EFET Insight into the Role of Markets in Decarbonisation

How do markets help deliver decarbonisation?

Reaching carbon neutrality is critical for European citizens and society. This will require a radical overhaul of every aspect of Europe's economy, including fundamental changes to the energy sector. This EFET insight explains how markets have a central role to play in driving that decarbonisation.

The key policy tools

The EU Emissions Trading System (EU ETS) → Requires emitters from the sectors covered by the scheme to acquire permits corresponding to their total carbon emissions. By progressively reducing the number of permits in circulation, a price is established. This raises costs for emitters and creates a strong incentive to switch to low-carbon or carbon-free alternatives.

Energy commodity markets → Send price signals which enable efficient decisions by multiple actors. These guide energy flows to meet demand, favouring low-cost, low-carbon technologies. They also help use energy infrastructure in an optimal way and inform decisions about where to invest. In addition, energy commodity markets provide a range of contractual tools to manage risk.

Guarantees of origin → Are electronic certificates that show the origin of energy that has been produced (e.g. that it is renewable). Their function is to prove the origin of energy to customers.

Renewable support schemes → Offer public financial support to promote the uptake or to accelerate the cost reduction of one or more technologies. Support schemes are usually designed at the national level and can take different shapes.[1]

[1] This list of key policy instruments is not exhaustive. Energy efficiency policies, eco-design and labelling, policies which limit industrial emissions and many more also play an important role.

How does the EU ETS deliver decarbonisation?

As a market, the EU ETS gives carbon a price based on:

- **Supply** – the number of EU emission allowances (EUAs) put on the market by Member States;
- **Demand** – the number of EUAs needed to cover the amount of carbon emitted.

So, for example, for electricity production, carbon dioxide emitters have to pay this price for every tonne of Carbon Dioxide they emit.

The EU ETS sends a strong carbon abatement signal, which creates a clear incentive to switch away from relatively more carbon-intensive processes and generation sources. It helps to deliver decarbonisation by:

→ **Favouring electricity generation from renewable and low-carbon sources.** Operating these technologies does not require emission allowances to be purchased as they emit little to no carbon. This makes them even more competitive compared to carbon-emitting technologies which face these costs.

→ **Stimulating innovation and investment in low-carbon and carbon-free technologies.** Putting a price on carbon gives a signal to modernise, innovate and invest in alternative solutions to bring down emissions and reduce related costs.

How could the ETS be even more effective?

1. Making sure it keeps working – a robust price relies on having sufficient buyers and sellers in the market. If restrictions on participation are included, liquidity will fall and the system will work less well.

2. Getting rid of free allocation – would help to strengthen the price signal for decarbonisation provided by the scheme, as demand for EUAs will increase.

3. Expanding it across sectors – to areas like heat and transport would allow it to be even more effective and drive greater levels of carbon reductions.

4. Making it apply in more places – either through direct participation of new countries in the EU ETS or through linking with comparable emissions trading schemes around the world.

You can find out more in the EFET Insight on the EU ETS

What is the role of energy markets in driving decarbonisation?

Competitive energy markets are also an important enabler of a cost-effective transition to carbon neutrality:

- **Forward (long term) markets** – typically operating up to around 3 years before energy is delivered, enable participants to manage future price risks and provide long-term investment incentives by showing when and where investment will be profitable. For renewable generators, Power Purchase Agreements (PPAs) – contracts between a seller and buyer which provide a stable revenue stream – are particularly useful.
- **Spot (short term day-ahead and intraday) markets** – Send signals about which sources of supply should serve demand – which leads to resources being used efficiently. For example, the design of these markets means that the lowest cost source of supply will meet demand and that the price will be set based on the cost of the technology which serves the last unit of demand (meaning prices will typically be low in a heavily renewables-based system). These markets, which operate much closer to the time when energy is delivered, also allow market participants to manage uncertainties (like plant failures or unexpected weather events) and generate reliable prices which act as references for long term contracts.
- **Real-time balancing markets** – are operated by Grid Companies (Transmission System Operators) and see them buy various services which are needed to maintain the stability of the overall system. This is vital to ensuring there is sufficient back up capacity to maintain security of supply at all times.

Where do Guarantees of Origin fit in?

Reaching carbon neutrality is going to require every energy end-use sector and various technologies to contribute. This means that we need to define standards for measuring and comparing the sustainability attributes of renewable and low carbon energy carriers and develop ways of validating the application of those standards to individual sources through the issuance of certificates.

Harmonised European systems for Guarantees of Origin and low carbon certificates, would open multiple opportunities, e.g. to increase consumer trust, to verify national energy mixes on the path to net zero carbon, to support new voluntary markets in certificates and to underpin RES or low carbon quotas set by governments in certain

energy end-use sectors. These systems should foresee safeguards to avoid double-counting and fraud. It is crucial that markets in such instruments operate separately from markets in the underlying energy commodities.

How do markets and wider policies interact?

The urgency and scale of the decarbonisation challenge mean that a mix of policies and markets will be needed to drive deeper decarbonisation. These policies may include measures to disincentivise or phase out the use of carbon-rich fuels, or to accelerate the uptake of renewable and low-carbon alternatives.

Designing these measures in a compatible way is key – with the following guiding principles being vital.

- → **Ensure policies and markets pull in the same direction** – Considering interactions between policies and markets is key. For example, policies need to avoid supressing price signals or altering the demand for emissions allowances. Policy measures also need to be designed in a way to maximise value for money and avoid overcompensation.
- → **Create a path to allow the national to become European** – Where a need for action or policy measure is identified at Member State level, it should be designed in a way that creates the option for it to expand over time.
- → **Think system wide** – The energy system is more integrated than ever – any policy measure needs to recognise overlaps between gas, electricity, carbon and hydrogen markets and between it and other existing policies.

This is perhaps the greatest challenge in an ever more interconnected energy system.

Key features of effective support mechanism design

- → Maximise competition in allocating support
- → Maintain incentives to react to price signals
- → Aim for technology neutrality
- → Make it apply across borders
- → Use a flexible design to avoid overcompensation

In summary

Over the past 20 years Europe has built some of the largest and best performing markets in the world. Those markets have delivered very significant value to customers – for example the Agency for the Cooperation of Energy Regulators (ACER) recently concluded that the benefits of electricity market integration amount to 34 billion euros per annum – and contributed to the decarbonisation of the European economy.

A strong carbon price signal, competitive and integrated electricity and gas markets and a common approach to certifying the sustainability characteristics of various energy carriers each have a critical role to play in enabling efficient decarbonisation. EFET will continue to work to ensure these markets function as effectively as possible.

For more information, feel free to contact us at secretariat@efet.org