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Financing Spain's Renewed Solar Boom



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About Voltiq

Voltiq - Renewable Energy Finance is a leading financial advisor focusing exclusively on renewable energy and transmission, globally. Voltiq teams up with its clients to source equity and debt for their large scale renewable energy projects and portfolios. Voltiq also acts as a buy- or sell-side advisor regarding renewable energy projects and companies.

Services are accompanied with a deep understanding of PPAs and other key commercial contracts, and local energy markets. With staff based in Utrecht, Madrid, Singapore, Ho Chi Minh City and Bogotá, Voltiq offers a truly global service to the world's leading renewable energy players. With a Q1 2021 transaction volume of USD 1.1 billion, Voltiq ranked #3 in Inspiratia/Datalive's financial advisor ranking, and #7 in Sparkspread/Inframation.



Introduction

Since 2016, the Spanish solar PV market has been witnessing a boom in development and realization of renewable energy projects, among which new solar PV generation plants account for an important part, bringing along a rapidly increasing debt volume to fuel growth. Although in a quantitative sense the development boom has been much bigger than the construction boom, no less than 8,000 MW

of installed solar PV capacity were added to Spain's generation base between 2016 and early 2021¹, with the current numbers increasing at an even faster rate. The financing dynamics have been changing fast and keep on evolving daily. This White Paper aims to provide a bird-eye's view of the recent past in financing solar PV in Spain, discuss current developments and identify the main trends.

Spain solar PV financing in recent history

After the retro-active changes to Spain's feed-in tariff system applied in 2010, many investors who came out badly hurt left Spain only to return for lawsuits against the State and pledging they would never invest again. Yet, those who took a step back and judged the market on its own merits, saw a new dawn for solar power in one of the Eurozone's sunniest countries, with lots of available land, an excellent transmission network, and a well-functioning spot power market. Solar PV installation prices were only to come down for the Levelized Cost of Energy (LCoE, meaning the total cost of producing a kWh including a return) to reach the point of being compatible with energy market prices. That happened much earlier than many expected: small developers who had started permitting of

sizeable projects during the post-credit crunch years, such as the 300 MW Talayuela project in Extremadura, or the 400 MW Alcalá de Guadaira cluster in Andalusia, were spotted as early as 2016 by the likes of SolarCentury and Baywa who have the ability of looking over the horizon. After buying into them, they subsequently armed those projects with Spain's first long-term commercial PPAs and project financing, to place them with end investors at a premium through 2019 and 2020. Some local contractors like ACS also started collecting large portfolios, such as the 450 MW Mula scheme developed by JUWI sold to ACS, who subsequently participated with the portfolio in the 2017 long-term tariff tender. Thus, whilst Spain experienced an almost complete lull between 2010 and

¹El Español, 24 April 2021

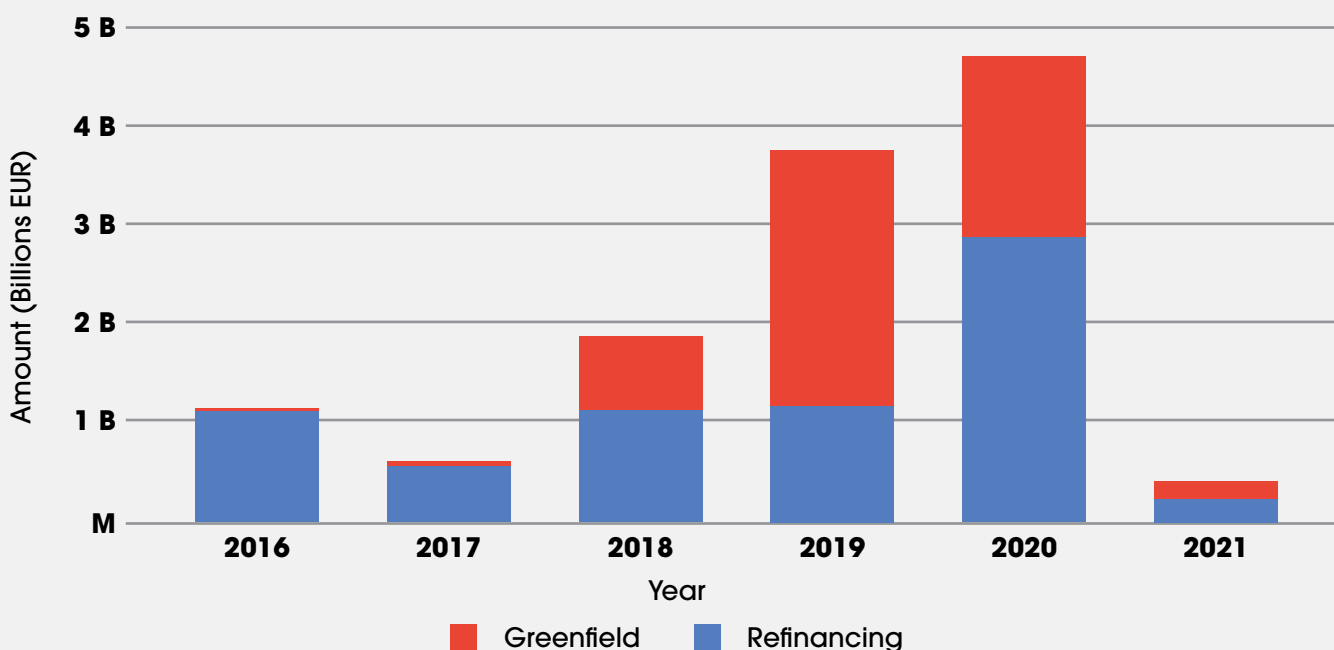
2016 in newly added solar PV capacity with hardly any MW being added, installed capacity grew from 4,000 MW in 2016 to almost 12,000 MW by the end of 2020.

The first newbuilt, tariff-free, large scale projects were mostly financed by non-Spanish institutions like Rabobank, NordLB, Natixis, Deutsche Bank and the EIB. Spanish lenders were focused on restructuring loans from the pre-2010 stock: 2016 saw a Spanish solar PV refinancing volume of around EUR 1.1 billion, decreasing to around EUR 600 million in 2017, only to rise to EUR 1 billion in 2018 and 2019, the latter two years representing refinancings for optimization, rather than the restructurings seen earlier because of defaults². Nevertheless, Sabadell and Bankia quickly followed suit, embarking on a more aggressive path by starting to offer

non-recourse financing to fully merchant projects, meaning projects without any PPA, in 2018. The fundamentals of the financial model were underpinned by the fact that the Iberian hourly spot-market price represents the marginal price of the last kWh needed to satisfy demand, rather than local nodal spot market prices such as seen in countries like Chile or Mexico, which are by definition more volatile. Since 2019, these merchant financings were structured around long-term power price projections reasonably above what was considered the market's natural floor: a spot price around EUR 32/MWh which represented the lowest possible sustainable level, given the expected evolution of the country's generation mix. This perception was very much proven by 2020's average spot price: EUR 34/MWh in an unprecedented covid-driven scenario. Today's spot market sees

Overview of Total Solar Debt Deals in Spain 2016-2021 (Billions EUR)

Refinancing vs primary (greenfield) financing



Source: Voltiq Renewable Energy Finance.

Note: the available data covers 70%-80% of the solar debt deals of the market.

²Inframation / Sparksread

prices captured by solar PV are hovering around EUR 45-50/MWh, with futures pointing at prices rising further.

The combination of the 2017 tender and the occurrence of the first commercial PPAs caused a rapidly growing crowd-in effect, which fueled quickly rising project financing volumes: whilst 2017 saw only around EUR 100 million of greenfield solar financing, the number jumped to EUR 800 million in 2018, exploding to EUR 2.6 billion

in 2019 further boosted by the possibility of pure merchant financing and an increasing interest in bilateral PPA contracts. 2020 witnessed another EUR 2.5 billion in greenfield debt financing, next to around EUR 3 billion in refinancings, in spite of the pandemic hitting Spain severely³. Only one recorded 2020 large scale greenfield financing (Eliantus) was structured as a bond, given the relative complexity as opposed to classic project finance.

Top 5 Solar PV Plants in Spain

Plant Name	Size (MW _p)	Stakeholders	Year Connected to the Grid	Notes on Finance	Location
Zero-E Project	800	ACS	2020	Collection of 18 separate projects. Financiers include Natixis, BBVA, Caixa, and Santander. ~330 million EUR investment.	Aragón
Nuñez de Balboa Solar Power Plant (Badajoz)	500	Iberdrola	2020	290 million EUR financing. Involved parties: European Investment Bank (EIB), Instituto de Crédito Oficial (ICO)	Extremadura
Mula Photovoltaic Solar Power Plan	494	Northleaf Capital	2019	200 million EUR debt financed by Sabadell, Bankia and BNP	Murcia
Talasol Project	300	Ellomay Capital	2020	Financing from European Fund for Strategic Investments (EFSI), European Investment Bank (EIB). ~ CAPEX of about 200 million EUR	Cáceres
Talayuela Solar	300	Encavis and Solarcentury	2021	165 million EUR debt financed by Deutsche Bank and European Investment Bank (EIB).	Cáceres

³Inframation/Sparkspread

Debt financing conditions

With the European Central Bank running the printing press overtime, the monetary base in the eurozone rose from almost EUR 1 trillion in 2009 to nearly EUR 5 trillion at the end of 2020. Against this background, the attractiveness of investing in solar in Spain, driven by a combination of eurozone-safety, an upcoming commercial-PPA landscape, government entertained tenders, ever-larger volume allocations to renewables, lots of sun and space, and decreasing solar installation prices, inevitably had to lead to improving debt conditions. Whilst the first greenfield financings in 2016-17 were financed at tenors not exceeding those of the PPA and pricings of 280-300 bps over, nowadays the most aggressive debt packages include significant merchant tails and markedly lower pricing. Tenors up to 8-10 years beyond the contracted period at an initial pricing of ca. 200 bps over are not uncommon.

Indeed, the most significant change has been the widening tolerance of merchant risk. Sponsors buying pipelines in Spain soon realized that, in order to sustain returns, they needed to take on not only more development risk, but also more merchant exposure. With too many projects seeking power price hedges and too few off-takers offering bankable PPAs, off-take soon turned into a buyer's market. This almost immediately translated into depressed prices for contracted revenues and pressure for sponsors to contract lower volumes to retain part of the upside from merchant flows. While most investors have travelled this route already, lenders are, admittedly, still transitioning. There has been progress between 2017 and

today, though. Back then, lenders were reluctant to consider merchant revenues in their sizing at all. Nowadays, there are several institutions willing to consider varying merchant revenue streams in the cash flow available for debt service. This shift has brought about some loosening in sizing metrics, too. At the outset, lenders were using conservative third-party expert projections and applied debt service cover ratios of 1.40-1.60x on P90 production levels for merchant streams. Nowadays, most lenders either combine projections from different experts, or use averages of different cases from the same expert, or even have their own internal power price projections, and have reduced the sizing ratios to average levels around 1.30x (in extreme cases as low as 1.05x) on P90 production levels for non-contracted revenue.



Main trends

Next decade's background will be characterised by:

1. Monetary expansion will roll on. Eurozone's monetary base will be EUR 6 trillion in June 2021, and further increases have already been agreed. Markets will continue to overflow with liquidity.

2. Reshaping of the Iberian power market. The "missing money" problem is complicating the investment case for new generators. Wholesale power pricing in Iberia is based on short-run marginal cost (prices are set based on the marginal, or most expensive generator required to be dispatched to meet demand at a given moment). This has historically led to efficient dispatch. However, increasing the number of zero-marginal cost renewable generators is likely to bring down wholesale prices for large periods of time. Short-term prices may not provide the right signals for longer term future prices any more. In a market which was not originally designed for massive renewable generation and storage, regulatory adjustments (as long-term production-based energy contracts or the development of peak capacity markets) seem likely in order to ensure access for all technologies on a level-playing field.

At present, any observer notices that roles are mixing up in the market. That sponsors and contractors would turn into developers themselves in pursue of better returns may have been anticipated. Perhaps not so obvious was that off-takers would become sponsors (Audax venturing into generation assets, or Statkraft, who, thanks to the acquisition of SolarCentury,

positioned itself both on the development as well as on the operational side of the project chain), or that oil & gas players such as Repsol or Total with a more natural entry into end-users that need to convert to using green energy would follow integration routes. Surely, such players are best placed when taking on more merchant risk effectively turns sponsors into power traders. Our expectation is that some of the current sponsors will continue to build their business case largely around price certainty (tenders, baseload PPAs or potential capacity payments). Yet a new, more sophisticated kind of sponsor with active energy management capabilities is emerging.

Up to now, the debt market has simply differentiated contracted from non-contracted deals, the first having been mostly pay-as-produced PPA schemes, with some baseload PPA exceptions. The near future will show that pay-as-produced PPAs will start becoming less attractive to both off-takers and generators given an increasing amount of solar power will be entering the grid during the day. This will drive down the captured energy prices for solar operators, an effect seen in smaller markets like Chile where it started to occur already some years ago. The fact that the Spanish government launched a new tender system in 2020 will only exacerbate this effect, as it accelerates the amount of new solar power to the grid that doesn't require any downside protection from commercial market products. This effect will in turn drive the quest for more baseload off-take structures in which generators have to guarantee power supplies at certain times,

sustained by batteries or other storage and fallback solutions, like the hybridization of solar with wind or small hydro power plants.

We expect the debt market to first incorporate to debt sizing the merchant risk embedded in these storage-driven trading capabilities, which are implicit to baseload PPAs. Indeed, the appetite for risk in financing is all but increasing. Whilst Sabadell and Bankia were the main banks acting as lead arrangers on fully merchant projects in Spain, the takeover of Bankia by Caixabank leaves Sabadell as the lead player in the full-merchant space for long tenors, its conditions obviously getting somewhat more conservative. Even if some new players are filling in, senior leverage levels remain below sponsor expectations. As spot market prices remain at high levels, as per the date of this write-up at an average of EUR 55-60/MWh with captured solar prices of EUR 45-50/MWh⁴, sponsors will keep on looking for ways to apply project

finance to full or largely merchant projects. Junior debt providers are filling the gap between a senior debt level of 50-55%, and an aspired total leverage of 75-80%. Subordinated debt structures are currently being closed at margins of 600-700 bps, but are expected to become cheaper as more junior debt products are being launched. Clearly, as long as commercial lenders do not materially increase funding to projects with more volatile cash flows, excess liquidity will continue to favour mezzanine players. Gradually, however, we expect an enhanced market design more favourable to renewables to increase long-term price certainty for projects and, consequently, to expedite access to larger senior chunks leading to overall cheaper debt structures. Over time, higher degrees of sophistication will be included to contemplate multiple sources of income for projects, like the government's upcoming regulation of capacity payments in which renewables with storage will be included.



⁴Altran, April 2021

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