How energy prices drive industry's competitiveness

Voters' complaints about energy bills can topple governments. The impact of energy prices on industry's competitiveness can be just as politically sensitive. However, there is no ready solution for policymakers looking to address the cost of energy for businesses.

Levelling the playing field

The so-called energy policy trilemma requires policymakers to strike a balance between three goals: supplies need to be **secure** and **sustainable** while remaining **affordable.** Affordability is not just relevant for households, but also for industry. In the EU, energy makes up between 5.7% and 8.4% of the production costs of sectors such as basic chemicals, man-made fibres, iron and steel, and paper.[1]

Energy prices vary significantly between countries. Retail electricity tariffs for industry are higher on average in the EU than in the US, Canada, Russia, China and Turkey (though lower than in Japan and Brazil).[2] Such differences frequently fan fears that energy-intensive industries might relocate to places where energy costs are lower – particularly for those products which can be traded relatively cheaply across borders.

These fears in turn drive lobbying for policies to ensure a "level playing field" on energy costs for industry. Many EU countries already have measures in place, such as relief from certain energy taxes and levies. In this article, we consider the extent to which they could go further.

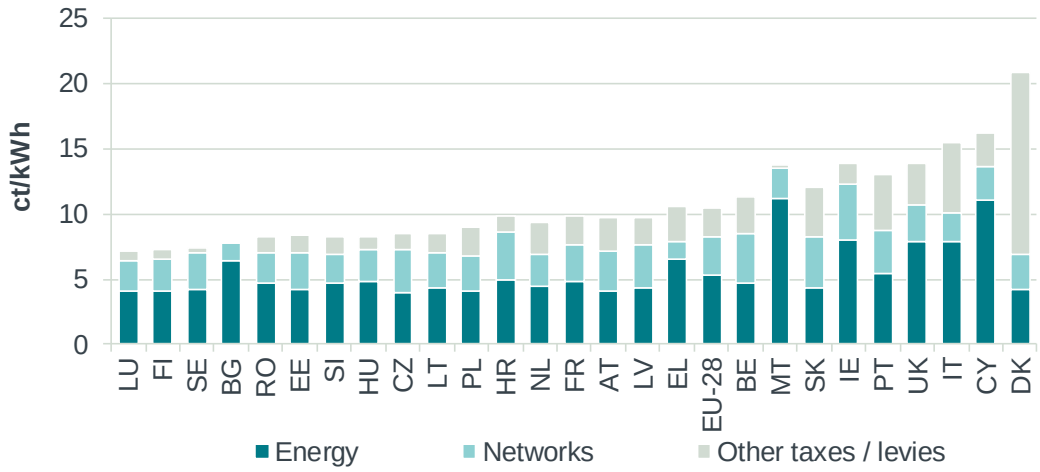
Breaking down the bill

To appreciate what measures might be appropriate, we need first to understand the structure of energy bills in the EU. The figure below shows electricity prices for businesses and public sector organisations in 2018 across the EU, broken down into the following components:

- **Energy:** The wholesale price of electricity, which reflects production costs. The greatest divergence from average prices is evident on islands, such as Malta and Cyprus, and in other regions that are less well connected to the main European grid, for instance Ireland. The variability is because the limited capacity of interconnectors, which allow power to be traded internationally, makes it difficult (or impossible) to even out cross-border price differences.
- **Networks:** The costs borne by consumers associated with the transport of electricity from where it is produced to where it is consumed.
- **Other taxes/levies:** These include levies intended to recover the cost of subsidising renewable energy production. As is evident from the figure, this is a significant source of the variation in retail energy prices.

[1] European Commission (2019), staff working document accompanying the 'Energy prices and costs in Europe' report, COM(2019) 1 final, Table 11.

[2] European Commission (2019), 'Energy prices and costs in Europe', COM(2019) 1 final, p.3.



Source: Frontier Economics based on Eurostat data. Note: Electricity prices for non-household consumers using 149,999 MWh or less annually. Spain and Germany excluded due to lack of data.

An alternative way of looking at the costs consumers face – and one that is perhaps more meaningful from a policymaker's perspective - is to make a distinction between:

- **Cost-reflective elements:** reflecting (only) the direct costs that consumers impose on the system of producing and transporting energy; and
- **Cost-recovery charges:** intended to recover irreversibly incurred costs.

Cost-reflective elements embody the principle that, to minimise total costs across the energy system, market participants should pay the costs they impose on the system. These include energy production costs, avoidable network costs[3] and taxes on greenhouse gas emissions. By contrast, cost-recovery charges (including tariffs and levies to recoup the costs of subsidising renewable energy and of past investments in networks) are not intended to encourage a particular form of behaviour. Solutions to problems of energy cost competitiveness need to bear this distinction in mind.

Incentives and innovation

As noted above, if market participants must meet the costs they impose on the energy system, they will take them into account in all their investment and operational decisions. Actions by consumers to avoid such costs should, in turn, contribute to minimising costs across the system as a whole.

An example of this is how consumers can save money by shifting their consumption to periods when the cost of producing electricity is lower. Industry can respond to price signals, too, by switching to more energy-efficient means of production.

Public authorities can also do their bit. Funding for innovation may help unlock cheaper (secure and low-carbon) ways of producing, transporting and using energy. And, in a world of increasing linkages between gas, electricity and other energy carriers, a greater emphasis on whole energy system planning and co-ordinated system operation could help to reduce network costs.

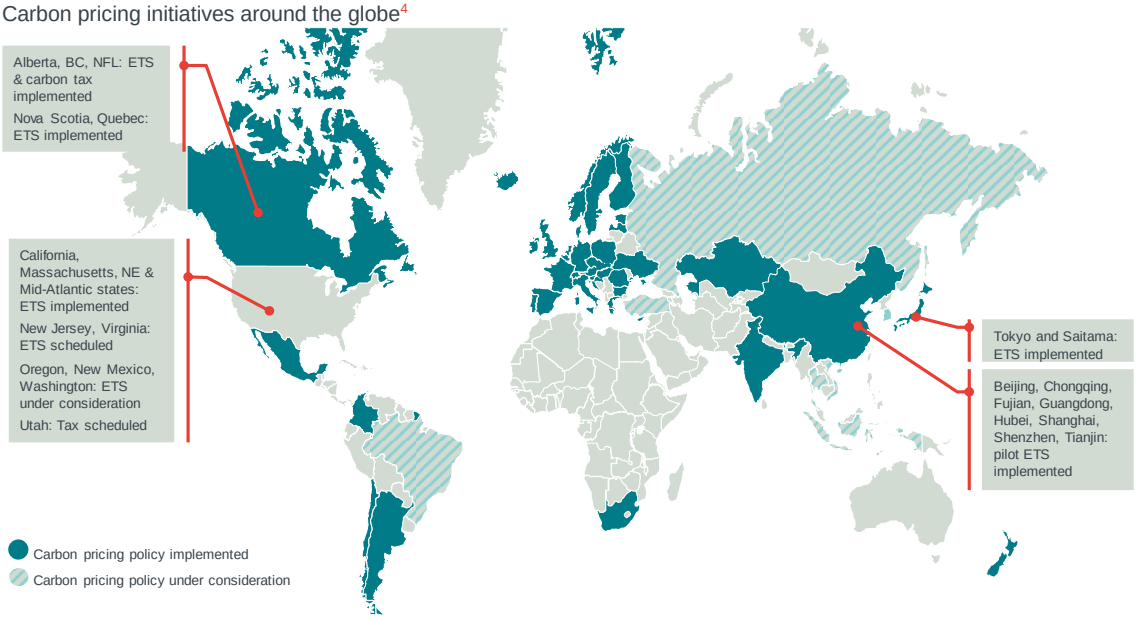
The special case of carbon costs

The logic that requiring consumers to meet the costs they impose on the system will produce socially optimal outcomes also applies to environmental costs such as those associated with greenhouse gas emissions. The EU's emissions trading system (ETS) sets a price on carbon for power plants and industry as well as for flights within the EU.

However, as noted above, many industrial sectors in the EU are exposed to competition elsewhere in the world. And while carbon pricing initiatives are beginning to spread globally (57 have been implemented or are scheduled for implementation, covering a total of 11 Gt CO_2-equivalent), these schemes vary in their stringency and scope.

[3] Costs that network operators would avoid incurring if consumption was reduced.

Carbon pricing initiatives around the globe[4]



This raises the spectre of 'carbon leakage': that industry may relocate production to jurisdictions with less strict carbon policies, resulting in an overall increase in global emissions. This prospect looms larger given that the price of an EU Allowance (EUA) has jumped from €10/tCO2 about a year ago to around €25/tCO2 currently.

To counter the threat of carbon leakage, the EU has introduced two instruments for affected sectors:

- **Direct cost compensation:** Firms receive a limited amount of EUAs for free to cover a certain share of their direct emissions of greenhouse gases.
- **Indirect cost compensation:** Member states can compensate firms financially for the carbon costs they bear in the electricity prices that are passed on by power generators.

While direct cost compensation is determined at EU level, indirect compensation is at the discretion of individual governments (subject to state aid rules). So far, only 10 member states have decided to grant compensation for indirect costs.[5] This distorts the playing field between companies across the EU.

An EU-wide scheme for indirect cost compensation might remedy the problem. However, legislators recently discarded a proposal to that effect when they adopted reforms to the EU ETS for 2021-30.

Taxing the Frank Ramsey way

In any case, relief from carbon costs affects only a part of the energy bill. Fundamental variations in energy prices will inevitably persist for a number of reasons: transport costs differ; some countries are sunnier and windier than others and thus better suited to generating renewable energy; and some may lack suitable land for energy production facilities. The variations could be smoothed out to some extent by making it easier to trade power across borders. But, as explained above, it is taxes and levies that account for much of the divergence in retail energy prices. What can be done about them?

The economist Frank Ramsey developed a theory for optimal commodity taxation in the 1920s. The 'Ramsey Rule' is sometimes interpreted as requiring the burden of cost recovery (in our case, levies and sunk network costs) to be shouldered by those least sensitive to changes in prices (i.e. those least likely to respond by changing their consumption or production). This helps to ensure that the resulting production pattern across the economy deviates as little as possible from what is efficient from a

[4] Frontier Economics based on World Bank (2019).

[5] Belgium (Flanders), Finland, Germany, Greece, Lithuania, Luxembourg, the Netherlands, Slovakia, Spain and the United Kingdom.

societal perspective.[6] For energy-intensive industries exposed to international competition, this provides a rationale for relief from cost-recovery charges.

The EU guidelines on state aid for environmental protection and energy (EEAG)[7] implicitly recognise this principle. They allow member states to offer relief to companies in certain trade- and energy-intensive manufacturing sectors from levies on energy typically used to finance support for renewables. Case practice (the *StromNEV* decision[8]) has also established that energy-intensive consumers can be granted relief from network sunk-cost recovery charges.

EU legislation could be more coherent in this matter, however. For example, EEAG limits the generosity of relief on renewable support levies in order to cap the potential for an expensive subsidy race between member states. But it would seem from the *StromNEV* case that the European Commission accepts the possibility that certain network users might pay only cost-reflective charges (and obtain full relief from cost recovery charges). And the Energy Taxation Directive[9] allows full energy tax exemptions for energy-intensive businesses. While there is clearly a trade-off to be made between limiting distortions in the internal market and levelling the playing field between the EU and third countries, it is not clear why this trade-off should differ depending on the type of cost recovery charge. Nor is it clear why eligibility for relief should differ depending on the type of charge.

The incoming commission will have the opportunity to reform both EEAG and to propose more coherent rules on energy taxation[10]. In the process of doing so, it may also be worthwhile considering:

- How to adapt the legal framework in the EU and individual member states to give companies and investors greater certainty or visibility on the cost recovery charges they will face over the longer term;
- Extending the rules to cost recovery issues affecting other energy carriers, such as gas and heat; and
- Extending the rules to cover not just industry but other consumers potentially highly sensitive to energy prices, such as facilities converting power to gas and liquid fuels. The latter may not be exposed to international competition, but they might be competing (whether in the market or for public support) against alternative technologies, including biogas and biofuel production, that do not face the same levies.

Conclusions

There are clearly important trade-offs to be made when granting certain groups of customers relief from energy taxes and levies. Crucially, it means that other consumers (or taxpayers) will end up bearing the brunt of cost recovery charges. The fairness considerations and political compromises involved in such decisions are matters arguably best left to individual member states, especially given that they will have afforded differing degrees of support to renewables in the first place. Any reform to EU rules in this area therefore needs to chart a delicate course between allowing member states the flexibility they need and minimising the potential for harm to the internal market.

6 Recognising that any tax that is not directly correcting for an 'external' cost to society, such as pollution, will necessarily involve some kind of distortion to the socially optimal allocation of resources.

7 OJ C 200, 28.6.2014, p. 1–55, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52014XC0628%2801%29.

8 Commission Decision (EU) 2019/56 of 28 May 2018 on aid scheme SA.34045 (2013/c) (ex 2012/NN) implemented by Germany for baseload consumers under Paragraph 19 StromNEV.

9 OJ L 283, 31.10.2003, p. 51–70, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2003.283.01.0051.01.ENG&toc=OJ:L:2003:283:TOC

10 And may also benefit from insight gained as part of the forthcoming review by ACER, the pan-EU energy regulator, of best practice network tariff methodologies, the first edition of which is due to be published (under the revised Electricity Regulation) in October 2019.