

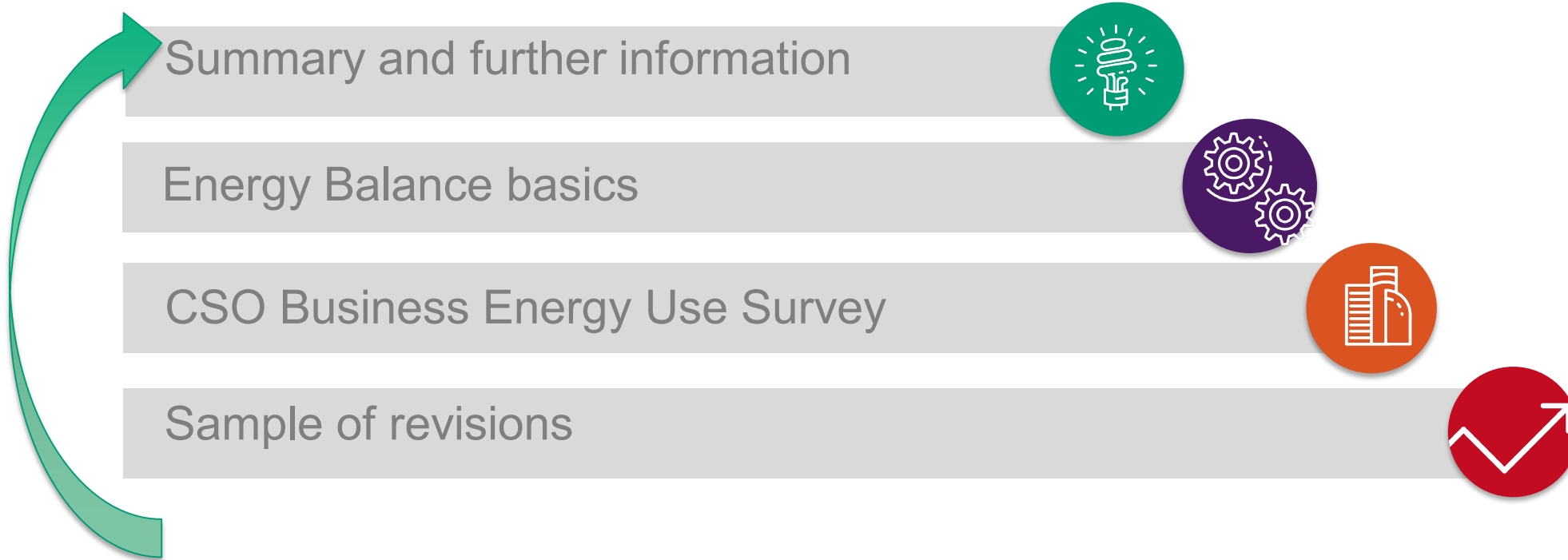


Energy Balance updates with improved data from CSO Business Energy Use Survey



Dr. Denis Dineen
EPA Emissions Inventory Event
20-11-2020

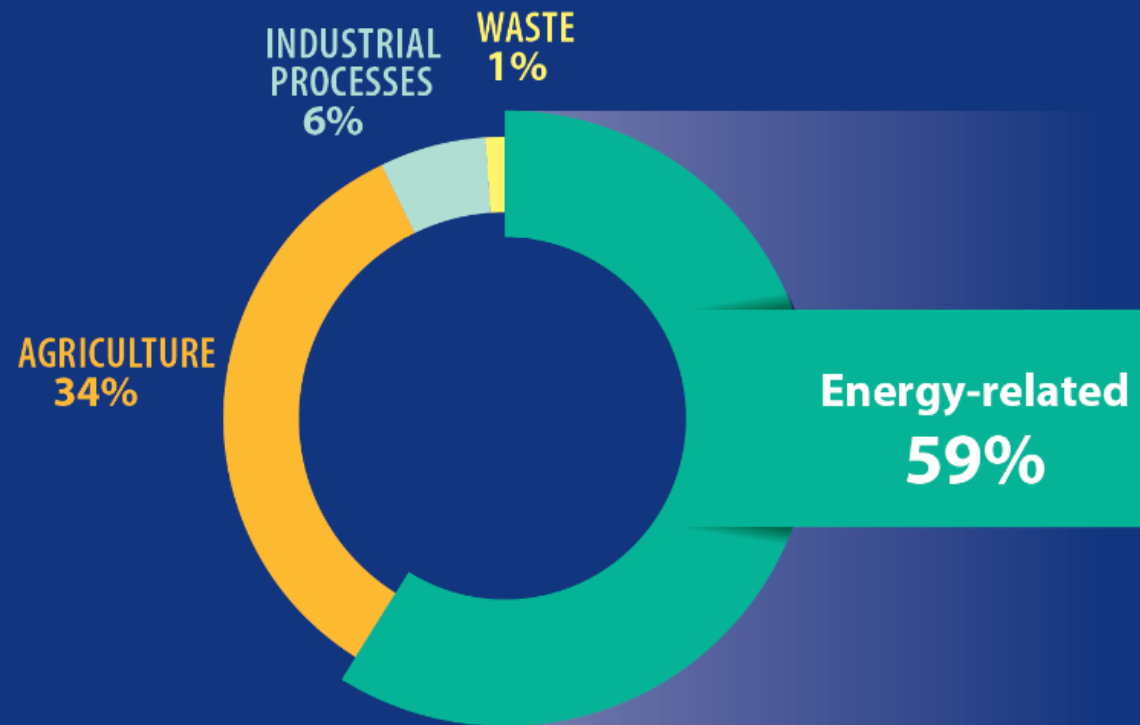
Overview



Summary and further information



Greenhouse gas emissions by source



*2018 Greenhouse gas emissions

Important points

- CSO Business Energy Use Survey gives improved data on energy use in industry and services
- National Energy Balance data from 1990-2018 has been updated and revised based on this valuable new dataset.
- Total fuel use not affected, but energy use has been reallocated across the sectors
 - Knock on effects on residential sector oil use

Important points

- Revisions are extensive but:
- Overall energy by fuel type not affected
 - => does not affect total emissions
- Does not affect ETS / non-ETS split
 - => does not affect emissions reductions targets
- Does not affect renewable targets

Important points

- Greater detail in commercial and public services
 - 10 subsectors
- Estimate of construction energy use for first time
- Ongoing progress of development and improvement – we welcome feedback
 - epssu@seai.ie
- We will continue to engage with the CSO to refine the estimates

More information

www.seai.ie/NationalEnergyBalance



National Energy Balance

IN THIS SECTION

2019 Energy Balance

2020 Revisions based on BEUS data

Previous Energy Balances

The National Energy Balance presents detailed information on how and where energy is used in Ireland for a given year.

The Balance shows the flow of energy from production and transformation to total final consumption. This is shown in the form of a table. The National Energy Balance is our primary statistical release. It is the basis of much of the further analysis we do.

Developing the National Energy Balance is a continuous and ongoing process, and revisions are made whenever improved data becomes available. We welcome any feedback, which can be sent to epssu@seai.ie.

Energy Balance Basics



National Energy Statistical System

Data suppliers

- Fuel Suppliers
- DECC
- CSO
- EPA
- Eirgrid
- GNI
- NORA
- CRU
- SEAI programmes
- Many others



Physical Quantities
tonnes of oil, coal, peat etc.
TJ and/or ncm of gas, imports/
exports, transformation,
sectoral consumption etc

Price
unit costs (c/lWh, c/litre, €/tonne) to final consumers,
industry, electricity generation etc.

Activity Data
GDP, value added, personal consumption, km of travel,
Building Energy Rating data
no. of households etc



National Energy Balance

SEAI Statistics Reports & Analysis
Energy in Ireland
Sectoral Reports (Residential, Transport etc)
Renewables
Energy Security
Energy related CO2 emissions
Gas and Electricity Prices
etc

National Energy Projections

EU Directive / Regulation

Joint Questionnaires
IEA/EUROSTAT
Annual
Monthly
Short-term Monthly

Price Directive Electricity & Gas

Energy Services Directive

Gas & Electricity Competition Indicators

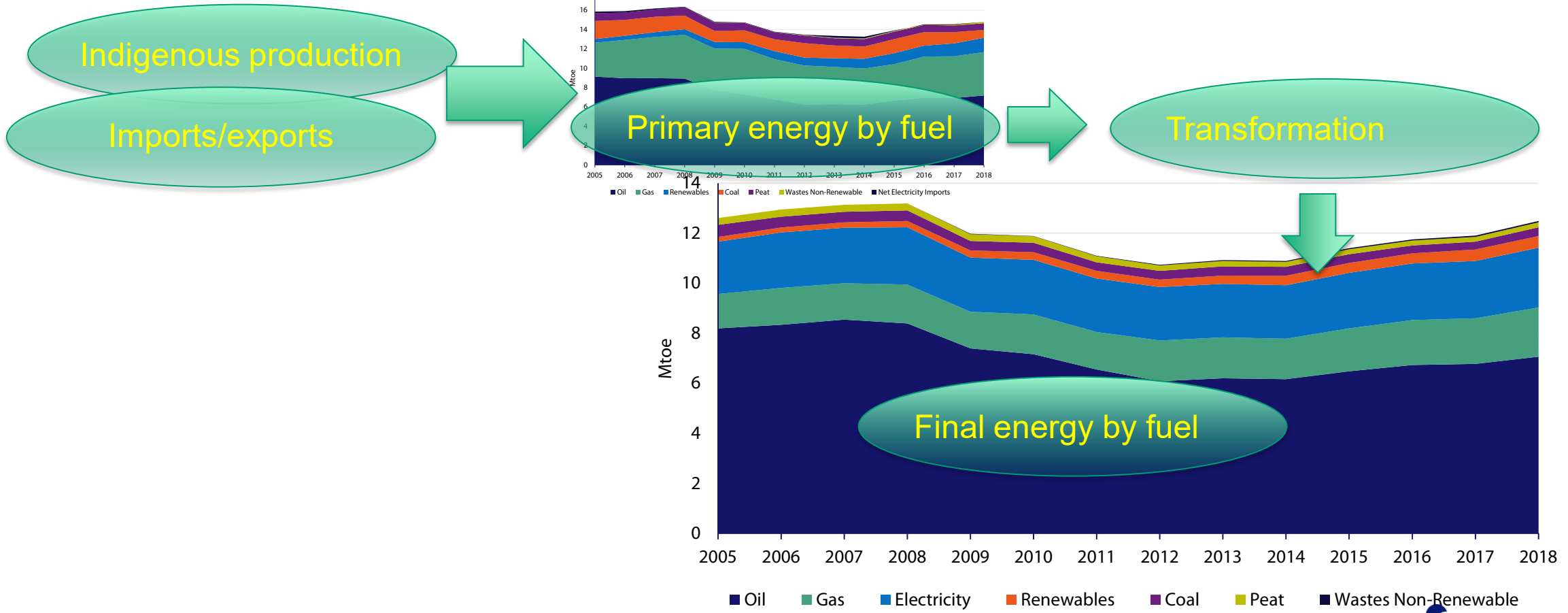
Energy Prices & Taxes - IEA

National Emission Inventory System - EPA

Others
National and international statistics development

National Energy Balance

- Top down approach to developing national energy statistics



National Energy Balance

- Final energy by fuel type then split out further into end use sectors:
 - Residential
 - Transport (10 subsectors)
 - Industry (13 subsectors)
 - Commercial services
 - Public services
 - Agriculture & Fisheries

National Energy Balance

- For gas & electricity (networked fuels) we have data on split into residential (including agriculture) and non-residential (all else) based on tariffs
- Need additional data / supplementary estimates to split business out into industry, commercial and public services
 - And split agriculture from residential.

National Energy Balance

- For oil, transport fuels typically easy to distinguish due to specific fuel types (petrol, unmarked gasoil, jet kerosene)
 - Transport subsectors split based on surveys (public transport) and modelling (cars, trucks, fuel tourism)
- Need additional data / supplementary estimates to split out non-transport into residential, industry, commercial and public services, and agriculture.

National Energy Balance

- Split out into sectoral end use using combination of methods including surveys, bottom-up modelling.
 - High level sectoral split still based on 1990 estimates carried forward each year
 - industry subsectors split based on CSO Census of industrial production, last data for 2009
- CSO Business energy use survey designed to overcome this data gap

CSO Business Energy Use Survey



CSO Business Energy use Survey

- Quantities and spend on energy in the industry and services sectors
- The BEUS is a sample survey.
- The results are weighted up to be nationally representative based using the CSO business register and administrative data.

CSO Business Energy use Survey

- The survey returns are also boosted with the inclusion of data from non-CSO administrative data sources and CSO structural business surveys. These sources include:
 - Emissions Trading Scheme (EPA)
 - Large Industry Energy Network (SEAI)
 - Public Sector Energy Programme (SEAI)
 - Annual Services Inquiry
 - Census of Industrial Production
 - Overview of Returns by Data Source at Enterprise Level

CSO Business Energy use Survey

- Annual survey, data from 2009 onwards
 - currently up to 2017
 - 2018 and 2019 splits currently based on 2017
- A description of the methodology is available on the CSO website:
 - <https://www.cso.ie/en/methods/surveybackgroundnotes/businessenergyuse/>

CSO Business Energy use Survey

1. Electricity - Purchased (to operate the business only – Include Standing Charge and PSO Levy)

	Quantity kWh	Cost €
(a) Electricity purchased		

2. Electricity - Self Generated (if applicable)

(a) Amount generated for own use

(b) Amount sold on the electricity grid

4. Petroleum products (to operate the business only, excluding fuel for vehicle transport on public roads (see section 5))

	Quantity litres	Cost €
(a) Heavy Fuel Oil i	_ _ _ _ _ _ _ _ _	_ _ _ _ _ _ _ _ _ ,000
(b) Diesel/Gas Oil/Marked Gas Oil i <u>(exclude auto diesel and marine diesel)</u>	_ _ _ _ _ _ _ _ _	_ _ _ _ _ _ _ _ _ ,000
(c) Kerosene i <u>(exclude jet kerosene)</u>	_ _ _ _ _ _ _ _ _	_ _ _ _ _ _ _ _ _ ,000
(d) Liquid Petroleum Gas (LPG) i <u>(include LPG used in vehicles on-site e.g. forklifts; exclude LPG used in road vehicles)</u>	_ _ _ _ _ _ _ _ _	_ _ _ _ _ _ _ _ _ ,000
(e) Petroleum coke i	_ _ _ _ _ _ _ _ _	_ _ _ _ _ _ _ _ _ ,000

Incorporating the BEUS in the National Energy Balance

- There are methodological differences between the BEUS and the National Energy Balances.
 - Energy balance top-down distribution of total energy
 - BEUS bottom-up sample survey of individual businesses grossed to national level
- The National Energy Balance and the BEUS data are not directly comparable.

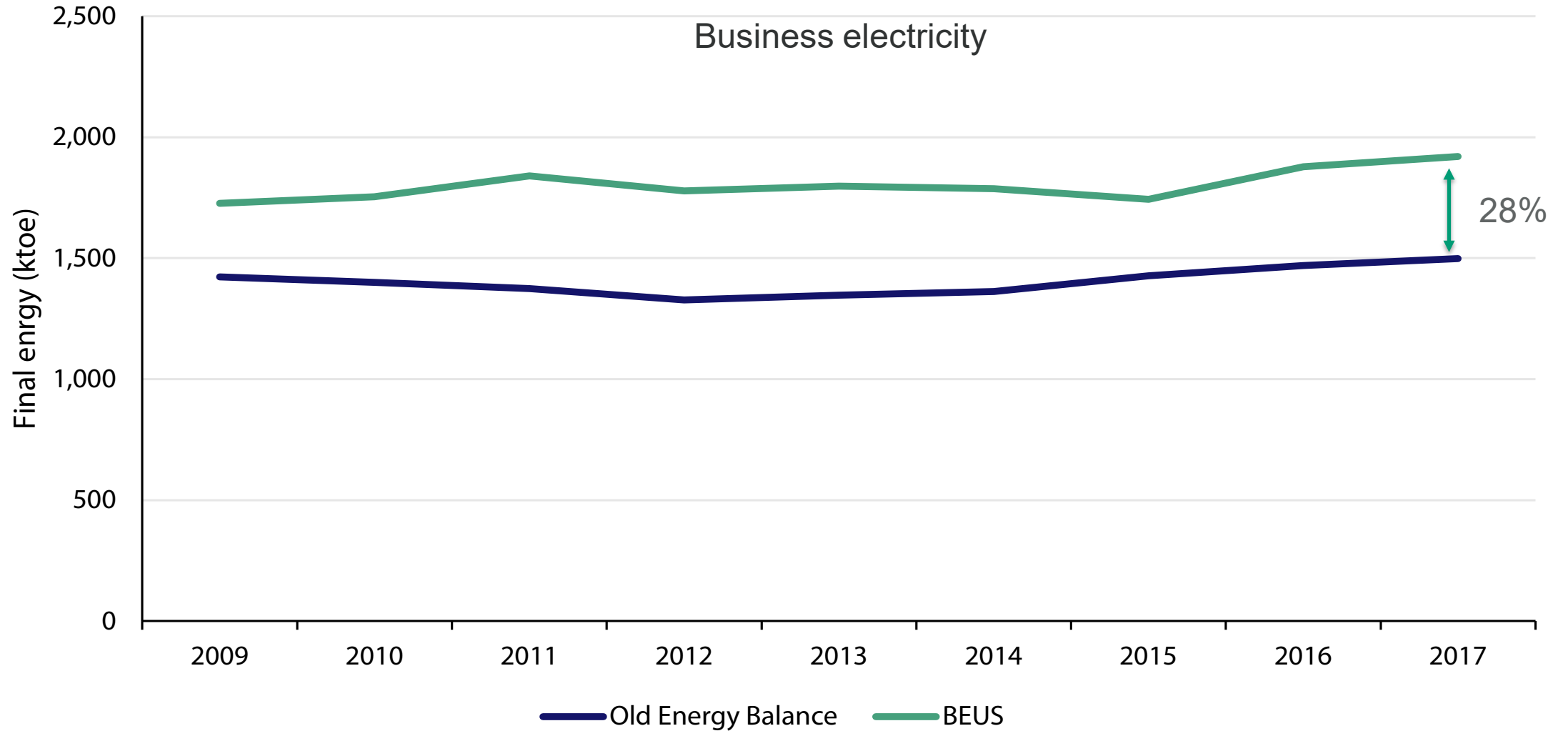
Incorporating the BEUS in the National Energy Balance

- The data needs to be carefully examined and compared on a fuel by fuel and sector by sector basis
- Expert judgement is required to assess the most appropriate use of the data

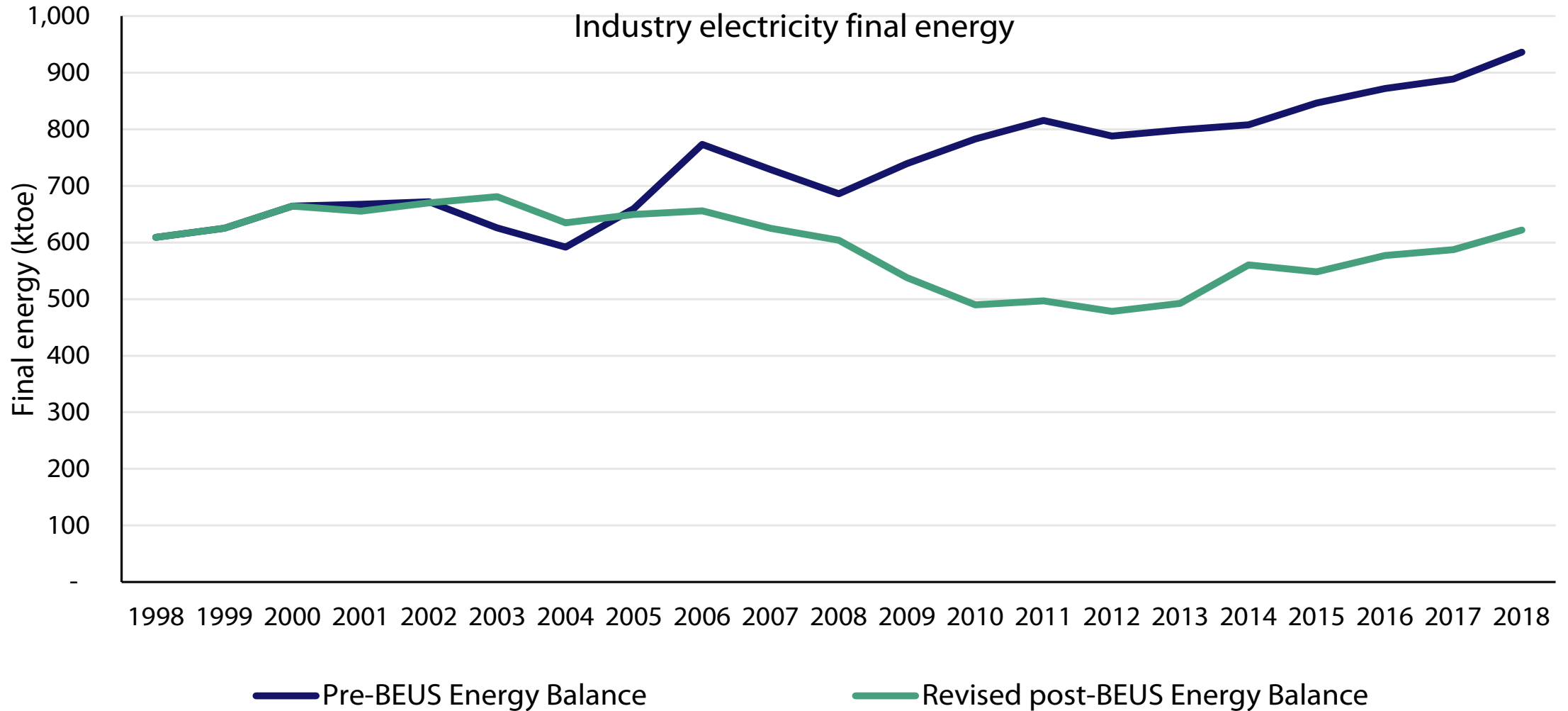
Sample of revisions



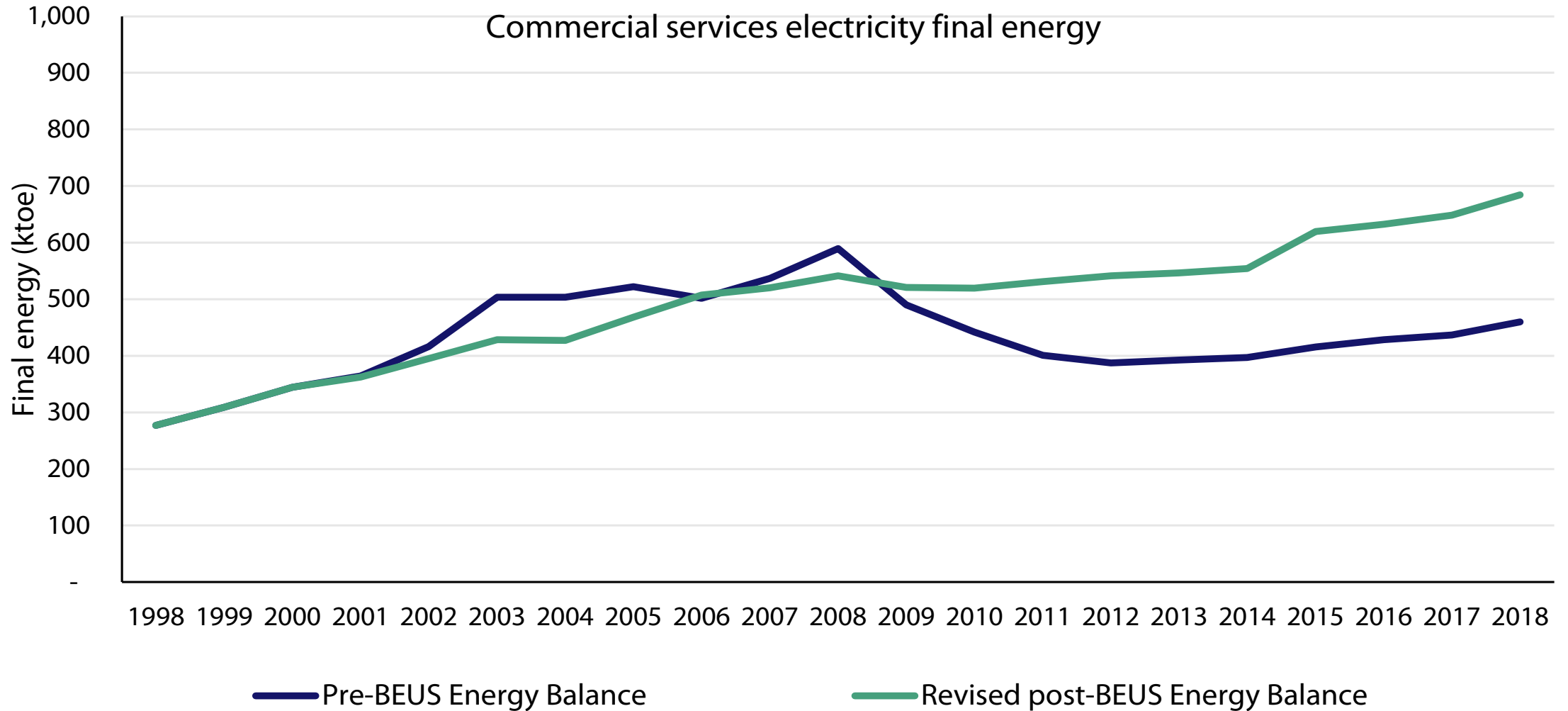
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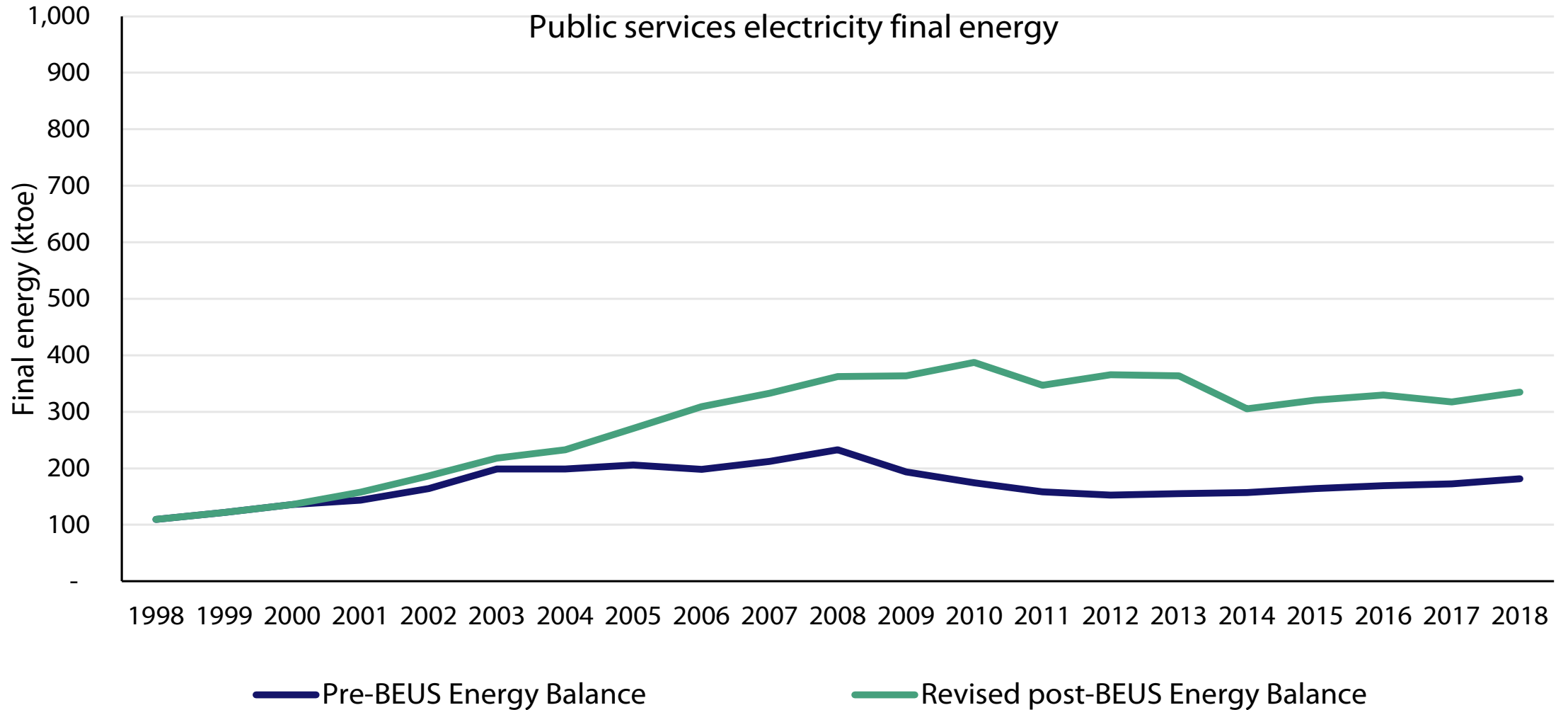
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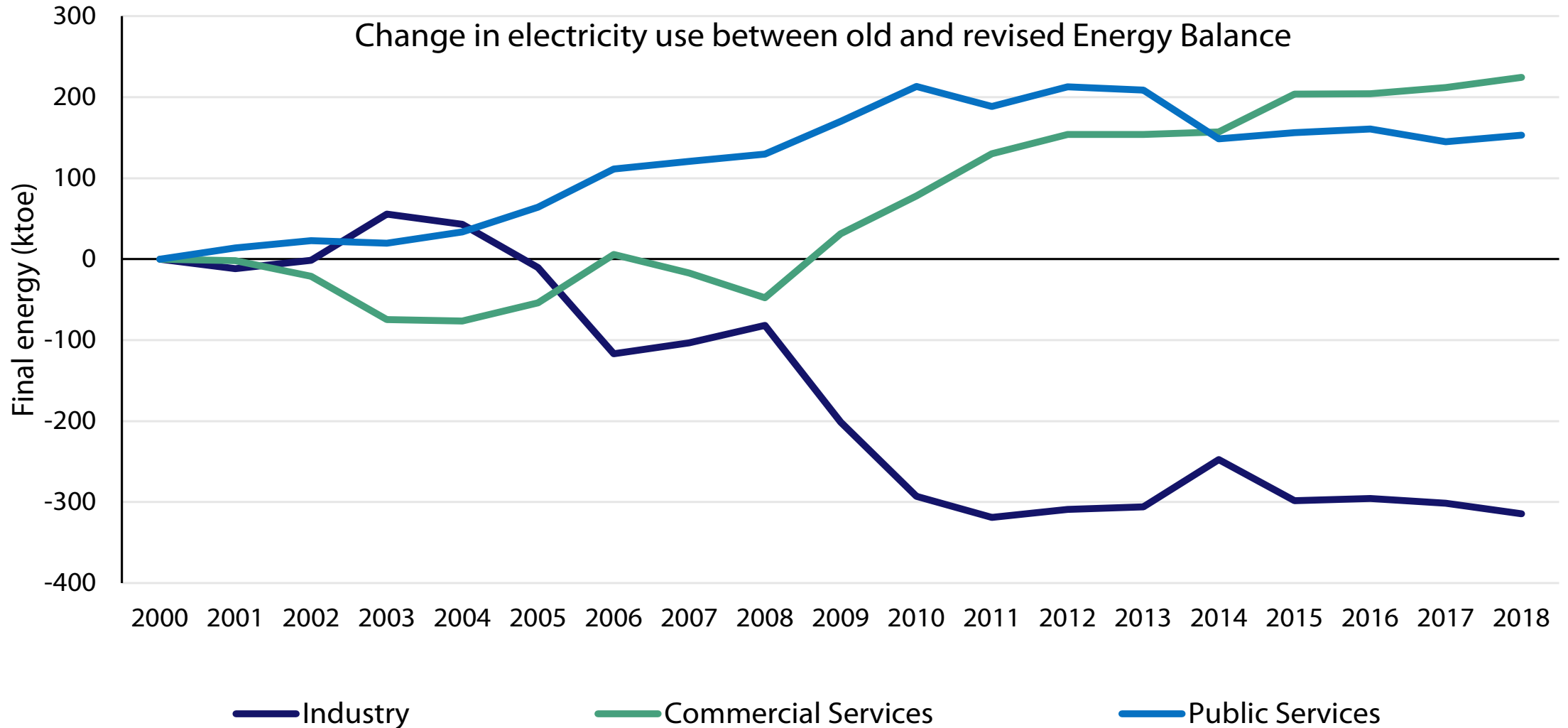
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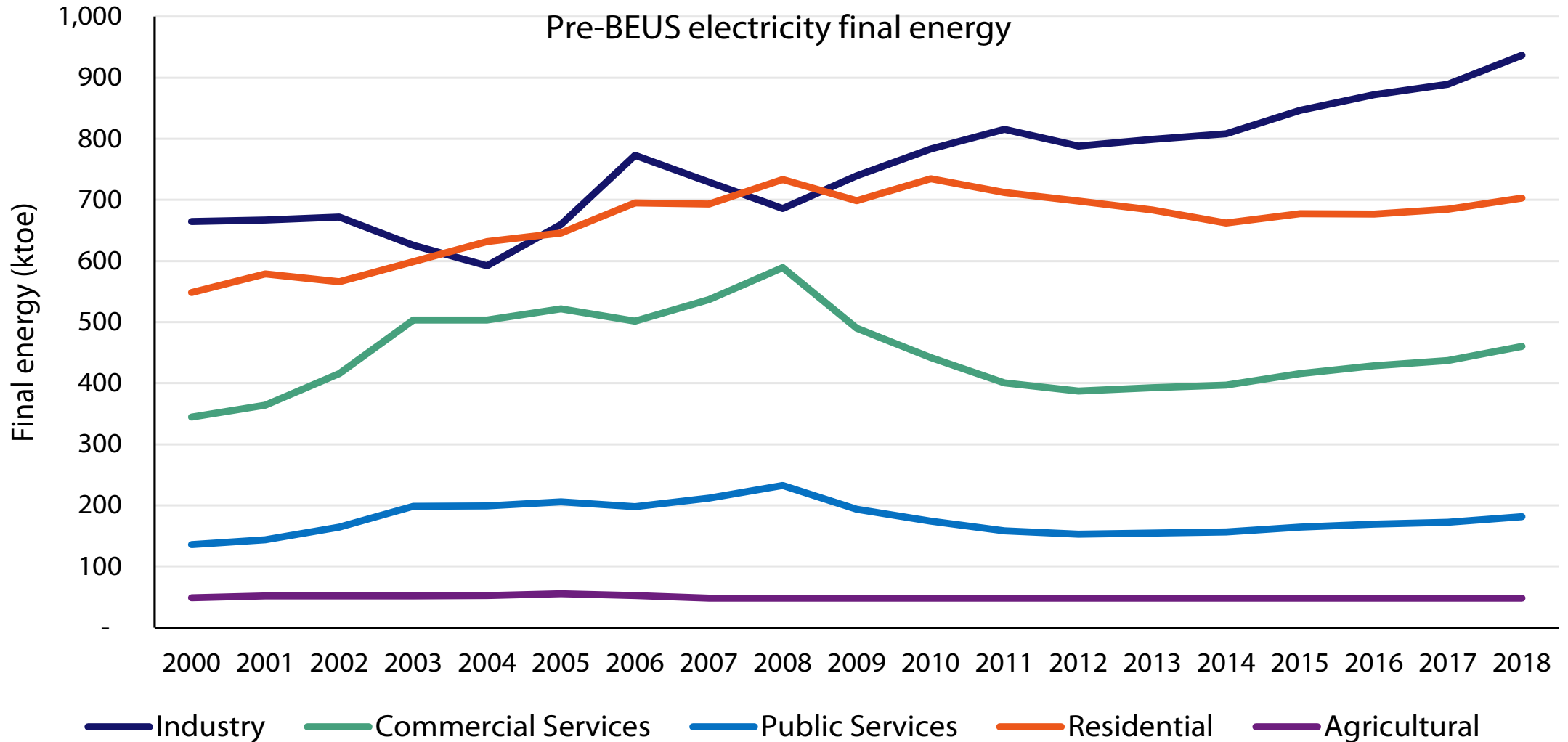
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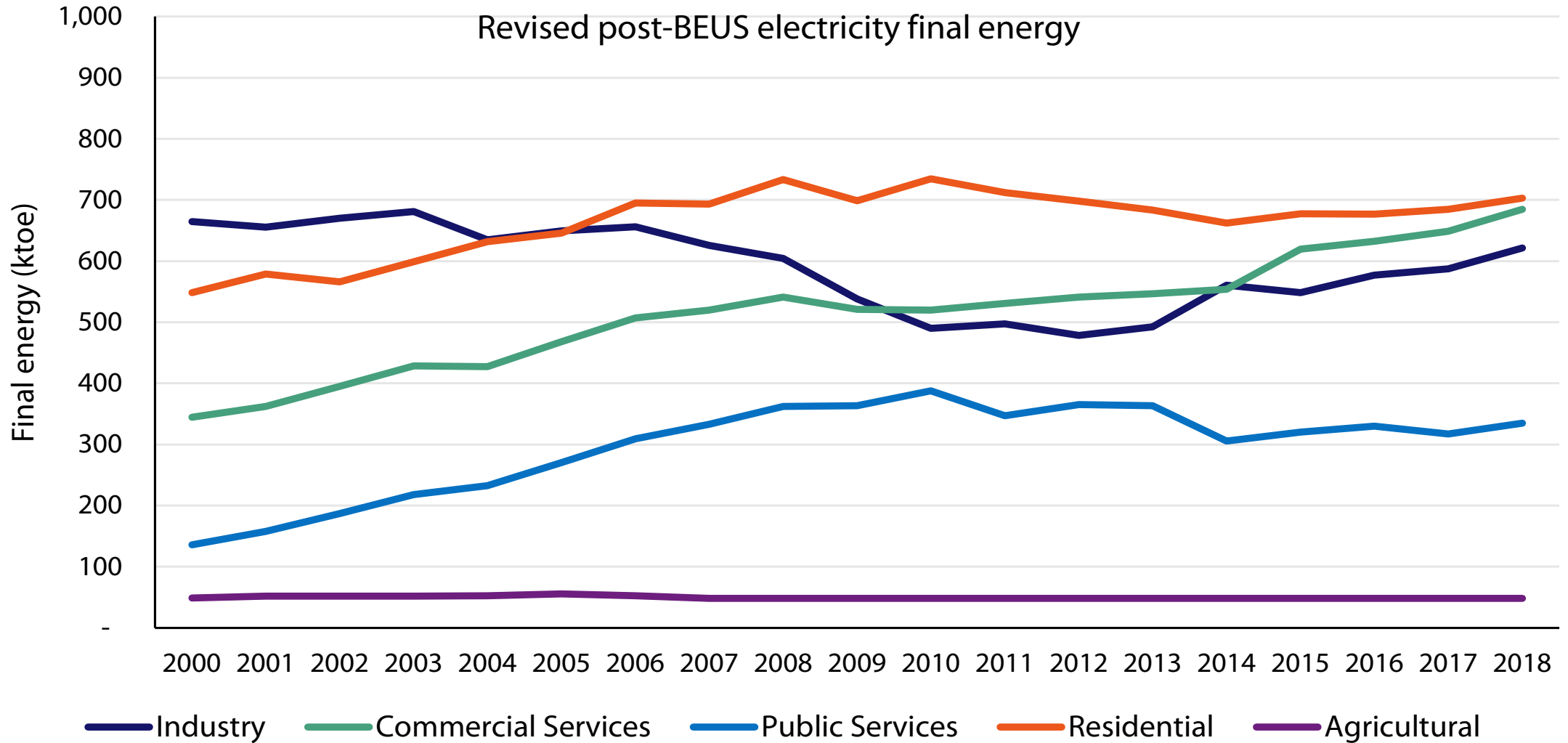
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