

ODYSSEE-MURE



First meeting of the project "ODYSSEE-MURE,
*Monitoring EU Energy Efficiency First Principle and Policy
Implementation*"
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WP2 - Early estimates Odyssee

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Why early estimates

Why early estimates?

- National teams only update the ODYSSEE data base once a year when the necessary data are available, generally towards the middle of year T for the update at **T-2**. This means that there is a **2 years delay** in the monitoring of the most recent trends, which does not meet the need of policy makers.
- Indeed, they need to have up-to-date information on the most recent energy efficiency trends and on the interpretation of changes in final and primary energy consumption, especially in view of the 2020 targets.
- It is therefore important to provide more rapid updates, at **year T-1** in year T, of **advanced** indicators, such as **energy savings** and the explanatory factors behind the variation of the energy demand (“**decomposition analysis**”).
- This is why the project will prepare “**early estimates**” in **complement** to the annual updating of national teams.

Content of early estimates? (1/2)

- The objective is not to estimate all data and indicators for year T-1, but to estimate the **data needed to calculate** the **ODEX** by sector, energy **savings** and **decomposition** analysis.
- Such estimates will be produced by the technical coordination (Enerdata) in the Excel template in a new sheet to be added.
- Such estimates will appear in the online **data base in italic and in colour (red)** to well distinguish them from the normal update made by national teams to avoid confusion.
- In the **decomposition tool** clear explanations will indicate that the data have been estimated for the last year.

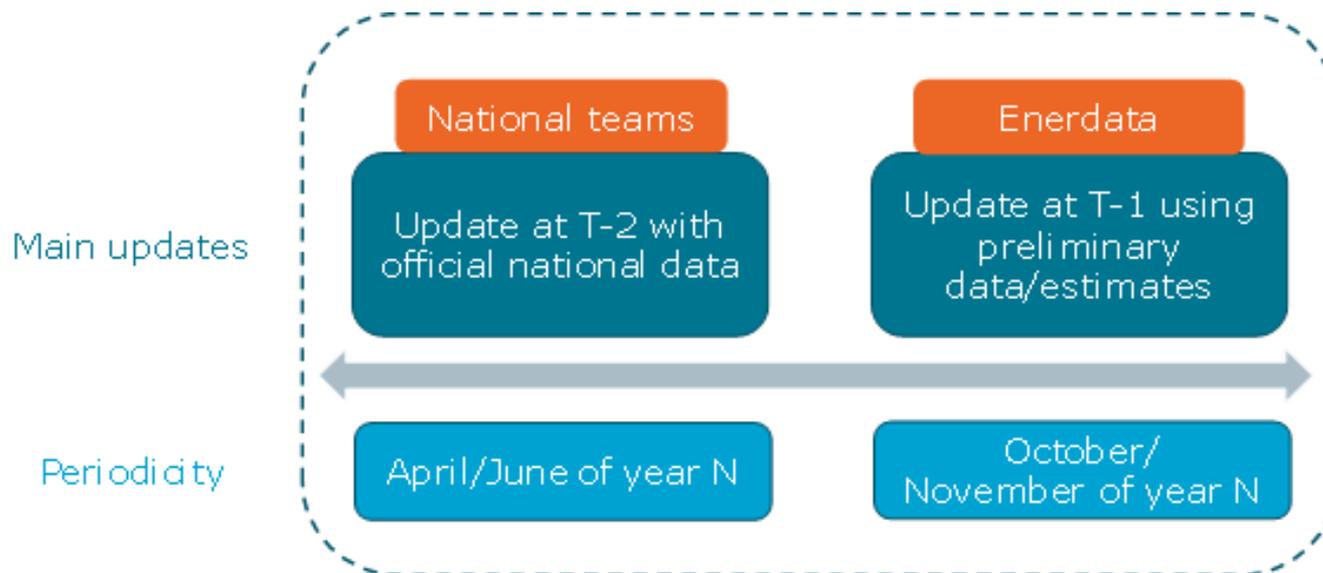
Content of early estimates? (2/2)

- The estimates at year T-1 will only include the data necessary to calculate the advanced energy efficiency indicators:
 - Final energy consumption by **sector**
 - Final energy consumption by **sub sector, end -use and by vehicle type** for road transport.
 - Main **economic drivers**.
- The ODEX and decomposition will then be calculated applying the estimated data to the **existing methodology**

WP2 : updating sequences

In a normal year, the ODYSSEE database will be updated **twice a year**:

- First update at year T-2 with **official national data** as soon as they are available (April-June);
- Second update for main data and indicators at year T-1 in October/November using **early estimates**



Proposed methodology

*More detailed methodological document available on
ODYSSEE MURE web site in partner section under
« DOCUMENTATION ON ODYSSEE DATABASE »*

Methodology : general principles (1/2)

- The methodology will depend on the **countries**, to account what required information is available by October, and **sectors**
- The estimation will be done so that there is **no break** in existing time series already provided by national teams in the ODYSSEE data base, in **two steps**:
 1. First, production of an early estimate at year T-1 (EA_{T-1}) based on different sources, as much as possible official, or from internal modelling/estimates;
 2. Then, applying the variation of the early estimate between T-2 and T-1 to the existing data in ODYSSEE data base

Methodology : general principles (2/2)

In other words, the value of a given data A at year T-1 will be extrapolated by applying the variation of an estimated value of A to the existing value in the data base at T-2:

	2017	2018
ODYSSEE data	A_{T-2}	$A_{T-1} = A_{T-2} \times (EA_{T-1} / EA_{T-2}) \times A_{T-2}$
Data from early estimates	EA_{T-2}	EA_{T-1}

A_{T-2} : Data from normal updates by national team

EA_{T-1} , EA_{T-2} : Early estimate of A from other source, as much as possible official, or from internal calculations.

Example: total heating consumption of households (Mtoe)

	2017	2018
ODYSSEE data	5.2	5
Data for early estimates	5,1	4,9

Methodology by type of data

Several types of data will be needed:

- **Final consumption** by sector, which will come from:
 - Preliminary of final national data, when available
 - Or from estimates based on allocation of total final consumption by fuel type by sector (i.e. share by sector), extrapolated from the past (previous year or trend over last 5 years).

- Detailed **final consumption data by sub-sector or end-use** will be produced using a specific methodology by sector.

- **Economic drivers** (e.g. stock of vehicles, traffic, production, index of production, number of households) will come as much as possible from horizontal sources (e.g. Eurostat, Industry associations etc...).

Methodology : final consumption by sector

- We have made an extensive review of the publication of data on the final consumption by sector at national level, which could be improved or completed with contribution of national teams.
- It turns out that:
 - 11 countries have official data by September on final consumption by sector at Year T-1 (preliminary or final);
 - 3 more countries have only data for some energy sources
 - 4 countries have data published in October and November
 - 10 countries have data published at year N+2

Overview of data on final consumption by sector at national level

National data available for all energy sources by September

Austria	May (P)
Estonia	September (end)
France	April (P)
Germany	August
Ireland	October
Latvia	August (end)
Lithuania	September
Netherlands	Monthly
Slovenia	May (P)
Sweden	
UK	July

National data available for some energy sources by September

Italy	Gas, Elec	July
	Electricity	
Spain	, oil	
Finland	Electricity	

National data available in November/December

Luxembourg	November
Poland	November (mid)
Romania	End November
Sweden	November

P: preliminary; F final

Methodology : final consumption by end-use or sub-sector for industry

- Estimation of the energy consumption by branch using production index by branch.
- For each branch the consumption will be calculated on the basis of the variation of the **industrial production index** (IPI) and assuming the same change in the specific consumption by branch as for the whole sector.
- This approach has the advantage to well take into account **structural changes**, but implicitly assumes the same rate of energy efficiency improvement for all branches at T-1.

Methodology: consumption by mode for transport

- Estimation of the energy consumption by main mode (road, rail, water, air) and type of fuel based on the final consumption of transport by fuel and allocation factors.
- For road transport, the split by vehicle will be based on the **specific consumption per car-equivalent**, by fuel type (gasoline, diesel, LPG, CNG etc...) (biofuels included with gasoline and diesel).
- The **consumption by vehicle type and fuel at T-1** will be calculated as the unit consumption per car equivalent at T-1 x coefficient of conversion of vehicles in car equivalent at T-2 x stock of vehicles at T-1 .
- The energy consumption per car equivalent relates the total consumption of road transport to a fictitious stock of road vehicles, measured in terms of equivalent cars, using national coefficients of equivalence.

Methodology : final consumption by end-use or sub-sector for households (1/2)

- Consumption by end-use estimated at normal climate, then at real climate → need to start with estimate of consumption at normal climate.
- The energy consumption by end-use will be done for **electricity and for all other fuels separately**.
- For **non electric fuels**:
 - water heating and cooking calculated using a constant unit consumption if unit consumption rather stable over the last years or extrapolation of trend.
 - space heating calculated by difference

Methodology : final consumption by end-use or sub-sector for households: electricity (2/2)

For electricity:

- **Case 1 (most common):** countries with limited electric heating*:
 - Space heating will be extrapolated from the share of space heating at year T-2 at normal climate.
 - Water heating and cooking will be calculated using a constant unit consumption or extrapolation of trend.
 - Lighting, cooling: extrapolation of trend in unit consumption.
 - Large appliances (for countries with data): extrapolation of unit consumption per equivalent refrigerator (as for cars).

- **Case 2:** countries with significant electric heating:
 - Water heating and cooking calculated using a constant unit consumption if unit consumption rather stable over the last years or extrapolation of trend.
 - Space heating calculated from a trend in unit consumption
 - Lighting, cooling, large appliances: same as before).

* *Most countries, except France, Norway, Sweden,...*
Early estimates ODYSSEE

Methodology : final consumption by end-use or sub-sector for services

- Estimation of the energy consumption **by branch** for countries with such data using **production index** by branch (as for industry), with a **separation** between electricity and other fuels.
- For each branch the consumption will be calculated on the basis of the variation of the production index (IPI) and assuming the same change in the ratio energy consumption over production index by branch as for the whole sector.
- For other countries only **aggregate** approach, with a **separation** between electricity and other fuels.

Methodology: economic activity data

- Population and macro-economic data (GDP, Production index from Eurostat).
- Sectoral activity data:
 - Industry: physical production from international sources (industry associations, FAO, etc..).
 - Households: households from number of person per households (extrapolated), m²/dwelling (extrapolated), equipment rate (extrapolated)
 - Transport: stock of vehicles from international sources (Eurostat, IRF); stock by fuel estimated from new registration by fuel (EEA, ACEA).
 - Services: employment (Eurostat), m² /employee (extrapolated).

Planning

Planning of implementation

- Three pilot countries in January/February 2020: EU, France, Belgium.
- Preparation of the calculation in national templates: March-April 2020 (updating of ODEX/decomposition) to 2018.
- Implementation from October to November 2020 , starting with EU and large EU countries and with a plan depending on the submission of the update by national teams and date of publications of national data.

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