

Some Thoughts on a Policy Roadmap to Net-zero by 2050

ETG stands ready to help government to analyse and understand how different policies affect different sectors, and to implement decarbonization policy in an efficient and cost-effective way as targets become increasingly challenging. The policy roadmap to net-zero by 2050 needs to consider both the timeline and the policies that government can use to achieve net-zero.

Timeline

The timeline to net-zero by 2050 can be envisaged to be in three broad phases which will require different policy and technology mixes.

2000 – 2020: the getting-started phase characterised by:

- major emission reductions in the power sector driven by the EU ETS & renewable subsidies;
- some emission reductions in the industrial sectors driven by fuel switching, CCAs, and energy efficiency improvements;
- little emission reduction in the domestic or commercial heating sector;
- increase in emissions in the transport sector where increased traffic has negated efficiency gains.

2020 – 2035: the difficult phase characterised by:

- continued emission reductions in power sector driven by competitive renewables, electricity storage, CCS & ETS;
- emission reductions in public, domestic & commercial sectors driven by efficiency improvements, hydrogen and decarbonising heat;
- emissions reductions in the industrial sectors driven by fuel switching e.g. hydrogen and electrification, efficiency improvements, CCS, CCA & ETS;
- emission reductions in the transport sector driven by fuel switching, e.g. electrification and hydrogen;
- emissions reductions and sequestration in the agricultural sector.

2035 – 2050 – the very difficult part characterised by:

- need for greater incentives in ETS & non-ETS sectors to drive emission reductions in hard-to-reduce sectors;
- emission reductions by replacement products & technologies;
- need for negative emissions (e.g. BECCS, CO₂ removal technologies) to offset process emissions and standby emissions.

Government Policy Levers & Choices

Governments have four main policy levers – command & control, voluntary/negotiated agreements, subsidies, & economic instruments – including border adjustments. These policy options are not mutually exclusive and can be mixed but one or more may be more suitable for

certain sectors, sub-sectors, or geographies (e.g. clusters) depending on their relative ability to reduce emissions over time.

Where different policy options are used, care must be taken that interactions between the policies do not detract from their effectiveness.

In practice, a mix of policies is needed, and the constitution of this mix will vary over the different phases.

Whatever policies are adopted, there is a requirement for education as to the need for those policies and why they are appropriate.

Command & Control

The use of Command & Control is the classical way to control emissions - and can be very effective but is best suited where there are measurable local impacts, where there are technology neutral emission or efficiency standards, and where cost of compliance is evenly spread.

Voluntary/Negotiated Agreements

Voluntary agreements are generally seen as not very effective, and tend to enshrine business as usual. Negotiated agreements can be very effective but are most successful when accompanied by a financial incentive such as a tax rebate. However, they are complex involving detailed negotiations, and such complexity can lead to economic distortions between sectors.

Subsidies and Taxes

Subsidies are essential to encourage research, development, and demonstration activities, and are one way to correct for market failure. However, they can cause market distortions through picking ‘winners’ which may turn out to be ‘losers’. Ideally subsidies should be aimed to achieve an objective and be technology neutral, except at the research phase. It is also important that taxes, tax reliefs and subsidies in other areas (e.g., on fossil fuel use) are in line and consistently targeted at the same underlying objectives or else subsidies must work even harder to correct for a distorted playing field. Whatever subsidies are used, they must be phased out as soon as possible to avoid ongoing economic distortion.

Economic Instruments

Carbon taxes and emission trading schemes are being increasingly used in many jurisdictions. Both can have the same impact and give the same result. However, in practice they may lead to substantially different results. A carbon tax delivers certainty on the carbon price but the environmental outcome is uncertain whereas a ‘cap & trade’ emissions trading scheme (ETS) delivers environmental certainty in the most cost-effective manner.

Border Carbon Adjustments

Implementation of ambitious 2050 net zero GHG targets and decade milestones (2030) may not be universally adopted by UK trading partners. This could lead to the risk of carbon leakage for UK imports and exports in regard to countries with less ambitious NDCs.

A Border Carbon Adjustment could correct for the lack of a carbon price for UK imports and subsidise UK exports subject to a high carbon price. But such a mechanism would need to be WTO compatible, is currently untried, and the determination of carbon content - particularly for complex manufactured items - is likely to be complex.

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