

# Temperature 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 **business performance** is negatively impacted by abnormal deviations in the local temperature
- Seasonally high or low temperatures are a challenge for your business. You would like to protect yourself against volatile or unfavourable scenarios

### Use case

- An energy retailer in Paris, France
- As temperatures rise, heating needs decrease and directly impact energy volumes sold
- Prolonged, unseasonably warm temperatures cause lower than expected revenues for the energy retailer

### Solution

- A suitable **weather index** is defined based on average daily temperatures measured in Paris
- A **derivative structure** is designed to progressively pay as temperatures rise above an agreed threshold, referred to as the strike

### Example of product definition and associated performance

#### Call option on average temperatures

**Index**  
Average temperature

**Strike**  
8°C  
(daily average)

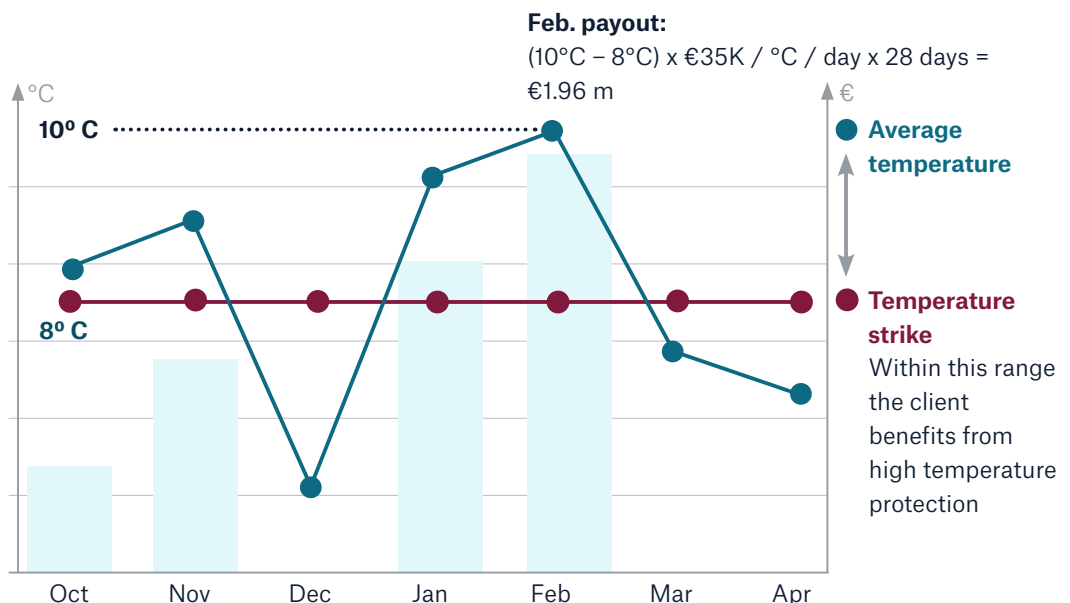
**Risk**  
Too high

**Location**  
Paris, France

**Risk period**  
Winter  
(Oct – April)

**Notional**  
€35K / °C / day





**Premium**  
On request



When the index rises above the strike, the client receives a payout. The level of the payout is equal to the difference between the index and the strike, multiplied by the agreed notional.


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

### 1 Weather perils

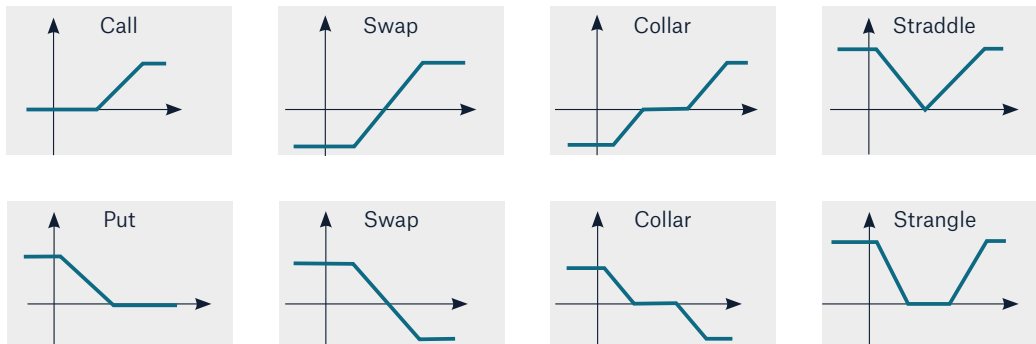
<p><b>Wind</b></p> <ul style="list-style-type: none"> <li>- Wind speed</li> <li>- Wind power generation</li> <li>- Wind direction</li> </ul>		<p><b>Solar</b></p> <ul style="list-style-type: none"> <li>- Hours of sun</li> <li>- Solar irradiation</li> <li>- Solar power generation</li> </ul>		<p><b>Temperature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

### 2 Where

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



## Contact



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