

Volatility Clauses in the Renewables Sector

Introduction

The wholesale electricity market has experienced significant turmoil in the past 12 months. Fig. 1¹ illustrates the monthly EU average wholesale electricity price variance since 2018. Less well-known is how this has benefitted the renewable sector and the implications for insurers. In this article, we discuss the Policy clauses used by insurers to mitigate this volatility, their impact on claims, and other possible solutions.

Monthly wholesale electricity prices EU average price (€)

Max — Min

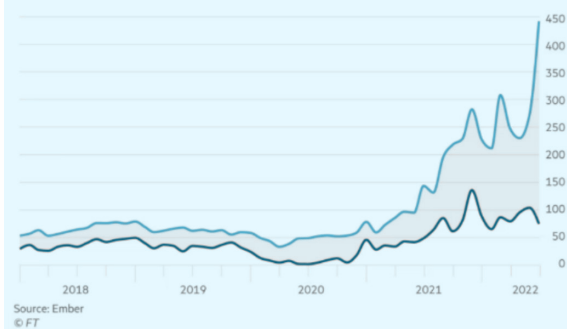


Figure 1: Monthly wholesale electricity prices (2018-to date)

Background

Conventional power-generation facilities use raw materials such as gas. With volatility in the global gas market, attributable in part to the Ukraine war, input costs in this sector have significantly increased, with these being passed on to consumers. By contrast, the renewable generation sector does not have the same exposure to input costs. In the main, the sector has benefitted from higher selling costs without higher generating costs (i.e. the price of raw materials).

We set out the background to the electricity market in Appendix 1 but, in summary, when gas or electricity prices increase, there are no concomitant increases in renewable energy generation costs. This is because the variable cost of wind and sunshine is essentially nil.

¹ Source: <https://www.ft.com/content/8a9662ef-1ff9-4edf-b0cf-1abb377d08a5>

Consequently, we have observed substantial increases in the operational profit associated with operating renewable assets as the wholesale gas and electricity prices have increased so significantly in the past 12 months. This change has impacted insurance claims with a time element² exposure since the renewable energy asset owner's profit is often insured. Specifically, Insurers have seen:

- a. their liability for the time element portion of partial (low severity) losses increase, due to the asset owners' average daily profitability increasing; and
- b. sub-limits being applied to lower frequency, larger and more complex (high severity) losses which would have previously been fully covered.

Insurers' Response

As noted above, one consequence of these price movements is that insurers have seen their potential exposures for the time element losses increase. This led insurers to consider the available policy provisions that could address the recent volatility, which include:

- ⊙ Policy Limits;
- ⊙ Automatic Increase (Escalation) Clauses with limits;
- ⊙ Sub Limits for specific extensions;
- ⊙ Average clauses for underinsurance.

In addition, insurers also elected to draft new policy clauses, intended to provide greater certainty. These are referred to as "Volatility Clauses", and include the London Marketing Association's (LMA):

- ⊙ LMA5515 - Business Interruption Volatility Clause (Amended); and
- ⊙ LMA5608 - Time Element Volatility Endorsement – Monthly Limitation.

Before we discuss the intention of these provisions, and some aspects that may warrant further consideration, we briefly describe some relevant features unique to the renewables sector.

² Defined as "all delay or interruption related coverages ... including but not limited to Delay in Start-Up and Business Interruption" within LMA5608.

³ Revenue less Variable Costs

Renewable Revenue Drivers

We briefly describe how insured Gross Profit³ is generated in the renewables sector by specifically examining solar and wind power generation. Variable costs are usually negligible compared to the revenue, making the sector unique within energy markets.

Segmentation

Solar and wind generating facilities are usually formed of several smaller units grouped in arrays. Solar facilities can be made up of thousands of different modules; wind farms can have many individual turbines. Both types of assets usually feed electricity into transformers for export into the National Grid.

These arrays are the different revenue-generating flows within each insured asset. This segmentation means that perils that cause time element losses, such as mechanical breakdown, represent a smaller proportion of the Sums Insured than comparable losses within the conventional power sectors. This explains why losses impacting the assets' entire revenue generation are rare.

Seasonality

Revenue within solar and wind power generation is also seasonal:

- ⊙ Wind turbines in the northern hemisphere generate significantly more electricity during the winter compared with the pro-rata annual average.
- ⊙ Solar facilities in the UK generate several times more electricity during the summer months when compared to the winter.



This means that the timing of a loss impacts the resulting time element loss – see graph below demonstrating typical seasonal production of a UK-based solar farm:

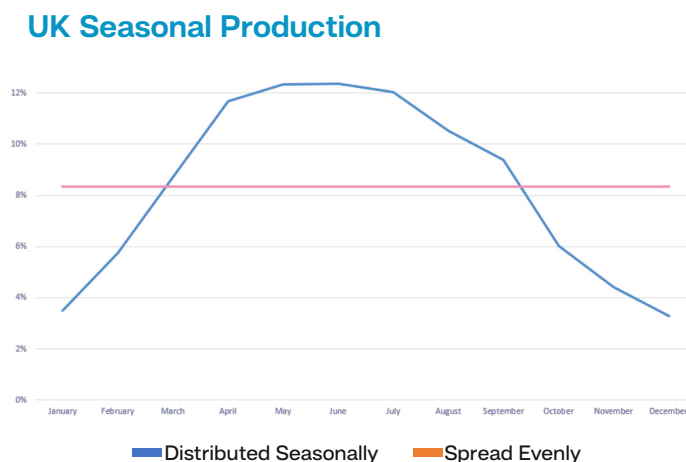


Figure 2: Seasonal Production - UK Solar Farm

Volatility Clauses

Both above reference clauses use similar tools to cap volatility in time element losses affecting the renewables sector.

LMA5608 was drafted by the LMA's Renewable Energy Sub-Committee⁴ specifically with wind, solar and BESS⁵ risks in mind. The LMA5515 has broader application, although we have seen it used in several renewables policies. The clauses share the following features:

- ④ Additional declaration obligations on the insured, such as:
 - Declared Values, per Location.
 - Declared Escalation Percentages.

Both clauses specify the required approach if an insured has failed to provide the specified information in respect of these declared values.

- ④ Monthly Caps, which do not need to be equal throughout the Policy period, thereby making an allowance for the seasonality noted above.
- ④ LMA 5608 uses the term "apparatus" to inform an apportionment of the Monthly Cap to different output-generating equipment within the asset.

⁴ A sub-group of the Power Generation Committee.

⁵ Battery Energy Storage Systems.



Differences

The LMA 5608 clause proposes a Monthly Cap to be limited pro-rata by distinct pieces of apparatus at the site whereas LMA 5515 does not – in the case of renewables it is more likely that, for example, a single wind turbine or a discreet section of a solar park will be offline rather than the entire site.

Furthermore, if the Sums Insured are not declared on a monthly basis, a pro-rated monthly value is used. This assumes the same production is achieved in each month of the year. Because generation from renewable assets are particularly susceptible to seasonal variations, in effect lower generation months will not be subject to the clause whereas higher production months could be, even if the overall annual Sum Insured is accurate.

GRS currently has open solar claims where the non-declaration of monthly Sums Insured values (using a volatility clause) has breached pro-rated monthly limits, even during low generation months. In these cases, had the Sums Insured been declared on a month-by-month basis, lower revenues would be insured in the low production months versus the annual average and therefore a greater adjustment could have been made to the claim quantum.

The benefit to Insurers of a per Turbine (i.e. "apparatus") sublimit is that the Sums Insured can be considered on an individual unit basis rather than only across the whole site – as mentioned it is more likely an individual unit will be offline than

the entire site. This would most likely represent a more accurate basis of assessing the insured's actual loss, provided the insured values have been accurately declared.

Are these new Volatility Clauses being adopted?

One challenge is the take up of these clauses by insured parties and brokers, and whether there is an appetite to provide this level of detail at policy placement. There appears to be a general unwillingness to do so in the absence of financial incentives or penalties. Nonetheless, these initiatives are a useful attempt to address an issue affecting all parties and, indeed, can create more certainty during the claim adjustment process.

Alternative Approaches – Pricing Agreed Values

Because of the seasonal variation of renewable generation, we suggest that an alternative method of mitigating the impact of electricity market forces is to consider fixing agreed values

at the time of policy inception. This would involve an agreed 'financial value' per MWh basis, rather than simply total revenue from the 'apparatus' or site. Indeed, a range of values could be 'agreed' if greater flexibility was needed.

Ultimately the new volatility arises from fluctuating electricity prices rather than actual production from the sites. Basing limits on electricity pricing would also mean seasonal variations in production would be fairly accounted for in a post-loss claim assessment.

Finally

The Volatility Clauses discussed are examples of how these aspects could be considered, and deal with both the seasonal and segmented nature of renewable energy revenue streams. For limits to be most effective and consistent it would require the Sums Insured values to be accurately declared (or accurately forecast in some cases) on a monthly basis.

GRS' renewable energy specialists would be pleased to discuss these issues. Please contact:



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Appendix 1: Background to the electricity market

Influences on electricity prices

Energy prices for the wholesale electricity market are set at any given time by the most expensive power plant called to generate. This means that no matter what the Energy Mix¹ is, prices are dictated by the most expensive source required to meet demand. As the following chart illustrates, conventional power-generating facilities that utilise gas to generate electricity have experienced substantial swings in their main cost driver, the gas price.



Figure 3: Natural Gas Prices

Source: Trading Economics²

Impact on renewable Asset Owners

Electricity from the renewable generation sector has traditionally been:

- Sold at contractually fixed rates, referred to as Power Purchase Agreements (PPAs)³; and
- Often benefit from government incentives, e.g., Renewables Obligation Certificates (ROCs) in the UK.

¹ Percentage of electricity produced by different types of energy sources e.g., renewables, gas, coal et al.

² /tradingeconomics.com/commodity/natural-gas

³ This is changing. Renewable generators have increasingly negotiated new flexible contracts to benefit from higher wholesale electricity prices commercially, but this is a separate topic for discussion and beyond the scope of this article.