

An independent assessment of the Clean Growth Strategy

Technical Annex – F-gases

Under the Climate Change Act, the government is required to publish a set of policies and proposals that will enable the legally-binding carbon budgets, on track to the 2050 target, to be met. The Clean Growth Strategy, published in October 2017, presents the Government's plans.

Our report, *An independent assessment of the Clean Growth Strategy: From ambition to action*, sets out our overall assessment of the Strategy. This technical annex sets out the analysis for the F-gases sector underpinning that report, in three sections:

- i) Emissions from the F-gases sector today
- ii) Ambition in the Clean Growth Strategy
- iii) Policy development required to deliver ambition in the Clean Growth Strategy

i) Emissions from the F-gases sector today

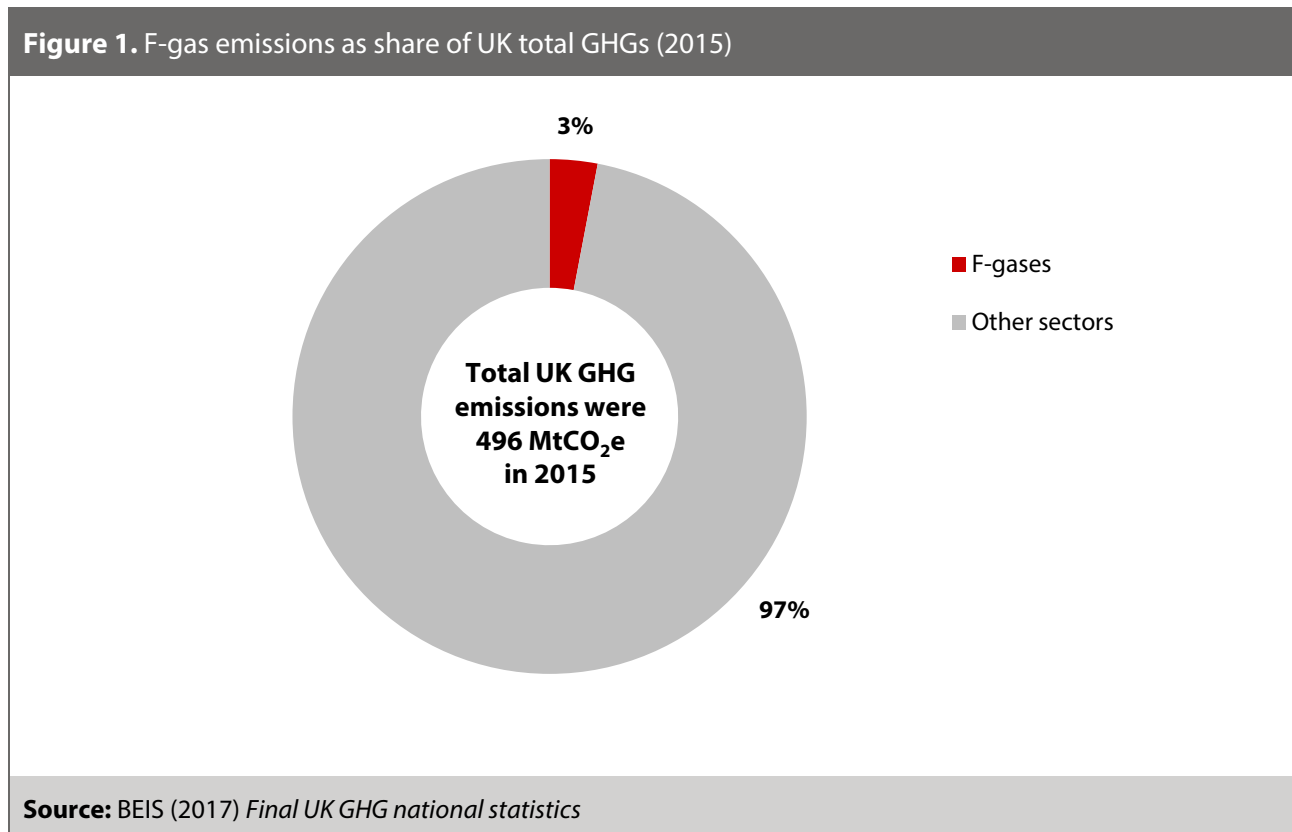
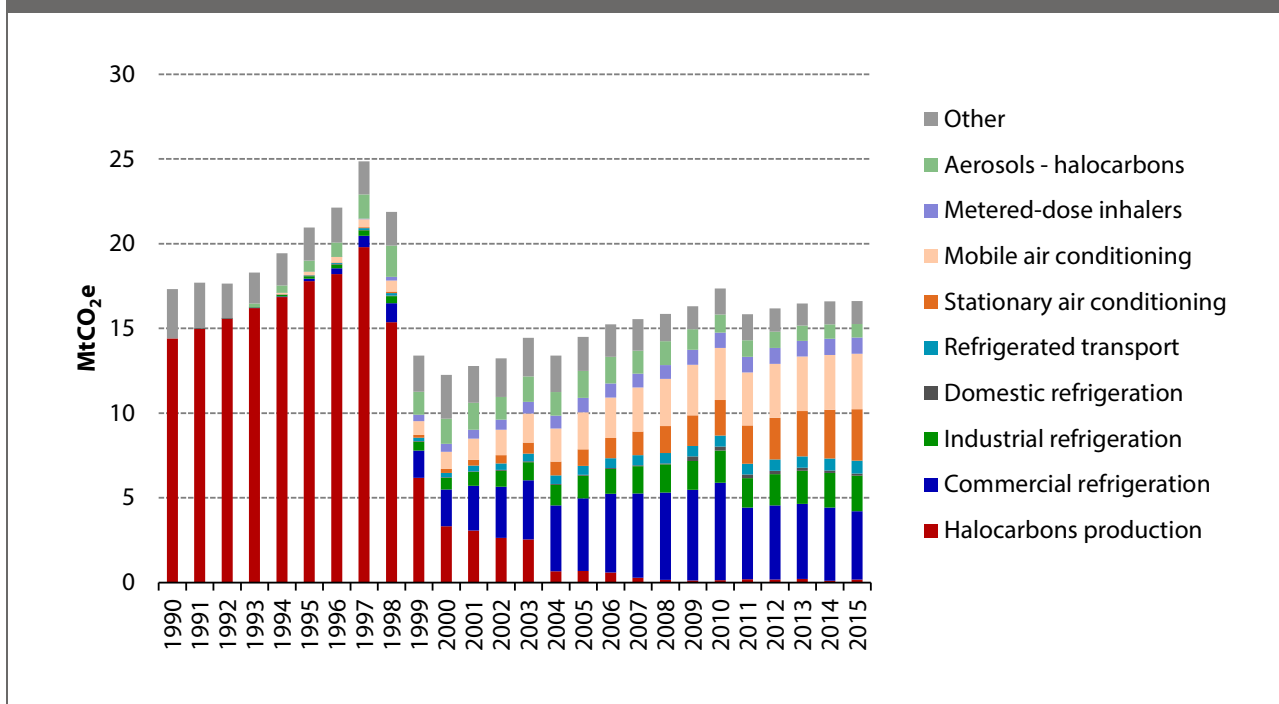


Figure 2. Direct emissions from F-gases (1990-2015)



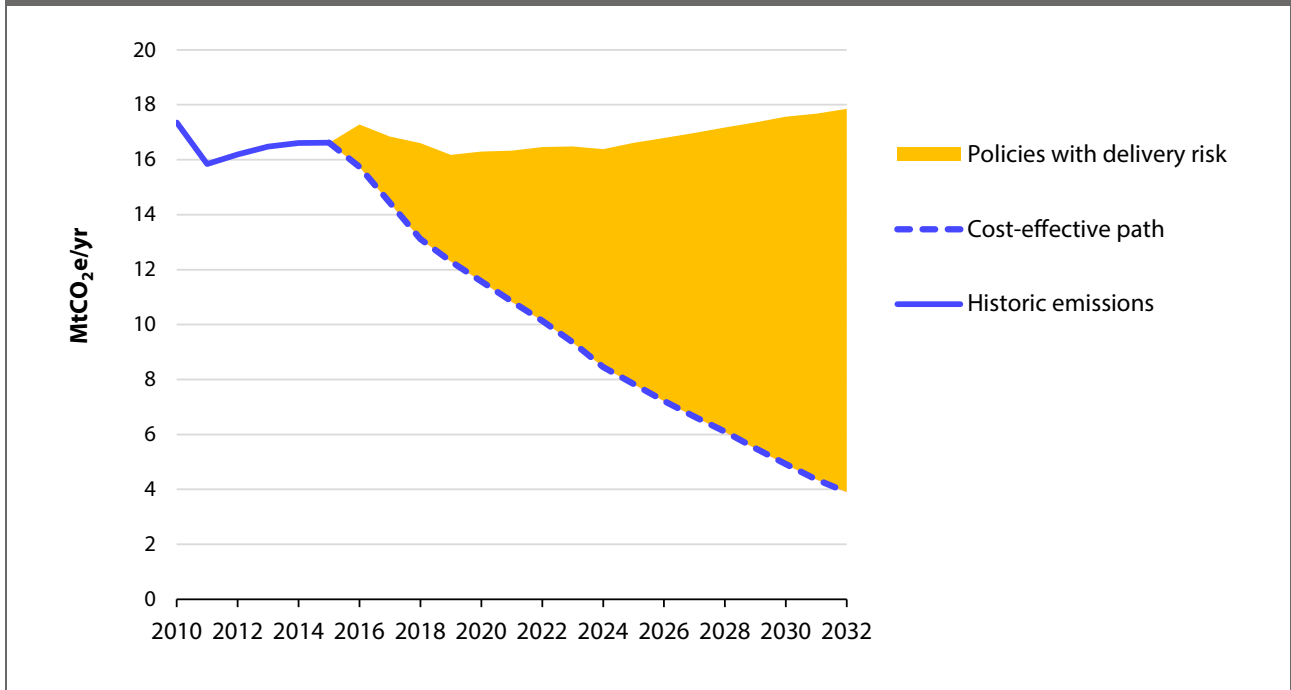
Source: BEIS (2017) *Final UK GHG national statistics*, National Atmospheric Emissions Inventory, CCC analysis.

ii) Ambition in the Clean Growth Strategy

Table 1. Ambition in key low-carbon technologies and behaviours in industry

Key technology / behaviour	CCC scenarios	Clean Growth Strategy ambition	What we have assumed for quantification
Use of low-GWP refrigerants	Emissions down by 68% from 2015 to 2030	No new ambition.	Abatement in line with the EU F-gas regulation to 2030

Figure 3. F-gas emissions and impact of Clean Growth Strategy (2010-32)



Source: BEIS (2017) *Updated Energy and Emission Projections 2016*, BEIS (2017) *2016 UK Greenhouse Gas Emissions, provisional figures*, CCC analysis

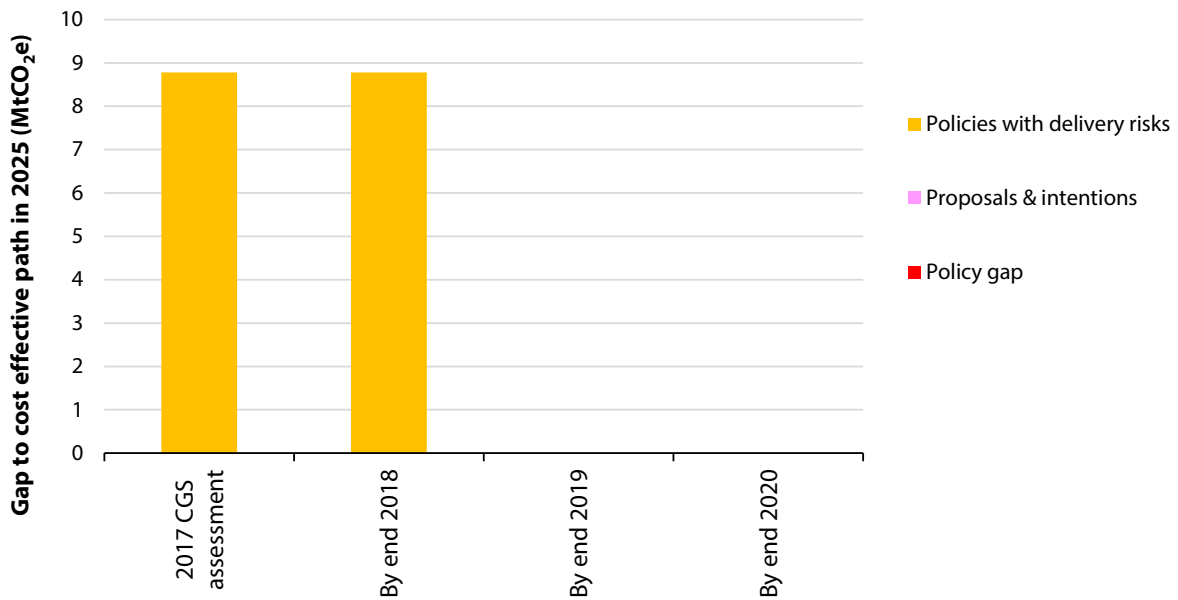
Notes: Chart is for actual (i.e. gross) emissions and is on the basis of Government emission projections used in the Clean Growth Strategy. Emission reductions from existing policies that we judge to have significant delivery risks (e.g. insufficient funding) are coloured amber.

iii) Policy development required to deliver ambition in the Clean Growth Strategy

Table 2. Progress against the Committee's recommendations on f-gases in the 2017 Progress Report

Recommendation in 2017 Progress Report	Clean Growth Strategy proposal	Assessment	Commentary
The UK to continue its inclusion in the F-gas Regulation or develop equivalent or stronger legislation in the UK.	<p>In an explanatory memorandum to the Kigali Amendment (August 2017) the Government stated that it intends, subject to parliamentary approval, to incorporate EU law into UK law, where appropriate, following our exit from the EU.</p> <p>In the Clean Growth strategy the Government stated that current policies will cut UK F-gas emissions from 17 MtCO₂e in 2015 to 6.6 MtCO₂e by 2027 and 3.2 MtCO₂e by 2035.</p>	Partially met	The Government and Environment Agency should rapidly prepare for implementation of a UK only F-Gas Regulation, in readiness for the UK leaving the EU.
The Government to investigate opportunities to go beyond the EU regulatory minimums on F-gases. Where evidence suggests that further cost-effective abatement is available, the Government should pursue policies to achieve this abatement.	No mention	No progress	

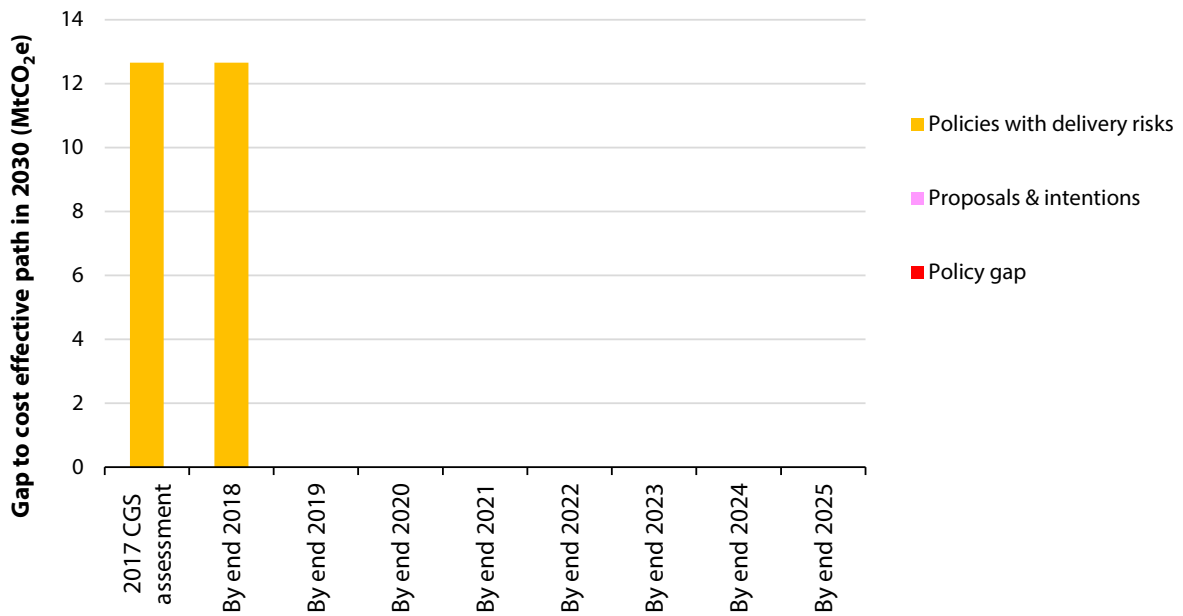
Figure 4. Fourth carbon budget: The F-gas policy gap in 2025 and how Government policies should develop over time to close this gap



Source: BEIS (2017) *Updated Energy and Emission Projections 2016*, CCC analysis.

Notes: This chart reflects the Committee's detailed assessment of how the remaining gap to the cost-effective path can be closed and how current policies, proposals and intentions are firmed up so that delivery risks are largely eliminated. This is based on an assessment of the current status of policies, proposals and intentions, and the potential to strengthen policy by 2020. The chart focuses on annual emissions in 2025, the middle year of the fourth carbon budget period, and the gap to meeting the cost-effective path. This assessment is based on the government emission projections used in the Clean Growth Strategy. New projections were published in January 2018.

Figure 5. Fifth carbon budget: The F-gas policy gap in 2030 and how Government policies should develop over time to close this gap



Source: BEIS (2017) *Updated Energy and Emission Projections 2016*, CCC analysis.

Notes: This chart reflects the Committee's detailed assessment of how the remaining gap to the cost-effective path can be closed and how current policies, proposals and intentions are firmed up so that delivery risks are largely eliminated. This is based on an assessment of the current status of policies, proposals and intentions, and the potential to strengthen policy by 2025. The chart focuses on annual emissions in 2030, the middle year of the fifth carbon budget period, and the gap to meeting the cost-effective path. This assessment is based on the government emission projections used in the Clean Growth Strategy. New projections were published in January 2018.

Table 3. Timetable for closing the f-gas policy gap

Policy	2018 H1	2018 H2	2019 H1	2019 H2	2020	2021	2022	2023-30	2031-32
Phase down use of hydrofluorocarbons (HFCs) by 79% by 2030 from 2015 levels.	Ensure compliance								
	Develop a UK-only regime in preparation for the UK leaving the EU			Implement new regime if necessary					
Montreal - phase down HFCs by 86% by 2036	Ensure compliance								
							Determine how to meet post-2030 step down to an 86% reduction		
Investigate opportunities to go beyond the EU regulatory minimums on F-gases.			Investigate opportunities and create powers to tighten the F-gas regulation		Implement new approach if cost-effective opportunities available				

Legend: Green – Government commitment and timing in Clean Growth Strategy; Blue – Government commitment in Clean Growth Strategy with CCC timing and/or detail added; Orange – CCC recommendation.