

Curso introductorio a las Cuentas Ambientales

(Noviembre 2016)

PHYSICAL SUPPLY TABLE FOR ENERGY:

	Agriculture (ISIC A)	Mining (ISIC B)	Manufacturing (ISIC C)	Electricity (ISIC D)	Transportation (ISIC H)	Households	Imports	Flows from the environment	Total
Energy from natural inputs									
Coal								150	150
Oil								120	120
Solar									
Energy products									
Coal									
Oil (conventional)									
Oil products									
Electricity									
Heat									
Energy residuals									
Extraction									
Transformation									
Other									
Total									

PHYSICAL USE TABLE FOR ENERGY:

	Agriculture (ISIC A)	Mining (ISIC B)	Manufacturing (ISIC C)	Electricity (ISIC D)	Transportation (ISIC H)	Households	Imports	Flows to the environment	Total
Energy from natural inputs									
Coal		150							150
Oil		120							120
Solar									
Energy products--Transformation									
Coal									
Oil (conventional)									
Oil products									
Energy products--end use									
Coal									
Oil (conventional)									
Oil products									
Electricity									
Heat									
Energy residuals									
Extraction									
Transformation									
Other									
Total									

Notes: Coal and crude oil are supplied by the environment and used by the mining industry

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Coal								150	150
Oil								120	120
Solar								60	60
Energy products									
Coal									
Oil (conventional)									
Oil products									
Electricity				60					60
Heat									
Energy residuals									
Extraction									
Transformation									
Other									
Total									

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Coal		150							150
Oil		120							120
Solar				60					60
Energy products--Transformation									
Coal									
Oil (conventional)									
Oil products									
Energy products--end use									
Coal									
Oil (conventional)									
Oil products									
Electricity									
Heat									
Energy residuals									
Extraction									
Transformation									
Other									
Total									

Notes: 10 PJ of electricity from households are allocated to the relevant industry (in this case electricity) See also SEEA Central Framework section 3.4.3 (b)

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Energy from natural inputs									
Coal								150	150
Oil								120	120
Solar								60	60
Energy products									
Coal		140							140
Oil (conventional)		115							115
Oil products									
Electricity				60					60
Heat									
Energy residuals									
Extraction		15							15
Transformation									
Other									
Total									

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Energy from natural inputs									
Coal		150							150
Oil		120							120
Solar				60					60
Energy products--Transformation									
Coal				140					140
Oil (conventional)			115						115
Oil products									
Energy products--end use									
Coal									
Oil (conventional)									
Oil products									
Electricity									
Heat									
Energy residuals									
Extraction								15	15
Transformation									
Other									
Total									

Notes: 10 PJ of coal are losted during extraction (150 extracted - 140 that are received by the coal power plant); 5 PJ are losses during extraction of crude oil.
So in total there are 15PJ losses during extraction

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Coal								150	150
Oil								120	120
Solar								60	60
Energy products									
Coal		140							140
Oil (conventional)		115							115
Oil products							10		10
Electricity				60					60
Heat									
Energy residuals									
Extraction		15							15
Transformation									
Other									
Total									

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Energy from natural inputs									
Coal		150							150
Oil		120							120
Solar				60					60
Energy products--Transformation									
Coal				140					140
Oil (conventional)			115						115
Oil products									
Energy products--end use									
Coal									
Oil (conventional)									
Oil products									
Electricity									
Heat									
Energy residuals									
Extraction								15	15
Transformation									
Other									
Total									

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Solar								60	60
Energy products									
Coal		140							140
Oil (conventional)		115							115
Oil products							10		10
Electricity					135				135
Heat					35				35
Energy residuals									
Extraction		15							15
Transformation					30				30
Other									
Total									

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Solar					60				60
Energy products--Transformation									
Coal				140					140
Oil (conventional)			115						115
Oil products									
Energy products--end use									
Coal									
Oil (conventional)									
Oil products									
Electricity									
Heat									
Energy residuals									
Extraction								15	15
Transformation								30	30
Other									
Total									

Notes: 140 PJ of coal that are at the coal power plant are split as follows: 75 for electricity supply, 35 for heat and 30 are losses in transformation

Notes: we now have 135 PJ of electricity being supplied

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Coal								150	150
Oil								120	120
Solar								60	60
Energy products									
Coal		140							140
Oil (conventional)		115							115
Oil products			100				10		110
Electricity					135				135
Heat					35				35
Energy residuals									
Extraction		15							15
Transformation			15		30				45
Other									
Total									

PHYSICAL USE TABLE FOR ENERGY:

	Agriculture (ISIC A)	Mining (ISIC B)	Manufacturing (ISIC C)	Electricity (ISIC D)	Transportation (ISIC H)	Households	Imports	Flows to the environment	Total
Energy from natural inputs									
Coal		150							150
Oil		120							120
Solar					60				60
Energy products--Transformation									
Coal					140				140
Oil (conventional)			115						115
Oil products									
Energy products--end use									
Coal									
Oil (conventional)									
Oil products	5	4	3	3	60	35			110
Electricity									
Heat									
Energy residuals									
Extraction								15	15
Transformation								45	45
Other									
Total									

Notes: started with 115 PJ of crude oil going to the oil refinery. 15 PJ is lost during transformation. That means we have a supply 100 PJ of oil products (there was a typo here in the original solutions posted).

Notes: Households use 35PJ of oil products (100 total minus 75 used by industries)

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PHYSICAL SUPPLY TABLE FOR ENERGY:

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Coal								150	150
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Solar								60	60
Energy products									
Coal		140							140
Oil (conventional)		115							115
Oil products			100				10		110
Electricity					135				135
Heat					35				35
Energy residuals									
Extraction		15							15
Transformation			15		30				45
Other									
Total									

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Coal		150							150
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Solar					60				60
Energy products--Transformation									
Coal					140				140
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Oil products									
Energy products--end use									
Coal									
Oil (conventional)									
Oil products	5	4	3	3	60	35			110
Electricity	7	15	20	32	6	55			135
Heat									
Energy residuals									
Extraction								15	15
Transformation								45	45
Other									
Total									

Notes: started with 115 PJ of crude oil going to the oil refinery. 15 PJ is lost during transformation. That means we have a supply 100 PJ of oil products (there was a typo here in the original solutions posted).

Notes: Households use 35PJ of oil products (100 total minus 75 used by industries)

Notes: Households use 55 PJ of electricity in order for supply to equal use; 135 PJ of electricity were supplied (75 from coal power plant and 60 from solar panels)

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Solar								60	60
Energy products									
Coal		140							140
Oil (conventional)		115							115
Oil products			100				10		110
Electricity				135					135
Heat				35					35
Energy residuals									
Extraction		15							15
Transformation			15	30					45
Other	12	26	23	37	66	116			280
Total									

PHYSICAL USE TABLE FOR ENERGY:

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Energy products--Transformation									
Coal				140					140
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Oil products									
Energy products--end use									
Coal									
Oil (conventional)									
Oil products	5	4	3	3	60	35			110
Electricity	7	15	20	32	6	55			135
Heat		7		2		26			35
Energy residuals									
Extraction								15	15
Transformation								45	45
Other								280	280
Total									

Notes: 35 pj of heat are supplied; they are used as follows: households (26), electricity (2) which leave 7 pj for mining

Notes: Households use 35PJ of oil products (100 total minus 75 used by industries)

Notes: Supply and use of residuals can also be finalized. End use of Agriculture is 12 PJ (5 oil products and 7 electricity); so agriculture supplies 12 pj of other energy residuals.

Similarly for other industries and households

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Oil products			100				10		110
Electricity				135					135
Heat				35					35
Energy residuals									
Extraction		15							15
Transformation			15	30					45
Other	12	26	23	37	66	116			280
Total	12	296	138	237	66	116	10	330	1205

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	Agriculture (ISIC A)	Mining (ISIC B)	Manufacturing (ISIC C)	Electricity (ISIC D)	Transportation (ISIC H)	Households	Imports	Flows to the environment	Total
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Energy products--Transformation									
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Oil products									
Energy products--end use									
Coal									
Oil (conventional)									
Oil products	5	4	3	3	60	35			110
Electricity	7	15	20	32	6	55			135
Heat		7		2		26			35
Energy residuals									
Extraction								15	15
Transformation								45	45
Other								280	280
Total	12	296	138	237	66	116	0	340	1205

Notes: Check that supply==use; also input output identity holds.

The mining industry extracts 150PJ of coal and 120PJ of crude oil.

In total 60PJ of electricity come from solar panels, 50 of which are produced in a photovoltaic power station and the rest by households.

All the coal is sent for processing to the coal power plant. However due to losses during extraction, the coal power plant received 140PJ of coal. For a similar reason, 115PJ of crude oil are sent to the oil refinery.

To meet domestic needs, a further 10PJ of oil (in a ready to be used format) is imported.

The remaining supply of coal is converted to energy and heat. The coal power plant produces 75PJ of electricity and 35PJ of heat. Losses during transformation account for the rest of the coal supply.

15PJ are lost during the transformation of crude oil into oil products. The resulting oil products are used as follows (end use): agriculture-5PJ, mining-4PJ, manufacturing and electricity- 3PJ each and transportation 60PJ. Households use the rest.

The resulting electricity from solar and coal is used as follows: Agriculture-7PJ, mining- 15PJ, manufacturing-20PJ, Electricity-32PJ and transportation 6PJ, with households consuming the rest of the electricity

Households use 26PJ of heat, electricity sector uses 2 PJ and the rest is used by mining.