



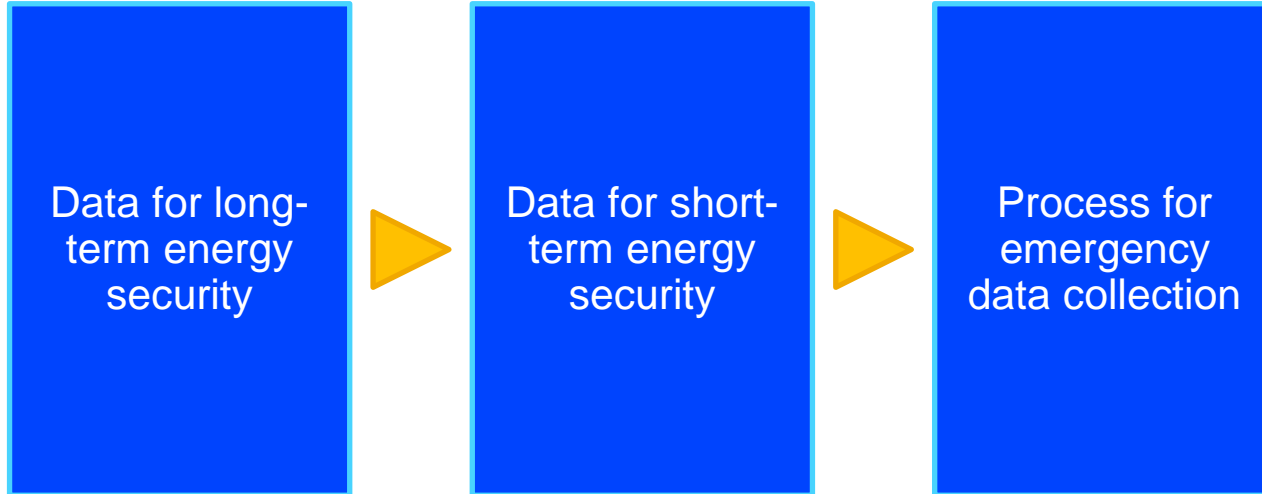
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Role of Energy Data in Energy Security

Markus Fager-Pintilä, energy data coordinator for EU4Energy

28 February 2023 10H00 – 12H00 CET (virtual)

Storyline



Data for long-term energy security

“Long-term” data

- Support **strategic** planning

EXAMPLE INDICATORS

Energy balance

- Shares of energy sources
- Weights of economic sectors
- Trade dependency
- Self-sufficiency

Energy efficiency indicators

- Track progress towards the potential savings

Trade by country

- Share of energy supply “exposed” to external/global events

Data characteristics

Availability	High data transparency	✓
Frequency	Annual generally sufficient	✓
Collection	Established methodology	✓
Dissemination	Standard electronic formats	✓

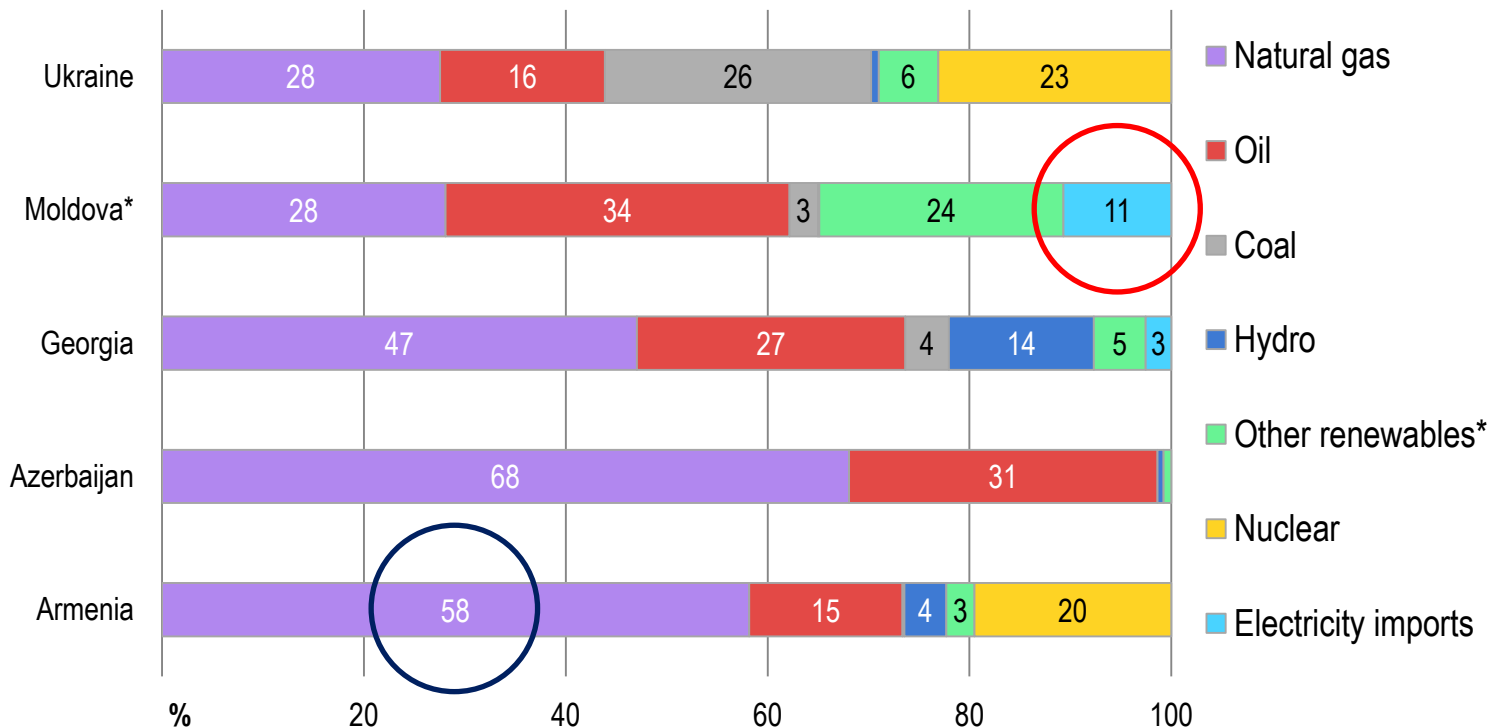
Share of energy sources in total energy supply In EU4Energy countries, 2020

“Long-term” data

Energy balance

Energy efficiency indicators

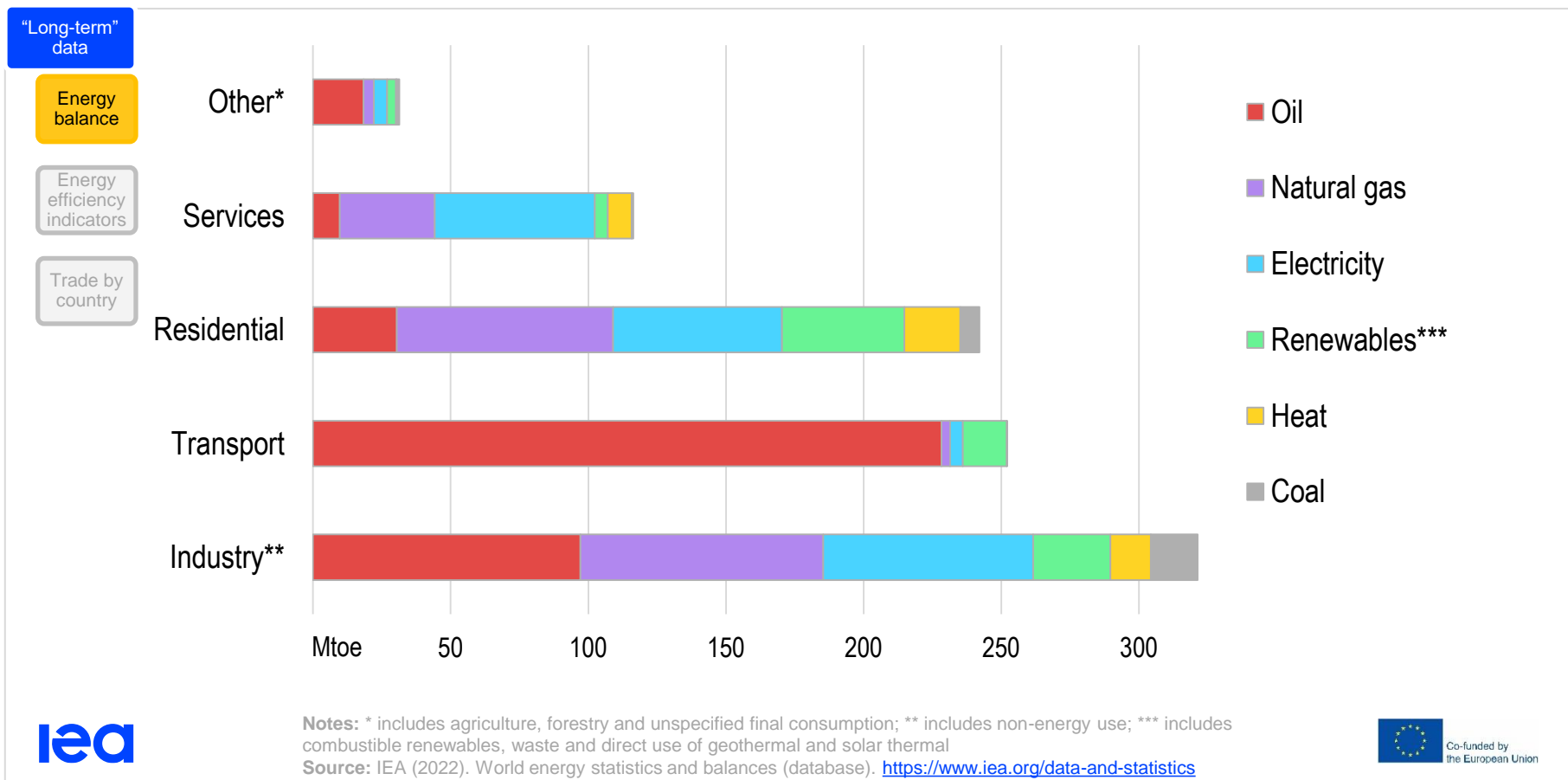
Trade by country



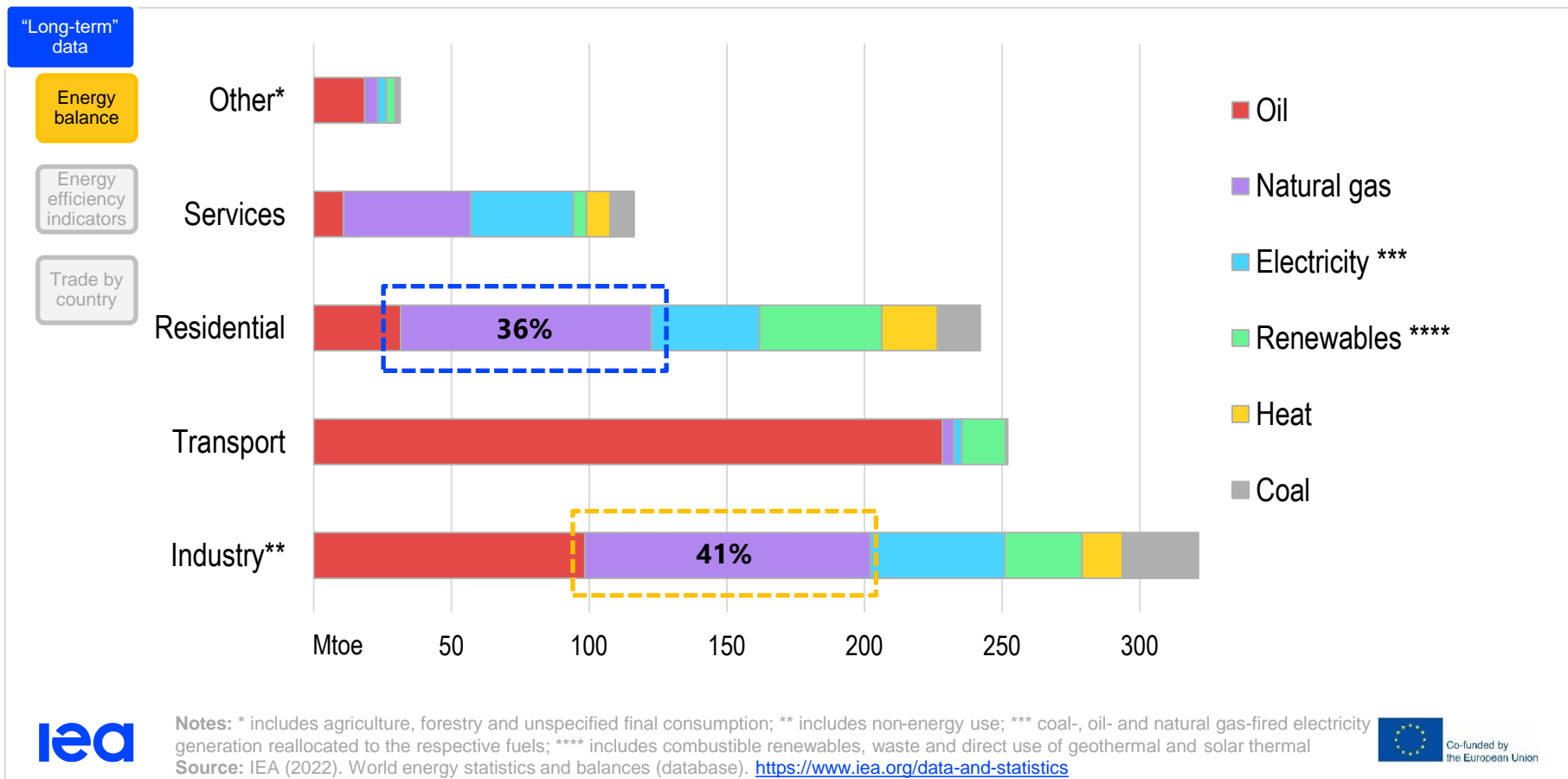
Notes: * electricity procured from MGRES treated as imports; ** includes geothermal, solar, wind, waste and heat
 Source: IEA (2022). World energy statistics and balances (database). <https://www.iea.org/data-and-statistics>



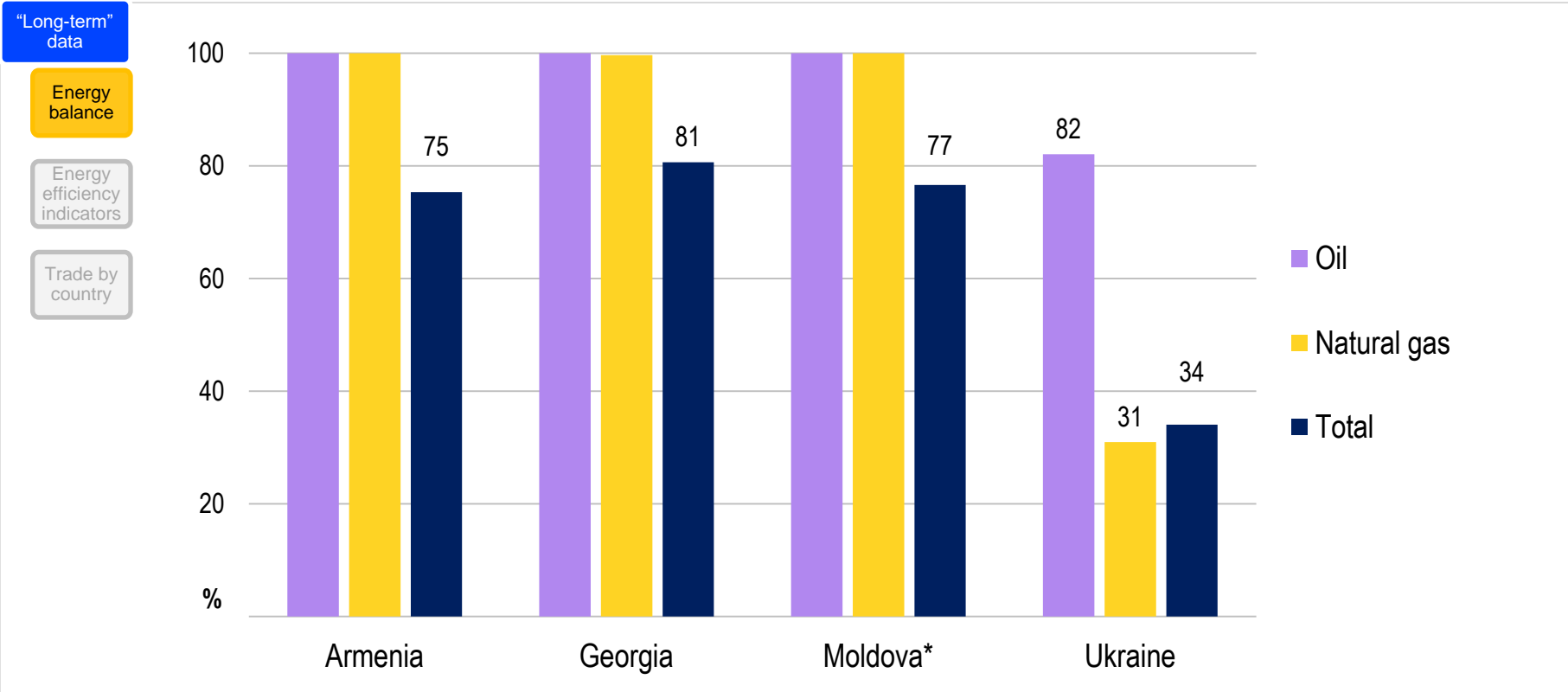
Final consumption in economic sectors in the EU, 2020 (Mtoe)



Adjusted final consumption in economic sectors in the EU, 2020 (Mtoe)



Import dependency (%) of EU4Energy countries, 2020



Notes: Azerbaijan is a net exporter and therefore not included in the chart; Import dependency calculated as a following ratio: (imports + exports) / TES. For visual simplification ratios above 100% are fixed to 100%; * electricity procured from MGRES treated as imports
Source: IEA (2022). World energy statistics and balances (database). <https://www.iea.org/data-and-statistics>



National reliance on Russian fossil fuel imports 1

“Long-term” data

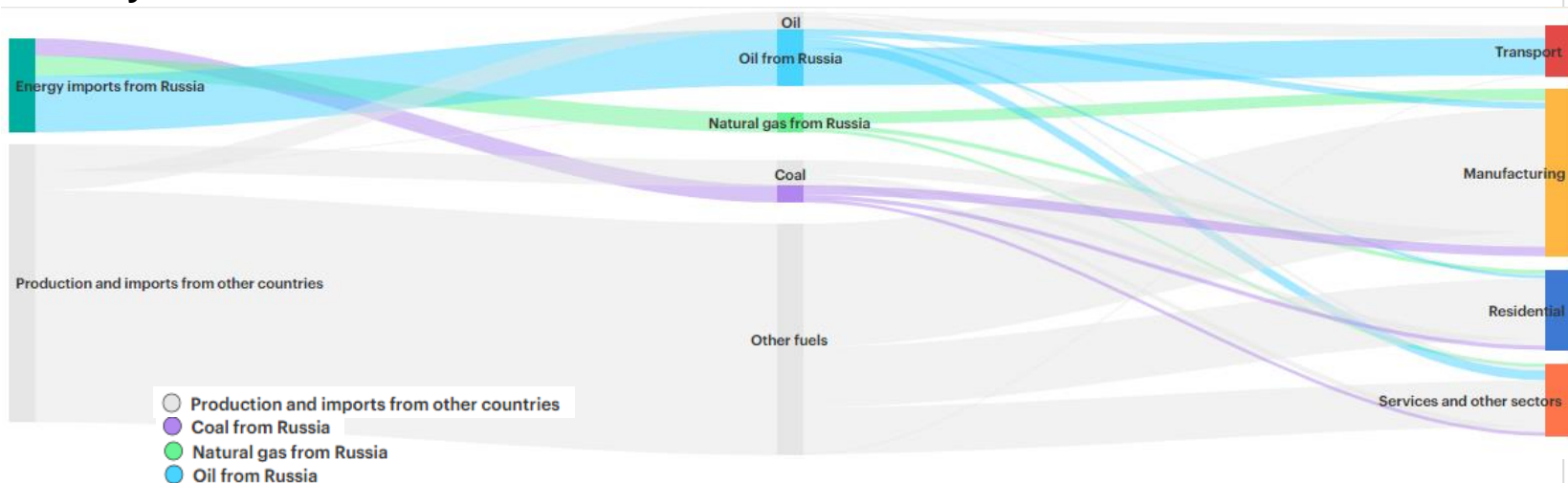
Energy balance

Energy efficiency indicators

Trade by country

How Russian fossil fuel imports are used in selected countries – IEA Analysis

Country: Finland



National reliance on Russian fossil fuel imports 2

“Long-term” data

Energy balance

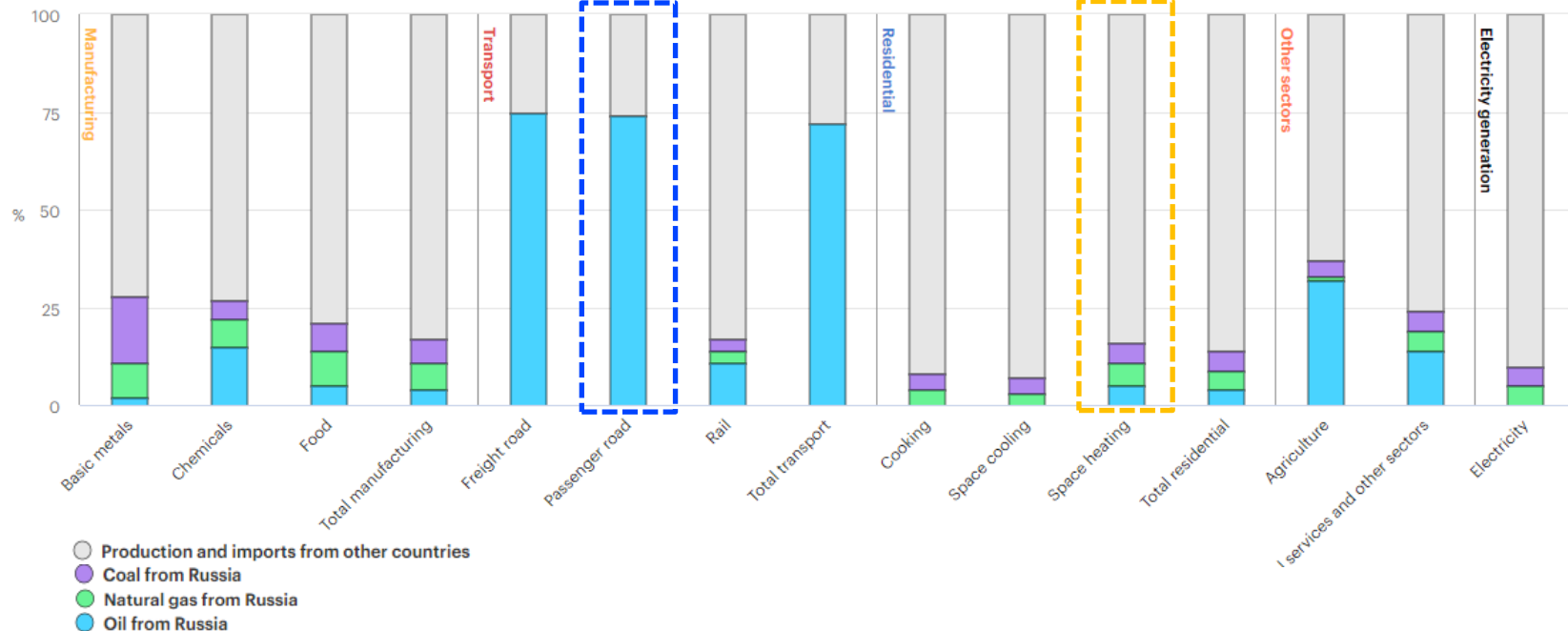
Energy efficiency indicators

Trade by country

Country: Finland

Passenger cars 74%

Space heating 16%



Notes: The reference year is 2019.

Source: IEA (2022). National Reliance on Russian Fossil Fuel Imports (online tool).

<https://www.iea.org/reports/national-reliance-on-russian-fossil-fuel-imports/how-russian-fossil-fuel-imports-are-used-in-selected-countries>



What about the short-term energy security data?

“Short-term” data

- Support **operative** decisions

EXAMPLE INDICATORS

Operational supply balances

- Adequacy of gas, oil products, electricity supply

Commodity stocks

- Gas, oil products supply “cushions”

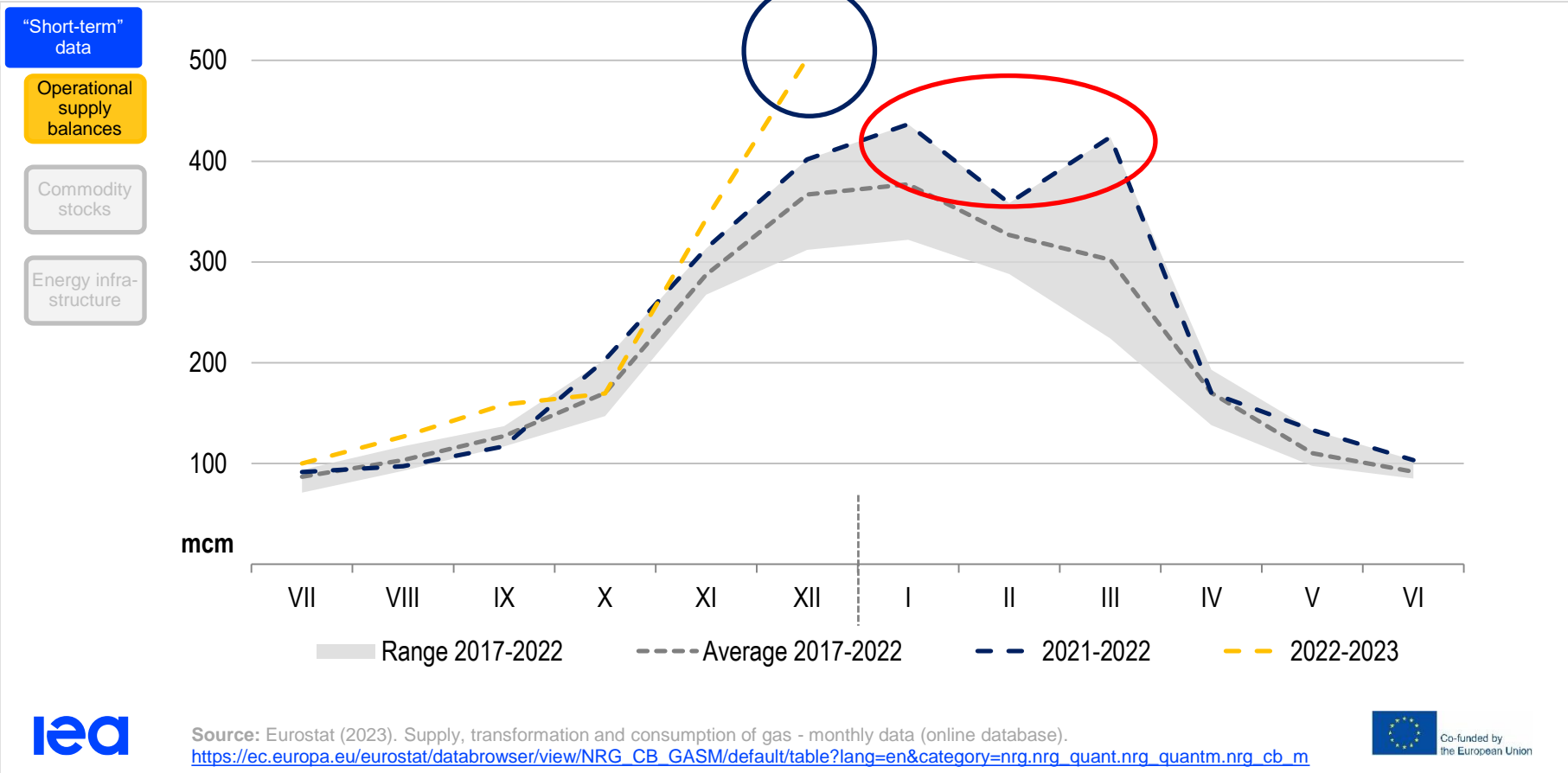
Energy infrastructure

- Status of electricity, gas grids

Data characteristics

Availability	Data may be confidential ?
Frequency	High frequency desirable <ul style="list-style-type: none">• monthly ✓• weekly ?• Daily ?
Collection	Potentially ad-hoc ?
Dissemination	No standard formats ?

Georgia's heating season natural gas imports, 2017-2022



Short-term electricity balance availability

"Short-term"
data

Operational
supply
balances

Commodity
stocks

Energy infra-
structure

Country	Source (TSO)	Hourly	Monthly
Armenia	CJSC	-	-
Azerbaijan	Azerenerji	-	-
Georgia	GSE	database (xls)	pdf
Moldova	Moldelectrica	xls	xls
Ukraine	Ukrenergo	?	?

**Format
ranking:**

none

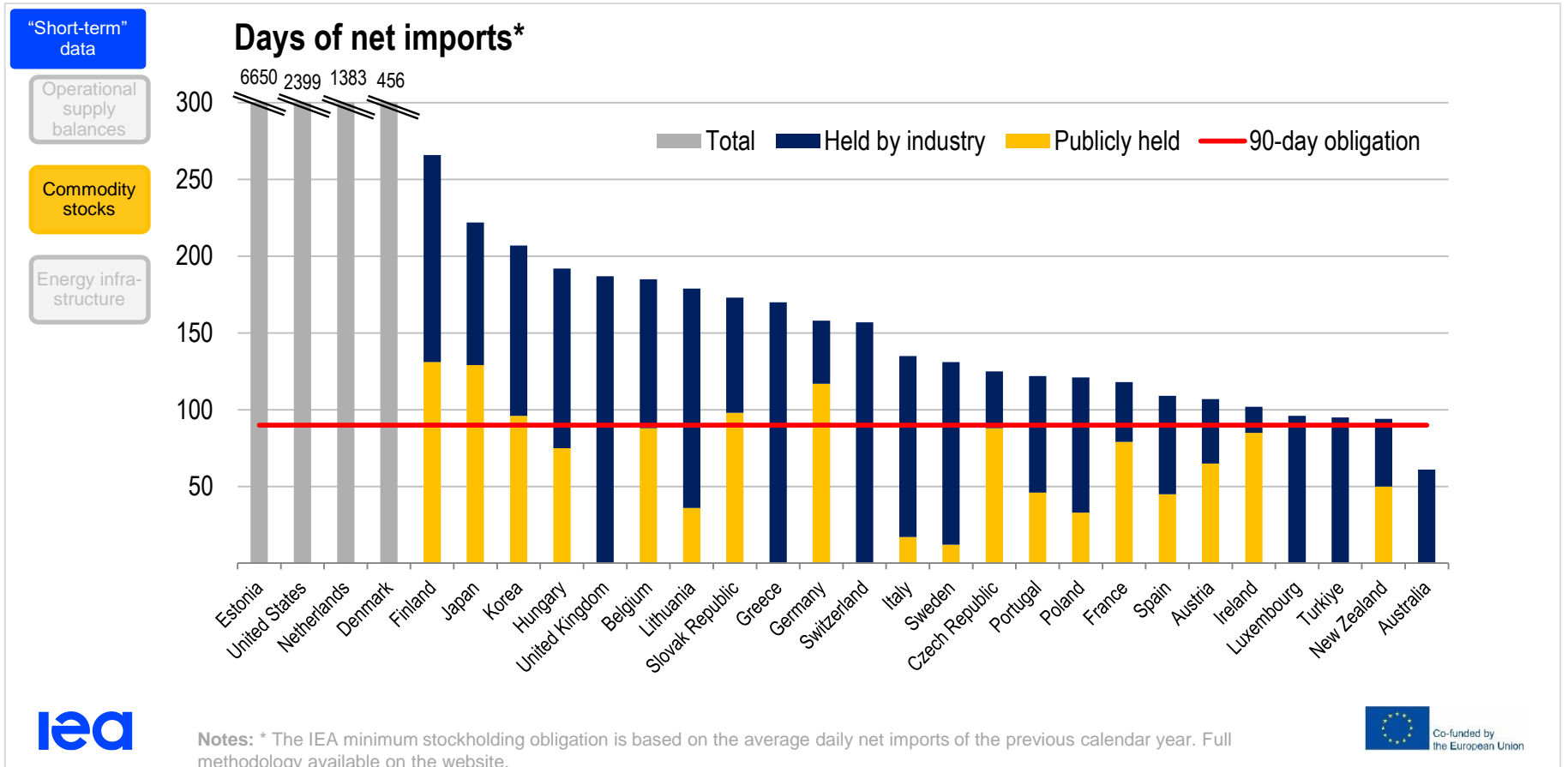
pdf 

xls 

csv 

Raises a question: How quickly can this data be shared internally?

Oil Stocks of IEA Countries, November 2022



IEA's Emergency Response Exercise (ERE)

"Short-term"
data

Operational
supply
balances

Commodity
stocks

Energy infra-
structure

- organized bi-annually since 2002
- objective to familiarise participants with the IEA response system [...] by making use of hypothetical oil supply disruption scenarios
- helps to ensure that participants are capable of implementing the system quickly and effectively in the event of a major global oil supply disruption
- participants include delegates from all the relevant stakeholders
- typically consists of two exercises with each designed to test a specific aspect of the emergency response system:
 - Exercise in Capitals: Conducted entirely via email, designed to test the communications and emergency data collection capabilities of participating countries;
 - Main exercise: Conducted in Paris, designed to train delegates in key aspects of global oil market functioning and the process of implementation of an appropriate response to the disruption ("ICRP")



Source: IEA (2023), Emergency response exercises
<https://www.iea.org/areas-of-work/ensuring-energy-security/emergency-response-exercises>



Suggestion: National Emergency Response Exercise (**NERE**)

"Short-term"
data

Operational
supply
balances

Commodity
stocks

Energy infra-
structure

- organized **as soon as possible, then e.g. bi-annually**
- objective to familiarise participants with the **national response system** by making use of **hypothetical supply disruption scenarios**
- helps to ensure that participants are capable of implementing the system quickly and effectively in the event of a **major national supply disruption**
- **participants include delegates from all the relevant stakeholders**
- could consist of two exercises with each designed to test a specific aspect of the emergency response system:
 - **Online exercise**: Conducted entirely via email, designed to test the communications and emergency data collection capabilities of participating countries;
 - **In-person exercise**: Hosted by the **Coordinating entity**, designed to train delegates in key aspects of **regional market functioning** and the process of implementation of an appropriate response to the disruption

Path to functioning emergency procedure

- Resilience of the system: includes mechanisms that cope with outages or attacks
- Comprehensive emergency response frameworks, including clear division of responsibilities
- Emergency response exercises effective!
- Gathering data and lessons learned important
- Stakeholders should:
 - review substantial events
 - design reporting and data exchange mechanisms
 - support capacity building

Efficient data collection and monitoring forms the heart of the procedure!

Homework questions

- Is short-term data (daily/weekly/monthly) data available in a user-friendly format?
 - **If not**, raise the issue with the entity responsible for such data
- Is there a responsible entity for data coordination during emergencies?
 - **If not**, ask the national statistical office (NSO) for advice on how to establish such coordination
- Is there an established reporting system for emergency situations?
 - **If not**, consider designing one with guidance from the NSO
- Would it be useful to arrange a national emergency response exercise?
 - **If not**, how can the resilience of the system can be tested otherwise?



EU4Energy programme can help by:

- ✓ Facilitating stakeholder meetings
- ✓ Arranging targeted capacity building
- ✓ Sharing best practices (e.g. from IEA & EU-member countries)
- ✓ Providing methodological guidance

THANK YOU!

Programme website: <https://www.iea.org/programmes/eu4energy>

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