# UCL INSIGHTS: RESEARCH BRIEFING

## UK Industrial Electricity Prices: Competitiveness in a Low Carbon World

As the UK transitions to a low-carbon power system, consideration needs to be given to how the UK government can help deliver competitive industrial electricity prices compared to continental Europe. This analysis by the UCL Institute of Sustainable Resources suggests that the UK government should use the current technological revolution in the clean power sector to minimise system costs, whilst at the same time better integrating the reform of the electricity market with the UK's new Industrial Strategy.

Concerns have grown in recent years that UK industry pays too much for its electricity, particularly compared to continental and international prices. Close examination shows a more nuanced picture, but also shows some important differences between how the UK and some of its continental neighbours' approach to electricity pricing for industrial (as opposed to individual) consumers and recover costs from different parts of industry and society.

At a time when the UK government has published new Clean Growth Strategy and Industrial Strategy, of which clean growth is one of the four grand challenges, and is reviewing the cost of energy, there is an opportunity to review the differences between UK and continental pricing structures.

Some of the key differences in approaches to industrial electricity prices in the UK and Europe are that other countries:

- are **more interconnecte**d and engage in more cross-border electricity trading, with interconnections between Member States treated as part of the regulated networks,
- are **more supportive of long-term contracts** to reduce prices for companies which are highly electricity intensive and therefore large consumers,
- take a **more activist approach to how network and policy costs are charged** to electro-intensive companies,
- **have integrated renewable energy** in their system in a more co-ordinated and cost-effective way than in the UK.

### Short v long term contracts

The UK has an historic philosophy of a market-led, cost-reflective and relatively short-term approach to electricity. UK consumers pay the highs (and lows) of gas price swings, and industrial consumers have been expected to pay their 'fair share' of the overall costs of the UK electricity system. There are few long-term contracts and none have been negotiated collectively.

KEY MESSAGES

UK industrial electricity prices are higher than continental countries, which have:

- been better interconnected and engage in more cross-border electricity trading with their neighbours
- shown greater support of long-term contracts to reduce prices for electro-intensive companies
- integrated renewable energy on their power grids in a more co-ordinated way
- taken a more strategic approach to network and policy costs to take a more strategic approach to suppot electro-intensive companies

The UK can reduce electricity costs for industry by:

- removing barriers to investment in mature and low cost renewable energy technologies like onshore wind
- co-ordinating investment in network and renewable energy infrastructure in a more efficient way
- ensuring the UK leaves the EU in a way that still gives it unrestricted access to the internal energy market and encourages more electricity trading with continental neighbours
- driving further investment through the Industrial Strategy.

Neighbours on the continent have taken a more activist approach. They have used network and policy cost recovery in ways designed to protect electricity-intensive industries (Germany), or otherwise fostered long-term collective contracts (France) or cross-border pricing (Italy). This has meant that key industries are net beneficiaries from network and low carbon electricity investments (whether renewables or nuclear). These reflect societal and political choices around cost recovery, namely whether domestic and commercial consumers should 'pick up the tab' to help shield electro-intensive industry.

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*This briefing is based on a report commissioned by the Aldersgate Group, access the full report here:*
**Removing barriers to mature renewables key to lowering industrial electricity prices**

## Mixed support for renewables

The UK has previously had an incoherent approach to developing renewable energy. Reflecting its more market-based approach, the UK initially supported renewables with subsidy additions to wholesale prices. However, this left renewable investors exposed to the uncertainties of wholesale electricity markets, driving up the cost of capital, initially with no differentiation on how much of the cost should be borne by industrial consumers.

The UK has also placed more emphasis on using market instruments designed to penalise carbon emissions to incentivise decarbonisation, notably through the Climate Change Levy (CCL) for lighter industry, and the carbon price floor. Conversely, European countries have placed more emphasis on direct support for clean energy investments with proportionately less direct impact on industrial electricity consumers (e.g. through feed-in-tariffs). Germany in particular has a more integrated approach to the transformation of its energy system, including network and industrial strategies.

## Changing approach

However, the UK regulatory approach has evolved. UK Electricity Market Reform aimed to incentivise investment in secure, low-carbon electricity and improve the security of Great Britain's electricity supply. It introduced competitive auctions for Contracts for Difference (CfDs) which pay for differences in price between electricity from low carbon sources and the average market price for electricity, which has created a far more efficient financing of renewables as part of the energy mix; enhanced investment and confidence has in turn brought down technology costs. Alongside EMR, the Government moved to compensate major industrial consumers for the historic cost of renewable support, pass through in electricity prices, and will next year move to directly exempt industrial electricity prices from such costs.

Conversely, the UK model of a carbon floor price with compensation (which feeds through directly to wholesale electricity prices) is also one which is now being followed by the Netherlands, with France also looking to introduce this model.

References:

UK Industrial Electricity Prices: Competitativeness in a Low Carbon World; M. Grubb & P. Drummond
Report Commissioned by the Aldersgate Group
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RECOMMENDATIONS:

In order for the UK to provide competitive industrial electricity prices as it continues its transition to a low-carbon power system, the research makes six key policy recommendations.

- **Restore an efficient investment framework for the cheapest mature renewables** and signal intent to restore a rising carbon price in the 2020s.
- **Establish an integrated approach to network development, funding and pricing** to avoid congestion and inefficiencies in the network development at all levels, including a review or funding and charging approaches with comparison to practices in Europe.
- Ensuring that the UK leaves the EU in a way that **retains efficient engagement with the EU internal energy market** and supports continued investment in interconnection with continental grids, for example by continuing to support Ofgem's cap-and-floor returns regime
- **Facilitating direct cross-border industrial electricity purchases**, with carbon charged on imports (as in California); to take advantage of lowest-cost low-carbon energy sources
- Using the five-year review of the Electricity Market Reform and Capacity Market to **help companies realise the value of services (such as demand shifting and frequency response) as a way of offsetting their electricity bills**, and better understand ways to engage with these mechanisms. This might lead to greater participation in these existing mechanisms by industrial consumers, but also suggest new and additional approaches
- **Establishing a long-term market of zero carbon and tradeable electricity contract**s to facilitate industry access to low cost and unsubsidised sources of renewable electricity such as onshore wind. As users of renewable energy sources industrial consumers holding these contracts would thereby avoid the carbon price.

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