
Technical Annex 8: F-gases

This Technical Annex supports the F-gases chapter of the report *Meeting Carbon Budgets – 2016 Progress Report to Parliament* in two sections:

1. Assessment of current and planned policies
2. Indicator framework

1. Assessment of current and planned policies

In order to assess progress against the legislated fourth, and our recommended fifth, carbon budgets we:

- Review Government plans to reduce emissions against our cost-effective path.
- Evaluate the policies based on criteria (Box A8.1) that allow us to judge whether the policies are expected to deliver (i.e. 'low risk') or at risk of failing to deliver (i.e. 'at risk', either due to design and delivery problems, or because of lack of funding).
- Identify areas where there is no policy to drive emissions reduction but there is a need for one (i.e. there is a 'policy gap').

Box A8.1: Criteria to evaluate level of risk in current policies

The criteria that we have used to assess policies are:

- **Design and implementation.** We assess whether the design and implementation of the policy tackles the right barriers; whether the policy has established a track record or there is evidence of similar policies working before; and whether there are risks to the policy due to various factors such as lack of coherence or lack of political support. We also assess whether the government's original Impact Assessment makes a prudent assessment of the level of abatement delivered by the policy.
- **Incentives.** We assess whether the right incentives – monetary or regulatory – are in place for the policy to deliver the necessary abatement.
- **Funding.** We assess whether, if required, there is adequate funding in place for the policy, both now and in the future.

If policies meet all three criteria we would expect them to deliver and we have classified them as 'lower risk', whereas if they fail any one of the criteria we classify them as 'at risk'.

Based on these criteria, we currently regard the 2015 F-gas regulation to be at lower-risk as it has already been implemented in the UK, together with the appointment of enforcement bodies such as the Environment Agency to examine compliance. In addition, the regulation has a track record as it follows the example of the Montreal Protocol that successfully phased out substances depleting the ozone layer.

2. Indicator framework

As reported in the main report, F-gas emissions have been rising by around 1% per year since 2009 as the result of increasing use of HFCs in refrigeration, stationary and mobile air conditioning. We have updated our headline indicator for F-gases which tracks the progress in the reduction of CO₂e emissions and is based on our updated scenarios as presented in the fifth carbon budget advice (Table A8.1):

- By the end of the second carbon budget period, we expect F-gas emissions to be 6% below 2007 emissions. This is a less ambitious level of emission reduction than previously suggested (with a 23% reduction from 2007 levels in our 2015 Progress Report).
- By 2030, the updated indicator is more in line with our previous trajectory and reaches a 65% fall in F-gas emissions.

The indicator reflects our latest understanding of the impacts of EU 2015 F-gas regulation, which should significantly reduce emissions from refrigeration and air conditioning, as well as our heat pumps uptake, which may add around 0.6 MtCO₂e emissions by 2030 due to its use of HFCs as refrigerants.¹

Headline indicator	Budget 2	Budget 3	Budget 4	Budget 5	2014 indicative	2014 outturn
CO ₂ e emissions	-6%	-33%	-54%	-71%	N/A*	+13%

Source: CCC analysis
Notes: Our fifth carbon budget path starts in 2015, meaning that we cannot compare the outturn emissions to our scenario until the 2015 outturn emissions are released. The percentage reduction is with respect to the last year of a given carbon budget.

¹ See Sectoral Scenarios for the Fifth Carbon Budget, Chapter 7, p210 at: <https://www.theccc.org.uk/publication/sectoral-scenarios-for-the-fifth-carbon-budget-technical-report/>