BREAKING DOWN THE WALLS

Recovering the costs of the energy transition

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Recovering the costs of the energy transition

Achieving Net Zero will require significant sums to be invested. Carbon pricing can play an important role in driving this investment. A sufficiently high and credible carbon price will naturally drive out high carbon-emitting technologies and the market will choose the cheapest low carbon alternatives in their place.

However, while carbon pricing is efficient, the potential for significant 'winners' and 'losers' has made it less appealing for policymakers as the primary tool to drive low carbon investment. The fear of political interference also makes it less credible to investors. The recent adverse reaction in some Member States, notably Spain and France, to carbon prices rising above €60/tonne of CO_2 is a case in point.

As a result, carbon pricing remains excluded from large parts of the economy, including sectors where significant low carbon investment is required e.g. heating of homes and transport. Even in those sectors covered by the EU ETS carbon price (or the UK equivalent), the approach from policymakers has been to set lower carbon prices, with additional subsidies to low carbon investments on top.

GROWING CHALLENGE OF COST RECOVERY

This mixed approach has so far mainly been applied to the growth in renewables such as wind and solar in the electricity sector, with the associated subsidy costs being recovered from electricity customers. However, as we move forward in the energy transition the volume of subsidies, and hence costs to recover, is likely to increase as they spread to new and emerging technologies and into other sectors. These could include:

- Carbon capture utilisation and storage (CCUS) in power generation and industrial sectors;
- Bioenergy with Carbon Capture and Storage (BECCS) in the power sector;
- Hydrogen production as fuel for industrial processes and in the transport sector;
- Incentives for industrial customers to switch input fuels to hydrogen;

EXEC SUMMARY

Historically, low carbon investment support costs have tended to be recovered from the sector in which the investments are made e.g. in the electricity sector, the cost of wind and solar subsidies has typically been paid for by electricity customers. However, as we move to net zero and the level of support costs increases and spreads to other sectors, the current approach to cost recovery starts to break down and will likely lead to a number of undesirable outcomes. In this briefing we discuss some of the pitfalls of the current approach and sketch out some practical principles for a smoother energy transition.

- Incentives for households to switch heating technology e.g. from gas to electricity;
- Incentives to invest in energy efficiency; and
- Electric vehicle (EV) chargepoints.

Alongside actually building the infrastructure, recovering the costs of these wide-ranging support payments in an efficient way is a major challenge. At the moment, our approach lacks a set of clear principles.

RECOVERING COSTS IN "SILOS"

In some sense, recovering the costs of renewable electricity generation from electricity customers may have simply been a practical and less controversial way of recovering the costs than raising taxes.

But it is also likely to have been based on a sense that if electricity customers "use" or otherwise benefit from the low carbon investments, they should also pay for them. This principle of customers bearing the costs of assets they use also appears to underpin ACER's recent recommendation for the recovery of hydrogen network costs from hydrogen customers alone, without any cross-subsidisation from gas customers.

However, this "silo" approach to cost recovery where costs are tagged to a particular set of users, lacks sound logic and could result in a number of undesirable outcomes.

First it is not clear that electricity customers "using" the investments benefit alone, particularly when the benefits of decarbonisation (in electricity or any sector) are to the benefit of all. And second, even if it could be justified as being "fair", its logic starts to break down as the benefits of investments increasingly spread to multiple sectors, and hence the attribution of subsidy payments to a group of "users" becomes more complex.

Imagine the following examples:

- If hydrogen production facilities are subsidised and ultimately produce hydrogen that could either be used in industrial processes, to produce electricity in the power sector, or for fuel vehicles in the transport sector, should the hydrogen customers alone pay the support costs? Or alternatively, should they be allocated more broadly across the power, industrial and transport sectors?
- Even if hydrogen is not used directly in the power sector, electrolysers can act as an important source of electricity demand to soak up excess wind and solar generation thereby supporting the operability of the power sector. In this case, should the hydrogen support costs also be borne by electricity customers as well as hydrogen customers. In a similar vein, should hydrogen customers pay some of the renewables support cost given the availability of low priced (potentially zero priced) electricity input to produce hydrogen?

The apparent fairness principle behind a silo driven approach risks breaking down and looking out of touch.

MAKING THE ENERGY TRANSITION HARDER

Recovering support costs in silos may also be regressive. To date the majority of support costs have been recovered from electricity customers. Since low income households typically spend a greater share of their income on their energy costs than higher income households, this is regressive. It does not fit well with ensuring a fair or "just" transition that shares the burden of decarbonisation equally.

Further, thinking about cost recovery in terms of silos, such as on electricity or hydrogen customers, may also be self-defeating if it leads to inefficient behaviour, including disincentivising behaviour that is important to the energy transition.

Within the electricity sector, market participants may actively try to avoid paying the charges. For example:

- In Germany the levy to recover the renewable support costs was levied on net metered electricity consumption from the grid, and arguably this resulted in greater investment in "behind the meter" generation to avoid the levy than would have been cost-effective from a societal perspective.
- Similar avoidance behaviour took place in the UK when transmission network cost recovery charges were levied on the basis of peak consumption, leading to significant investment in embedded and behind the meter reciprocating gas and diesel engines, a distortion which Ofgem has since acted to remove.

On the other hand, charges may dampen behavioural responses which are good for the system. As subsidy costs increase, they are likely to become a greater share of the final retail electricity bill reducing the sensitivity of consumers to fluctuations in wholesale costs. As a result, the incentives for sources of flexible demand to respond to increasing volatility in electricity wholesale prices may be reduced.

The relative prices of substitute fuel sources may also be distorted simply due to the fact that historically more subsidies have been paid, and hence recovered, in one sector over another. For example, in the UK, household gas customers receive an implicit subsidy because, in addition to facing a carbon price (which gas customers do not) electricity customers face additional charges to recover the costs of renewables subsidies. This significantly tilts the playing field in favour of fossil gas heating technologies relative to electric heating alternatives. Recent reports suggest that the UK government may be considering shifting more cost recovery to gas customers to reduce this distortion.

Even ACER does not appear to have avoided this trap. If ACER's recommendations stand, we will see costs associated with the development of the hydrogen network loaded onto hydrogen customers alone, disincentivising and no doubt delaying the transition from methane.

PRINCIPLES FOR A SMOOTHER TRANSITION

To avoid some of these issues going forward, we need to develop a set of principles for recovering support costs. These don't yet appear to be part of the debate, though there do exist some fairly well recognised principles for pricing in the economic literature on network pricing and tax from which to start.

First of all, it is important to ensure consumers and businesses internalise the social costs related to their consumption and investment decisions. While an economy wide carbon price that fully internalises the

social cost of carbon is unlikely to be applied in the near future, policymakers should try to have a broadly consistent effective carbon price from levies and taxes (after taking into account actual carbon pricing) across different sectors to drive (relatively) efficient behaviour.

Beyond this, policymakers should avoid thinking about who "uses" or benefits from the subsidised investments, but instead try to ensure costs are allocated to minimise distortions. This means charging more for activities which are less price sensitive. Given so much of the energy transition will be reliant on consumers changing behaviour and investors developing new solutions, it is important that the impact on those decisions from the need to recover costs is minimised.

In practice, this may mean loading more costs on households, and less on businesses that may be particularly sensitive to international competition (i.e. in order to avoid carbon leakage). However, policymakers will also need to recognise that recovering costs from activities and customers which are least price sensitive could result in charges that worsen the position of the most vulnerable in society. Policymakers historically have been willing to trade off some efficiency loss to ensure fairer, and ultimately more politically acceptable outcomes.

Doing this doesn't mean literally putting all the costs into a single pot and allocating them from there. This is unlikely to be favoured by governments. However, it does require governments to have more of a macro-overview of how costs are being recovered and their potential implications for efficient behaviour, rather than different parts of governments acting in silos. And as more and more parts of government become involved e.g. ministries looking separately at energy, industry and transport, this may require a clearer set of principles being established and more structural thinking about breaking down the walls between silos.

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