (but are very small for PV and slightly higher for Wind ... and hardly predictable)

## SPECIFIC RULES OF THE FRENCH « COMPLEMENT DE REMUNERATION » MECHANISM

- **Management Fees** have been set to 2.8 €/MWh for Wind
- **Market Value « M0 » calculated monthly** for each source of energy : weighted average of positive Spot prices by hourly wind power (resp. PV) all over France
  - ➔ There can be a significant deviation between M0 and the expected market income from a given Wind/PV Farm if its production is not correlated with the average French production
  - ➔ Importance of assessing this potential deviation
- **Case of Negative prices :**
  - First occurrences (15 hours/y for PV, 20 h/y for Wind) : no compensation
  - Additional hours :
    - $CR = 0.5 \cdot P_n \cdot T_e$  for PV
    - $CR = 0.23 \cdot P_n \cdot T_e$  for Wind (but limited to 2000 full load hours)

## MARKET SIZE

- Interest for the French market started in the hydro sector :
  - in 2009 it was announced large EDF hydro power plants would be open to competition (...)
  - In 2012 small hydro plants reached the end of H97 tariff

- 3 main areas are now attractive to agregators :
  1. Hydro power plants
  2. New CR wind and PV farms :
    - 1500 MW/y of wind farms
    - 1200 MW/y of PV plants
  3. Wind farms exiting the 15y-FIT period (2018 onwards)
  4. Wind farms exiting FIT mechanism before the end of 15 years

Évolution de la puissance installée et cumulée depuis 2000 en France

| Année | Puissance annuelle installée (MW) | Puissance cumulée (MW) | Énergie produite (GWh) |
|-------|-----------------------------------|------------------------|------------------------|
| 2000  | 40                                | 61                     | 70                     |
| 2001  | 31                                | 92                     | 131                    |
| 2002  | 52                                | 144                    | 245                    |
| 2003  | 100                               | 244                    | 363                    |
| 2004  | 146                               | 390                    | 577                    |
| 2005  | 367                               | 757                    | 963                    |
| 2006  | 810                               | 1567                   | 2169                   |
| 2007  | 928                               | 2496                   | 4140                   |
| 2008  | 1081                              | 3577                   | 5653                   |
| 2009  | 1136                              | 4713                   | 7800                   |
| 2010  | 1253                              | 5966                   | 9600                   |
| 2011  | 825                               | 6792                   | 11900                  |

source : SER

➔ The market is emerging but will increase rapidly : > +3000 MW/y



## MARKET PLAYERS

- There is a growing number of aggregators on the French market that mainly fall into 2 categories :
  - European utilities
  - Pure players
- Other types of companies are small energy providers or even large industrial electricity consumers
- French actors are less numerous than other European actors
- Most European actors are already very active on the German market and benefit from a 4-year experience with a portfolio of thousands of MW of wind/PV/hydro/biogas ...
- **Utilities**
  - Axpo (Switzerland)
  - Compagnie Nationale du Rhône
  - Engie
  - Statkraft (Norway)
  - Uniper (Germany)
  - Vattenfall (Sweden)
  - ...
- **Pure players**
  - Centrales Next (Germany)
  - Danske Commodities (Denmark)
  - E6 (Switzerland)
  - Hydronext (France)
  - ...
- **Other French players**
  - Enercoop (renewable energy provider)
  - Solvay (large electricity consumer)
  - Sun'R (renewable IPP)
  - ...

## PROSPECTIVE VIEW

- Discussions are gaining momentum between producers and aggregators as :
  - Bids were to be submitted last week for the AO CRE IV **PV** call for tender
  - The 2016 **Wind** CR mechanism was unveiled on Dec 14th, 2016
- Strong appetite of foreign agregators for the French market and therefore strong competition tending to lower the management fees :
  - ➔ Difficulty for small players to enter the market
  - ➔ Need of a large balancing perimeter to minimize balancing costs
- Discussions with banks show that the German experience of « Market Premium » mechanism will facilitate financing of the first CR Wind and PV farms
- Valorem point of view :
  - Acquire a thorough understanding of the power markets mechanisms, risks and opportunities
  - Contract with aggregators for the first CR wind and PV farms

Thank you for your attention !