International Energy Agency

Tracking energy efficiency indicator in services

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Joint APEC-IEA training workshop on end-use energy consumption data – Nov. 16th 2022

Why is the services sector important?

Commercial and public services are closely related to our lives!

Overview

1. What we can learn from **energy balances**?

2. What can we learn from **end-use data and energy efficiency indicators**?

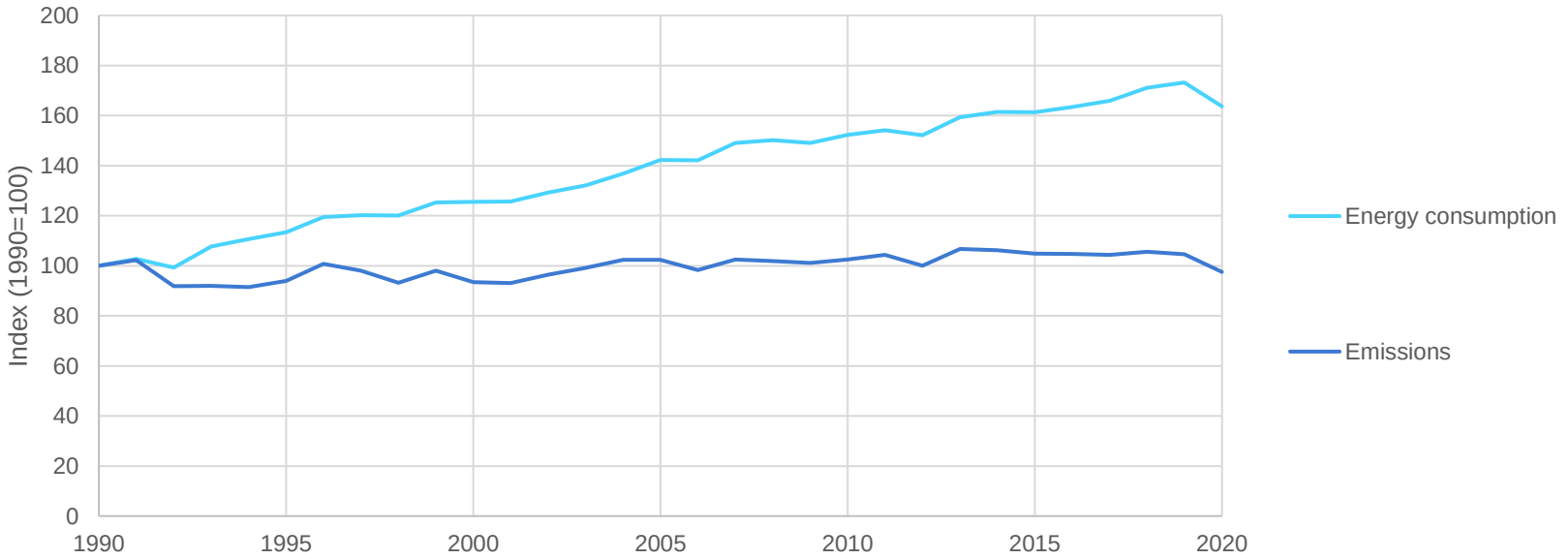
3. **Developing** energy efficiency indicators

4. How to **collect data for services**?

What can we learn from energy balances?

Energy consumption and emissions trend in services sector

Growth of energy consumption and emissions in services sector for APEC economies



Source: IEA Energy Balances, 2022
IEA Greenhouse Gas Emissions from Energy, 2022

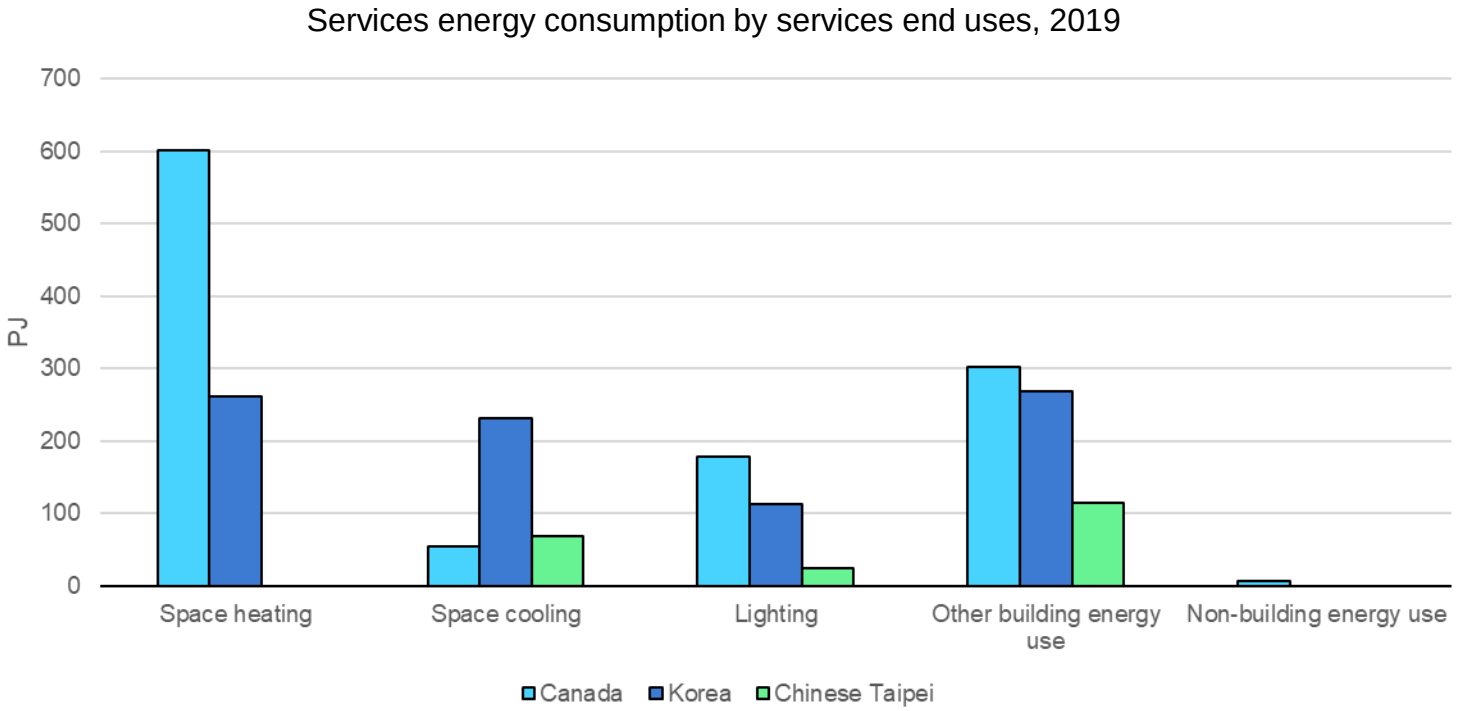
Services energy consumption increased by 64% from 1990 while emissions remained the same level.

What else do we need to know to track efficiency in services?

- What **end use** consumes most of the energy (heating/cooling/lighting…%)?
- Which **services category** drives energy consumption and emissions?
- Why do the **emission** levels remain constant even with increased activities?

What can we learn from energy efficiency indicators?

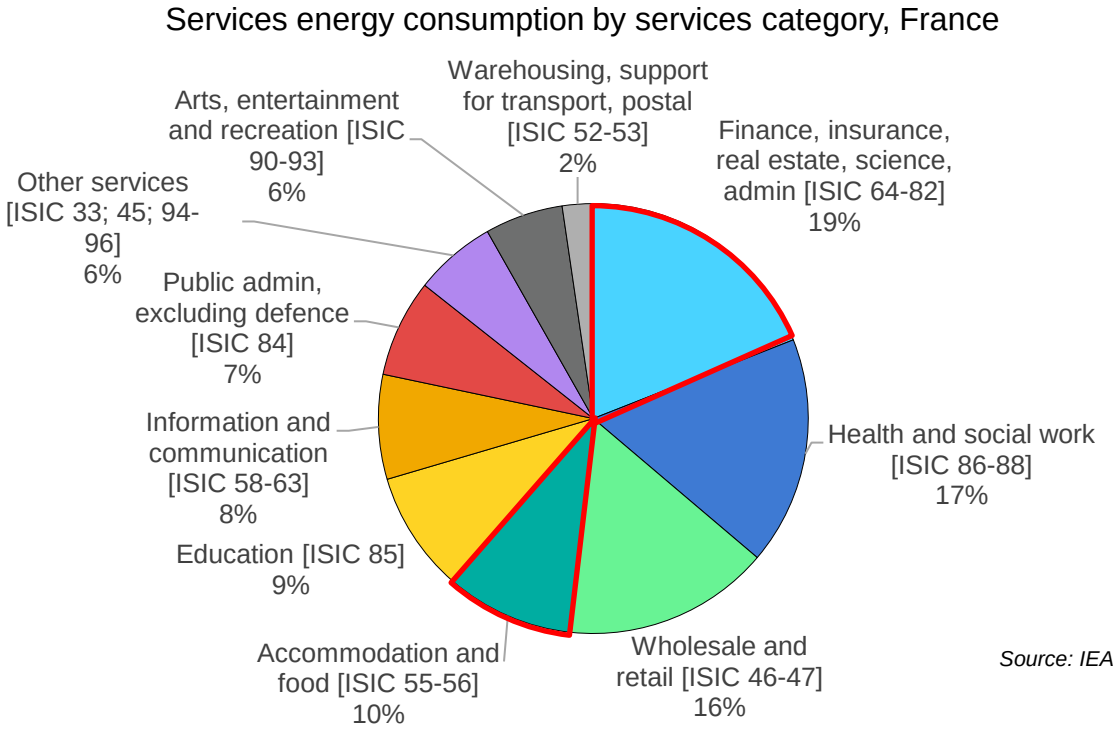
Detailed data provides more information – services end uses



Source: IEA Energy Efficiency Indicators, 2022

Detailed data allow to understand which activity drives energy consumption and emissions.

Detailed data provides more information – services categories

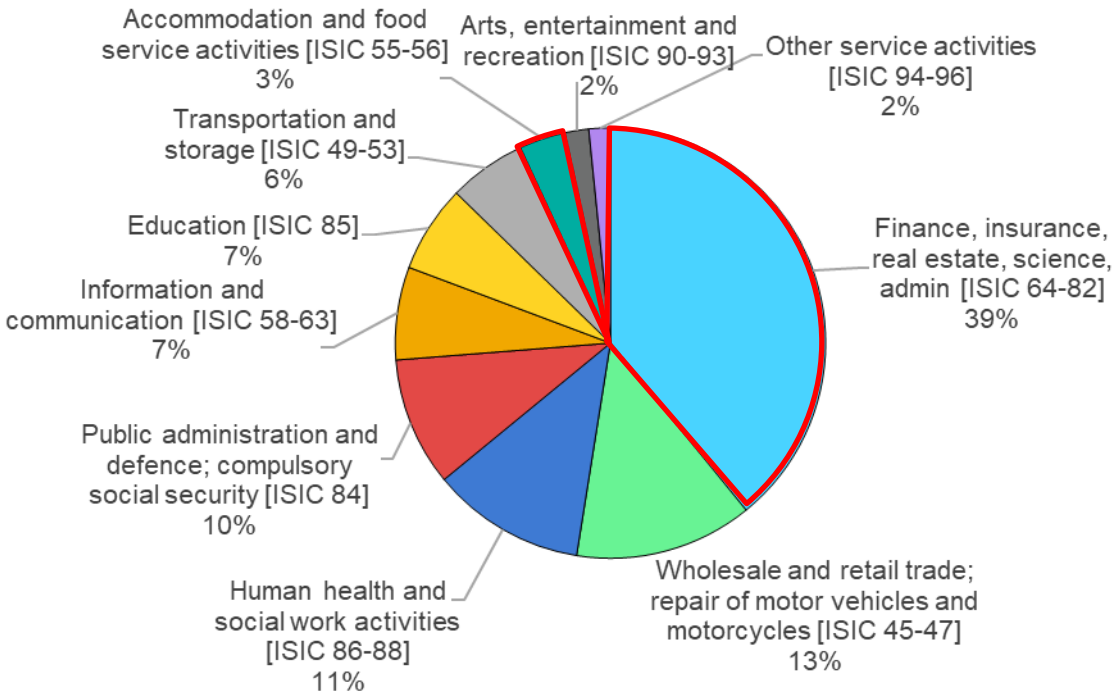


Source: IEA Energy Efficiency Indicators, 2022

Detailed data allow to understand which activity drives energy consumption and emissions.

Detailed data provides more information – services categories

Services value added by services category, France

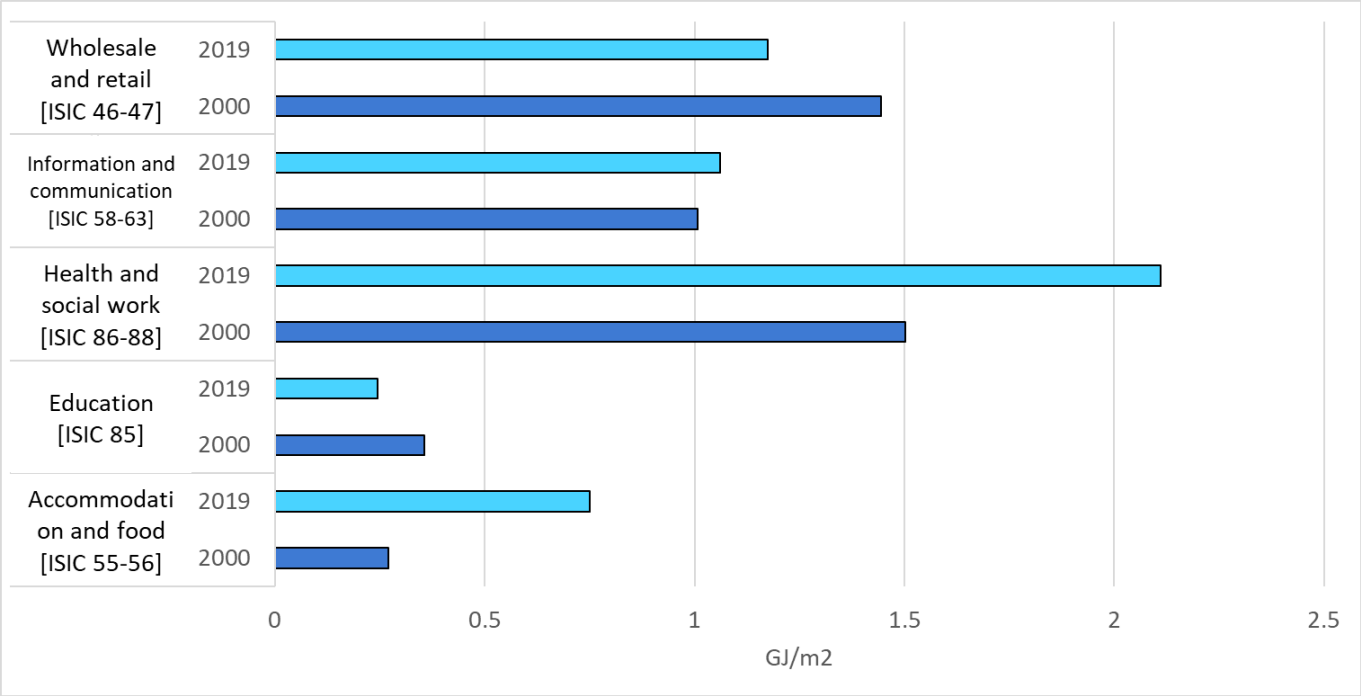


Source: OECD stat database, 2022

Detailed data allow to understand which activity drives energy consumption and emissions.

Detailed data provides more information – services categories

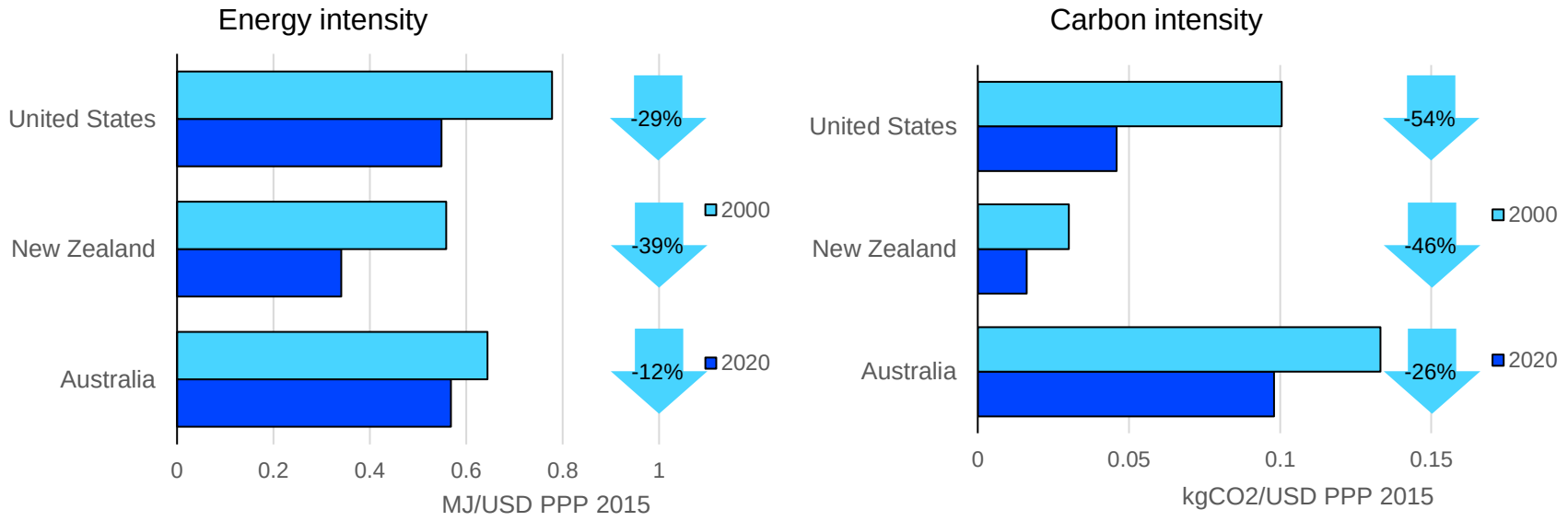
Floor area intensities by services category, 2019, Spain



Detailed data allow to understand which activity drives energy consumption and emissions.

How country reduced energy and carbon intensities

Value added energy and carbon intensity of services sector, 2000-2020

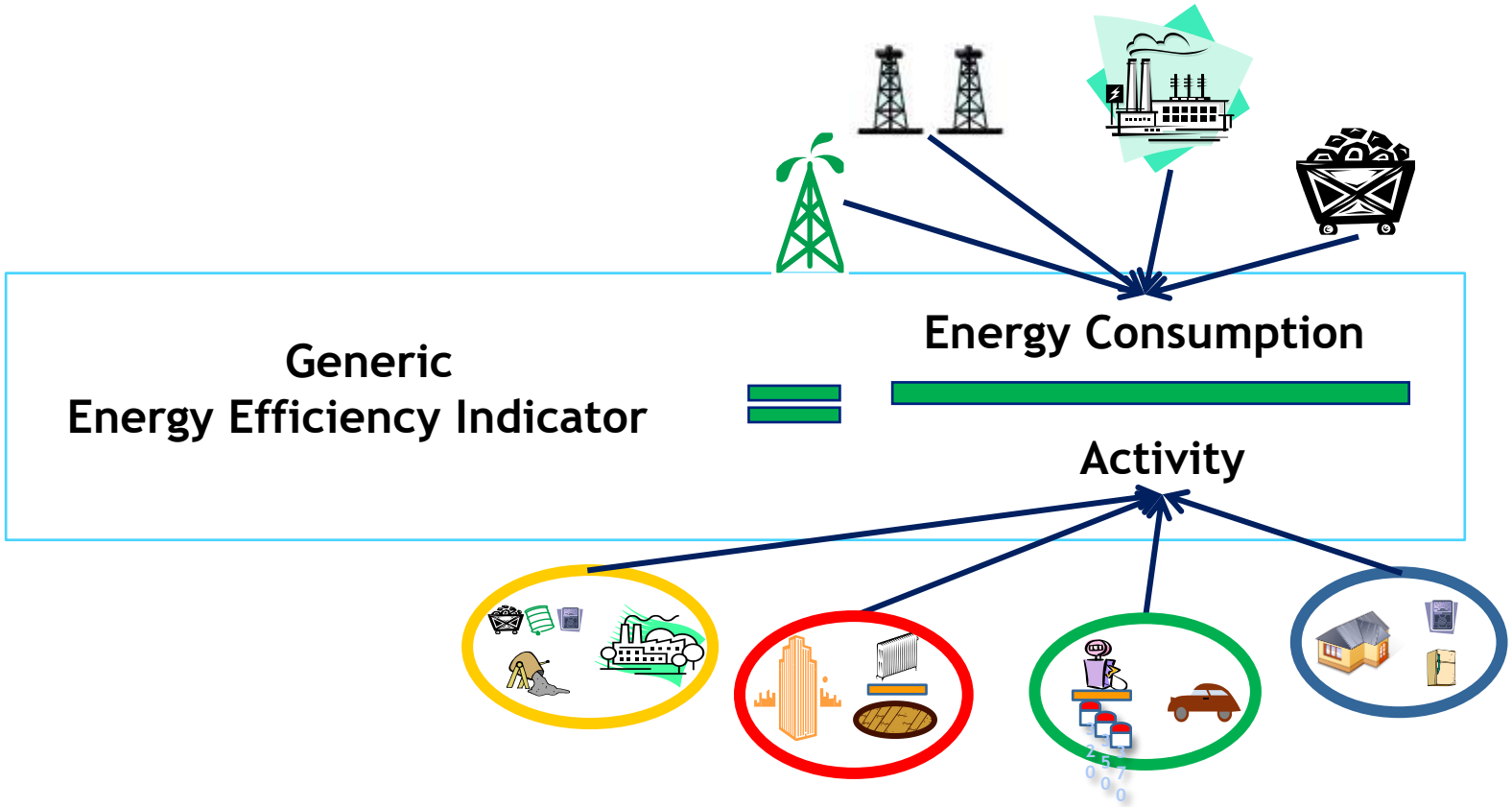


Source: IEA Energy Efficiency Indicators, 2022

Some countries reduced their carbon intensity even more than their energy intensity.

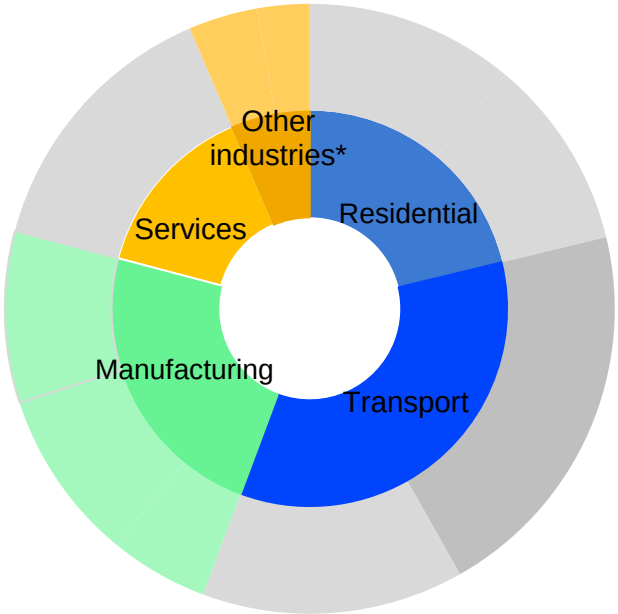
Developing energy efficiency indicators

Energy efficiency indicators: definition



End use consumption data - Data coverage ambition

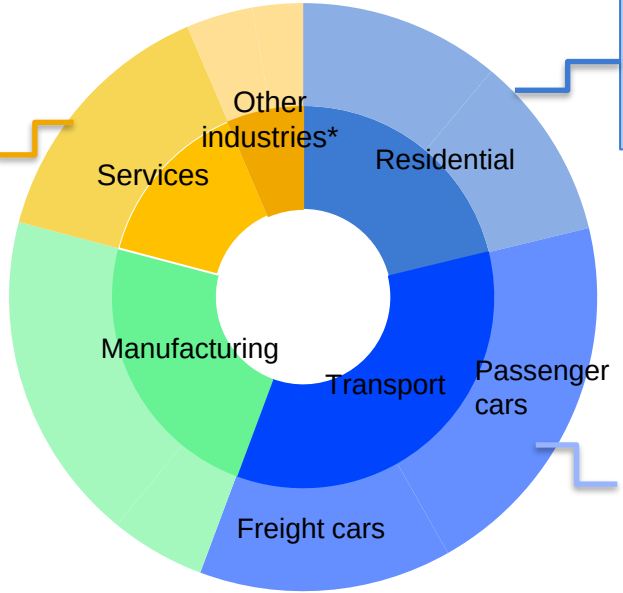
Energy balance



Energy efficiency indicators

Space heating
Space cooling
Water heating
Lighting
etc.

Sewerage
Wholesale
Warehousing
Etc.



Space heating
Space cooling
Water heating
Cooking
etc.

Passenger cars
Buses
Motorcycles
Passenger trains
etc.

Freight trucks
Freight trains
etc.

Data and indicators for the services sector

Energy consumption data

By end uses:

- Space heating*
- Space cooling*
- Lighting
- Other building use
- Non-building use

- Temperature corrected, using HDD & CDD

By ISIC categories:

- Sewerage, waste collection and remediation activities
- Wholesale and retail trade
- Warehousing, support activities for transportation, postal services
- Accommodation and food services
- Information and communication
- Financial, insurance, real estate, scientific, and administrative activities
- Public administration, excluding defence [ISIC 8422]
- Education
- Health and social work
- Arts, entertainment and recreation
- Other services activities

Activity data:

- Value added
- Service floor area
- Number of employees

Value added

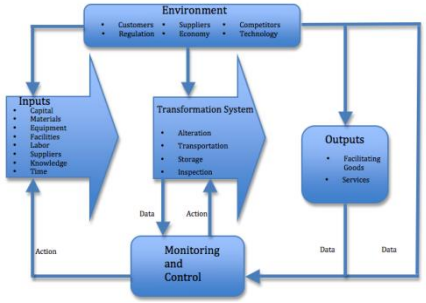
Surface

# of employees

How to collect data for services?

Methods used to collect data for indicators

- Administrative sources
  - Basis as often gathers many data
  - To be consulted before starting new data collection
- Surveys
  - The key: a representative sample
  - Possibly expanding existing surveys
- Metering and measuring
  - Costly but very effective for monitoring specific equipment efficiency
- Modelling
  - Complementary to surveys or stand alone



How to collect data for services – sources and methodologies

Table 5.3 • Summary of the main variables needed for services indicators and examples of possible sources and methodologies

Data	Source	Methodology
Energy Data		
Total services consumption	National energy balance	Administrative sources Modelling
Service category consumption	Utilities	Administrative sources Modelling
Activity data		
Floor area	National statistics offices Regional governments Business taxation offices through national or regional networks Building permits offices National services sector surveys	Administrative sources Surveys
Value added	National statistical office	Administrative sources
Unit of activity	National statistics offices Chambers of commerce, etc.	Administrative sources Surveys
Equipment	Manufacturers, Importers, etc.	Administrative sources Surveys

IEA Energy Efficiency Indicators: Fundamentals on Statistics, 2014

https://www.iea.org/reports/energy-efficiency-indicators-fundamentals-on-statistics

EGEDA
under EWG-APEC