Exercise – Construct a supply and use table for energy

The purpose of this exercise is to populate the simplified supply and use table for energy represented by the template *Session 5b Energy Accounts SUT Exercise Template.xlsx*.

To fill out the template, please use the following information (see also the technical information at the end).

1) The National Geological Survey has estimated that that during the year 8 million tonnes of coal has been extracted from domestic deposits. However, after extraction 1 per cent of the coal was lost for various reasons.

   The coal is used domestically only for production of electricity from coal-fired power plants. However, during the year in focus 3 PJ of coal is put on stocks/inventories for use in subsequent years.

2) Besides being produced by coal fired power plants electricity is produced by capturing energy from nature through solar panels and windmills. In total 36 PJ of electricity is captured in this way.

3) According to the energy statistics the total output of electricity based on coal and renewable energy (solar and wind) is 165 PJ. All production of electricity is distributed to users via the grid owned by the electricity supply industry.

   Unfortunately, during the distribution of the electricity there are some transmission losses and thefts of electricity form the grid. In total these losses amount to 9 PJ.

   Based on the same energy statistics it can be assumed that 4 PJ of electricity is used by *Agriculture and forestry*, 5 PJ by the *Mining industry* and 77 PJ by *Other industries.* 46 PJ of electricity is exported and 24 PJ is used by households.

4) A substantial amount, 20 PJ, of fuel wood is used by households. The fuel wood comes from the domestic environment. The felling activities, etc.

involved in preparing the fuel wood are regarded as an economic activity carried out by the *Agriculture and forestry* industry.

5) Gasoline is used for cars by all industries and households. The use is as follows. Agriculture and forestry: 15 PJ, Mining: 3 PJ, Electricity supply: 1 PJ, Other industries: 14 PJ, Households: 12 PJ. There is no domestic production of gasoline. However, 40 PJ of gasoline is imported from abroad this year. Further, there is some withdrawal of gasoline from inventories, since gasoline was stockpiled in previous years.

Technical information:

Calorific value of coal: 25 GJ/tonne

SI multiples for joule (J)					
Submultiples			**Multiples**		
Value	Symbol	Name	Value	Symbol	Name
10^{-1} J	dJ	decijoule	10^{1} J	daJ	decajoule
10^{-2} J	cJ	centijoule	10^{2} J	hJ	hectojoule
10^{-3} J	**mJ**	**millijoule**	10^{3} J	**kJ**	**kilojoule**
10^{-6} J	**μJ**	**microjoule**	10^{6} J	**MJ**	**megajoule**
10^{-9} J	nJ	nanojoule	10^{9} J	GJ	gigajoule
10^{-12} J	pJ	picojoule	10^{12} J	TJ	terajoule
10^{-15} J	fJ	femtojoule	10^{15} J	PJ	petajoule
10^{-18} J	aJ	attojoule	10^{18} J	EJ	exajoule
10^{-21} J	zJ	zeptojoule	10^{21} J	ZJ	zettajoule
10^{-24} J	yJ	yoctojoule	10^{24} J	YJ	yottajoule
Common multiples are in bold face					