**WHAT CAN WE LEARN FROM AN ENERGY BALANCE?**

**Region: Your country; Year: 2017**

*Source: IEA (2019), World Energy Statistics and Balances 2019,* [*www.iea.org/data-and-statistics*](https://www.iea.org/data-and-statistics)*.*

## Supply

**1.** What is the total energy supply of your country (measured by TPES)?

**2.** Can the production cover the energy demand of your country? (measured by TPES)? Can you please calculate the overall self-sufficiency (Indigenous producion / TPES)?

**3.** What is the largest energy source in the country’s energy mix (measured by TPES)? And what is the share of this energy source in in the mix?

**4.** Are the total stock changes positive or negative and what does this mean?

## Transformation

**5.** What is the difference between a negative number and a positive number in the transformation sector?

**6.** What are the sources of electricity in the country?

**7.** Focus on main activity electricity producers: how much energy is lost in the transformation process in the overall electricity generation? What share of the total input to electricity does it represent?

## Final consumption

**8.** Which are the shares of the Industry, Residential, Comm. and public services and Transport sectors in the total final consumption (TFC)?

**9.** Which are the 2 main fuel sources for industrial total final consumption?

**10.** Which are the 3 main consuming industrial subsectors?

**11.** What is the share of oil products in road consumption?

**CREATING AN ENERGY BALANCE FROM FUEL STATISTICS**



## Calorific values

Please calculate the net energy content for the fuels below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  | **Net energy content (TJ)** |
| 3.4 | bcm of Natural Gas with a GCV of | 38000 | kJ/m3 equal to: | 116280 |
| 150 | kt of coal with a GCV of | 27000 | kJ/kg equal to: | 3847.5 |
| 1700 | kt of motor gasoline with a GCV of | 44800 | kJ/kg equal to: | 72352 |
| 550 | kt of motor gasoline with a GCV of | 44800 | kJ/kg equal to: | 23408 |
| 3000 | kt of coal with a GCV of | 28000 | kJ/kg equal to: | 79800 |
| 1200 | kt of coal with a GCV of | 31000 | kJ/kg equal to: | 35340 |

## Primary energy form

Can you please identify the primary energy form for the non-combustible energy sources below?

(Note: Primary energy form is the *first energy form downstream in the production process for which multiple energy uses are practical*)

|  |  |  |  |
| --- | --- | --- | --- |
| **Energy source** | **Primary energy form** | **Energy source** | **Primary energy form** |
| Geothermal generating heat | Heat | Solar thermal heat | Heat |
| Solar PV | Electricity | Hydro | Electricity |
| Tidal/wave/ocean | Electricity | Nuclear generating electricity | Heat |

## Physical energy content

Please calculate the primary energy equivalent for the electricity & heat generation below:

|  |  |  |  |
| --- | --- | --- | --- |
| **Primary energy equivalent (TJ) …** | | | |
| 24387 | **Hydro** | Generated 24387 TJ | Of Electricity |
| 16500 | **Nuclear** | Generated 5500 TJ | Of Electricity |
| 5813 | **Solar PV** | Generated 5813 TJ | Of Electricity |
| 74890 | **Geothermal** | Generated 7489 TJ | Of Heat |

## Reformatting

Country A produces in its refineries 9000 ktoe of **Motor gasoline**. Will this figure be included in the Supply or the Transformation (i.e. Oil refineries) part of the Balance matrix? Please justify.