

Portuguese wholesale price, PV and wind capture price projections (2021 – 2050)

**COVID-19 had a profound impact on the Portuguese electricity market in 2020. Electricity demand, along with gas, CO2 and baseload pool prices dropped sharply, but have since recovered.**

**How much further can captured prices fall?**

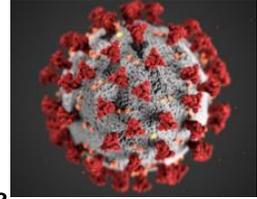
**What measures can be taken to protect against cannibalisation risk?**

**Will Portugal need to re-evaluate its NECP targets for PV and wind by 2030?**

**Will the government go ahead with the planned auction in 2020?**

**Will the market achieve the decarbonisation targets without additional support?**

**Will the drop in demand rekindle the Tariff Deficit and risk of regulatory intervention?**



**In this report, EKON provides a one-stop shop for investors looking to understand the risks and opportunities of investing, operating or developing wind and PV assets in Portugal.**

The report contains our independent price forecasts (wholesale price & wind / PV captured price forecasts under 3 scenarios), as well as our expert opinion on the Portuguese energy market (regulatory & market risk analysis) and likely development post COVID-19.

**Our bankable reports and price projections have been used by leading utilities, infrastructure funds, lenders and independent promoters in investment decision processes, negotiating debt or re-financing as well as in commercial and investor/state arbitrations.**

### Key Report take-aways

- Portuguese pool price projections / wind and PV captured prices
- Analysis of key drivers (Market /Regulatory)
- Regulatory and Market risk analysis (economic as well as the energy sector indicators)
- Risk & Revenue analysis by asset type: operational or developing (auctions/merchant)
- >150-page report + xls spreadsheets and workshop

### NECP targets post-COVID-19

Lock-down in Portugal led to an unprecedented drop in demand which coupled with low fuel prices caused the baseload pool price to drop significantly to prices well below the LCOE of both wind and PV.

This coming at a time when the Government, via the NECP (National Energy and Climate Plan), is targeting 12 GW of new capacity of PV and wind by 2030.

The impact of COVID-19 and the expected recovery of the Portuguese electricity market are analyzed in this report. Our view is that prices will recover, and renewable deployment will continue, albeit at a slightly slower pace.

### The Capture Price Spread

We identify the difference between the baseload pool price and the dispatch weighted (or realized) spot market price for wind and PV.

The report sheds light on the cannibalization effect (an increase in negative capture price spread), but this will be contained by the LCOE of PV and wind.

### PPA, more valuable than ever?

Has COVID-19 made the signing of a PPA, as a hedge to pool price volatility, a must to obtain financing? Our report looks at the PPA market, explaining the key characteristics of a PPA and what the banks are looking for to be able to offer the best financing terms.

### 2020 PV Auction results

In 2020, Portugal has organized a 0.7 GW PV auction, under three different modalities (FiT, payment to the system, and a storage option). The results of the auction and its implications are covered in this report.

### Bespoke services

As regulation and market experts, we have a broad understanding of business requirements to deliver bankable reports and models, with the option of providing the following bespoke services:

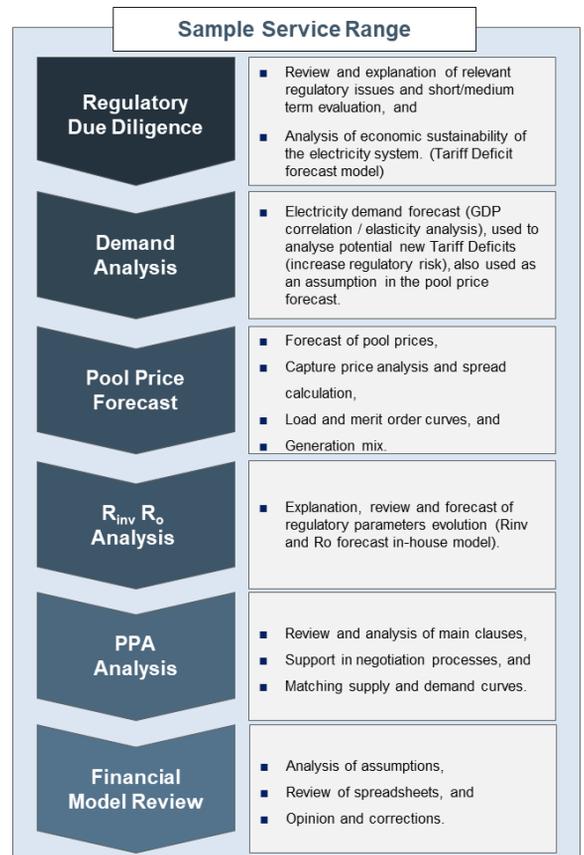
- Tailored price sensitivities using Client's assumptions
- Portfolio and plant specific assessments to determine capture price
- "Lenders case" analysis based on Low Risk market case

**PMM Power Market Model:** Our pool price / capture price model is based on a deterministic dynamic linear programming approach with the objective of minimizing the present value of fuel, maintenance, and capital investment costs across the whole forecast horizon. Resulting prices, dispatch, fuel use, and capacity expansion are optimal for each set of input parameters.



# Our Philosophy

- Work on complex and large transactions, offering a full range of services from a high-level red-flag report, all the way through to complete advisory services to buyers and sellers of assets or energy related businesses.
- Leverage on our experience in both conventional (coal, CCGT, cogeneration and nuclear) and RES (hydro, wind, solar) generation, electricity and gas infrastructure (electricity distribution, gas pipelines and regasification terminals), PPAs (power purchase agreements) and GSAs (gas supply agreements).
- Offer in-house models, internally developed, for long term (>25 years) pool price projections in order to be able to provide a full scope of services on an asset by asset or a portfolio basis, or an entire business.
- Provide robust and traceable financial models that can be easily audited but also allow for complex valuations.
- Work closely with the client and their financial, legal and technical advisors in preparing the deal or assisting in the negotiation phase.



## Our Services

EKON carries out market assessment and screening as well as economic due diligence involving market price forecasts, review of fuel supply, O&M and other contracts, operating margins and financial loans contracts review.

EKON is specialized in arbitration at an international level. EKON, as an independent adviser and expert witness, has participated in some of the renewable arbitration claims from financial investors against the Spanish State.



EKON offers analysis, risk assessment and contract structuring advice to buyers or sellers of energy under Power Purchase Agreement ("PPA"). Our in-house electricity price forecasts from the Power Market Model are central to our recommendation on pricing PPAs.

EKON works on complex and large transactions, offering a full array of services that can range from a high level red-flag report, to complete advisory services to buyers and sellers of assets or energy related businesses.

EKON Strategy Consulting is based in Madrid and provides key services in the energy sector that cover a broad range of strategic and operational services for our clients (banks, utilities, IPPs and governmental agencies and authorities).

EKON's regulatory and market due diligence reports (including our price projections) have been relied upon by leading banks, utilities and infrastructure funds when investing and/or seeking finance for large energy investments. Our experts have also participated in international arbitration and investor/state disputes.

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