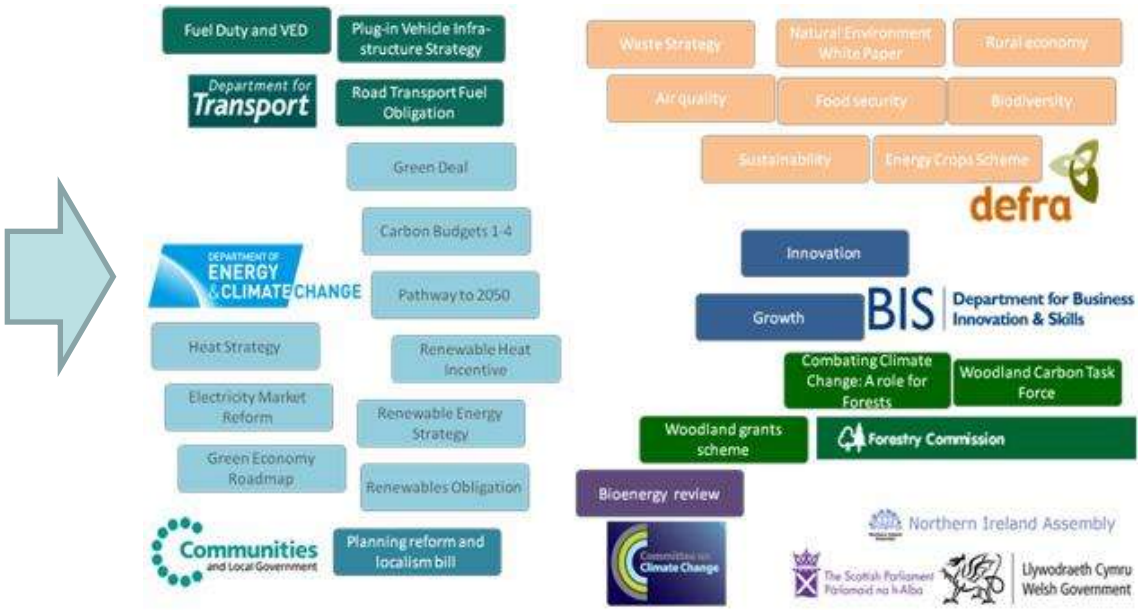
Bioenergy Strategy

BABSIG Meeting
30th May 2012

Our approach to the development of the Strategy

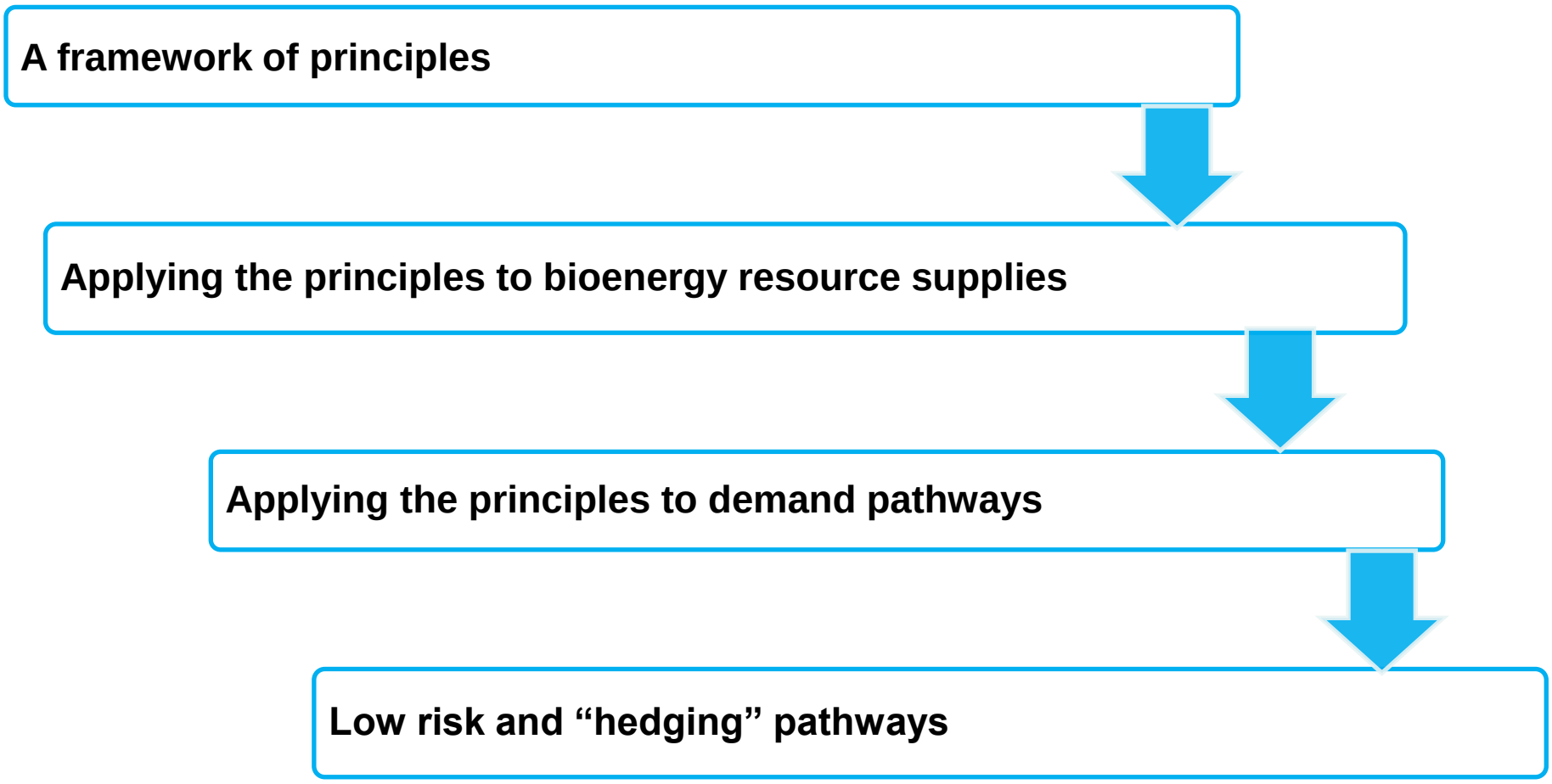
- Bioenergy: only renewable energy source that requires ongoing use of fuel with a cost to supply
- Many opportunities and benefits but also significant risks

Complex policy landscape



Aim of the Strategy:
Set a collective HMG framework that helps Government and industry navigate in complex landscape, securing the benefits of bioenergy and minimising risks
– Not to set policy

Framing the issues and analysis:



The four principles

1. Deliver genuine carbon reductions that help meet UK carbon emissions objectives to 2050 and beyond.

2. Make a cost effective contribution to UK carbon emission objectives in the context of overall energy goals.

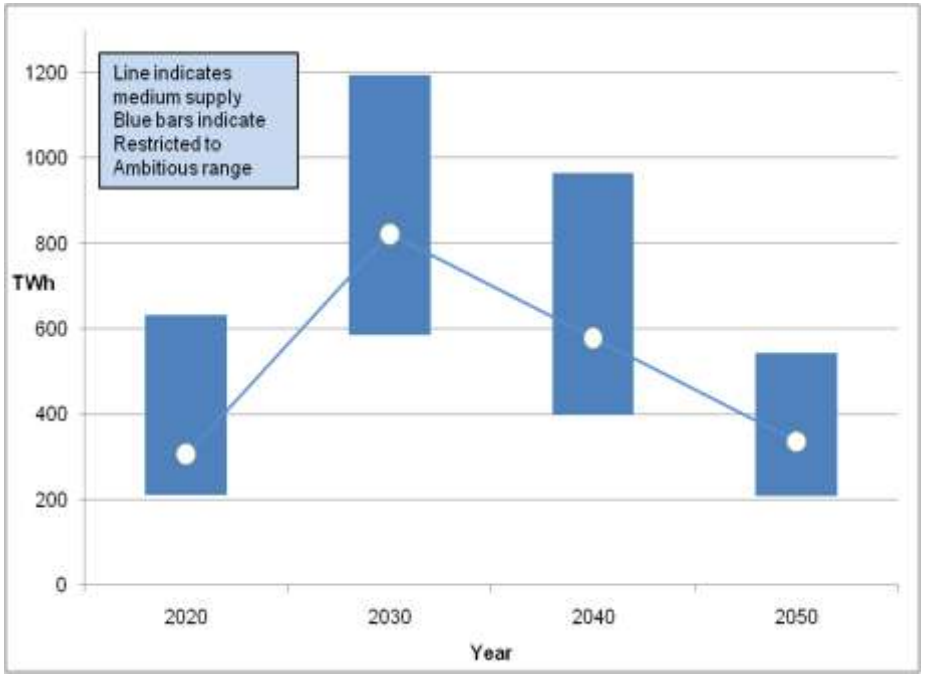
3. Maximise the overall benefits and minimise costs (quantifiable and non-quantifiable) across the economy.

4. Assess and respond to the impacts of this increased deployment on other areas, such as food security and biodiversity

Applying the principles to bioenergy resource supplies

- Woody imports: key component of future supplies
- UK feedstocks: smaller but consistent role
- Use of wood for bioenergy: good carbon reduction option compared to alternative uses of the resource in certain circumstances but not all.

Bioresource supply ranges (including domestic and imported supplies) potentially available to the UK from 2020 to 2050



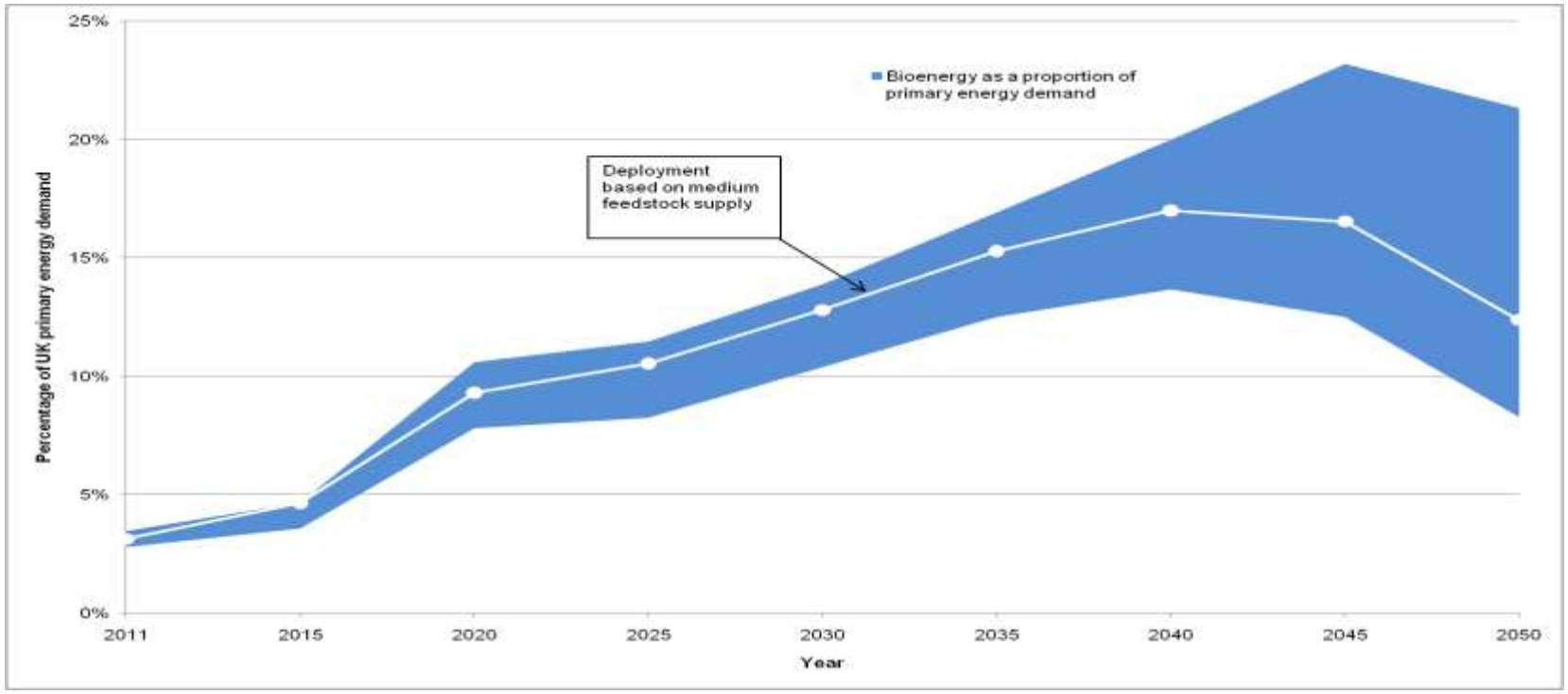
Possible available supplies of sustainable feedstocks:
Need adequate safeguards in place to ensure what we use is sustainable

Applying principles to deployment pathways

Bioenergy can play an important role to our future decarbonisation but:

- Its deployment will need to evolve to meet renewables targets and carbon constraints as technological advances take place.
- Need sufficient safeguards to navigate the risks

Potential bioenergy contribution to overall primary energy input



Possible low-risk pathways

•Generation of heat and electricity generation through use of **wastes** and **combined heat and power** processes

•Use of biomass to provide low carbon **heat for buildings and industry (process heating)**

•Use of biomass as a **transitional fuel to reduce carbon emissions from current coal power generation**

•Use of **crop derived biofuels to reduce emissions from road transport** (if sustainability issues can be addressed) and development of **advanced biofuels** to contribute to the decarbonisation of road and other transport sectors in the medium to longer term.

Key hedging options to mitigate technological game changers:

- •Biosynthetic gas
- •Advanced Biofuels
- •Hydrogen

Implementing the strategic direction

Boosting feedstock supply sustainably
(e.g. DEFRA, FC actions)

Getting adequate safeguards in place
(e.g. RO sustainability requirements and EU ILUC decisions)

Promoting low-risk technological options
(e.g. forthcoming RO banding review decisions)

Monitoring impacts

Getting adequate safeguards in place

- GHG standards need to tighten over time to allow biomass in power generation to play a role in long term decarbonisation.
  - New dedicated biomass which replaces gas can have poor carbon abatement cost effectiveness vs. counterfactual
  - Co-firing/conversions that replace coal can score better.
- Maximise transparency of reporting
- Work to harmonise standards across EU
- Continue work on ILUC
- Continue to press on global carbon accounting
- Consider incorporation of wider sustainability issues in standards
- Explore consistency of standards between energy and non-energy sectors

Thank you

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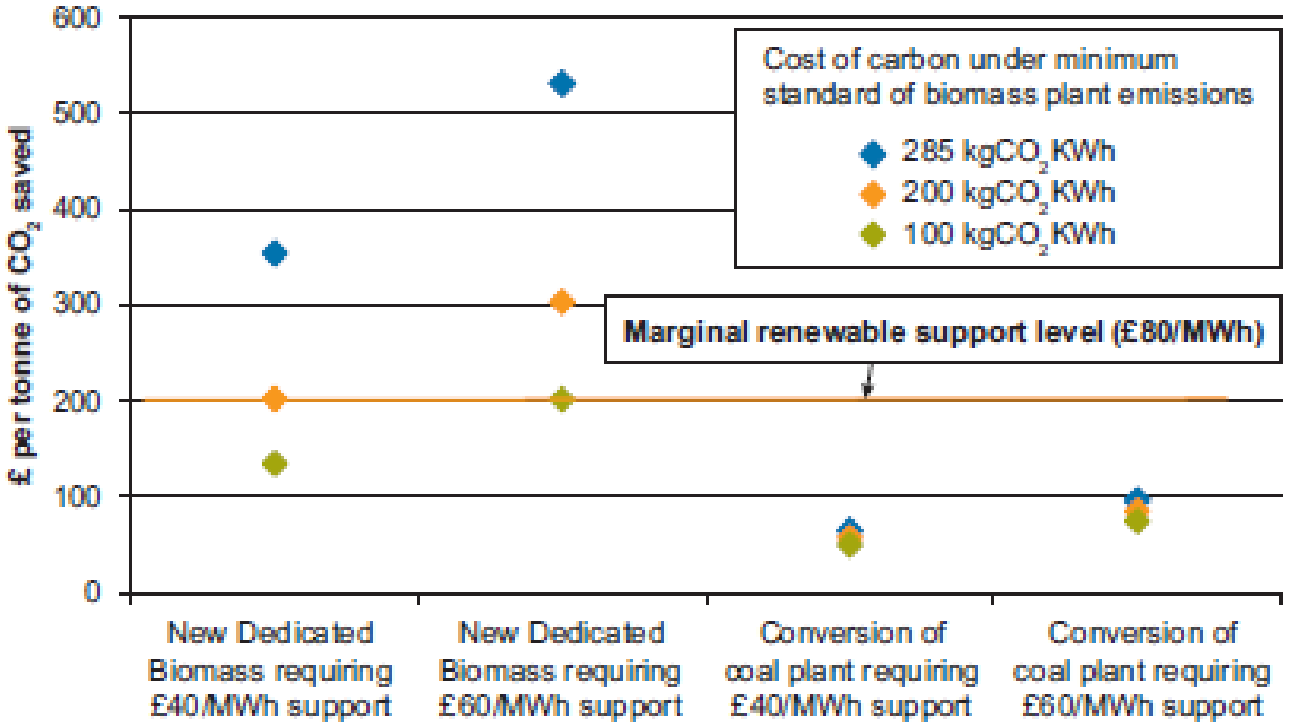
ANNEXES

Illustrative cost of carbon abatement for biomass power generation

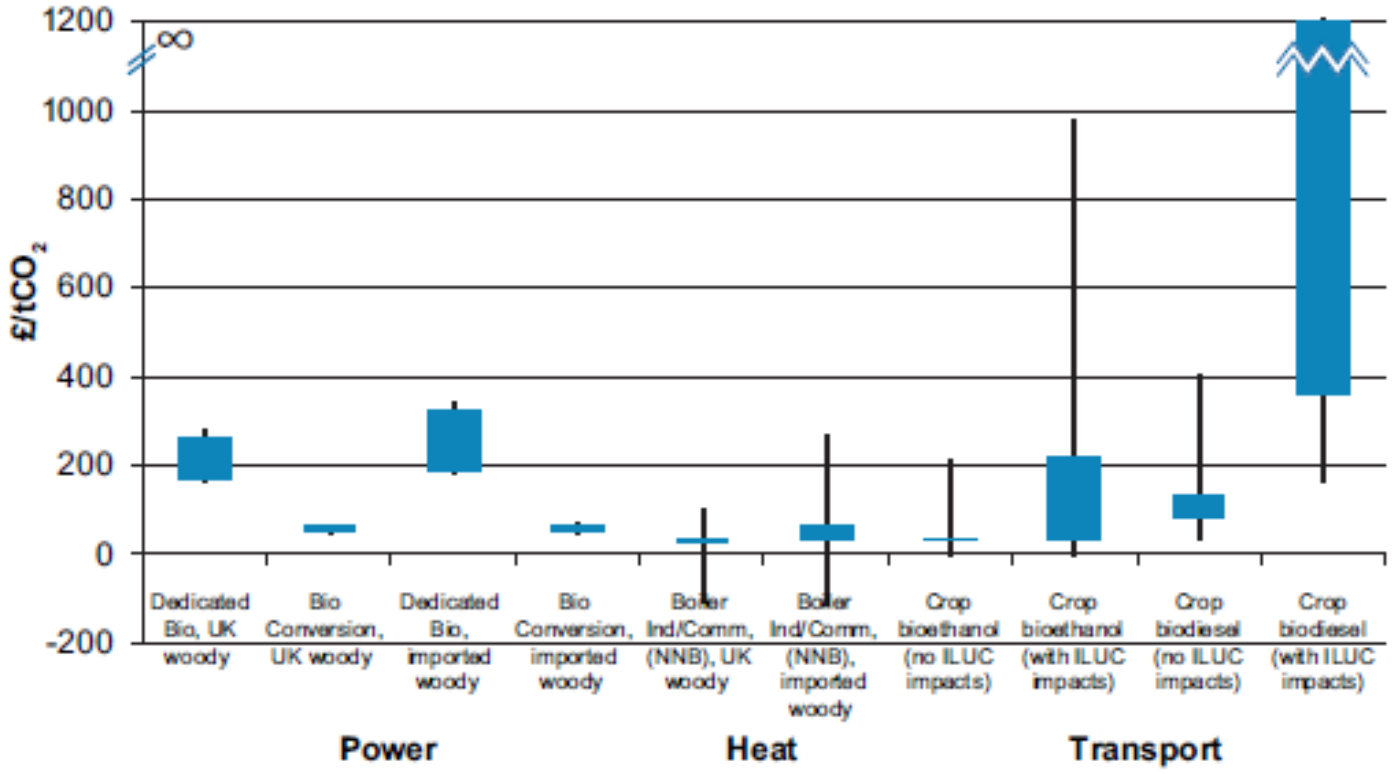
DEPARTMENT OF ENERGY & CLIMATE CHANGE

Figure 9: Illustrative carbon cost effectiveness of new dedicated biomass against conversions and alternative renewable generation



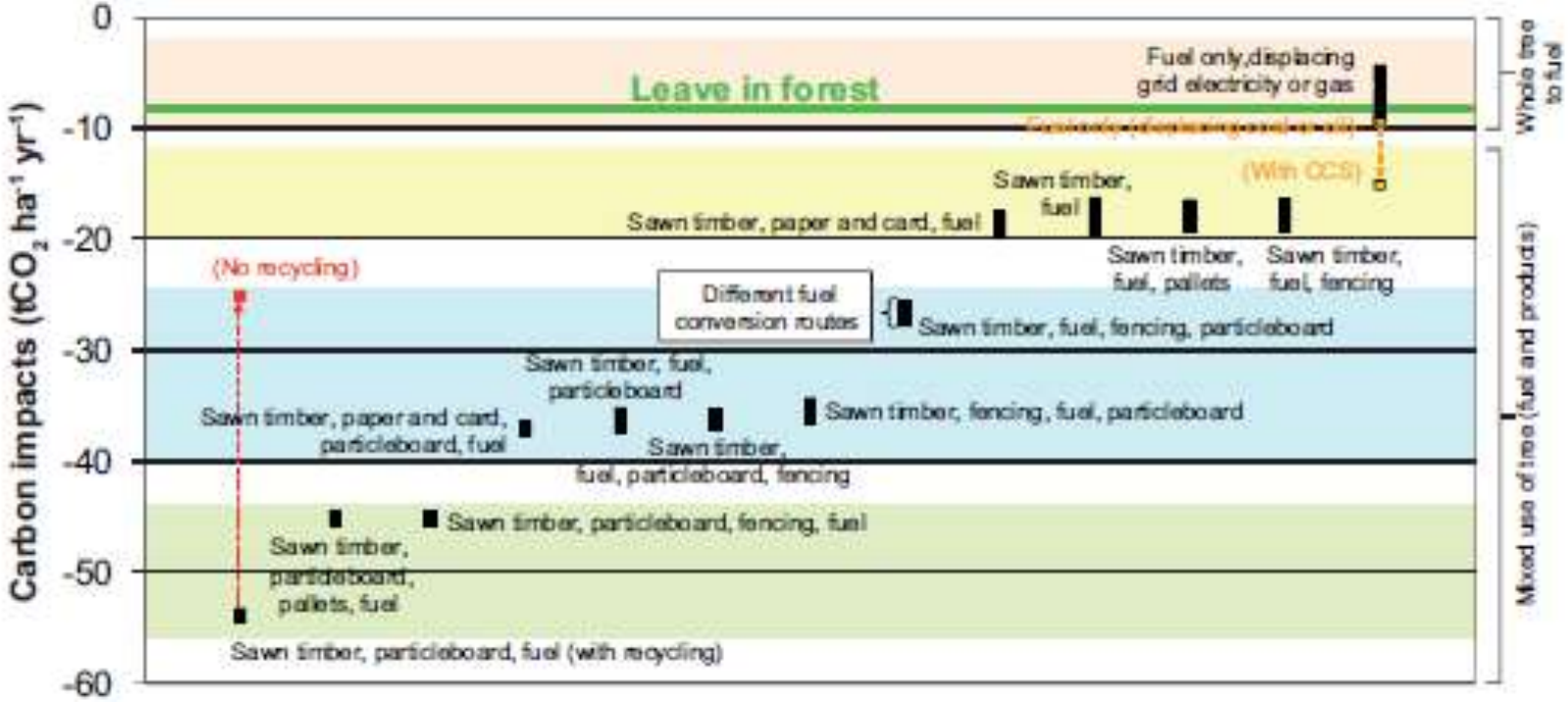
Cost effectiveness estimates

Figure 16: Cost-effectiveness of using bioenergy sources to abate carbon in different applications and sectors, £/tC0$_2$, 2020 estimates, 2010 prices



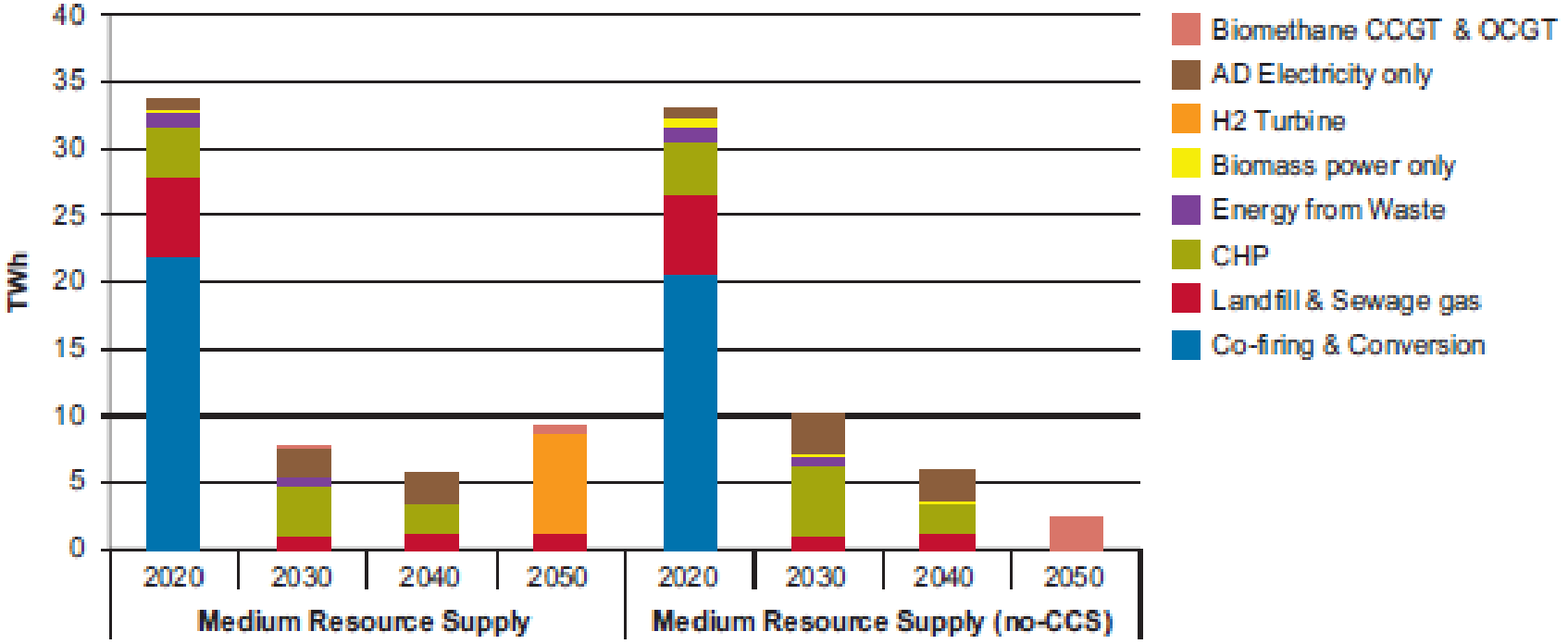
Carbon impacts of using wood

Figure 4: Carbon sequestered and emissions avoided (saved, compared to a reference scenario) by harvesting UK conifer forests and using the wood in different applications to displace non-wood products and fossil fuels



Deployment pathways analysis – Power generation

Figure 8: Energy delivered from biomass use in power generation under medium feedstock availability scenario



Deployment pathways analysis – Heat

Figure 11:Bioenergy heat output by technology under key scenarios