INTERVIEW WITH ALEASOFT IN EL PERIÓDICO DE LA ENERGÍA

Interview with Antonio Delgado Rigal, PhD. in Artificial Intelligence and CEO of AleaSoft, in el Periódico de la Energía.

AleaSoft Energy Forecasting turns 20, how have the energy markets evolved, and electricity in particular, both in Spain and in Europe?

Our company was created in 1999, 20 years ago. We are closely linked to the emergence of the deregulated electricity market in 1998. The market brought competition among companies in the sector that began to need our forecasts for electricity consumption first, thermal production and electricity market prices and commodities, afterwards; and more recently, the production of renewable energy sources such as wind, solar photovoltaic and solar thermal. Then the gas market emerged, of which we also forecast demand and prices.

Integration in Europe meant that all European regulations on energy issues and markets are adopted in Spain. Our electricity market is closely linked with the European electricity markets. The interconnections with France make the price changes much lower than a few years ago and we can have lower prices as well.

For our company it has been an opportunity to forecast prices, demands and renewable energies for all European electricity markets in all forecasting horizons: short, medium and long term, in this last case for PPAs.

The European energy markets are quite stable in general and that is a positive feature. Investors flee markets where there are suspicions that there will be changes. A pending issue in the Spanish market is the lack of liquidity in forward markets, but it is a topic in which progress is being made as agents learn to manage risk in the medium and long term.

The trend and evolution of the European energy markets is to be increasingly integrated as interconnections capacities increase.

We are on the way to 2020, do you think that the electricity market needs to be changed, a major reform to carry out the energy transition? How can it be done?

As I was saying, our electricity market is integrated into the European electricity market, with similar rules, as part of a single market, only limited by the interconnections. In the hypothetical case that the interconnections between countries and regions were unlimited, we would have a single price in all Europe for each hour. A market idea that does not fully conform to the rules of the European electricity market makes no sense. The stability of a market is fundamental to guarantee long-term investments.

There are other alternative mechanisms to the spot market that should be used more and that have existed for a long time: forward markets, bilateral contracts and PPAs. The companies that generate electricity and the companies that consume electricity can agree on a price in any time horizon. The best way to buy and sell electricity is to adequately combine forward markets, bilateral contracts, PPAs and the spot market. To do this properly, each company must have a vision of the electricity market and that is what we provide in AleaSoft: consistent forecasts with a solid scientific basis to provide a vision of the electricity market in all time horizons.

Last year, one of the stars of 2018 was the price of CO_2 and its impact on prices. Will this role become increasingly important with time? What other players can we meet this year?

CO_2 will continue to introduce variability in the electricity system, although its price is unlikely to rise above 30 €/t in the short term, because market prices would rise too much and it would have serious consequences for the European economy. Brexit, whether hard or soft, has been one of the sources of uncertainty in the price of CO_2. Now that the horizon of the Brexit is delayed, the price of emissions is rising again, since the United Kingdom is a big consumer of CO_2 emission rights and a source of speculation. The other possible protagonist is the Brent, that experienced a rise of about 24 $/bbl in just over three months. It is currently close to 75 $/bbl, while at the end of December it was around

51 $/bbl. In the case of Brent, we are referring to future prices for the month of June 2019 of the ICE market.

Brent is currently influenced by instability in Venezuela and in general in the Middle East. A political crisis may trigger an escalation of prices. In the case of gas, situations in Algeria and Libya are complicated and can bring some unpleasant surprises.

Another possible protagonist of a price increase is the French nuclear energy production. France consumes 75% of electricity of nuclear origin. If the summer were hotter than normal it would increase the electricity demand and if you add that there may be problems with the cooling of the nuclear plants, with the corresponding reactors shutdowns, the price would go up. The cooling of electricity generating plants, both nuclear and gas- and coal-fired, using water from the sea or rivers has the limitation of not increasing the temperature of the aquatic environment too much, so as not to endanger the fauna. Faced with a heat wave, this limitation may force the shutdown of some plants with the consequent risk in the supply and the increase of prices in the market. At the end of 2016 and the beginning of 2017 there was a big problem due to nuclear shutdowns for revision in several power plants, causing high prices throughout Europe.

You work with Artificial Intelligence for forecasting. What is the secret of your success when working with a great part of the sector?

In AleaSoft we developed a new forecasting model and a new methodology based on the combination of different techniques: Machine Learning with Neural Networks, Box-Jenkins and non-linear multiple regression. At the moment we have about 400 models in operation to provide service in the main European markets.

If we were to summarize the keys to success as a reference forecasting company in Europe, the main elements would be: experience in the energy sector, 20 years already; scientific method with models and methodology contrasted in practice; consistent forecasts with good quality results; and as a reference, we have the main companies in the sector in Europe among our customers in these 20 years.

Another protagonist of last year were the PPAs. It seems that the long-term contracts in Spain have been held back. Why do you think that is?

In general, large consumers were very skewed and many preferred to buy in the spot market or with one- or two-year horizon contracts since it is a great responsibility to buy electricity for 5, 10 or 15 years. Long-term contracts have not been generally very frequent in Spain, unlike in France. With the rise in prices in the electricity market that began in 2018 due to the rise in CO_2, coal and gas, the large consumers who bet on the short term began to pay much more for electricity. This process brought awareness about the necessity to have medium and long-term price forecasts to minimize risk and to have an efficient energy purchasing strategy.

The PPAs began strongly last year as a need for developers of photovoltaic parks to seek financing, as banks and investment funds feel more comfortable if there are guarantees of long-term purchase of electricity to avoid the risk of very low market prices in the future.

In reality, a PPA is an opportunity for a large consumer to manage and minimize the risks of high prices in the future. Both parties are covered, the sellers as well as the buyers of electricity. The large consumer can opt for a long-term stable source of clean and renewable energy that is increasingly important for the corporate image.

Little by little, PPAs are making their way as a good option for all parties. In the next 10 years, 30 billion euros in renewable energy will be invested in Spain and the PPAs will have a special role.

Is it a price problem? Why are the long-term forecasts for a PPA important?

Signing a long-term contract is a great responsibility for the company that invests and builds a photovoltaic park, for the offtaker, or buying party, and for the entity that lends the money, be that a bank or an investment fund. All the parties involved in a process of this type need to have future price forecasts based on a scientific method, forecasts that are coherent and reliable because we are talking of billions of euros per year in each of the large countries of Europe.

The long-term price is the basis from which all the financial plans of the entities that intervene in a PPA or in an investment process to go to market are generated.

A new renewable boom is foreseen in Spain. Is the market ready for so many new MW of green energy?

The plans are optimistic, that's something very positive. As we have been raising in different forums and publications, Spain in the future must go from being a net importer of energy, both electricity, gas, coal and oil derivatives, to be a net exporter of renewable and clean energy: electricity and hydrogen.

In practice there are problems with the points of connection to the network, technical and bureaucratic problems that delay investments. On the other hand, the entities that lend the money need a counterpart, that is, the big consumer that signs a PPA, and many of the big consumers are still not aware that this PPA is convenient for them. The renewable boom will not be so optimistic but it will be significant.

The market is always prepared for changes if they are done in an orderly manner and without interventionism. A cheaper, renewable and clean energy such as photovoltaics will displace coal, gas and nuclear energy.

Market mechanisms only need to get producers and consumers to agree in a stable, transparent and long-term manner.

Will we see prices close to zero if these forecasts are met?

Prices close to zero already appeared some years ago. It may happen again, but we do not believe that their rate will increase significantly in the future.

Is there a future floor price with the entrance of renewables?

There are many floors that will make the price not fall below certain thresholds: batteries, the increase in demand in hours of lower prices, exports to the rest of Europe and the replacement of gas. In the near future we have to take into account hydrogen production. If the price of electricity falls to a point where it is profitable to produce hydrogen, the electricity market price will not fall below this threshold. Hydrogen will be produced to be used as a battery or to sell. In the future, part of the transport will be powered with hydrogen: cars, trucks, ships and airplanes, that is, a renewable and non-polluting fuel; not even causing noise pollution.

The generation tax has just returned, how do you think this measure will affect prices in the coming months?

It will undoubtedly cause prices to rise. In AleaSoft we had estimated a rise between 2% and 5% but it is difficult to quantify because the price of the electricity market is influenced by a dozen variables that make the calculation of the influence of the tax more complicated. In the first two weeks we have calculated a rise close to 5%. When more days have passed and more information is available, the calculation can be made more accurately. In the coming months we estimate that the influence of the tax increase will be reduced until it reaches 2%.

It is an unjust tax that punishes the Spanish electricity production with respect to the rest of the surrounding countries. From April 1, the electric flow reversed in the interconnection with Portugal. Before, we exported during more hours and after that date we became an electricity importer for a greater number of hours.

It also punishes consumers who have to assume a higher price of electricity.

Don't you think that with the proceeds from CO_2, the suspension could have been extended and thus benefit all consumers?

The definitive suspension must have occurred on October 1, as was done with the green tax to gas production.

This 7% tax on the generation was created at a time when the country needed an additional tax collection, due to the serious economic situation, which is no longer the case.

How do you see the price of fossil fuels affecting the market?

The price of coal and gas are among a dozen factors that affect the price of the electricity market. Being a marginal price market, the price is usually set by gas or coal adding the influence of CO_2. This will continue for many years in the future, since gas is necessary to backup renewable energies to produce electricity when we do not have wind and during the night or cloudy days.

We have seen that in the last months the gas combined cycles win the game to the coal. Will we see a lower and lower thermal production in Spain?

We will see a decreasing production with coal. The coal-fired plants will be progressively decommissioned until they disappear. After the coal plants, nuclear plants will close. However, as we said earlier, gas production will continue for many more years.

The government and the shareholder companies approved a nuclear shutdown calendar. How will this affect the electricity markets?

Nuclear energy gives stability to the system by providing a base generation virtually constant. That the closure of the power plants has been agreed and that this will be done in a phased and orderly manner is a beneficial situation for the electricity market. As long as the changes are made gradually and in a planned manner, it is positive for the market and for the system. The problem would be if someone were to consider shutting down all nuclear power plants at once, since the renewable capacity right now is too limited to operate massively without the backing of nuclear power.

What role will interconnections play in the future price of the electricity market? Will they push prices up?

Looking to the future, interconnections will be fundamental, as will electricity self-consumption. The interconnections give stability to the system and decrease the volatility of the market price.