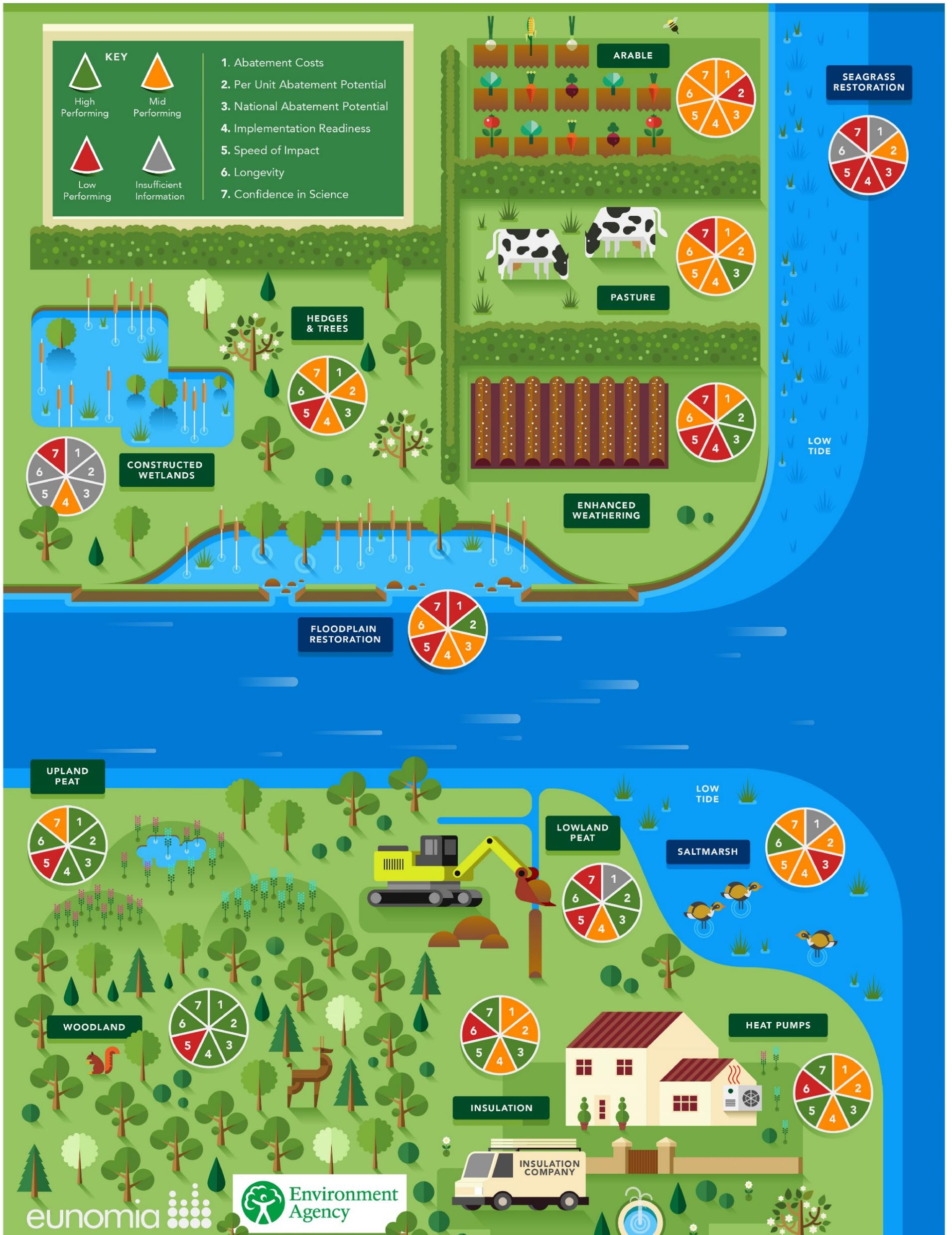


Achieving net zero -

A summary of the evidence behind potential carbon offsetting approaches



Performance of different offsetting approaches against key indicators

Approach	Reduction or removal	Abatement cost	Per-unit abatement cost	National abatement potential	Implementation readiness	Speed of impact	Longevity	Confidence in the science
Upland peat restoration	Both	●	●	●	●	●	●	●
Lowland peat restoration	Both	●	●	●	●	●	●	●
Woodland creation	Removal	●	●	●	●	●	●	●
Grassland	Removal	●	●	●	●	●	●	●
Floodplain restoration	Removal	●	●	●	●	●	●	●
Constructed wetland	Both	●	●	●	●	●	●	●
Saltmarsh restoration	Removal	●	●	●	●	●	●	●
Seagrass restoration	Removal	●	●	●	●	●	●	●
Kelp restoration	Removal	●	●	●	●	●	●	●
Soils on arable land	Both	●	●	●	●	●	●	●
Soils on pasture land	Both	●	●	●	●	●	●	●
Hedges and trees outside of woodlands	Removal	●	●	●	●	●	●	●
Enhanced weathering	Removal	●	●	●	●	●	●	●
Biochar	Removal	●	●	●	●	●	●	●
Household insulation	Reduction	●	●	●	●	●	●	●
Household low carbon heating	Reduction	●	●	●	●	●	●	●

Key:

Each of the offsetting approaches listed above was assessed against 7 key indicators.

- = Good performance
- = Medium performance
- = Poor performance
- = No enough data available

Per-unit = per-hectare for natural environment measures and per-household for built environment measures.

Facts and figures for different offsetting approaches

Approach	Cost (approx.)	Removal/reduction potential		Readiness		Speed of impact	Longevity	Confidence in the science	
	£/tCO ₂ e	Per unit per year	Nationwide	Technology	Certification	Years		Reduction/removal	£/tCO ₂ e
Upland peat restoration	10-100	2-20	Very High	Ready	Ready	>10	Long-term	Medium	High
Lowland peat restoration	Uncertain	5-20	High	Ready	Not ready	>10	Long-term	Medium	Low
Woodland creation	20-25	11	Very High	Ready	Ready	~10	Long-term	High	High
Grassland	n/a	2	n/a	Ready	Not Ready	<10	Short/Medium term	Low	Low
Floodplain restoration	>1000	10	Moderate	Ready	Not Ready	>10	Medium/long-term	Low	Low
Constructed wetland	Uncertain	Uncertain	Uncertain	Ready	Not Ready	Uncertain	Uncertain	Medium	Low
Saltmarsh restoration	Uncertain	2-8	Low	Ready	Not Ready	<10	Long-term	High	Medium
Seagrass restoration	Uncertain	1.6	Low	Not Ready	Not Ready	>10	Uncertain	Low	Low
Kelp restoration	n/a	2.15	n/a	Not Ready	Not Ready	Uncertain	Uncertain	Low	Low
Soils on arable land	100-1000+	0.5-1	Moderate	Ready	Not Ready	<10	Medium/long-term	Medium	Medium
Soils on pasture land	10-1000+	0.2-4	Very High	Ready	Not Ready	<10	Medium/long-term	Medium	Low
Hedges and trees outside of woodlands	15-30	2-7	High	Ready	Not Ready	>10	Long-term	Medium	High
Enhanced weathering	40-360	6	Very High	Ready	Not Ready	>10	Medium/long-term	Low	Low
Biochar	70-270	44*	High	Ready	Not Ready	Immediate	Long-term	Medium	Low
Household insulation	100-300	1	Very High	Ready	Not Ready	Immediate	Short-term	High	High
Household low carbon heating	200-300	1	Very High	Ready	Not Ready	Immediate	Short-term	High	High

Key:

The categories for national abatement potential correspond to the following ranges:

- Low = 0-1 MtCO₂e
- Moderate = 1-5 MtCO₂e
- High = 5-10 MtCO₂e
- Very high = more than 10 MtCO₂e

Per-unit = per-hectare for natural environment measures and per-household for built environment measures.

* For biochar, assumes a biochar application rate of ~30t/ha/year, which is judged to be realistic but lower than any theoretical maximum. The key limitation is feedstock availability. This value also assumes that biochar is 60% carbon and 65% of this carbon lasts over 100 years.