

### Energy efficiency indicators in the industry sector

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#### Why is the industry sector important?











> What we can learn from **energy balances**?

> Selection of indicators to **quantify industrial energy efficiency** 

> What can we learn from **Energy Efficiency Indicators**?



### What we can learn from energy balances?

#### Energy consumption in Asian focus region<sup>1</sup> and IEA



In the Asian focus region, industry accounts for 31% of final energy consumption.

#### World industry energy consumption based on energy balances



Iron and steel sector

Source: IEA (2017), World Energy Statistics and Balances 2017, www.iea.org/statistics/

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#### What else do we need to know?





• How much energy is consumed to produce the main types of goods (by tonne or by value added)?

• Why is the average **manufacturing energy intensity** in my country so high/low?



 How did the energy intensity in ferrous metals change over time?



# Selection of indicators to quantify efficiency



#### Energy efficiency indicators: definition



#### Industry within the total final consumption



Source: IEA (2014) – Energy efficiency indicators, Fundamentals on statistics

#### **Industry Sector**





#### **Industry Sector**





Activity data:

- Value added
- Physical production



Volume



Value

#### **Remember this? The Indicators pyramid**







Source: IEA (2014) – Energy efficiency indicators, Fundamentals on statistics



# What can we learn from energy efficiency indicators?

#### Is chemical more efficient than metals?



#### Manufacturing and services: selected intensities in IEA

- Intensities<sup>1</sup> within the manufacturing sector vary greatly
- Within manufacturing, basic metals and non-metallic minerals are the most energy intensive sub-sectors
- Machinery is the least intensive sub-sector
- The energy intensity of services is by far lower than that of any manufacturing sub-sector.

 $(1)Intensity = \frac{Energy \ consumption}{Value \ added}$ 

#### Intensities across countries: why they differ? Why they decrease?



\*GDP and VA are at the price levels and PPPs of year 2005; GDP = gross domestic product; VA = value added; PPP = purchasing power parity. Source: *IEA Energy Efficiency Indicators, 2016* 

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### Large energy consuming sub-sectors are not necessarily those with the highest value added

Source: IEA Energy Efficiency Indicators (database), 2017.



It depends on the relative weight of the different sub-sectors and on their specific intensity

\*GDP and VA are at the price levels and PPPs of year 2005; GDP = gross domestic product; VA = value added; PPP = purchasing power parity. Source: *IEA Energy Efficiency Indicators, 2016* 



### www.iea.org/statistics