

Office for National Statistics

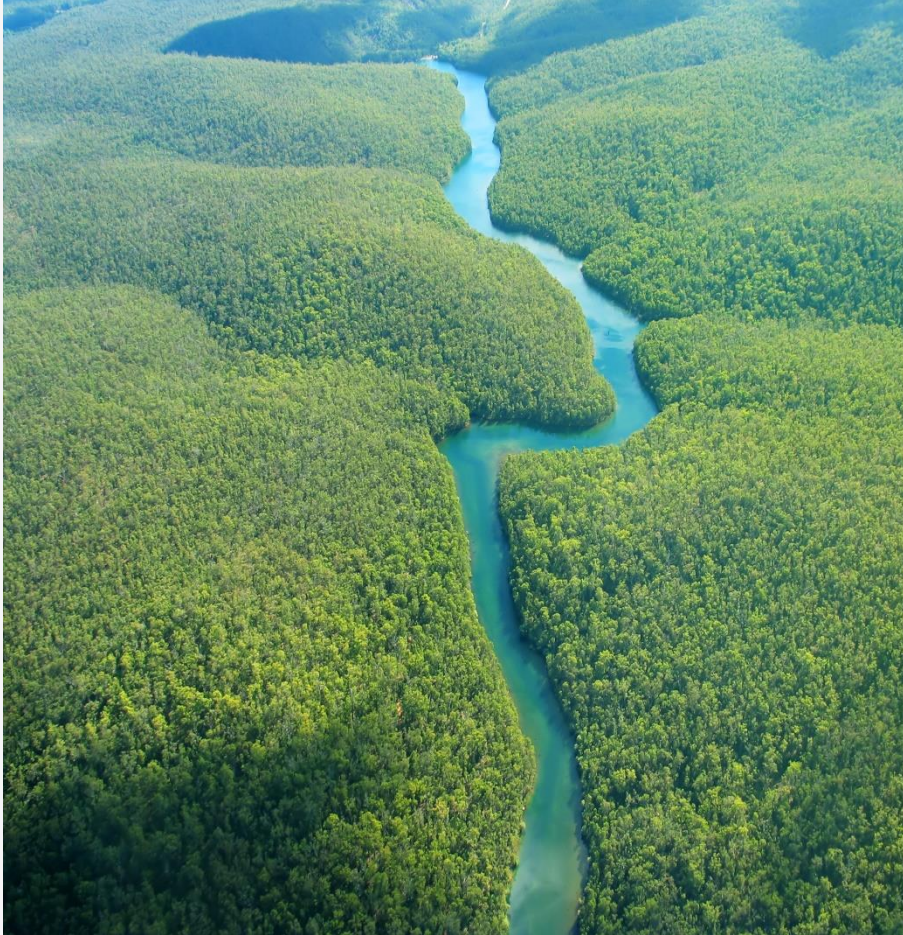
SEEA-CF accounts in the UK

Neil Wilson

Head of Environmental Accounts and Surveys



Outline



Context: Environmental statistics in the UK

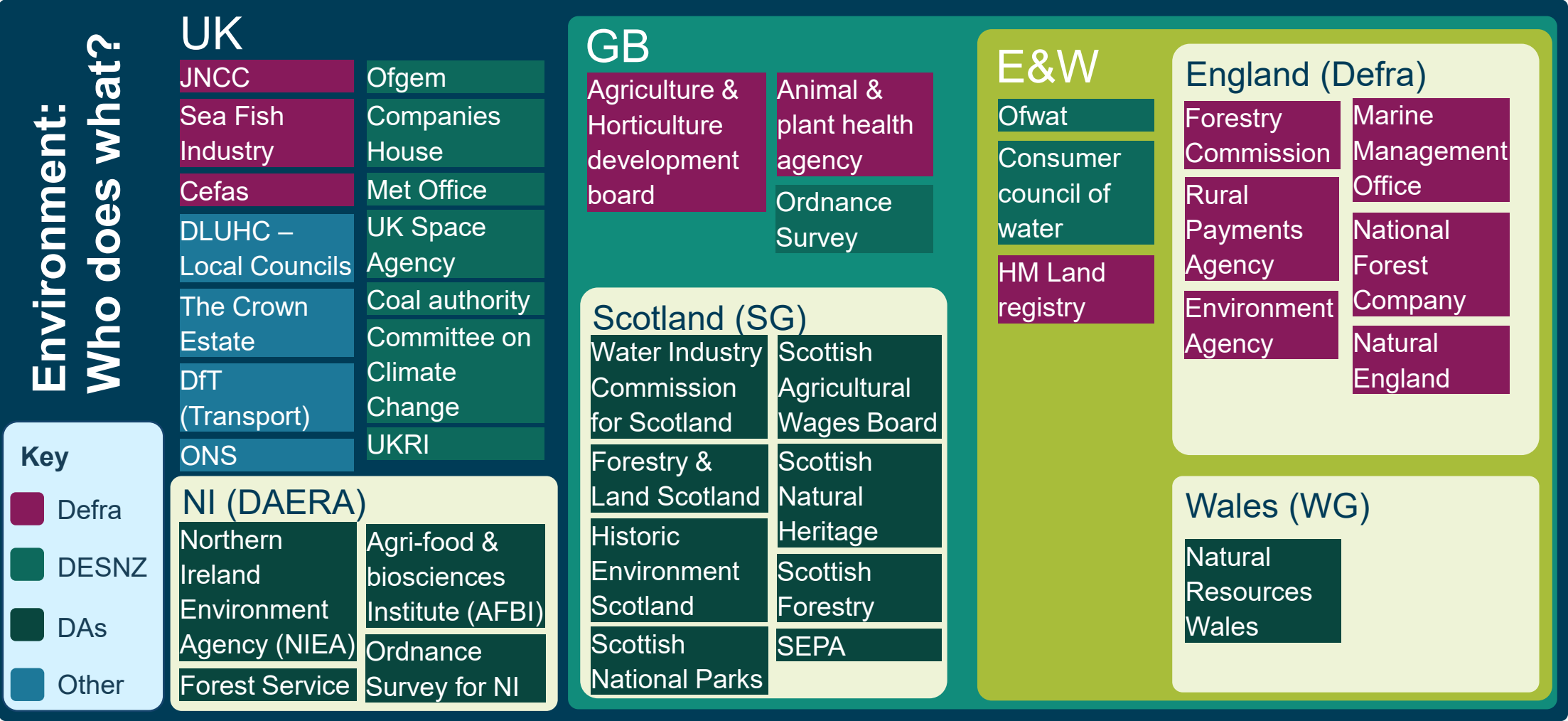
Environmental Accounts

ONS Environmental Accounts outputs

Related outputs

Context: Environmental Statistics in the UK

Environment across government



ONS and our division

Environmental Accounts & Surveys

Neil Wilson

Physical and Monetary Accounts

Low Carbon and Renewable
Energy Economy Survey,
Environmental Protection
Expenditure Survey

Green Jobs

Natural Capital Accounts

Sonia Carrera

Natural Capital Accounts (physical
and monetary)

Habitat Accounts

Costs of Climate Change

Inclusive Income

Environmental Accounts

Environmental Accounts

- How the environment contributes to the economy
- The impact that the economy has on the environment
- How society responds to environmental issues

Physical Accounts



Air and Energy
Accounts



Material Flows
and Footprint



Physical
Energy Flow
Account

Monetary Accounts



Environmental
Goods and
Services
Sector (EGSS)



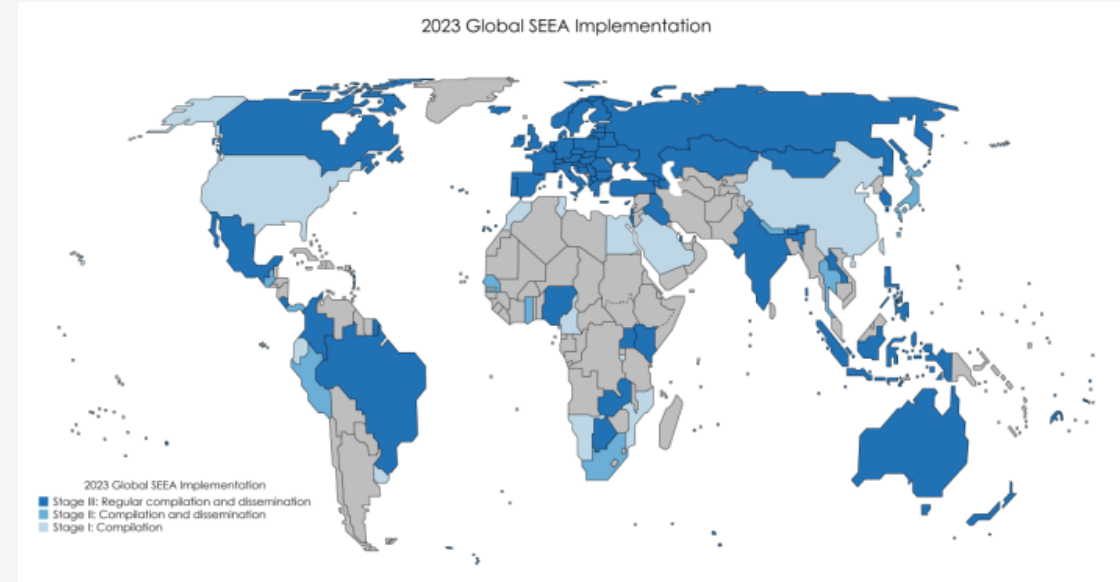
Environmental
Protection
Expenditure
(EPE)



Environmental
Taxes

Environment statistics at the ONS

- Latest UN global assessment:
 - ONS produce 13 of 20 SEEA accounts – one of the highest in the world
 - In Stage III of implementation (publish at least one account on a regular basis)
- Continued commitment to produce SEEA accounts
- Represented at UNCEEAA (including Bureau and Area A - Communications), SEEA EA Technical Committee, London Group, SEEA CF update



ONS Environmental Accounts outputs

Environmental Accounts publication

- Flagship annual publication
- Supported by a range of other releases
- Emissions, industry breakdowns, energy use, EGSS



What do we publish?



Atmospheric emissions

- Acid rain precursors by industry and gas
- Bridging tables
- Greenhouse gas emissions intensity by industry
- Greenhouse gases by industry and gas
- Heavy metal pollutants by industry
- Other pollutants by industry and gas
- Road transport



Energy use

- Bridging table
- By industry reallocated to final consumer and energy intensity
- By industry, source and fuel
- Fossil fuels by fuel type
- Fossil fuels by fuel type and industry
- Generation of heat from renewable sources
- Renewable and waste sources
- Total
- Material flow and footprints accounts



Monetary accounts*

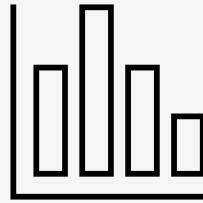
- Environmental goods and services sector
- Environmental protection expenditure (by industry, general government, and total)
- Environmental taxes

What data sources are used?



Other government departments:

The Department for Energy Security and Net Zero (DESNZ), Business and Trade (DBT), Environment, Food and Rural Affairs (Defra), HM Revenue and Customs (HMRC)



ONS data:

Supply and Use Tables, Annual Business Survey, Business Register and Employment Survey, Classifications of the Function of Government tables, National Tax List...



Third party:

Energy consultants and academia

* ONS produces all accounts apart from waste, produced by the Department for Environment, Food & Rural Affairs

Air and Energy Accounts

Ricardo Energy

Contracted to
produce the UK's
emissions
inventory

Department for Energy
Security and Net Zero

Responsible for
reporting under the
Paris Agreement
(territorial
emissions)

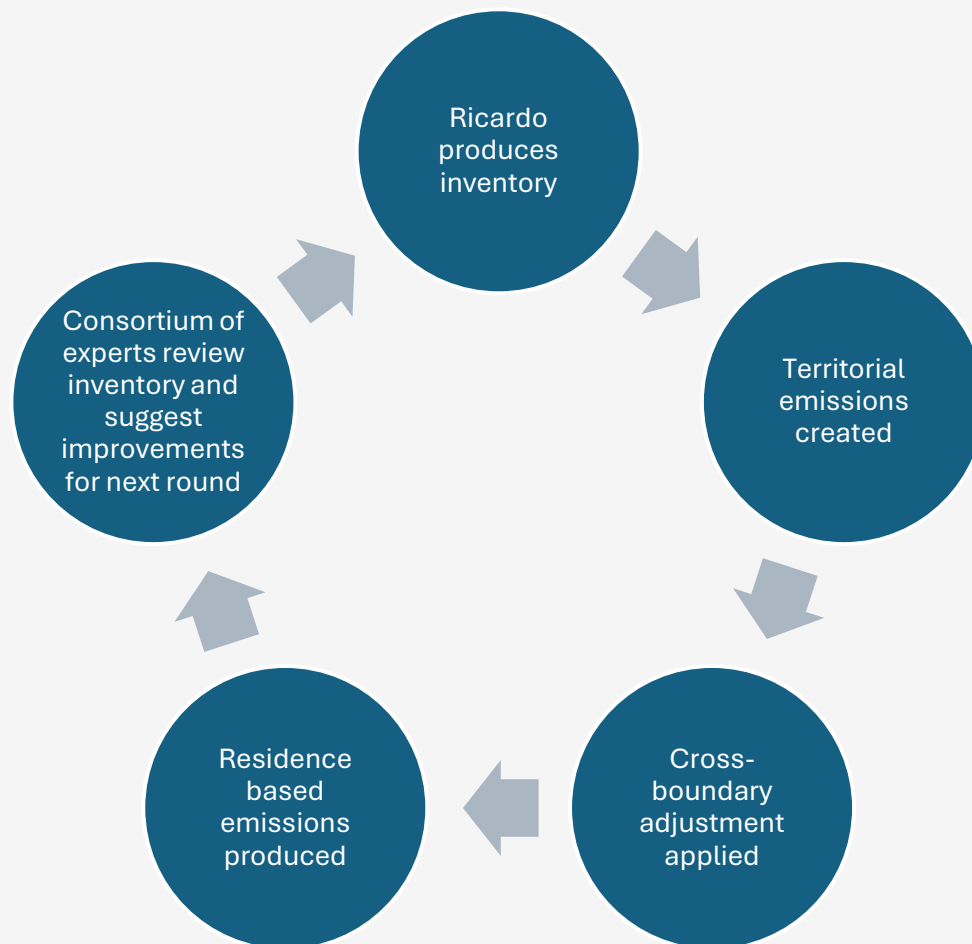
Office for National Statistics

Residence-based
SEEA accounts

Department for Environment,
Food and Rural Affairs

Consumption
emissions

Air and Energy Accounts

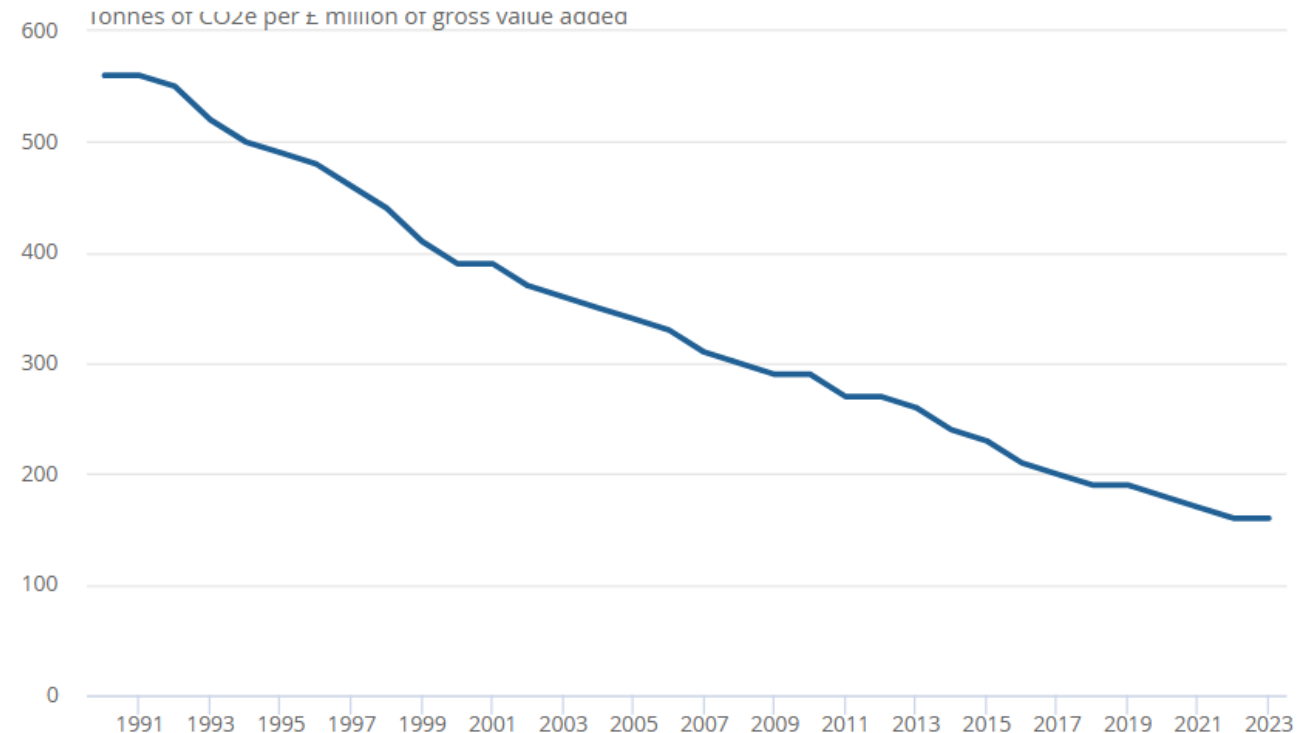


Air and energy accounts

- Post-delivery from Ricardo Energy; ONS calculates emission and energy intensity data → USP for our accounts
- Combined with other economic measurements to look at decoupling

Figure 3: The UK economy's emission intensity declined steadily between 1990 and 2023

Residence-based greenhouse gas emission intensity, UK, 1990 to 2023

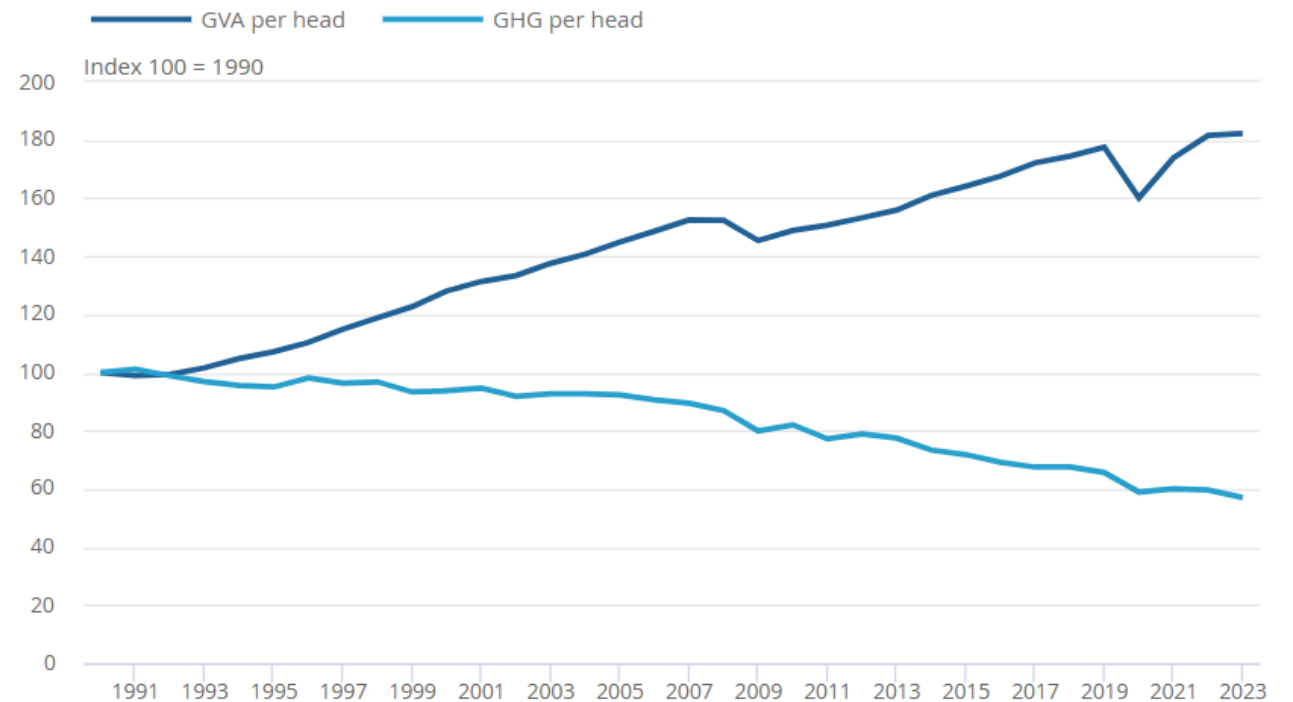


Air and energy accounts

- Newer addition to index GVA and emissions per head

Figure 4: Gross value added and greenhouse gas emissions per head since 1990

Indexed gross value added and greenhouse gas emissions per head, UK, 1990 to 2023



Energy accounts

- **Physical Energy Flow Account (PEFA)** - record the flows of energy (in terajoules) from the environment to the economy (natural inputs), within the economy (products), and from the economy back to the environment (residuals).
- **Energy use** broken down by fuel types and industries and used to calculate energy intensity

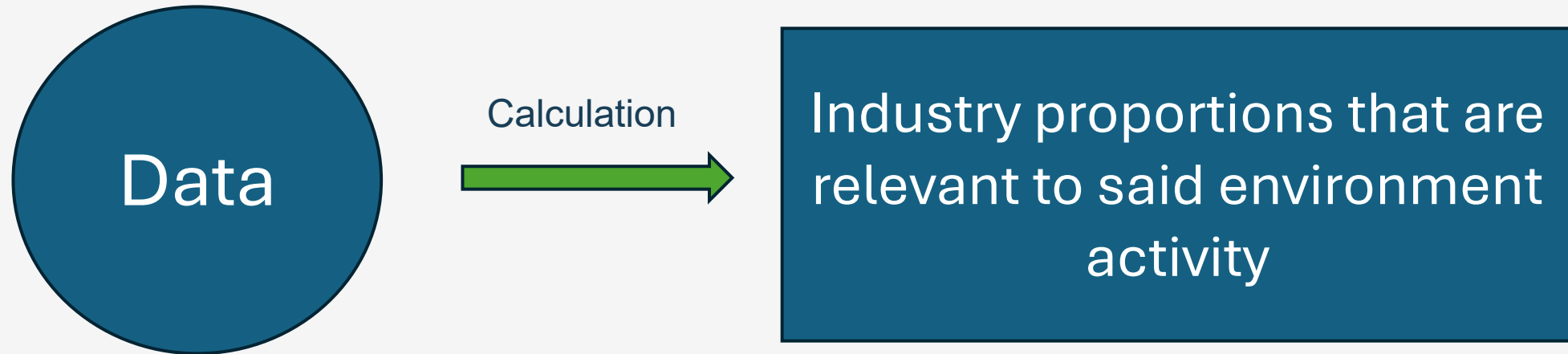
Enables insight into for example:

- Parts of the economy that have the highest energy consumption
- [Analytical work](#) combining the energy accounts with other environmental accounts
- Used to calculate energy intensity

Environmental Goods and Services Sector

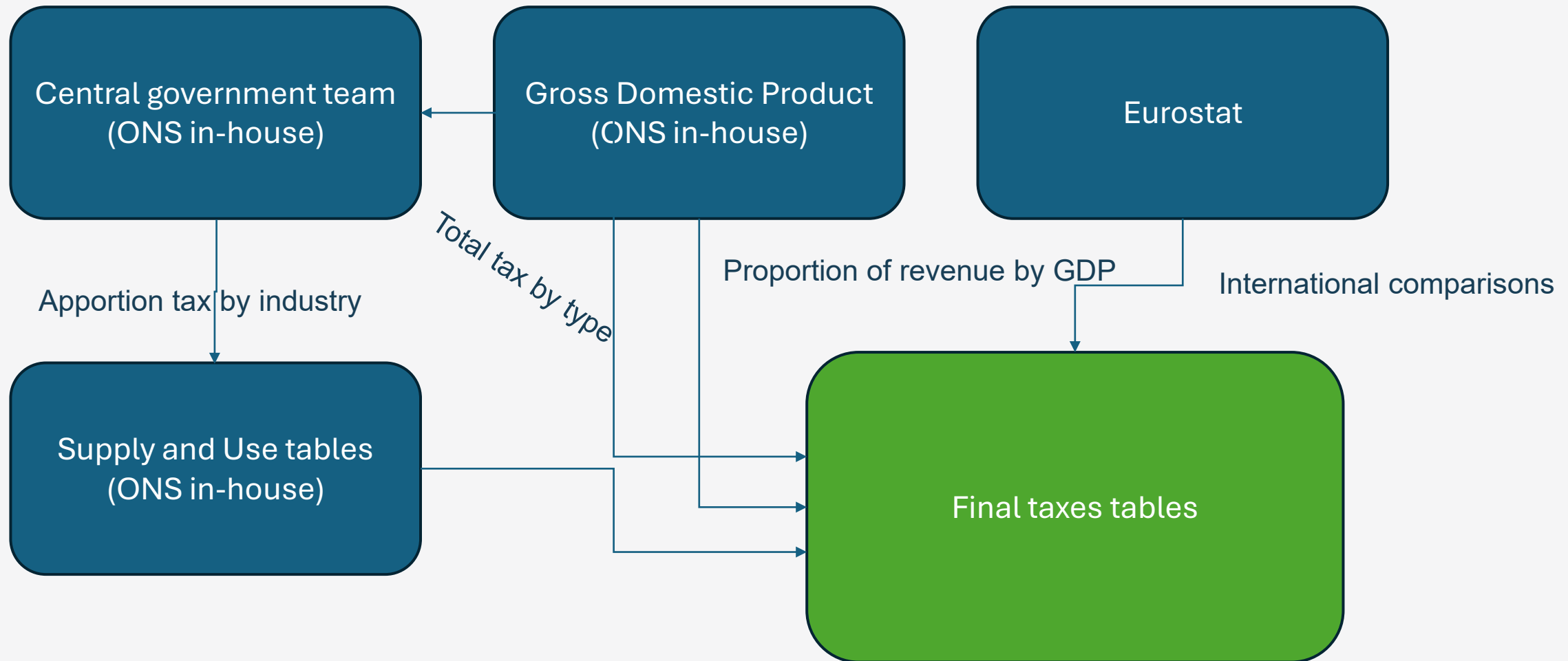
- Annual UK publication
- Around 40 datasets
 - Mix of in-house and external sources
- Methods and activities determined by EGSS handbook (Eurostat)
- UN SEEA, SNA and ESA provide the framework for this in order to give internationally comparable statistics
- 17 different areas of activity that make up the overall environmental goods and services sector (EGSS) of the UK economy

EGSS processing



For example, organic agriculture activity – we use agriculture estimates and calculate a proportion of that as organic which feeds into the organic agriculture activity

Environmental taxes



Quarterly greenhouse gas emissions

- Demand for more frequent GHG emissions
- Fits in with our Beyond GDP work
- Ability to compare economic indicators with GHG emissions more timely
- Automated process to produce estimates
- Chow-Lin regression model – method document [here](#)

Quarterly greenhouse gas emissions cont.

- Fully automated R code using detailed data received from Ricardo Energy and the latest quarter of Energy Trends data (published by our Energy department) to predict emissions by quarter
- Model constrains estimates by the Ricardo data
- Includes predicting quarters we do not currently have emissions data on (from Ricardo)

Material flow account

Production

- Domestic extraction, imports and exports for biomass (crops, wood and fish), metal ores (iron and non-ferrous metals), non-metallic minerals and fossil fuels
- Cross-boundary adjustment used for imports and exports of bunker fuel to produce estimates consistent with residence-basis

Challenges

- Manual process to produce – no automation
- Variety of different data sources needed
- Availability of some data sources means some categories have estimates carried forward
- Requires some expert knowledge to be able to apply for further analysis

Environmental Subsidies and Similar Transfers



Environmental Subsidies and Similar Transfer (ESST)



Potentially Environmentally Damaging Subsidies (PEDS)



Fossil fuel subsidies

Challenges

- Lessons from other countries on manual process of deciding what to include as subsidies
- Data availability

Related outputs: Environmental Surveys and Green Jobs

Environmental surveys

Low Carbon and Renewable Energy Economy (LCREE):

- ONS business survey developed in response to policy demand.
- Run annually since 2015
- Survey ~25,000 businesses a year
- 17 sectors including solar, wind and low emission vehicles
- Turnover, employment, imports, exports and investment

Environmental Protection Expenditure (EPE):

“The economic resources devoted to all activities and actions which have as their main purpose the prevention, reduction and elimination of pollution and of any other degradation of the environment.”

- Estimates of expenditure in categories:
 - Operating expenditure: internal and external
 - Capital expenditure: ‘end-of-pipe’ and integrated



Thank you and Q&A