

cumulus



**The growing European weather
derivatives market,
a European energy trader's perspective**

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PCE Investors Limited

Why Are We Here?

To ensure you know about the weather hedging and trading opportunities available across Europe (and beyond)

To prevent problems like this:

Dong Rating Suffers as Wind Riskier Than Nuclear: Nordic Credit

May 1 (Bloomberg) -- Dong Energy A/S, the world's biggest builder of offshore wind farms, is a riskier investment than Nordic peers more reliant on nuclear energy as its wind business threatens to hurt cash flow, Moody's Investors Service said.

Dong, which aims to increase its wind-turbine capacity threefold by 2020, is rated Baa1 at Moody's, three steps above junk and two levels below the A2 grade that Vattenfall AB of Sweden and Fortum Oyj of Finland enjoy. Fortum and Vattenfall are both betting on nuclear energy and hydro power.

"The main risk to Dong is the wind factor as it could be unpredictable and make cash flow more volatile," Paul Lund, an analyst at Moody's in London, said in an interview. "Dong may have an expectation of how much the wind will blow, but if it doesn't in a particular year, they will make less money on them than they anticipate."

What is PCE Investors / Cumulus?

Cumulus is a weather and energy trading group, based in London but active globally

It expresses its award-winning expertise in two strategies - weather derivatives in the *Cumulus Fahrenheit Fund* and energy futures in the *Cumulus Energy Fund*

The nine-strong team has a combined 120 years of experience - 40 of it in weather derivatives

We are the market-maker for European weather derivatives on the CME and are an active member of the Weather Risk Management Association

The Cumulus funds are managed on the PCE Investors platform

Peter Brewer

I'm here to share experiences from very different perspectives:

PCE Investors (2005 onwards)
CIO, Cumulus Funds

Rabobank International (2003-2005)
Director of Environmental Financial Products

Credit Lyonnais (2002-2003)
Head of Weather Derivatives

Aquila Energy (2001-2002)
Weather Origination Manager

Weather Risk Advisory Ltd (1999-2001)
Founder and CEO

Weather Risk Management Association (2009 onwards, part-time)
Director



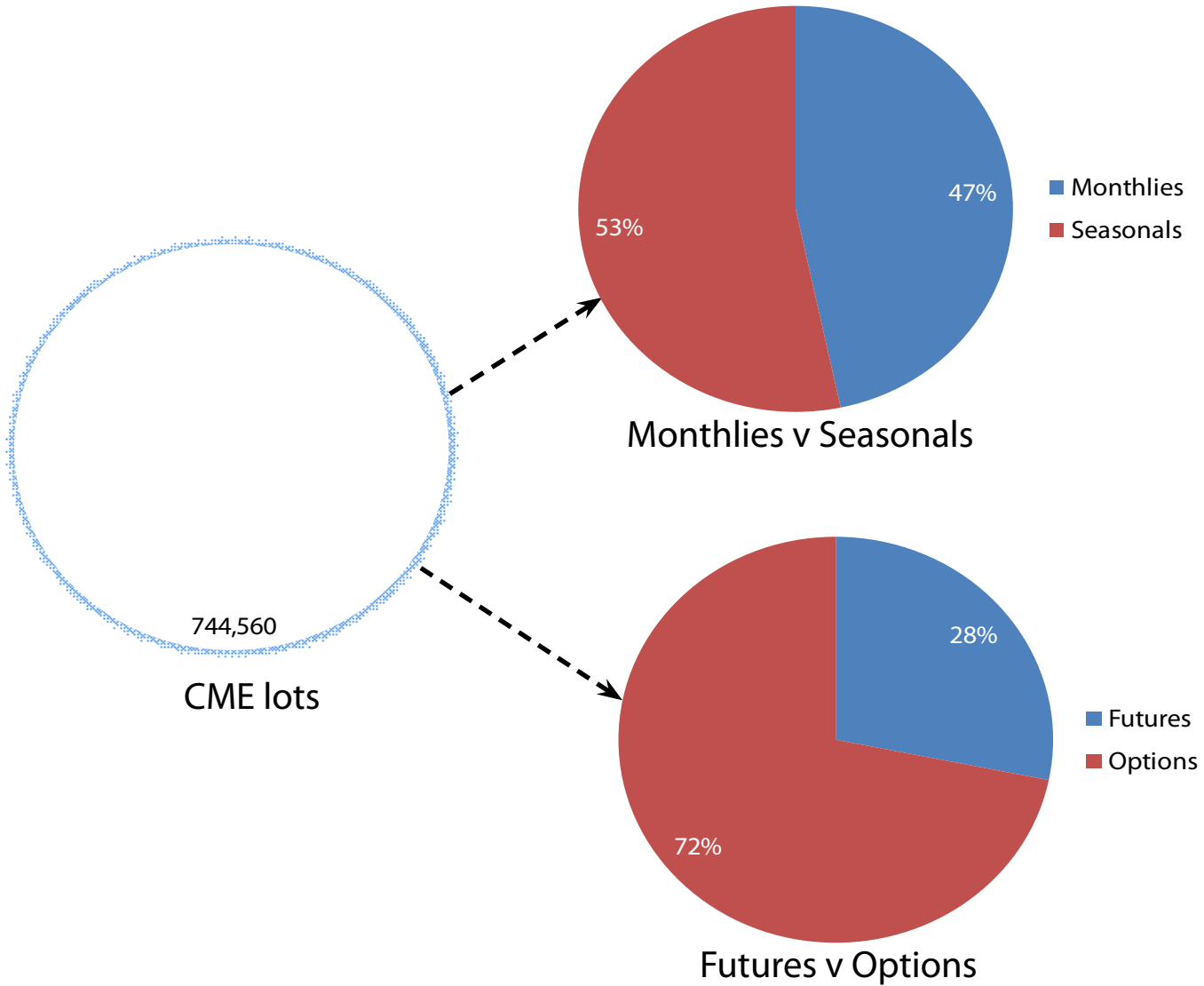
A Wide Variety of the Most Relevant Locations is Available on the CME



European Cities

London, Paris, Amsterdam, Berlin, Essen, Stockholm,
Barcelona, Rome, Madrid, Oslo, Prague

Temperature Futures on the CME - 2010 & 2011 data

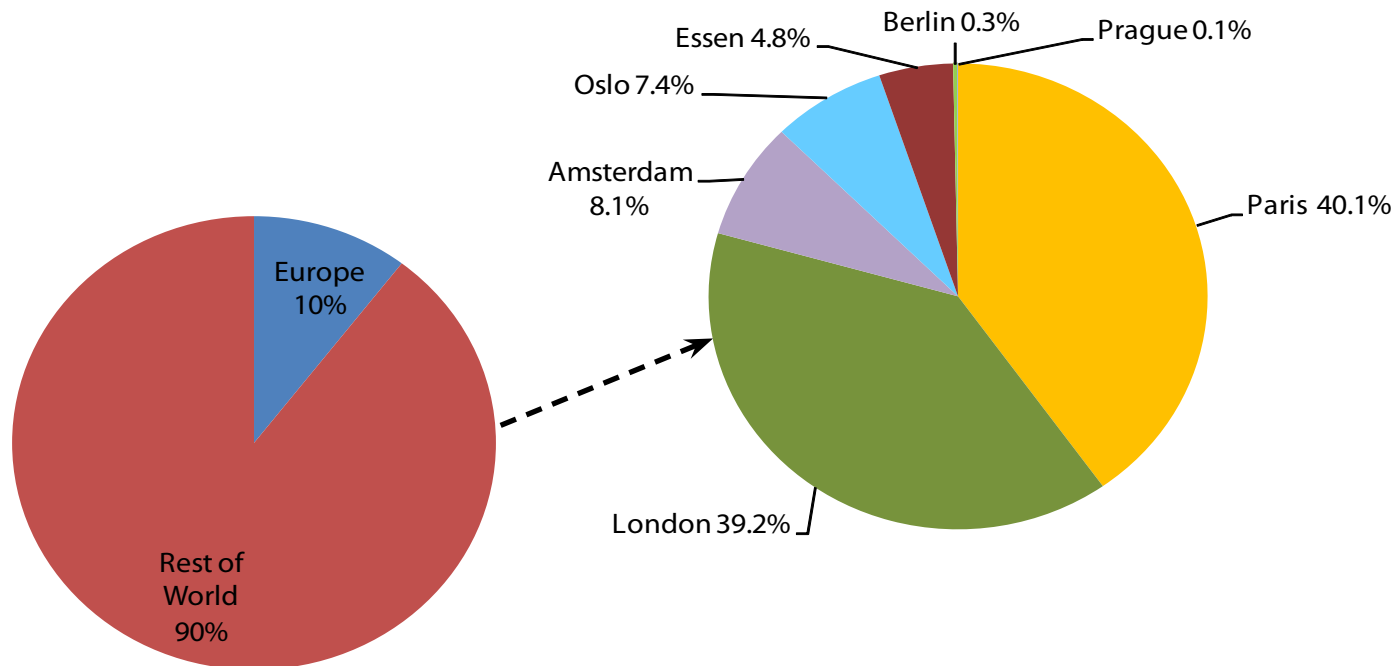


CME weather derivative volumes in 2010 & 2011, sources: CME and PCE / Cumulus

Temperature Futures on the CME - 2010 & 2011 data

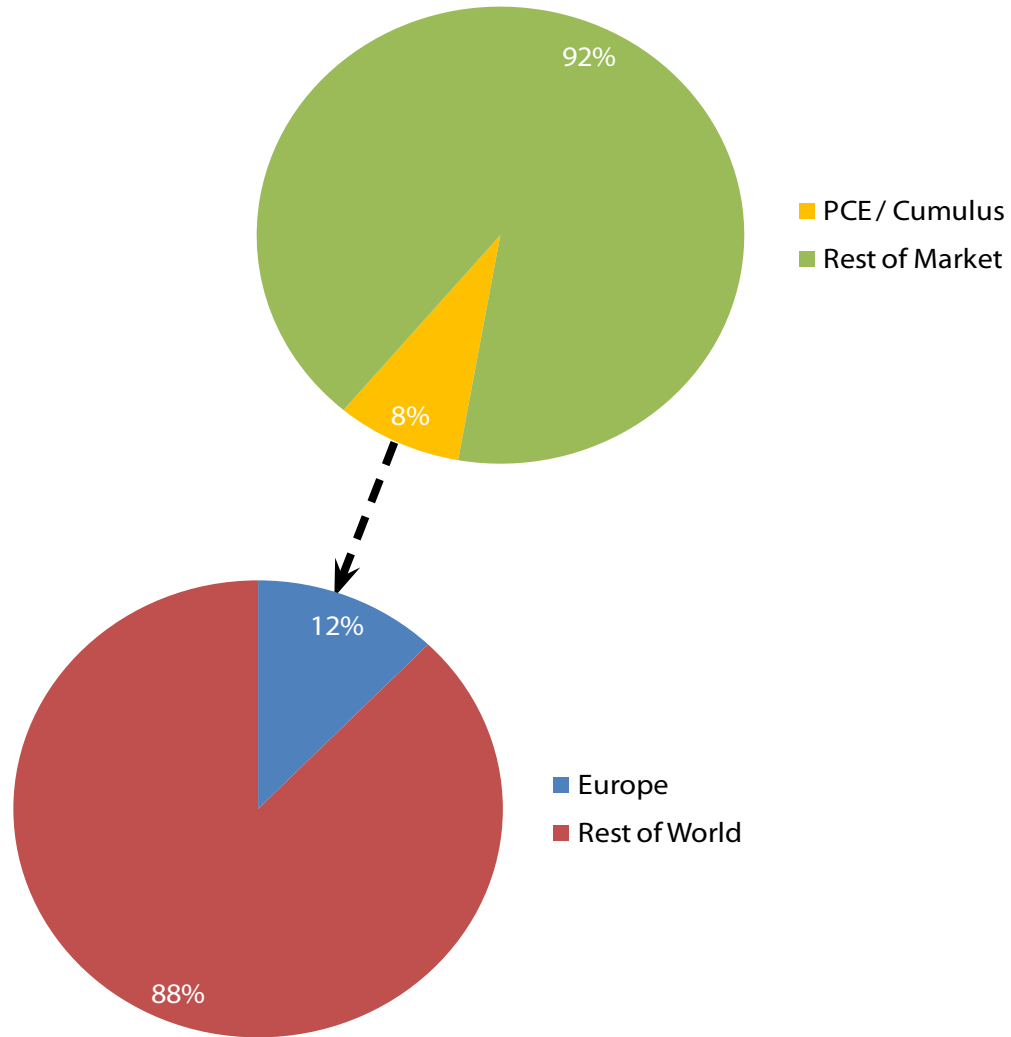
77,814 European contracts traded on the CME in 2010 and 2011 (despite the absence of a market-maker at the time)

- Again, most related to energy (5,750 in summer, 24,599 in winter)
- This equals ~1,500 standard clips (50 lots, as that makes £1k /€1k per degree Celsius per day, given the 'tick sizes' of £20 or €20)



CME weather derivative volumes in 2010 & 2011, sources: CME and PCE / Cumulus

Temperature Futures on the CME - 2010 & 2011 data



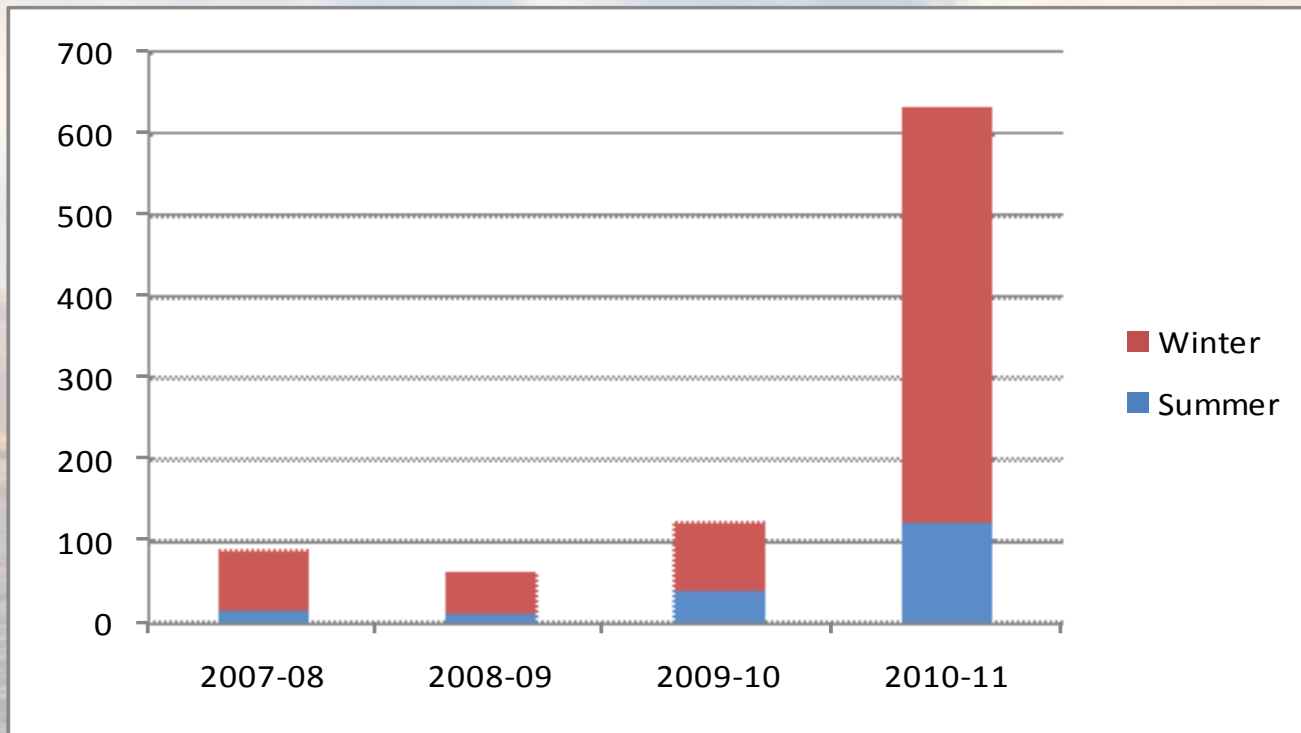
CME weather derivative volumes in 2010 & 2011, sources: CME and PCE / Cumulus

Many European Energy Companies Now Manage their Weather Risk

In the year-ending March 2011, there were at least 634 OTC weather trades in Europe

Energy companies represent a good portion of these trades (consistent with the seasonal breakdown: 123 summer and 511 winter)

The total risk transferred through these contracts was ~\$1.5bn



Sources: PwC (on behalf of the Weather Risk Management Association) and PCE / Cumulus

Many European Energy Companies Now Manage their Weather Risk (2)

Europe is a solid 64% of the global OTC weather market

However, it's currently only 10% (up from 7%) of the global weather futures market, so only 21% (up from 18%) of the overall global weather market, leaving plenty of room for growth

It's particularly important to note that the market depth is far larger – if the parties like the price and face a large risk then hundreds of millions of euros of capacity is available for single OTC trades

Data from year ending March 2011

Sources: PwC (on behalf of the Weather Risk Management Association) and PCE / Cumulus

Market Conventions

	US	Europe
Active since	1996	1998
CME-listed since	1999	2003
Execution	Brokers and CME screen	Brokers, Auctions and CME screen*
Main Winter index	Heating Degree Days	Heating Degree Days
Main Summer index	Cooling Degree Days	Cumulative Average Temperature
Temperature measure	Fahrenheit	Celsius
Threshold	65F	18C
Tick size	USD 20	GBP 20 / EUR 20

* since Cumulus became the market-maker in 2011

Auctions are a Major and Expanding Part of the European Weather Market

2008	Feb	Barcelona & Madrid
	Apr	Rome
	May	Rome, Barcelona & Madrid
	Oct	Paris
	Oct	London & Amsterdam

2009	Oct	London
	Nov	London

2010	Mar	London
	Apr	London, Paris, Essen & Amsterdam
	Nov	Paris
	Nov	Oslo
	Dec	Oslo

2011	Jan	Amsterdam
	Feb	Amsterdam
	Jun	Paris
	Sep	Amsterdam
	Oct	London
	Nov	Amsterdam & London
	Dec	Essen

2012	Jan	Essen & London
	Feb	London
	Mar	Amsterdam & Essen

This list excludes a number of other auctions, often in even larger size, conducted privately in the OTC market

Why is the US Weather Market 4 Times Larger?

Energy consumption (population and intensity)

US natural gas trading (speculators are active risk managers)

More weather volatility (really?)

Liquidity breeds liquidity

Cultural differences (sources of finance drive hedging behaviour)

Less credit risk (preference for futures over OTC)

Maybe it isn't? (different views on comparing OTC and CME trade sizes)

Who cares anyway? (cf equity market volumes)

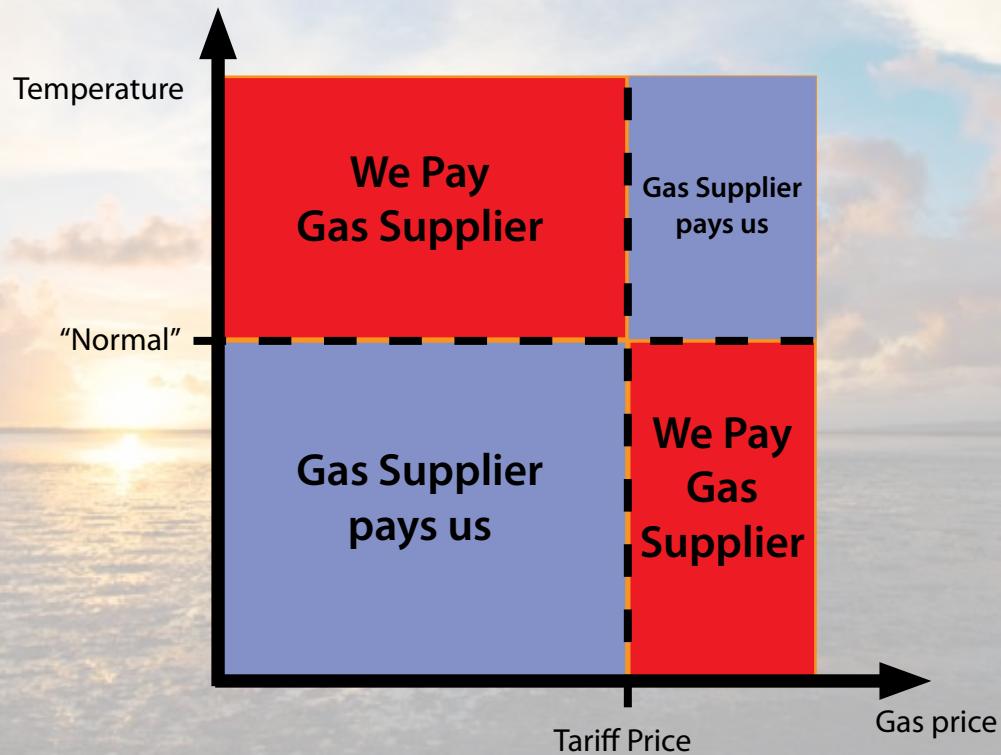
UK Natural Gas Hedge

UK Gas Suppliers offer a fixed-price tariff to domestic customers

Winter gas consumption depends on temperature so the Supplier has to buy extra gas on cold days and sell surplus gas on warm days

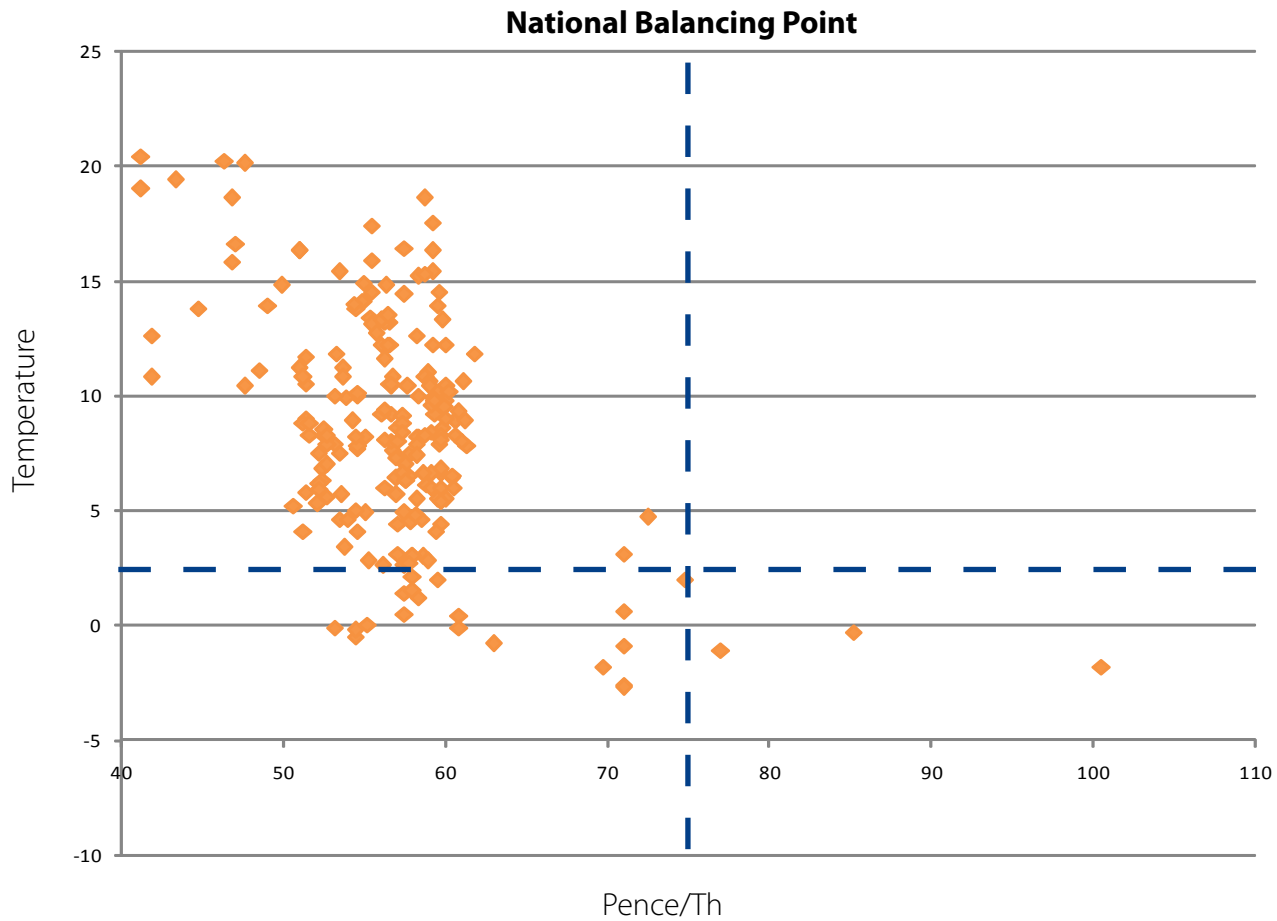
Prices are generally correlated with demand which increases the risk

Some Suppliers hedge via a combined weather and gas product



UK Natural Gas

These structures have been very effective hedges this winter, with gas prices jumping through the threshold during the only seriously cold period



Source: UK Met Office and Bloomberg

Get Involved

The weather market is large, growing and can accommodate any client need

For further information:

- Attend WRMA events (Barcelona, September 17-19)
- Refer to wrma.org, including the recent webinar at wrma.org/weather-markets-webinar.html
- Visit cmegroup.com/trading/weather
- Interact with market participants
- Get advice from independent experts

Contacts

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