

Power price cannibalisation protection

Innovative weather risk transfer solutions for all industry sectors

Munich Re is a market leader in the modelling, pricing and trading of weather derivatives. These market-based **bespoke solutions** compensate for our clients' weather-related losses if the realised weather outcome falls outside an established range.

Your challenge

- Your **wind assets** suffer from the cannibalisation effect that increasing wind production has on power prices
- You would like to **protect your renewable assets** against low prices during production hours

Use case

- A power utility in Germany with wind turbines
- **Realised (production-weighted) power prices are much lower** than average power prices over the same period
- A **swap** based on the Quality Factor index (QF) is a suitable solution

Solution

- A customised index is built based on the location of the assets
- Alternatively, a standardised index (Speedwell QF) could be used
- A **derivative structure** is designed to progressively pay as the index falls below a threshold, referred to as the strike, in exchange for a payoff to Munich Re in the case of a high index realisation

Example of product definition and associated performance

Costless quality factor swap

Index
Quality Factor (QF)*

$$QF = \frac{\sum_h (P_h \times V_h)}{P_{avg} \times V_{tot}}$$

* P_h, V_h : spot price and volume at hour h
 V_{tot} : total volume, P_{avg} : avg price

Strike
On request

Risk
Too low

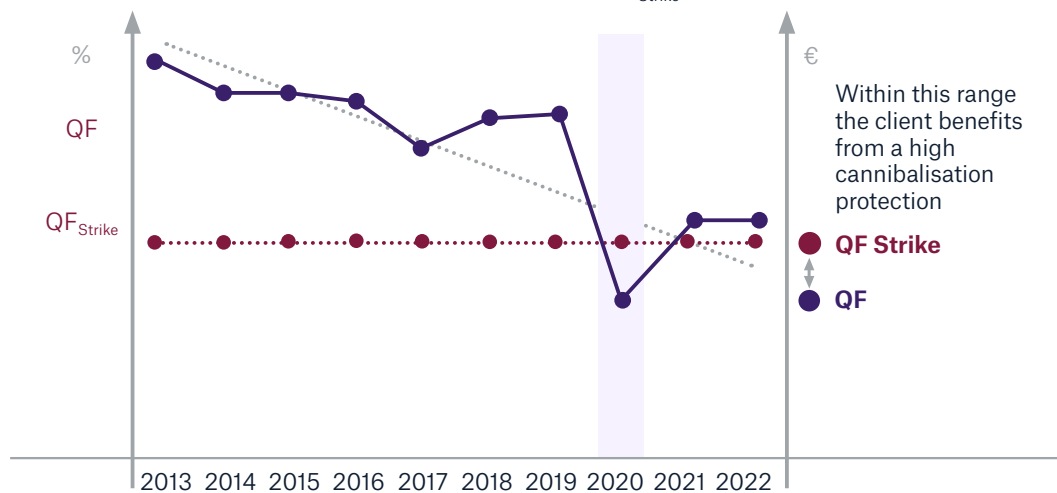
Location
Germany – Wind production

Notional
€10 m / %

Risk period
Q3 (Jul – Sep)

Premium
0





2020 payout:
(QF_{Strike} – QF) x €10 m / %



The level of the payout is equal to the difference between the strike and the index, multiplied by the agreed notional.


We offer a range of bespoke weather-contingent risk management solutions

1 Weather perils

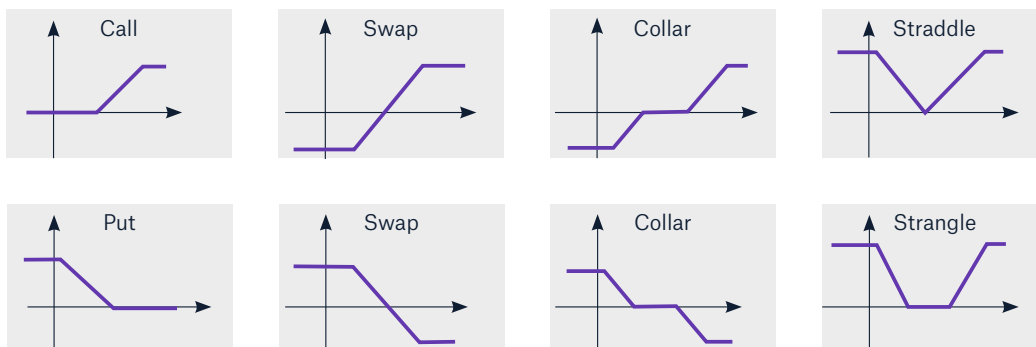
<p>Wind</p> <ul style="list-style-type: none"> - Wind speed - Wind power generation - Wind direction 		<p>Solar</p> <ul style="list-style-type: none"> - Hours of sun - Solar irradiation - Solar power generation 		<p>Temperature</p> <ul style="list-style-type: none"> - Avg. / Min. / Max. temperatures - Heating or Cooling Degree Days (HDD, CDD) - Sigmoid function for energy demand 		<p>Water</p> <ul style="list-style-type: none"> - River height - Streamflow - Water power generation 	
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Other
Contact us about any weather-related risk you are exposed to.

2 Where

<p>Global coverage</p> <ul style="list-style-type: none"> - Weather stations - Lat./Long. coordinates 	<ul style="list-style-type: none"> - Speedwell indices - Third-party data feeds 	
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3 Select and customise the structure suitable for your business



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