

Quarterly GHG emissions – UK

**Leah Harris on behalf of Gemma Thomas and Sumit Dey-
Chowdhury**

Analyst, Environment Accounts and Surveys, Environment, Office for
National Statistics

Rationale and interest

GDP and beyond

- “... a powerful indicator centred around the market economy, but a poorer measure of broader economic welfare”
- [ONS workplan](#) to produce measures of “inclusive income”
- Covers themes of wellbeing and sustainability

SEEA and GDP and beyond

- ONS will provide two indicators, gross and net inclusive income, which refer to income flows from a wider range of capital
- This includes estimates of natural capital (using SEEA EA)
- Improving other environmental estimates to build a richer evidence base for all users
- Align estimates of GHG emissions with quarterly GDP
- Brings our emissions estimates closer to GDP and they're directly comparable as they use the SEEA framework

Environmental Audit Committee

Recommend that: “The ONS publish quarterly estimates of greenhouse gas emissions alongside GDP figures, as part of the same release. As further methodologies are developed to improve the means of accounting for the impact of nature depletion, we suggest that the ONS consider including the relevant outputs in these releases. The ONS would thereby help to provide greater focus on the climate and biodiversity impact of particular policies in the public policy debate.”

April 2022

Current UK estimates of emissions

The three measures

- Residence – follows SEEA, produced by ONS – also include international shipping and aviation – comparable with GDP, so can estimate emissions intensity
- Territory – informs progress against Net Zero and the UNFCCC targets – from BEIS (Dept. for Business, Energy and Industrial Strategy) (our business, energy and climate ministry)
- Consumption – the ‘footprint’ – allow for imported emissions – from Defra (Dept. for Environment, Food and Rural Affairs) (our environment ministry), and academia

Characteristics of residential estimates

- Main source is the [National Atmospheric Emissions Inventory](#) (which uses activity data and emission factors), to which our consultancy partner apply the residence adjustments
- We produce [a bridging table](#) to show the relationship between SEEA, UNFCCC and UNECE estimates, to simplify them for users
- Emissions intensity is a useful tool for decarbonisation – although emissions embedded in trade are not considered
- [Final estimates](#) produced 18 months after reference year, provisional around 9 months

Proposed methodology

Methodology

- Modelling is needed to produce more timely estimates; “predictor indicators” to approximate the quarterly behaviour of the emissions
- Annual estimates are used as benchmarks
- Direct indicators, like the production of fossil fuels, are preferable
- Important to capture the “within industry effect” – decoupling – as well as “between industry”
- BEIS Energy Trends – can use indicators from here, initially “energy consumption from fossil fuels” and “energy consumption from bioenergy and waste” (as emissions include those from biomass)

Questions and challenges

- Which predictor indicators are best a) theoretically and b) realistically?
- Could emission factors be changed more than annually?
- What is the best approach for seasonal adjustment?
- Which industries should we prioritise?
- Is carbon dioxide the priority? E.g. nitrous oxide for agriculture
- How should we communicate uncertainty?

Our next steps

Our next steps

- Contribute to development of standard methodologies as the demand for quarterly emissions increases
- Include engagement with other NSIs as needed
- Identify possibly appropriate indicators and what they show
- Monitoring the accuracy of our estimate
- The end product – can we make this a regular series of estimates? What breakdowns would be useful? What about quarterly emissions intensity?

Climate Change Insights

- More regular information on climate, synthesising data from a range of sources, on certain themes
- Information on emissions, drivers, impacts, mitigation, adaptation – based on [climate change portal](#) (subject to data availability for each theme)
- Next edition is on land use and the environment, following families and households
- Published alongside quarterly GDP to mainstream discussion

Thank you!