Energy- and Air Emission Accounts in Sweden
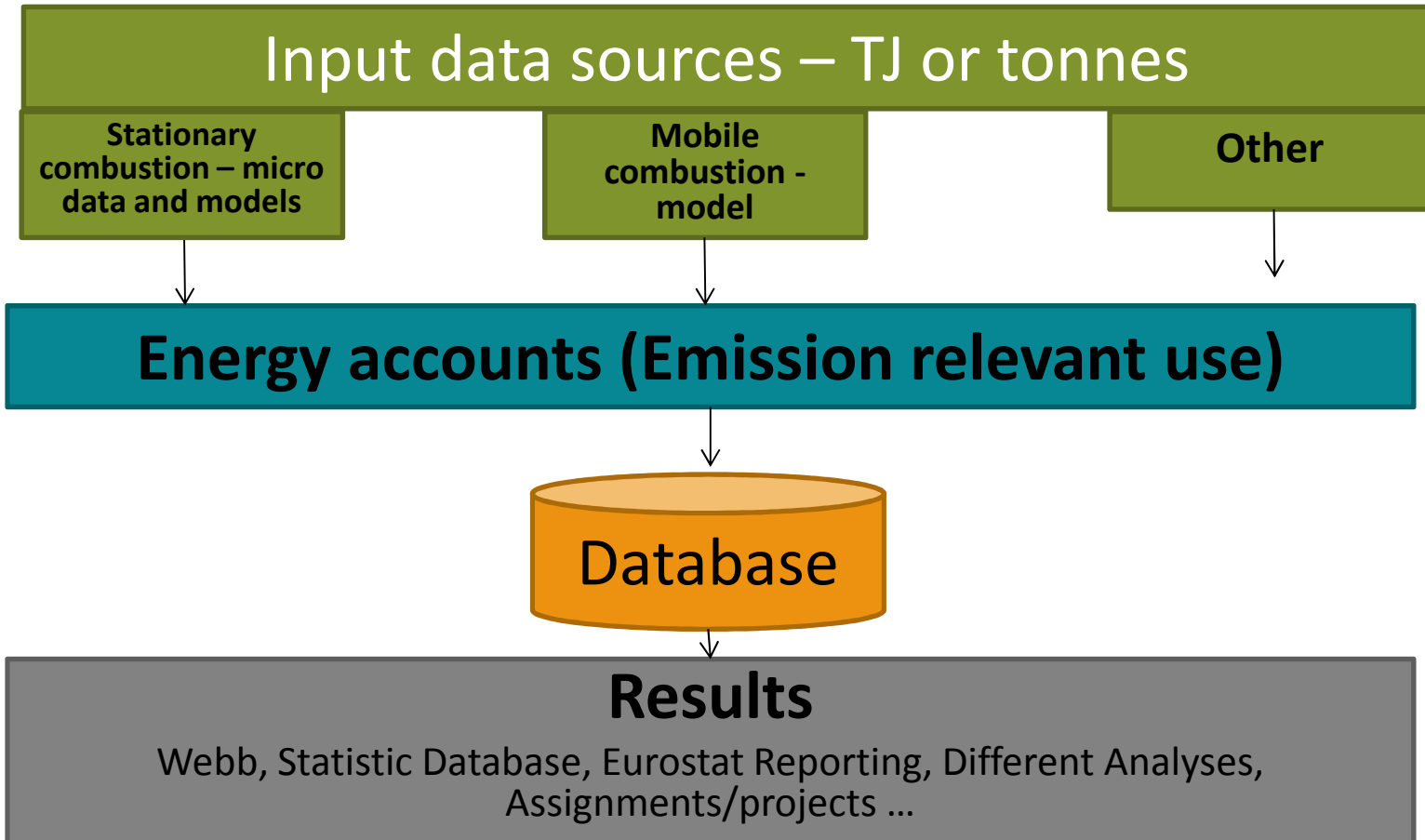
Nancy Steinbach

Statistics Sweden

Statistics Sweden

Statistiska centralbyrån

The compilation of Energy Accounts in Sweden

Statistics Sweden

Statistiska centralbyrån

Input data sources – TJ or tonnes

Stationary combustion – micro data and models	Mobile combustion - model	Other

Energy accounts (Emission relevant use)

Database

Results
Webb, Statistic Database, Eurostat Reporting, Different Analyses, Assignments/projects …

Input data sources for energy accounts

- Yearly Energy balances (Energy Agency - EA) (aggregates)
  - Based on several surveys
- The Industry´s energy use (EA) (micro data)
- Electricity gas district heating supply (EA) (aggregate)
- Energy statistics for buildings/non-residential buildings (EA) (micro data)

- Models to disaggregate to industries (employment, value added)
- Mileage database (SCB)

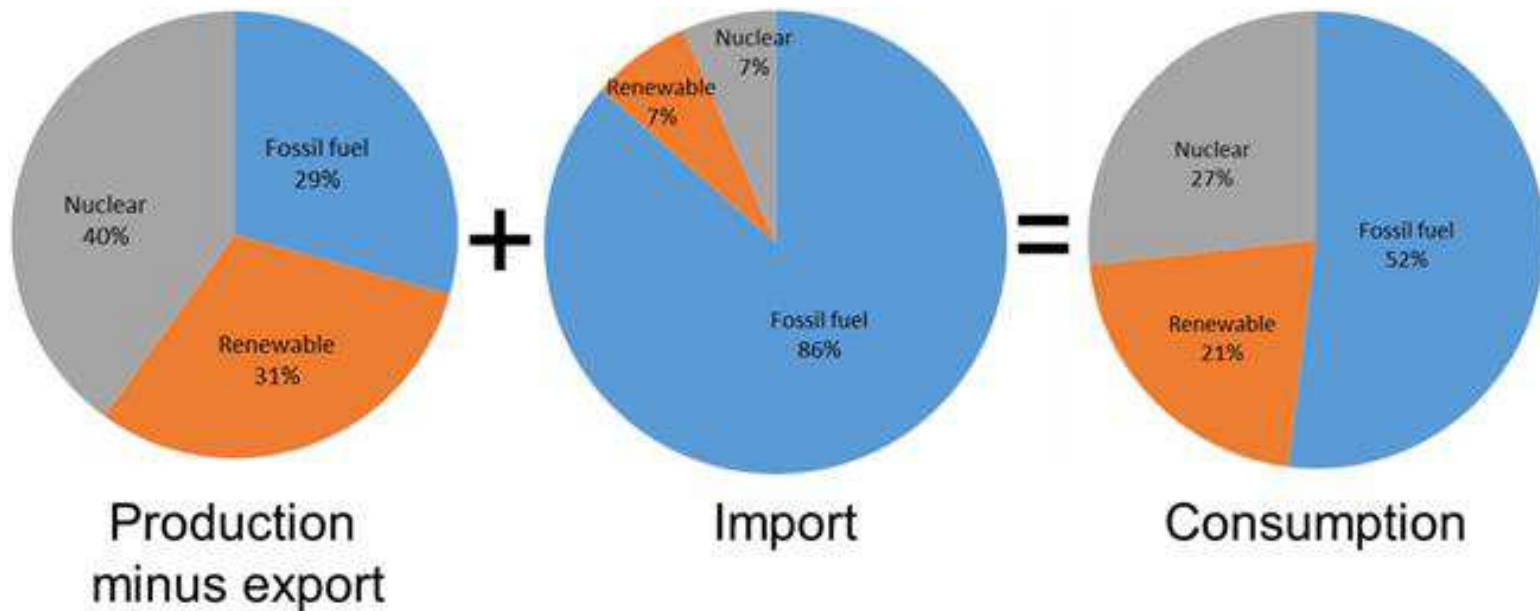- Following IPCC guidelines

Output – results

Environmental economic profile, share of total economy, year 2012
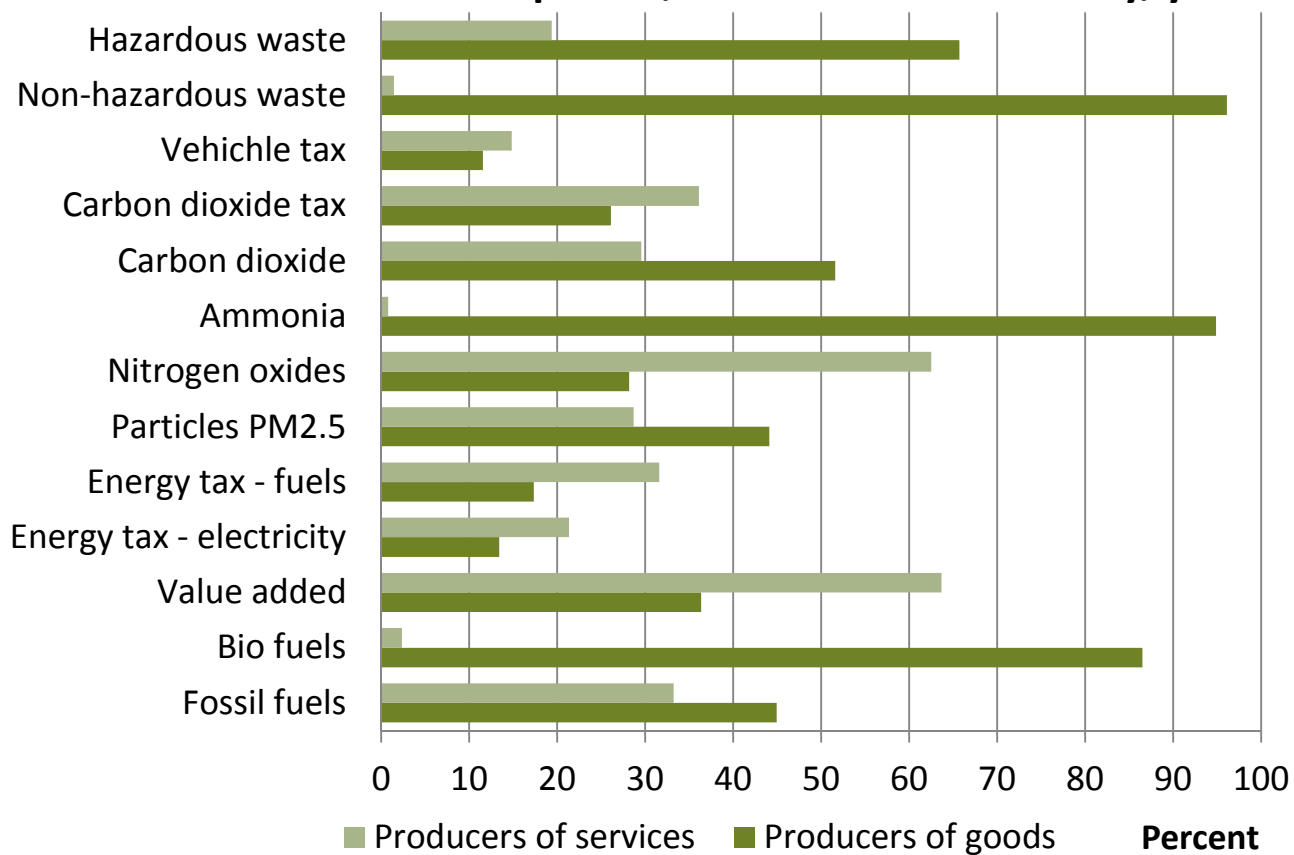
Source: SCB 2015

Output – results

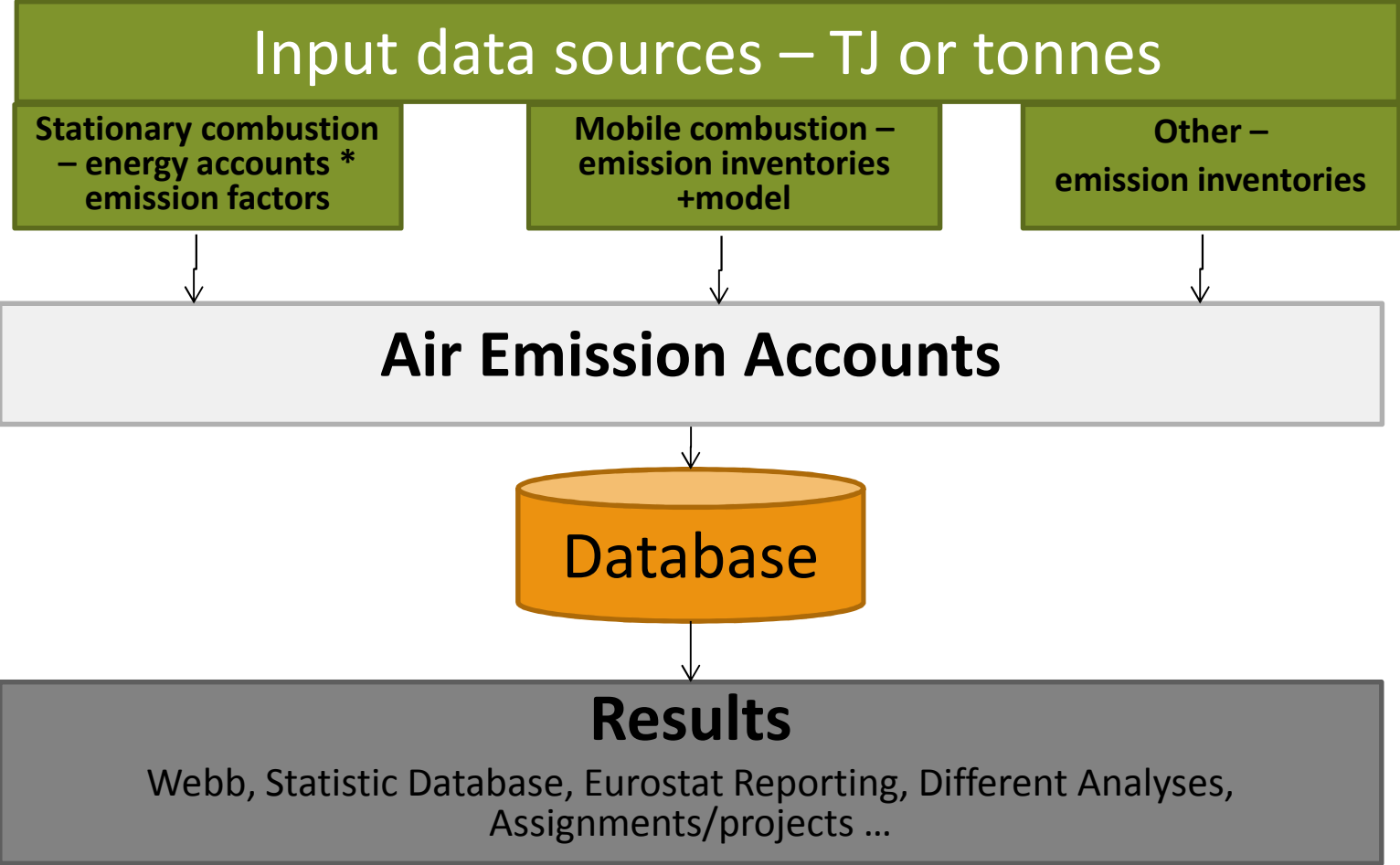**Swedish production-based, import-based and consumption-based fuel mix in 2008.**

Source: WIOD, Statistics Sweden and the Swedish Energy Agency processing – up-coming report 2015 from the Swedish Energy Agency

The compilation of Air Emission Accounts in Sweden

Input data sources – TJ or tonnes

Stationary combustion – energy accounts * emission factors

Mobile combustion – emission inventories +model

Other – emission inventories

Air Emission Accounts

Database

Results
Webb, Statistic Database, Eurostat Reporting, Different Analyses, Assignments/projects …

Statistics Sweden

Statistiska centralbyrån

Air Emission Accounts
- types of emissions included

- CO_2 – Carbon dioxide (fossil and biogenic separated)
- CH_4 – Methane
- N_2O – Nitrous oxide
- CO – Carbon monoxide
- SO_2 – Sulfur dioxide
- NO_x – Nitrogen oxides
- PM_{10}, $PM_{2.5}$, TSP – Particles
- NH_3 – Ammonia
- NMVOC – Non-methanic volatile organic compounds
- HFC – Hydrofluorocarbons
- PFC – Perfluorocarbons
- SF_6 – Sulphur hexafluoride
- GHG – (Combined) greenhouse gases

Quality assurance

- European agreement on management of quality issues, the so-called European Code of Practise
http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-32-11-955/EN/KS-32-11-955-EN.PDF

- Each underlying data source for has its own quality assurance.

Quality assurance

- In addition, according to a standardized method of quality assurance, further quality assurance is performed:

- 1) Review the data over a time series

  2) Ensure calculating programs accurate

  3) Review the output for the calculations

  4) Compare with other statistics

  5) Establish procedures for handling revisions

  6) Improvement of the methodology

  7) Document and complete the production cycle.

Results
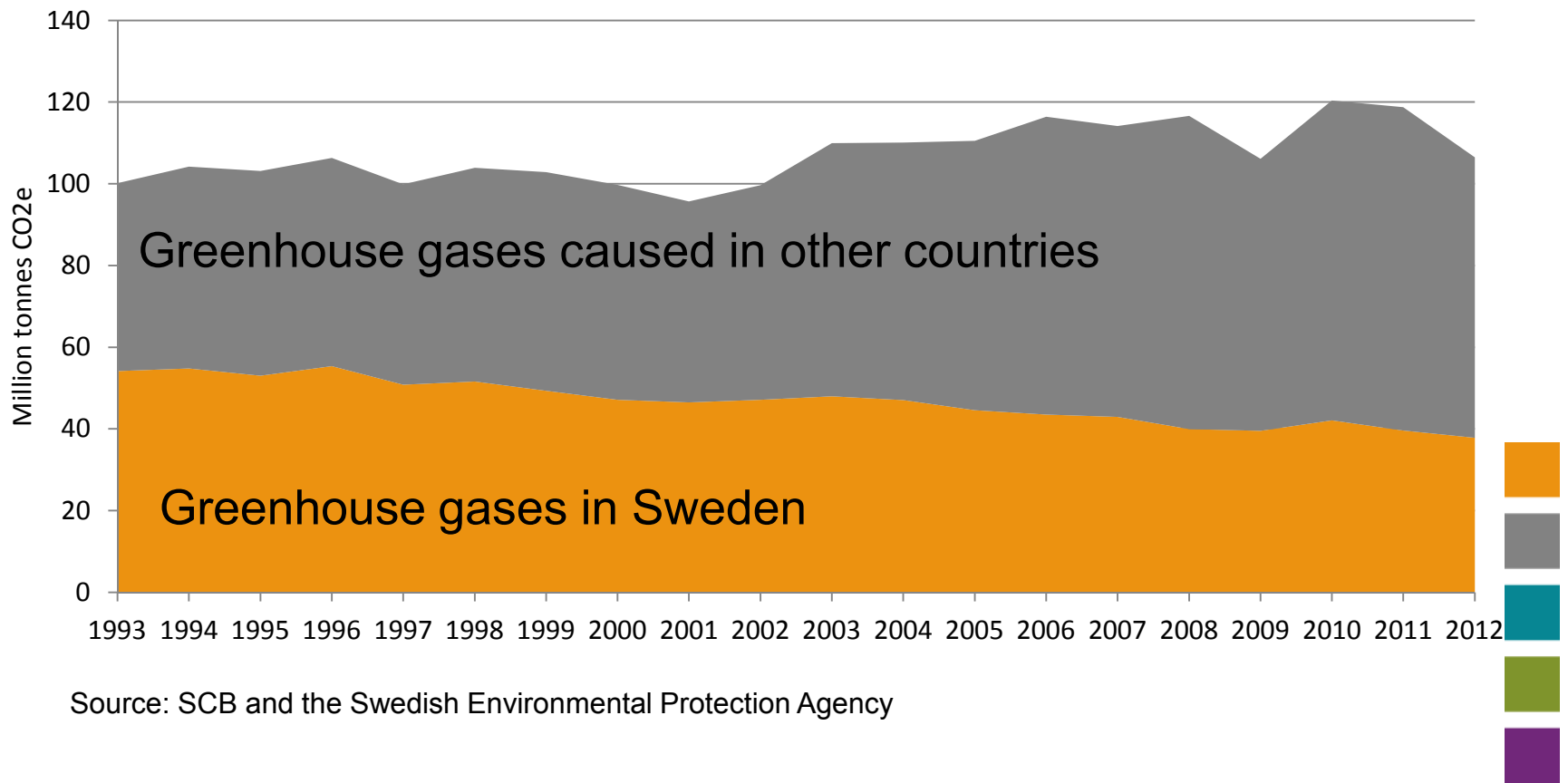
Carbon emissions per gross value added (GVA), 2008-2012

Ton/M EUR

Legend: EU(27 länder) — Danmark — Finland — Sverige — Norge
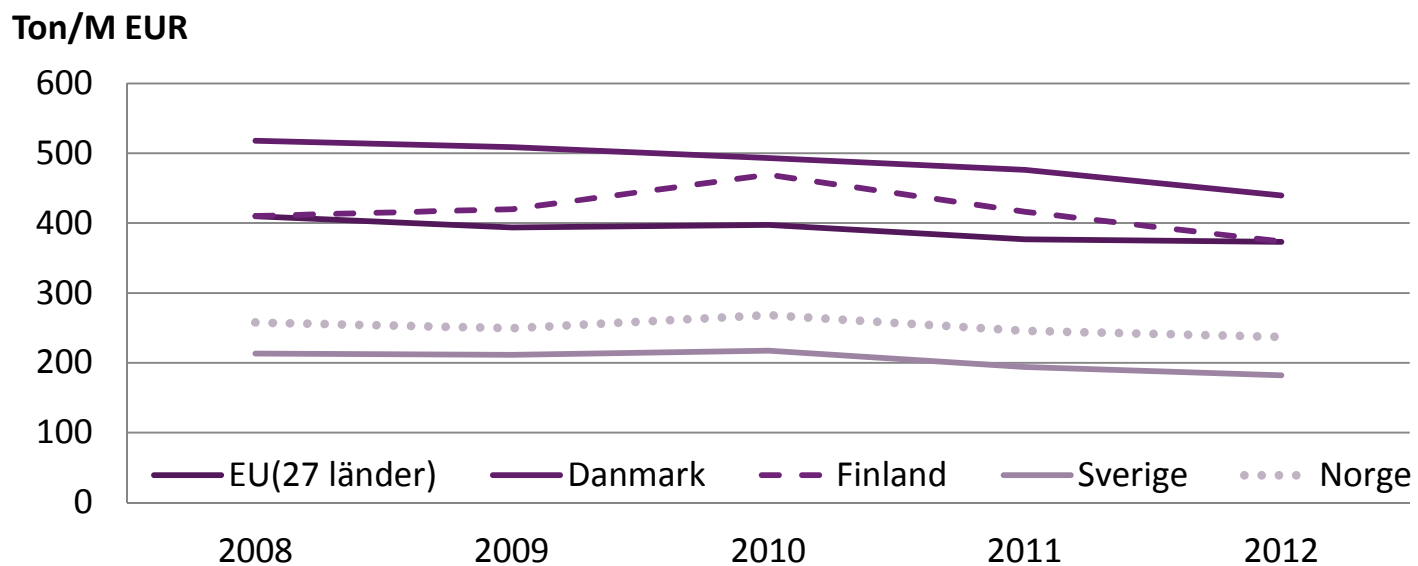
Source: SCB 2015

Results

Emissions of GHG from Swedish consumption, 1993-2012, million tons CO2-equivalents

Greenhouse gases caused in other countries

Greenhouse gases in Sweden

Source: SCB and the Swedish Environmental Protection Agency

Food for thoughts – the analysis of energy accounts

Counting Joule

- Product * product = True
- Total industry supply, or total use ≠ True

Specific matters

- Waste is considered a residual in the EU Energy Accounts– but waste in Sweden is used for energy purposes and brings economic value in.

- What constitutes a waste? Example Black liqour that is not sold on the market but is moved from supply of a residual to use of a product in EU Energy accounts

- Emission relevant energy use – differ from energy balances if IPCC should be followed, especially with case of secondary coal products – IPCC say "non-energy uses", energy balances say "energy purposes"

Food for thoughts – the analysis of air emission accounts

- Still lacking internationally harmonised methods for calculating emissions from final demand

- In Sweden, a research project PRINCE works towards standardised statistical production of environmental pressure information from final demand. The project is due to finish in 2017