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Energy Accounts:
Progress and work planned

Eurostat – Unit E.7

Working Group "Environmental Accounts"

Joint Eurostat/EFTA group

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BECH Building – Room Ampere

Energy Accounts: Progress and work planned

This paper informs about progress in developing Energy Accounts.

An overview is given on what has been done so far and a plan of what Eurostat is intending to do, especially the plan to have a voluntary data collection on Energy Accounts by the end of the year 2011.

The second meeting of the NAMEA Task Force on Energy Accounts will be held on 7 June 2011.

The Working Group is asked:

- to take note of the work done so far, and
- to endorse the planning for the future work.

1. OVERVIEW ON THE PROCESS

Mandate by ESEA (2008):

The overall mandate, given by the revised European Strategy on Environmental Accounts (ESEA 2008), is to develop Energy Accounts (also sometimes referred to as NAMEA Energy) in the medium term (i.e. until 2011). Energy Accounts are oriented towards integrated macro-economic and environmental analyses. They complement the information provided by energy statistics and balances which remain the primary information source for energy policy.

The specific target is to develop physical supply and use tables of energy flows (energy PSUTs) in order to derive vectors of 'key' energy indicators which can be added to Input-Output models. IO models extended like this can be used to e.g. calculate energy embodied in products imported into the EU27.

The development of Energy Accounts is a joint effort of the European Statistical System (ESS). Broadly, the roadmap for this development process comprises 3 phases:

- (1) Development of methodological standards in close relation to international developments, most notably the revised SEEA¹.

¹ System of Integrated Environmental and Economic Accounting

- (2) Data collections from NSIs on a voluntary basis (testing phase).
- (3) Adding a module on Energy Accounts to the legal base for Environmental Accounts.

The process started in 2009 and is still in phase 1. Eurostat is supported through an external contract with a consortium².

Reflection Group (2009)

In 2009, Eurostat's Working Group "Environmental Accounts"³ decided to set up a Reflection Group on Energy Accounts. The overall objective of this Reflection Group was to identify and prepare conceptual and methodological issues related to Energy Accounts which shall be addressed at coming meetings of Eurostat's Task Force⁴.

In June 2009, Eurostat prepared a 'paper for consultation' and distributed it among the Reflection Group members asking for their comments. The consultation paper listed eight questions representing clusters of conceptual and methodological issues. During summer 2009, the Reflection Group members commented on these eight clusters via a written procedure.

Based on these comments, Eurostat drafted conclusions and recommendations to the Task Force and asked another time for written comments in December 2009. This final version takes into account the comments gathered during the second consultation round. The Reflection Group's final discussion paper was presented to the Working Group in March 2010 and can be found on Circa⁵: document 5.03.

First Task Force meeting (2010):

On 6-7 May 2010, the NAMEA Task Force⁶ met for the first time to discuss Energy Accounts. The objectives were:

- (1) to discuss and define a set of physical supply and use tables for energy (energy PSUTs);

² Federal Statistical Office Germany (DESTATIS), Wuppertal Institute for Climate, Energy, and Environment (WI), Sustainable Europe Research Institute (SERI)

³ At its meeting on 23-24 March 2009; agenda item 4.

⁴ A first NAMEA Task Force meeting focussing on energy accounts took place 6-7 May 2010.

⁵ http://circa.europa.eu/Members/irc/dsis/envirmeet/library?l=/meetings_2010_archive/environmental_2403_2010&vm=detailed&sb=Title

⁶ All documents of this NAMEA Task Force meeting can be found on Circa:
http://circa.europa.eu/Members/irc/dsis/envirmeet/library?l=/meetings_2010_archive/07_namea_0705_2010&vm=detailed&sb=Title

- (2) to start discussing problematic compilation issues with a view to developing standard compilation methods;
- (3) to agree on a "roadmap" for the implementation of energy accounts in the European Statistical System (ESS).

With regards to objective (1) the Task Force agreed upon a set of tables and made progress in making conceptual and methodological basic choices. In order to ensure coherence with the revised SEEA and the draft SEEA-Energy as much as possible, the Task Force was informed of the current draft of the SEEA-E and was invited to provide comments on it.

With regards to objective (2), the Task Force entered into a fruitful exchange of solutions for problematic compilation issues such as e.g. combined heat and power plants, international transport, road transport, and service industries.

The Task Force also found agreement on important next steps (roadmap):

- For energy PSUTs, a period of voluntary reporting is most likely to come. This period is being regarded as necessary to gather experiences, to further **harmonize** compilation methods, and to mature the questionnaire and compilation sequence.
- The Task Force clearly advocated the scenario that NSIs will fill questionnaires completely – i.e. no pre-filling by Eurostat.
- Nevertheless Eurostat will have to gap-fill the questionnaire, i.e. establish a routine for the non-reporting countries in order to develop EU-aggregates and provide a dataset that can be used for Input-Output and other types of analyses.
- Eurostat manages the writing of the *Manual for Energy Accounts* (2011).

Progress since Task Force 2010:

The final layout of the pair of Physical Supply and Use Tables for Energy (energy PSUT) has been finalised – detailing of column and row headings.

The set of energy PSUTs has been tested with Danish test data and the conclusions from the testing are presented further below.

Work planned in 2011:

As a next step, it will be tested in how far Eurostat's energy statistics can be employed to "populate" the energy PSUTs – also with the objective to develop gap-filling methods and routines which later can be employed by Eurostat.

In parallel, one will start developing compilation guidelines which should be presented and discussed at the coming Task Force meeting (7 June 2011).

If everything runs smoothly, Eurostat considers launching a first voluntary data collection from NSIs in autumn 2011.

2. THE SET OF ENERGY PSUTS

The set of tables comprises:

- Physical Energy Supply Table [TJ] (energy flows provided/supplied by nature, industries, and categories of final use)
- Physical Energy Use Table [TJ] (energy flows used by industries and categories of final use, and absorbed by nature)
- Vectors of key energy indicators [TJ] derived from energy PSUTs
- Bridging Table [TJ] presenting the difference-items between energy statistics (territory principle) and energy PSUTs (residence principle)

A pair of energy PSUTs:

The *Physical Supply and Use Tables of energy flows* (energy PSUTs) have the very same layout. Column and row headings are identical.

Column wise, they present industries (NACE classification), categories of final use including private households and the rest of the world (imports/exports), and the nature. As such, the columns are close to the columns employed in monetary Supply and Use Tables. The detailed hierarchical classification of the columns is shown in Annex 1.

Row wise, the flows of energy are shown. The energy flows are grouped into three generic flow types as defined in the revised SEEA:

- natural inputs: energy flows from the environment into the economy;
- products: energy flows within the economy bearing a monetary value;
- residuals: energy flows either flowing within the economy or from the economy to the environment bearing zero monetary value.

Each of the three generic groups is further broken down by classifications. The latter are based on existing classifications (CPA2008, Eurostat's energy statistics). The detailed and hierarchical classification of the rows, i.e. energy flows, is shown in Annex 2.

The recording of the entire system of energy flows in a pair of Supply and Use Tables has the following implications:

- the row totals in the Supply Tables have to equal row totals in the Use Table;
- the column totals for industries and private households in the Supply table have to equal the respective column totals of the Use Table;
- each energy flow is recorded twice: first at its origin (Supply Table) and secondly at its destination (Use Table).

The following Figure 1 shows the scheme for a pair of Physical Supply and Use Tables for energy flows (energy PSUTs). Note that only the white areas may contain values; whereas the grey shaded areas must not contain any data.

Figure 1: Scheme for a pair of Physical Supply and Use Tables for energy flows [TJ] (energy PSUTs)

SUPPLY [TJ]	INDUSTRIES (NACE rev2)					FINAL USE			NATURE
	Agri-culture	Mining	Manufac-turing	electricity	services	private house-holds	stocks (incl. transfers, stat. discre-pancies)	Rest of the world (imports)	
NATURAL INPUTS									
non-renewables (coal, crude oil, natural gas etc.)									
renewable energy (solar, wind, hydro etc.)									
PRODUCTS									
output from agriculture and forestry									
output from mining (coal, crude oil, natural gas etc.)									
output from refinery (coke, petroleum products etc.)									
output from chemical industry									
electricity									
output from waste industries									
RESIDUALS									
waste (without monetary value)									
losses during extraction									
losses during distribution/transport									
losses during transformation (dissipative heat)									
losses during storage									

USE [TJ]	INDUSTRIES (NACE rev2)					FINAL USE			NATURE
	Agri-culture	Mining	Manufac-turing	electricity	services	private house-holds	stocks (incl. transfers, stat. discre-pancies)	Rest of the world (exports)	
NATURAL INPUTS									
non-renewables (coal, crude oil, natural gas etc.)									
renewable energy (solar, wind, hydro etc.)									
PRODUCTS									
output from agriculture and forestry									
output from mining (coal, crude oil, natural gas etc.)									
output from refinery (coke, petroleum products etc.)									
output from chemical industry									
electricity									
output from waste industries									
RESIDUALS									
waste (without monetary value)									
losses during extraction									
losses during distribution/transport									
losses during transformation (dissipative heat)									
losses during storage									

Derived key indicators:

Various vectors⁷ of key energy indicators may be derived from the pair of energy PSUTs. At its coming meeting, the Task Force will have discuss and decide which meaningful key indicators shall be derived. One main criterion is the possibility (and meaningfulness) of adding the vectors of key indicators to Input-Output tables.

The derivation of the following key indicators may be considered:

- Primary Energy Supply by industries and private households: Primary Energy Supply⁸ (PES) is the most common used energy indicator on the national level. It is an aggregated indicator (in Terajoule) expressing the total amount of energy

⁷ i.e. in a breakdown by industries and private households;

⁸ Note that this indicator is termed *Gross Inland (Energy) Consumption* (GIC) in Eurostat's energy statistics. The term *Primary Energy Supply* is internationally used (in particular through the statistics of the International Energy Agency).

used in a country. The breakdown by industries and private households, taking into account imports and exports, is not trivial. In the energy PSUTs 'primary' energy is recorded/counted several times and these double-counting needs to be netted out⁹.

- Emission-relevant (net) energy use by industries and private households: This indicator should single out and present the use of energy which is the source for air emissions¹⁰. This relates mainly to combustion processes (oxidation of carbon). This indicator is relevant for macro-economic analyses of air emissions and carbon-intensities.
- Share of renewable energy by industries and private households: This indicator could present the share of renewables in total energy use for the various industries and private households. It is relevant for monitoring and analysing the target to increase the renewable share by 20 percent.

The Bridging Table:

Energy statistics are based on the 'territory approach' whereas energy accounts follow the 'resident approach' as applied in national accounts. The Task Force decided to add a bridging table to the set of energy accounts. It shall show the items making up the difference between energy statistics (territory approach) and energy accounts (resident approach). The main bridging items are related to:

- energy use of non-residents on the territory, including non-residents operating ships and air planes which are bunkering fuel in domestic harbours and airports (deductions from energy statistics);
- energy use of resident units in the rest of the world, including resident units operating ships and air planes which are bunkering fuels in the rest of the world (additions).

Bridging items:

	energy use according to energy statistics (territory approach)
+	energy use by residents in the rest of the world
-	energy use by non-residents on the territory
=	energy use according to energy accounts (resident approach)

⁹ For instance, the energy content of coal (which is a primary energy carrier) is counted a second time when it is transformed by the power plant and even a third time when the respective electricity is subsequently used e.g. by private households.

¹⁰ Emissions of greenhouse gases and air pollutants to the atmosphere.

3. A LIST OF PENDING CONCEPTUAL ISSUES

The Task Force has made a number of conceptual choices in relation to certain accounting rules for the set of tables introduced in the previous section. Some conceptual issues could not be clarified and concluded finally. The Task Force has asked Eurostat to come up with suggestions. Whilst testing the tables with Danish data Eurostat gained more insights and experiences concerning the pending conceptual issues. Eurostat's suggestions will be subject to discussion and decision at the coming Task Force meeting in June.

Some of the most important conceptual issues are briefly presented in the following:

Recording of losses:

Losses are residual energy flows. The proposed classification of energy flows (Annex 2) distinguishes three types:

- losses during extraction/harvest;
- losses during distribution/transport;
- losses during transformation (dissipative heat).

In the Supply Table, these losses are recorded in the column of the industry (or private household) which is actually "loosing" the respective energy flow (=origin). A loss is a supply of energy to the environment. In the Use Table these losses are hence recorded in the environment-column (=destination).

Recording of flaring, venting, and re-injections:

Flaring is suggested to be treated as a loss during transformation. In the Supply Table it is recorded in the industry column which is actually undertaking the flaring (=origin): most likely this is the crude oil and gas extraction industry and/or the refinery industry.

Venting is suggested to be treated as a loss during extraction if it occurs in the extractive industry (Supply Table: extractive industry column). In this case it requires a counter-record, natural input from the environment: this is the unused extraction of natural gas.

Venting of natural gas may also occur in the refinery industry. In this case, it is suggested to treat it as a loss during distribution/transport (as no chemical transformation takes place). Evidently, the vented natural gas needs to be recorded first as a product output of the extractive industry, and as use of the respective natural gas product by the refinery industry.

Re-injections – on the one hand – are natural inputs of unused extraction. On the other hand, they constitute residuals of unused extraction which are released into the environment without being processed to products.

Recording of waste:

Waste as an energy carrier is suggested to be treated as a residual flow. The determination of its origin (to be recorded in the Supply table) is difficult. Several options are possible. One may regard it as originating from the stock (stock-change column in the Supply Table). One may also assume the private households as being the source. The Task Force needs to decide on this.

In the Use Table Eurostat suggests recording the waste for energy use in the column of the electricity supplying industry (where waste incineration with energy recovery has to be grouped). The electricity supply industry is the correct grouping for the incineration of waste with energy recovery). The waste fuel input is transformed into electricity and dissipative heat (losses during transformation).

Treatment of international marine and air transport:

According to national accounting conventions, marine and air transport is to be recorded as a domestic production activity if the operator is a resident unit of the respective national economy. This is irrespective of where the resident unit is operating its ships or airplanes; the usual case is that international ship and air transportation services by a resident unit are taking place all over the globe. Hence, the fuelling in the rest of the world by these resident units needs to be estimated and recorded in the Supply and Use Tables as imports of fuel.

4. SUMMARY: 2011 WORK PLAN FOR ENERGY ACCOUNTS

- Finalising layout and first testing of the set of physical supply and use tables for energy (energy PSUTs) employing Danish test data; conclusions/experiences to be documented in a technical paper (February 2011)
- Preparing a document for the Working Group Meeting (28-29 Mar 2011) on the status quo and coming steps related to Energy Accounts (February 2011)
- Populating energy PSUTs on the basis of existing Eurostat energy statistics and balances; i.e. testing the compilation sequence as discussed at 2010 Task Force, in order to develop Eurostat gap-filling routines (January-April)
- Starting the development of methodological guidelines (manual); first drafts to be discussed at TF meeting
- Task Force meeting (7 June 2011)
- Depending on progress: first voluntary data collection from NSIs (4th quarter 2011)

Annex 1: Draft classification of activities (= columns in energy PSUTs)

level	code	label
1	A	AGRICULTURE, FORESTRY AND FISHING
2	01	Crop and animal production
2	02	Forestry and logging
2	03	Fishing and aquaculture
1	B	MINING AND QUARRYING
2	05	Mining of coal and lignite
2	06	Extraction of crude petroleum and natural gas
2	07	Mining of metal ores
2	08	Other mining and quarrying
2	09	Mining support service activities
1	C	MANUFACTURING
2	10	Manufacture of food products
2	11	Manufacture of beverages
2	12	Manufacture of tobacco products
2	13	Manufacture of textiles
2	14	Manufacture of wearing apparel
2	15	Manufacture of leather and related products
2	16	Manufacture of wood and of products of wood and cork
2	17	Manufacture of paper and paper products
2	18	Printing and reproduction of recorded media
2	19	Manufacture of coke and refined petroleum products
3	19.1	Manufacture of coke oven products
3	19.2	Manufacture of refined petroleum products
2	20	Manufacture of chemicals and chemical products
2	21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
2	22	Manufacture of rubber and plastic products
2	23	Manufacture of other non-metallic mineral products
2	24	Manufacture of basic metals
3	24.1, 24.2, 24.3, 24.53, 24.54	Manufacture of basic iron and steel and ferro-alloys; and first processing thereof
3	24.4, 24.51, 24.52	Manufacture of basic precious and other non-ferrous metals; and first processing thereof
2	25	Manufacture of fabricated metal products
2	26	Manufacture of computer
2	27	Manufacture of electrical equipment
2	28	Manufacture of machinery and equipment n.e.c.
2	29	Manufacture of motor vehicles, trailers and semi-trailers
2	30	Manufacture of other transport equipment
2	31	Manufacture of furniture
2	32	Other manufacturing
2	33	Repair and installation of machinery and equipment
1	D	ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY
2	35	Electricity, gas, steam and air conditioning supply
3	35.1	Electric power generation, transmission and distribution
3	35.2	Manufacture of gas; distribution of gaseous fuels through mains
3	35.3	Steam and air conditioning supply
1	E	WATER SUPPLY, SEWERAGE, WASTE MANAGEMENT AND REMEDIATION ACTIVITIES
2	36	Water collection, treatment and supply
2	37	Sewerage
2	38	Waste collection, treatment and disposal activities; materials recovery
2	39	Remediation activities and other waste management services
1	F	CONSTRUCTION
2	41	Construction of buildings
2	42	Civil engineering
2	43	Specialised construction activities
1	G	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
2	45	Wholesale and retail trade and repair of motor vehicles and motorcycles
2	46	Wholesale trade
2	47	Retail trade
1	H	TRANSPORTATION AND STORAGE
2	49	Land transport and transport via pipelines
3	49.1	Passenger rail transport, interurban
3	49.2	Freight rail transport
3	49.3	Other passenger land transport
3	49.4	Freight transport by road and removal services
3	49.5	Transport via pipeline

2	50	Water transport
3	50.1	Sea and coastal passenger water transport
3	50.2	Sea and coastal freight water transport
3	50.3	Inland passenger water transport
3	50.4	Inland freight water transport
2	50	Air transport
3	50.a	Domestic air transport
3	50.b	International air transport
2	52	Warehousing and support activities for transportation
2	53	Postal and courier activities
1	I	ACCOMMODATION AND FOOD SERVICE ACTIVITIES
2	55	Accommodation
2	56	Food and beverage service activities
1	J	INFORMATION AND COMMUNICATION
2	58	Publishing activities
2	59	Motion picture
2	60	Programming and broadcasting activities
2	61	Telecommunications
2	62	Computer programming
2	63	Information service activities
1	K	FINANCIAL AND INSURANCE ACTIVITIES
2	64	Financial service activities
2	65	Insurance
2	66	Activities auxiliary to financial services and insurance activities
1	L	REAL ESTATE ACTIVITIES
2	68	Real estate activities
1	M	PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES
2	69	Legal and accounting activities
2	70	Activities of head offices; management consultancy activities
2	71	Architectural and engineering activities; technical testing and analysis
2	72	Scientific research and development
2	73	Advertising and market research
2	74	Other professional
2	75	Veterinary activities
1	N	ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES
2	77	Rental and leasing activities
2	78	Employment activities
2	79	Travel agency
2	80	Security and investigation activities
2	81	Services to buildings and landscape activities
2	82	Office administrative
1	O	PUBLIC ADMINISTRATION AND DEFENCE; COMPULSORY SOCIAL SECURITY
2	84	Public administration and defence, compulsory social security
1	P	EDUCATION
2	85	Education
1	Q	HUMAN HEALTH AND SOCIAL WORK ACTIVITIES
2	86	Human health activities
2	87	Residential care activities
2	88	Social work activities without accommodation
1	R	ARTS, ENTERTAINMENT AND RECREATION
2	90	Creative
2	91	Libraries
2	92	Gambling and betting activities
2	93	Sports activities and amusement and recreation activities
1	S	OTHER SERVICE ACTIVITIES
2	94	Activities of membership organisations
2	95	Repair of computers and personal and household goods
2	96	Other personal service activities
1	T	ACTIVITIES OF HOUSEHOLDS AS EMPLOYERS; etc.
2	97	Activities of households as employers of domestic personnel
2	98	Undifferentiated goods- and services-producing activities of private households for own use
1	U	ACTIVITIES OF EXTRATERRITORIAL ORGANISATIONS AND BODIES
2	99	Activities of extraterritorial organisations and bodies
1	P3	FINAL CONSUMPTION EXPENDITURE
2	P3_S14	Final consumption expenditure by households
2	P3_S15	Final consumption expenditure by non-profit organisations serving households (NPISH)
2	P3_S13	Final consumption expenditure by government
1	P5	GROSS CAPITAL FORMATION
2	P51	Gross fixed capital formation
2	P52_P53	Changes in inventories and valueables
1	ExTrRe	EXCHANGES, TRANSFERS, RETURNS
1	StaDiff	STATISTICAL DIFFERENCES
1	P6 , P7	REST OF THE WORLD
2		Exports / Imports of goods and services (excl. special trade)
2		International Marine Bunkers
2		International Air Bunkers
2		International Road transport
1	NATUR	ENVIRONMENT

Annex 2: Draft classification of energy flows (= rows in energy PSUTs)

<i>Level</i>	<i>Code</i>	<i>label</i>
1	A	NATURAL INPUTS
2	AA	Non-Renewables
3	AA.2aaa	Uranium ores
3	AA.2115	Anthracite
3	AA.2116	Coking coal
3	AA.2117	Bituminous coal
3	AA.2118	Sub-bituminous coal
3	AA.2211	Black Lignite
3	AA.2212	Brown coal (Lignite)
3	AA.2310	Peat
3	AA.311x	Natural bitumen, extra heavy oil, shale oil, sand oil and others n.e.c.etc
3	AA.3110	Crude Oil
3	AA.4100a	Natural Gas
3	AA.4100b	Natural Gas Liquid (NGL)
2	AB	Renewables
3	AB.5510	Hydro
3	AB.5520	Wind
3	AB.5532	Solar Heat
3	AB.5534	Photovoltaic
3	AB.5550	Geothermal
3	AB.554x	Biomass from agriculture (main products and by-products)
3	AB.5541	Biomass from forestry (main products and by-products)
1	B	PRODUCTS
2	CPA.01	Products of agriculture, hunting and related services
3	BA.554x.CPA.01.11.60	Straw and forage
2	CPA.02	Products of forestry, logging and related services
3	BA.5541a.CPA.02.01.14	Fuel wood
3	CPA.10	Coal and lignite; peat
3	BA.2112.CPA.10.10.12	Patent fuel
3	BA.2115.CPA.10.10.11	Anthracite
3	BA.2116.CPA.10.10.11	Coking coal
3	BA.2117.CPA.10.10.12	Other bituminous coal
3	BA.2118.CPA.10.10.12	Sub-bituminous coal
3	BA.2211.CPA.10.20.11	Black Lignite
3	BA.2212.CPA.10.20.10	Brown Coal (Lignite)
3	BA.2230.CPA.10.20.10	Brown Coal Briquettes
3	BA.2310.CPA.10.30.10	Peat and peat products
2	CPA.11	Crude petroleum and natural gas; services incidental to oil and gas extraction excluding surveying
3	BA.3110.CPA.11.10.10	Conventional crude oil
3	BA.4100a.CPA.11.10.20	Natural Gas
3	BA.4100b.CPA.11.10.20	Natural Gas Liquid (NGL)
2	CPA.12	Uranium and thorium ores
3	BA.2xxx.CPA.12.00.10	Uranium and thorium ores
2	CPA.20	Wood and products of wood and cork (except furniture); articles of straw and plaiting materials
3	BA.5541b.CPA.20.10.40	Sawdust and wood waste and scrap
2	CPA.21	Pulp, paper and paper products
3	BA.55xa.CPA.21.12.60	Waste and scrap of paper and paperboard

2	CPA.23	Coke, refined petroleum products and nuclear fuels
3	BA.2121.CPA.23.10.10	Coke oven coke
3	BA.2220.CPA.23.10.10	Brown coal coke
3	BA.4210.CPA.40.21.10	Coke-oven gas
3	BA.3190.CPA.23.20.11-17	Refinery feedstocks
3	BA.3230.CPA.23.20.11	Motor gasoline
3	BA.3240.CPA.23.20.14	Kerosenes - Jet Fuels
3	BA.3250.CPA.23.20.13	Naphtha
3	BA.3260.CPA.23.20.15	Gas / Diesel Oil
3	BA.3270.CPA.23.20.16-17	Heavygas oil / Fuel Oil
3	BA.3281.CPA.23.20.13	White & Industrial Spirit
3	BA.3282.CPA.23.20.18	Lubricants
3	BA.3210.CPA.23.20.22	Refinery gas
3	BA.3220.CPA.23.20.21	Liquefied petroleum gas (LPG)
3	BA.3283.CPA.23.20.32	Bitumen
3	BA.3285.CPA.23.20.32	Petroleum Coke
3	BA.3290.CPA.23.20.32	Other Petroleum Products
3	BA.5100.CPA.23.30.11-13	Nuclear fuels
2	CPA.24	Chemicals, chemical products and man-made fibres
3	BA.55 x CPA.24.14.72	Holzkohle
3	BA.5546.CPA.24.66.48	Biogasoline
3	BA.5547.CPA.24.66.48	Biodiesel
3	BA.5548.CPA.24.66.48	Other liquid biofuels
2	CPA.40	Electrical energy, gas, steam and hot water
3	BA.5510.CPA.40.11.10	Hydro Power
3	BA.5520.CPA.40.11.10	Wind Energy
3	BA.5532.CPA.40.11.10	Solar Heat
3	BA.5534.CPA.40.11.10	Photovoltaic Power
3	BA.5550.CPA.40.11.10	Geothermal Energy
3	BA.6000.CPA.40.11.10	Electrical Energy
3	BA.4220.CPA.40.21.10	Blast-Furnace Gas
3	BA.4100.CPA.40.20.10	Natural Gas
3	BA.4230.CPA.40.21.10	Gasworks Gas
3	BA.5542.CPA.40.21.10	Biogas
3	BA.5200.CPA.40.30.10	Derived Heat
2	CPA.90	Sewage and refuse disposal services, sanitation and similar services
3	BA.5543.CPA.90.02.20	Municipal Wastes
3	BA.7100.CPA.90.02.20	Industrial Wastes

1	C	RESIDUALS
2	CA	Waste (without monetary value)
3	CA.1000	Solid waste residuals (e.g. municipal waste)
3	CA.2000	Liquid waste residuals (e.g. waste oil)
3	CA.3000	Gaseous waste residuals (e.g. landfill gas, pit gas, sewage gas)
2	CB	Losses during extraction / abstraction
3	CB.2115	Anthracite
3	CB.2116	Coking coal
3	CB.2117	Bituminous coal
3	CB.2118	Sub-bituminous coal
3	CB.2211	Black Lignite
3	CB.2212	Brown Coal (Lignite)
3	CB.2310	Brown Coal Briquettes
3	CB.2310	Peat and peat products
3	CB.3110	Crude Oil
3	CB.4100	Natural Gas
3	CB.4100	Natural Gas Liquid (NGL)
2	CC	Losses during distribution / transport
3	CC.554x	Biomass from agriculture (main products and by-products)
3	CC.5541	Biomass from forestry (main products and by-products)
3	CC.2112	Patent Fuels
3	CC.2115	Anthracite
3	CC.2116	Coking coal
3	CC.2117	Bituminous coal
3	CC.2118	Sub-bituminous coal
3	CC.2211	Black Lignite
3	CC.2212	Brown Coal (Lignite)
3	CC.2230	Brown Coal Briquettes
3	CC.2310	Peat
3	CC.3110	Crude Oil
3	CC.4100	Natural Gas
3	CC.4100	Natural Gas Liquid (NGL)
3	CC.5541	Wood waste
3	CC.2121	Hard Coke
3	CC.2220	Brown Coal Coke
3	CC.4210	Coke-Oven Gas
3	CC.3190	Feedstocks
3	CC.3230	Motor Spirit
3	CC.3240	Kerosenes - Jet Fuels
3	CC.3250	Naphtha
3	CC.3260	Gas / Diesel Oil
3	CC.3270	Residual Fuel Oil
3	CC.3281	White & Industrial Spirit
3	CC.3282	Lubricants
3	CC.3210	Refinery Gas
3	CC.3220	LPG
3	CC.3283	Bitumen
3	CC.3285	Petroleum Coke
3	CC.3290	Other Petroleum Products
3	CC.5546	Biogasoline
3	CC.5547	Biodiesel
3	CC.5548	Other liquid biofuels
3	CC.6000	Electrical Energy
3	CC.4220	Blast-Furnace Gas
3	CC.4100	Natural Gas
3	CC.4230	Gasworks Gas
3	CC.5542	Biogas
3	CC.5200	Derived Heat
3	CC.5543	MSW
3	CC.7100	Industrial Wastes
2	CD	Losses during transformation / conversion
3	CD.3210	Refinery Gas
3	CD.xxxx	Dissipative heat
2	CE	Losses during storage
3	CE.xxxx	all fuels