

# From product definitions to SIEC<sup>1</sup> - what we did and why we did it

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## **Presentation handout**

*This informal document serves as a summary of the information contained in the presentation*

### **Introduction** [Slide 1]

The purpose of this presentation is to introduce SIEC and the work and considerations that underlie the draft presented to the Oslo Group for the fifth meeting in Cork, Ireland, February 1-4 2010.

There are four parts to the presentation. The first part argues that SIEC should be a standard statistical classification, and lays out some important aspects to consider in this regard. The second part presents the approach taken in constructing SIEC, and how the current draft has been crafted based largely on the work of InterEnerStat. The third part presents the outcome, and the fourth and last part discusses the proposed way forward.

### **Goal: creating a standard statistical classification** [Slide 2-5]

The presentation argues that SIEC should fulfill the requirement of a standard statistical classification. Standard statistical classifications are discussed in the paper “Standard Statistical Classifications: Basic Principles”, developed by the UN Expert Group on International Economic and Social Classifications in 1999 and available at the UNSD web pages<sup>2</sup>. The paper presents a number of important qualities and aspects to consider for standard statistical classifications, and provides support for many of the points contained in this presentation.

Standard statistical classifications constitute a subset of all standard classifications. Whereas classifications in general serve a wide range of uses, from implementation of regulatory policies to standardizing of concepts, the main purpose of standard *statistical* classifications is to organize and present statistics.

Six important aspects to consider are presented. Reference to these aspects is frequently made in the second part of the presentation. The presented aspects are:

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<sup>1</sup> Standard International Energy Classification

<sup>2</sup> <http://unstats.un.org/unsd/class/family/bestprac.pdf>

Aspect	Explanation
Structure	<ul style="list-style-type: none"> <li>- A consistent number of levels should be used throughout the classification, organized with a uniform coding system.</li> <li>- Each level of the classification represents a partition of the classification's scope at a given level of detail.</li> <li>- Meaningful statistics should be presentable at each level.</li> </ul>
Categories	<ul style="list-style-type: none"> <li>- Each level consists of a set of 'categories'.</li> <li>- Categories at the lowest levels are usually described with rules or detailed explanatory notes.</li> <li>- At higher levels, categories are defined using <i>similarity criteria</i>.</li> <li>- Regardless of level, categories should be well-defined, exhaustive and mutually exclusive.</li> </ul>
Scope	<ul style="list-style-type: none"> <li>- The scope of the classification must be well-defined.</li> <li>- The scope could be seen as the content of a single, imaginary category at the very top of the hierarchy: the category that is the union of all the other categories.</li> </ul>
Purpose	<ul style="list-style-type: none"> <li>- The purpose of the classification should be made clear</li> <li>- SIEC is intended to be multi-purpose, general enough to be useful for statistics related to energy in general, with applications for e.g. national accounts, greenhouse gas emissions, energy balances and energy accounts.</li> <li>- SIEC itself is not intended to provide or suggest guidelines for any specific application.</li> <li>- SIEC is <i>not</i> intended to replace or supersede the InterEnerStat product list.</li> </ul>
Documentation	<ul style="list-style-type: none"> <li>- The classification should be extensively documented. Important parts of this are the <i>explanatory notes</i>, which contain detailed explanations on the scope and boundary of the categories at the lowest level of the classification.</li> </ul>
Harmonization	<ul style="list-style-type: none"> <li>- Harmonization with other classifications and frameworks allows for the combination or comparison of data across domains. (data conversion, hybrid tables, creation of indicators)</li> <li>- Harmonization is achieved through <ul style="list-style-type: none"> <li>o Correspondence tables</li> <li>o Aligning category boundaries as much as possible with those used in other domains</li> <li>o Be clear about remaining differences – so that they are not hidden and people can take them into account</li> <li>o Use of common concepts and terminology where possible</li> <li>o Coordination with custodians of other classifications.</li> </ul> </li> </ul>

## **Approach** [Slides 6-17]

This part of the presentation discussed the approach taken in drafting SIEC, and justifies each of the actions taken based on the list of aspects previously presented.

The point of departure for the drafting of SIEC was the product definitions developed by InterEnerStat (version 3, December 2009). Most of the substantive work undertaken can be summarized by the following nine actions:

### *Action 1: Explicit formulation of scope*

The goal was to come up with a formulation of scope that was:

1. as simple and precise as possible
2. included all the energy products defined by InterEnerStat
3. broad enough to be useful to all sorts of statistics related to energy, but not broader

The current draft presents the following definition of scope (3.11 – 3.12):

*The scope of SIEC covers all products necessary to provide a comprehensive picture of the production, transformation and consumption of energy throughout an economy. It thus consists of the following:*

- a) fuels that are produced/generated by an economic activity and households and which are used or might be used as sources of energy;*
- b) electricity and heat that are produced by an economic activity or households;*
- c) products that are output of the energy industries, even when they are mainly or solely used for non-energy purposes*

*The term ‘fuel’ refers to “energy sources, whether primary or secondary, that must be subjected to combustion or fission in order to release for use the energy stored up in them.”*

The description of ‘fuel’ above is taken from “Concepts and methods in energy statistics, with special reference to energy accounts and balances” (STA/ESA/STAT/SER.F/29)<sup>3</sup>, 1982.

It is important to emphasize that the scope of SIEC in itself is not intended as a recommendation for producing any kind of energy statistics. The scope of official energy statistics is the topic of IRES Chapter 2.

### *Action 2: Completing levels*

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<sup>3</sup> Available for download at [http://unstats.un.org/unsd/publication/SeriesF/SeriesF\\_29E.pdf](http://unstats.un.org/unsd/publication/SeriesF/SeriesF_29E.pdf)

The classification should have a fixed number of levels (we settled on five), and a full set of categories should be present at each level. Each level is a partition at a given resolution of the whole scope of the classification, and should not contain “holes”. This is essential since each level should, at least in theory, be useable to present statistics within scope of the classification.

This requirement constitutes an important difference between SIEC and the InterEnerStat product list. For the latter, the number of levels used depends on what is useful locally (i.e. how fine-grained the division into individual products is for a given category). For example, in the product list, *natural gas* is only represented at the top (1-digit) level, as it has no further subdivision into more specific products. On the other hand, the ‘*solid fossil fuels*’ category is at the top of a six-level hierarchy.

### *Action 3: Regrouping of electricity and heat*

In SIEC, all electricity products, regardless of origin (thermal, solar, wind, etc.) have been organized under a single top-level category. This is also the case for all heat products.

On the other hand, electricity and heat are organized according to origin in the InterEnerStat product list. All electricity from renewable sources is found under the “Renewables and waste” category, nuclear electricity and heat are found under the top-level category “nuclear energy”, whereas there are also separate, top-level general headings for “electricity” and “heat”.

One important reason why SIEC departs from the structuring of electricity and heat used in the InterEnerStat product list is to preserve mutual exclusiveness between categories at the top level of the hierarchy. If we have one category for “electricity”, we should not expect to find electricity classified also under other categories.

Harmonization is another important argument for regrouping all electricity and all heat under separate headings in SIEC. By doing this, the resulting top-level categories ‘electricity’ and ‘heat’ become directly linkable with CPC. Also, the ‘electricity’ category becomes directly linkable with HS (see action 9 below).

### *Action 4: Aggregating oil and natural gas at the highest level*

Whereas the InterEnerStat has separate top-level categories for ‘natural gas’ and ‘oil’, these are combined to a single top-level category in SIEC called “Oil, gas and derived products”.

This was done in order to avoid problems with the similarity criteria used for fossil fuels in the classification (see also action 8 below). The consideration that the top-level fossil fuel categories also contain the products made thereof. However, some products can be obtained both from oil or natural gas (e.g. NGL, unconventional oils) so conceptual

inconsistencies arise if these products are not grouped under a higher-level category that represents both oil and natural gas (unless different similarity criteria are used).

Other supporting arguments that could be made include:

- the extraction of oil and gas are closely related operations
- by removing “natural gas” as a top-level heading, we avoid misleadingly suggesting that fossil fuels are classified according to phase (solid, liquid, gas) at the highest level. In fact, even the “solid fossil fuels” top-level category contains gaseous products.

#### *Action 5: Common aggregation for crude oil*

In SIEC, there is a common heading for all crude oil, further disaggregated into “conventional” and “other (i.e. not conventional)”.

The InterEnerStat product list, however, does not have a common heading for “crude oil”. In fact, conventional crude oil, non-conventional crude oil as well as several other products such as NGL are all grouped together at the same level, under the “oil” top-level category.

The reason SIEC differs from the InterEnerStat on this point is that a dedicated heading for crude oil allows for a direct correspondence of this category with CPC.

Strictly speaking, the category for non-conventional oil in the InterEnerStat product list is 3.5 – “Other hydrocarbons”. Examining the various revisions of this list, this category appears to have started out serving the role as a residual category, but in the latest revision its contents has been restricted to non-conventional oil and hydrogen.

#### *Action 6: Renaming of categories*

Two top-level categories have been renamed in order to have names that reflect their full scope:

- “Solid fossil fuels” changed to “Solid fossil fuels *and derived products*”
- “Oil” and “natural gas” combined, and name changed to “Oil, natural gas and derived products”.

The concern here was to ensure well-defined categories. Generally speaking, category titles, regardless of level, should accurately reflect their content.

#### *Action 7: Inclusion of nuclear fuels*

SIEC has a top-level category for nuclear fuels (further disaggregated into “uranium and plutonium” and “other”).

The discussion here concerns the inclusion of the actual *fuels*, not the electricity and heat produced by nuclear fission. The latter is already included in the InterEnerStat product list.

Two arguments are given for giving SIEC categories for nuclear fuels. Firstly, it is clearly within the currently defined scope (being ‘fuels’ in the sense given in the definition). Secondly, although statistics on nuclear fuels may not be directly relevant for applications such as energy balances, the stated multi-purpose nature of SIEC suggests their inclusion. As a general classification on energy products, SIEC would not be complete without the inclusion of nuclear fuels.

Again, it should be emphasized that the inclusion of a product in SIEC does not in itself imply any recommendation for the production of specific statistics.

*Action 8: Explicit formulation of similarity criteria*

Similarity criteria are the basis for the aggregation of lower-level categories into higher-level ones. As such, the classification hierarchy is ultimately a result of the similarity criteria used to define it, and they need to be meaningful for statistical and analytic comparisons. An explicit formulation of the similarity criteria used is helpful in understanding how the classification is structured, and the boundaries between higher-level categories.

For many classifications, detailed explanatory notes are only given for the lowest-level categories, and the higher groupings may only be explained by reference to the criteria used. The InterEnerStat product list does provide definitions also for many higher-level headings, but we tried to make the criteria more explicitly stated. (The need for a clear explanation of the classification structure and reasoning behind was also pointed out by the Expert Group on Economic and Social Classifications after an initial review of the work on SIEC at its last meeting in September 2009).

Although there may be room for improvement, the current explanation of the criteria is as follows (3.19):

*At the highest level, the classification presents categories for fuels (including derived products), electricity and heat. The four fuel categories represent broad fuel types distinguished by their origin and characteristics (fossil fuels, nuclear fuels and biofuels and waste, with an additional distinction between solid and other fossil fuels). At lower levels, the electricity and heat categories are disaggregated according to the underlying source of energy (solar, wind, fuel combustion, etc.), and fuel categories are disaggregated by physical characteristics (e.g. brown coal vs. hard coal) and stage of processing, with the specific, processed products at the lowest level. For some of the fuel categories reference to the use is made since the specifications of the product make it fit for certain types of use (this is the case, for example, of kerosene and its disaggregation in kerosene-type jet fuel).*

*Action 9: Developing a correspondence table with CPC (Ver.2) and HS 2007*

A draft correspondence table with the Central Product Classification (CPC), Ver.2 and the Harmonized System (HS) 2007 has been developed.

Note that the direction of the correspondences is SIEC → CPC and SIEC → HS, not the other way around. The meaning of the links to CPC (or HS) for a given SIEC category is that the scope of that category should be fully or approximately covered by the combined scopes of the CPC (or HS) categories linked to. (However, the combined scopes of these categories may well be much broader than the scope of the SIEC category).

In practice, it turns out that most of the lowest-level SIEC categories link to no more than one CPC subclass. However, links to multiple HS codes are quite frequent.

Conversely, several SIEC categories may well link to the same CPC subclass. Case in point: SIEC 2.1.1.0 - “Conventional crude oil” and 2.1.2.0 – “Other crude oil; hydrogen” both link to CPC subclass 12010 – “Petroleum oils and oils obtained from bituminous minerals, crude”.

Ideally, the correspondence table should contain explanations wherever there are split links (i.e. when a SIEC category links to several HS codes, there should be written explanations about exactly what part of the scope of the category is represented by the link to a given HS code). This has not been done for the present draft.

The correspondence table is not complete. There are some problematic areas where links could not easily be defined:

- 4.2.1.0.0 – industrial waste
- 4.1.3 – biogases (all subcategories thereof)
- 2.6.15.0.0 – other oil products
- 4.1.2.3.0 – other liquid biofuels
- 2.6.1.0.0 – refinery gas
- 2.4.0.0.0 – refinery feedstocks

**Outcome** [Slides 18-20]

The first slides present the current structure of SIEC at the first and second levels.

The proposed scope, structure, criteria, etc. are our suggestions, but room for improvement is likely. However, we should ensure that the end result has the qualities of a standard statistical classification, and that the aspects laid out in the first part of this presentation are taken into account.

Some questions that could be raised:

- Is the currently proposed scope reasonable?
  - o Is everything included that should be?
  - o Does it include products that should not be? (In particular, where do we draw the line for agricultural products used to produce biofuels?)
  - o Is it fully covered by the categories of the classification? (If not, we might have to introduce more residual categories).
- Is the hierarchy optimal?
  - o Are the similarity criteria used reasonable? Are they adequately explained?
  - o There is one clear inconsistency in the hierarchy right now: 1.3.0 – “*Oil shale*” is classified under 1 – “*solid fossil fuels and product thereof*”, but the *shale oil* (which is a product thereof) is found with 2.1.2 – “*Other crude oil; hydrogen*” under 2 - “*oil, natural gas and derived products*”
  - o Could the coding system be simplified? (If we limited disaggregation of any single category to a maximum of 9, we could have codes with a fixed number of decimals and avoid the use of dots to distinguish levels.
- Should detail be removed?
  - o An international reference classification does not need to be overly detailed. We might not need SIEC to keep all the specific distinctions made in the InterEnerStat product list.
    - E.g. do we need to distinguish between *sod peat* and *milled peat*?
    - Do we need to distinguish between 4.1.3.3 – “*other primary biogases*” and 4.1.3.4 – “*secondary biogases*” (the latter does not currently have any definition in the InterEnerStat product list).
- What should be the scope of the nuclear fuel categories? Uranium goes through several stages of processing before final use. What about plutonium? Thorium?
- Are the explanatory notes adequate? Are the correspondence tables adequate?

### **Next Steps** [Slide 21]

The revised text of SIEC is planned to be circulated to the UN Expert Group on Economic and Social Classifications, as well as the London Group on Environmental Accounting for their comments and feedback.

It is expected that input from classification and environmental accounting specialists could add value to the draft. In addition, the feedback from the Expert Group on



classifications will help ensure that the criteria for standard statistical classifications are satisfied.

In addition, we believe that if we can get the agreement of these groups on the classification, that would serve as an important milestone towards having IRES adopted by the Statistical Commission.

## Annex I – Provisional SIEC draft

The below table contains the classification and draft correspondences with CPC and HS. It has been supplemented with two columns tentatively suggesting whether the product in question is considered “renewable”, and whether it is considered “primary” or “secondary”.

SIEC HEADINGS SECTION, DIVISION, GROUP, CLASS, SUBCLASS	CORRESPONDENCES		Extra	
	CPC	HS	Renewable	Primary / secondary
<b>1 - Solid fossil fuels and derived products</b>				
<b>1.1 – Coal</b>				
<b>1.1.1 - Hard coal</b>				
<b>1.1.1.1 – Anthracite</b>				
1.1.1.1.0 - Anthracite	11010	2701.11	N	P
<b>1.1.1.2 - Bituminous coal</b>				
1.1.1.2.1 - Coking coal	11010	2701.19	N	P
1.1.1.2.2 - Other bituminous coal	11010	2701.12	N	P
<b>1.1.2 - Brown coal</b>				
<b>1.1.2.1 - Sub-bituminous coal</b>				
1.1.2.1.0 - Sub-bituminous coal	11030	2702.10	N	P
<b>1.1.2.2 – Lignite</b>				
1.1.2.2.0 – Lignite	11030	2702.10	N	P
<b>1.1.3 - Coal products</b>				
<b>1.1.3.1 - Coal coke</b>				
1.1.3.1.1 - Coke oven coke	33100	2704	N	S
1.1.3.1.2 - Gas coke	33100	2704	N	S
1.1.3.1.3 - Coke breeze	33100	2704	N	S
1.1.3.1.4 – Brown coal coke and other semi cokes	33100	2704	N	S
<b>1.1.3.2 - Patent fuel</b>				
1.1.3.2.0 – Patent fuel	11020	2701.20	N	S
<b>1.1.3.3 - Brown coal briquettes (BKB)</b>				
1.1.3.3.0 – Brown coal briquettes (BKB)	11040	2702.20	N	S
<b>1.1.3.4 - Coal tar</b>				
1.1.3.4.0 - Coal tar	33200	2706	N	S
<b>1.1.3.5 - Coke oven gas</b>				
1.1.3.5.0 - Coke oven gas	17200	2705	N	S
<b>1.1.3.6 - Gas works gas (and other distributed gases)</b>				
1.1.3.6.0 - Gas works gas (and other distributed gases)	17200	2705	N	S
<b>1.1.3.7 - Recovered gases</b>				
1.1.3.7.1 - Blast furnace gas	17200	2705	N	S
1.1.3.7.2 - Basic oxygen steel furnace gas	17200	2705	N	S
1.1.3.7.3 - Other recovered gases	17200	2705	N	S

<b>1.2 – Peat</b>					
<b>1.2.0 – Peat</b>					
<b>1.2.0.0 – Peat</b>					
1.2.0.0.1 - Sod peat	11050	2703	N	P	
1.2.0.0.2 - Milled peat	11050	2703	N	P	
1.2.0.0.3 - Peat briquettes	11050	2703	N	S	
<b>1.3 - Oil shale</b>					
<b>1.3.0 - Oil shale</b>					
<b>1.3.0.0 - Oil shale</b>					
1.3.0.0.1 - Oil shale	12030	2714.10	N	P	
<b>2 - Oil, natural gas and derived products</b>					
<b>2.1 - Crude oil</b>					
<b>2.1.1 - Conventional crude oil</b>					
<b>2.1.1.0 - Conventional crude oil</b>					
2.1.1.0.0 - Conventional crude oil	12010	2709	N	P	
<b>2.1.2 - Other crude oil; hydrogen</b>					
<b>2.1.2.0 - Other crude oil; hydrogen</b>					
2.1.2.0.0 - Other crude oil; hydrogen	12010, 34210	2709, 2804.10	N	S	
<b>2.2 - Natural gas</b>					
<b>2.2.0 - Natural gas</b>					
<b>2.2.0.0 - Natural gas</b>					
2.2.0.0.0 - Natural gas	12020	2711.11, .21	N	P	
<b>2.3 - Natural gas liquids (NGL)</b>					
<b>2.3.0 - Natural gas liquids (NGL)</b>					
<b>2.3.0.0 - Natural gas liquids (NGL)</b>					
2.3.0.0.0 - Natural gas liquids (NGL)	33420	2711.14, .19	N	P	
<b>2.4 - Refinery feedstocks</b>					
<b>2.4.0 - Refinery feedstocks</b>					
<b>2.4.0.0 - Refinery feedstocks</b>					
2.4.0.0.0 - Refinery feedstocks	?	?	N	S	
<b>2.5 - Additives and oxygenates</b>					
<b>2.5.0 - Additives and oxygenates</b>					
<b>2.5.0.0 - Additives and oxygenates</b>					
2.5.0.0.0 - Additives and oxygenates	35430	3811	N	S	
<b>2.6 - Oil products</b>					
<b>2.6.1 - Refinery gas</b>					
<b>2.6.1.0 - Refinery gas</b>					
2.6.1.0.0 - Refinery gas	?	?	N	S	
<b>2.6.2 – Ethane</b>					
<b>2.6.2.0 – Ethane</b>					
2.6.2.0.0 - Ethane	33420, 34110	2711.19, 2901.10	N	S	
<b>2.6.3 - Liquefied petroleum gas (LPG)</b>					
<b>2.6.3.0 - Liquefied petroleum gas (LPG)</b>					

2.6.3.0.0 - Liquefied petroleum gas (LPG)	33410	2711.12, .13	N	S
<b>2.6.4 – Naphtha</b>				
<b>2.6.4.0 – Naphtha</b>				
2.6.4.0.0 - Naphtha	33330, 34540	2710.11, 2707.50	N	S
<b>2.6.5 – Gasolines</b>				
<b>2.6.5.1 - Aviation gasoline</b>				
2.6.5.1.0 - Aviation gasoline	33310	2710.11	N	S
<b>2.6.5.2 - Motor gasoline</b>				
2.6.5.2.0 - Motor gasoline	33310	2710.11	N	S
<b>2.6.5.3 - Gasoline-type jet fuel</b>				
2.6.5.3.0 - Gasoline-type jet fuel	33320	2710.11	N	S
<b>2.6.6 – Kerosene</b>				
<b>2.6.6.1 - Kerosene-type jet fuel</b>				
2.6.6.1.0 - Kerosene-type jet fuel	33342	2710.19	N	S
<b>2.6.6.2 - Other kerosene</b>				
2.6.6.2.0 - Other kerosene	33341	2710.19	N	S
<b>2.6.7 - Gas oil / diesel oil</b>				
<b>2.6.7.1 - Road diesel</b>				
2.6.7.1.0 - Road diesel	33360	2710.19	N	S
<b>2.6.7.2 - Heating and other gas oil</b>				
2.6.7.2.0 - Heating and other gas oil	33360	2710.19	N	S
<b>2.6.8 - Heavy gas oil</b>				
<b>2.6.8.0 - Heavy gas oil</b>				
2.6.8.0.0 - Heavy gas oil	33360	2710.19	N	S
<b>2.6.9 - Fuel oil</b>				
<b>2.6.9.0 - Fuel oil</b>				
2.6.9.0.0 - Fuel oil	33370	2710.19	N	S
<b>2.6.10 - White spirit and special boiling point industrial</b>				
<b>2.6.10.0 - White spirit and special boiling point industrial</b>				
2.6.10.0.0 - White spirit and special boiling point industrial	33330	2710.11	N	S
<b>2.6.11 – Lubricants</b>				
<b>2.6.11.0 – Lubricants</b>				
2.6.11.0.0 - Lubricants	33380	2710.19	N	S
<b>2.6.12 - Paraffin waxes</b>				
<b>2.6.12.0 - Paraffin waxes</b>				
2.6.12.0.0 - Paraffin waxes	33500	2712.20	N	S
<b>2.6.13 - Petroleum coke</b>				
<b>2.6.13.0 - Petroleum coke</b>				
2.6.13.0.0 - Petroleum coke	33500	2713.11, .12	N	S
<b>2.6.14 – Bitumen</b>				
<b>2.6.14.0 – Bitumen</b>				
2.6.14.0.0 - Bitumen	33500	2713.20	N	S
<b>2.6.15 - Other oil products</b>				

<b>2.6.15.0 - Other oil products</b>					
2.6.15.0.0 – Other oil products	?	?		N	S
<b>3 - Nuclear energy</b>					
<b>3.1 - Uranium and plutonium</b>					
<b>3.1.0 - Uranium and plutonium</b>					
<b>3.1.0.0 - Uranium and plutonium</b>					
3.1.0.0.0 - Uranium and plutonium	33610, 33620, 33710	2844.10, .20, 8401.30		N	P
<b>3.2 – Other</b>					
<b>3.2.0 – Other</b>					
<b>3.2.0.0 – Other</b>					
3.2.0.0.0 – Other	33630, 33690, 33720	2844.30, .40, .50		N	P
<b>4 - Biofuels and waste</b>					
<b>4.1 – Biofuels</b>					
<b>4.1.1 - Solid biofuels</b>					
<b>4.1.1.1 - Fuelwood, wood residues and by-products</b>					
4.1.1.1.0 - Fuelwood, wood residues and by-products	03130	4401.10		Y	P
<b>4.1.1.2 – Agrofuels</b>					
4.1.1.2.1 - Bagasse	39140	2303.20		Y	P
4.1.1.2.2 – Animal waste	34654	3101		Y	P
4.1.1.2.3 - Other vegetal material and residues	39120, 39150	2302, 2308, 0901.90, 1802		Y	P
<b>4.1.1.3 - Black liquor</b>					
4.1.1.3.0 -Black liquor	39230	3804		Y	S
<b>4.1.1.4 – Charcoal</b>					
4.1.1.4.0 - Charcoal	34510	4402		Y	S
<b>4.1.2 - Liquid biofuels</b>					
<b>4.1.2.1 – Biogasoline</b>					
4.1.2.1.0 - Biogasoline	34139, 34131	2905.11, 2207.20		Y	S
<b>4.1.2.2 – Biodiesels</b>					
4.1.2.2.0 - Biodiesels	35490	3824.90		Y	S
<b>4.1.2.3 - Other liquid biofuels</b>					
4.1.2.3.0 - Other liquid biofuels	?	?		Y	S
<b>4.1.3 – Biogases</b>					
<b>4.1.3.1 - Landfill gas</b>					
4.1.3.1.0 - Landfill gas	?	?		Y	P
<b>4.1.3.2 - Sewage sludge gas</b>					
4.1.3.2.0 - Sewage sludge gas	?	?		Y	P
<b>4.1.3.3 - Other primary biogases</b>					
4.1.3.3.0 - Other primary biogases	?	?		Y	P
<b>4.1.3.4 - Secondary biogases</b>					
4.1.3.4.0 - Secondary biogases	?	?		Y	S

<b>4.2 – Waste</b>					
<b>4.2.1 - Industrial waste</b>					
<b>4.2.1.0 - Industrial waste</b>					
<i>4.2.1.0.0 - Industrial waste</i>	?	?	Y	P	
<b>4.2.2 - Municipal waste</b>					
<b>4.2.2.0 - Municipal waste</b>					
<i>4.2.2.0.0 - Municipal waste</i>	39910	3825.10	Y	P	
<b>5 – Electricity</b>					
<b>5.1 - Electricity from fossil fuels</b>					
<b>5.1.0 - Electricity from fossil fuels</b>					
<b>5.1.0.0 - Electricity from fossil fuels</b>					
<i>5.1.0.0.0 - Electricity from fossil fuels</i>	17100	2716	N	S	
<b>5.2 - Electricity from nuclear fuels</b>					
<b>5.2.0 - Electricity from nuclear fuels</b>					
<b>5.2.0.0 - Electricity from nuclear fuels</b>					
<i>5.2.0.0.0 - Electricity from nuclear fuels</i>	17100	2716	N	P	
<b>5.3 - Solar electricity</b>					
<b>5.3.1 - Photovoltaic electricity</b>					
<b>5.3.1.0 - Photovoltaic electricity</b>					
<i>5.3.1.0.0 - Photovoltaic electricity</i>	17100	2716	Y	P	
<b>5.3.2 - Electricity from concentrated solar thermal energy</b>					
<b>5.3.2.0 - Electricity from concentrated solar thermal</b>					
<i>5.3.2.0.0 - Electricity from concentrated solar thermal</i>	17100	2716	Y	P	
<b>5.4 - Electricity from wind energy</b>					
<b>5.4.0 - Electricity from wind energy</b>					
<b>5.4.0.0 - Electricity from wind energy</b>					
<i>5.4.0.0.0 - Electricity from wind energy</i>	17100	2716	Y	P	
<b>5.5 - Electricity from hydro energy</b>					
<b>5.5.0 - Electricity from hydro energy</b>					
<b>5.5.0.0 - Electricity from hydro energy</b>					
<i>5.5.0.0.0 - Electricity from hydro energy</i>	17100	2716	Y	P	
<b>5.6 - Electricity from wave energy</b>					
<b>5.6.0 - Electricity from wave energy</b>					
<b>5.6.0.0 - Electricity from wave energy</b>					
<i>5.6.0.0.0 - Electricity from wave energy</i>	17100	2716	Y	P	
<b>5.7 - Electricity from tidal energy</b>					
<b>5.7.0 - Electricity from tidal energy</b>					
<b>5.7.0.0 - Electricity from tidal energy</b>					
<i>5.7.0.0.0 - Electricity from tidal energy</i>	17100	2716	Y	P	
<b>5.8 - Electricity from other marine energy</b>					
<b>5.8.0 - Electricity from other marine energy</b>					
<b>5.8.0.0 - Electricity from other marine energy</b>					
<i>5.8.0.0.0 - Electricity from other marine energy</i>	17100	2716	Y	P	
<b>5.9 - Electricity from geothermal energy</b>					

<b>5.9.0 - Electricity from geothermal energy</b>					
<b>5.9.0.0 - Electricity from geothermal energy</b>					
	<i>5.9.0.0.0- -Electricity from geothermal energy</i>	17100	2716	Y	P
<b>6 - Heat</b>					
<b>6.1 - Heat from fossil fuels</b>					
<b>6.1.0 - Heat from fossil fuels</b>					
<b>6.1.0.0 - Heat from fossil fuels</b>					
	<i>6.1.0.0.0 - Heat from fossil fuels</i>	17300		N	S
<b>6.2 - Heat from nuclear fuels</b>					
<b>6.2.0 - Heat from nuclear fuels</b>					
<b>6.2.0.0 -Heat from nuclear fuels</b>					
	<i>6.2.0.0.0 - Heat from nuclear fuels</i>	17300		N	P
<b>6.3 - Solar heat</b>					
<b>6.3.1 - Concentrated solar thermal heat</b>					
<b>6.3.1.0 - Concentrated solar thermal heat</b>					
	<i>6.3.1.0.0 - Concentrated solar thermal heat</i>	17300		Y	P
<b>6.3.2 - Non-concentrated solar thermal heat</b>					
<b>6.3.2.0 - Non-concentrated solar thermal heat</b>					
	<i>6.3.2.0.0 - Non-concentrated solar thermal heat</i>	17300		Y	P
<b>6.4 - Heat from geothermal energy</b>					
<b>6.4.0 - Heat from geothermal energy</b>					
<b>6.4.0.0 - Heat from geothermal energy</b>					
	<i>6.4.0.0.0 - Heat from geothermal energy</i>	17300		Y	P

## Annex II – InterEnerStat product list

*These are the product definitions developed by InterEnerStat.*

PRODUCT
1 Solid fossil fuels
1.1 Coal
1.1.1 Hard coal
1.1.1.1 Anthracite
1.1.1.2 Bituminous coal
1.1.1.2.1 Coking coal
1.1.1.2.2 Other bituminous coal
1.1.2 Brown coal
1.1.2.1 Sub-bituminous coal
1.1.2.2 Lignite
1.1.3 Coal products
1.1.3.1 Coal coke
1.1.3.1.1 Coke oven coke
1.1.3.1.2 Gas coke
1.1.3.1.3 Coke breeze
1.1.3.1.4 Semi cokes
1.1.3.1.4.1 Brown coal coke
1.1.3.1.4.2 Other semi cokes
1.1.3.2 Patent fuel
1.1.3.3 Brown coal briquettes (BKB)
1.1.3.4 Coal tar
1.1.3.5 Coke oven gas
1.1.3.6 Gas works gas (and other distributed gases)
1.1.3.7 Recovered gases
1.1.3.7.1 Blast furnace gas
1.1.3.7.2 Basic oxygen steel furnace gas
1.1.3.7.3 Other recovered gases
1.2 Peat
1.2.1 Sod peat
1.2.2 Milled peat
1.2.3 Peat briquettes
1.3 Oil shale
2 Natural gas
3 Oil
3.1 Conventional crude oil
3.2 Natural gas liquids (NGL)
3.3 Refinery feedstocks



### 3.4 Additives and Oxygenates

### 3.5 Other hydrocarbons

### 3.6 Oil products

#### 3.6.1 Refinery gas

#### 3.6.2 Ethane

#### 3.6.3 Liquefied petroleum gas (LPG)

#### 3.6.4 Naphtha

#### 3.6.5 Gasolines

##### 3.6.5.1 Aviation gasoline

##### 3.6.5.2 Motor gasoline

##### 3.6.5.3 Gasoline-type jet fuel

#### 3.6.6 Kerosenes

##### 3.6.6.1 Kerosene-type jet fuel

##### 3.6.6.2 Other kerosene

#### 3.6.7 Gas oil / diesel oil

##### 3.6.7.1 Road diesel

##### 3.6.7.2 Heating and other gas oil

#### 3.6.8 Heavy gas oil

#### 3.6.9 Fuel oil

#### 3.6.10 White spirit and Special boiling point industrial spirits

#### 3.6.11 Lubricants

#### 3.6.12 Paraffin waxes

#### 3.6.13 Petroleum coke

#### 3.6.14 Bitumen

#### 3.6.15 Other oil products

### 4 Renewables and waste

#### 4.1 Solar energy

##### 4.1.1 Photovoltaic electricity

##### 4.1.2 Concentrated solar thermal energy

##### 4.1.3 Non-concentrated solar thermal energy

#### 4.2 Wind energy

#### 4.3 Hydro energy

#### 4.4 Wave energy

#### 4.5 Tidal energy

#### 4.6 Other marine energy

#### 4.7 Geothermal energy

#### 4.8 Biofuels

##### 4.8.1 Solid biofuels

###### 4.8.1.1 Fuelwood, wood residues and by-products

###### 4.8.1.2 Agrofuels

###### 4.8.1.2.1 Bagasse

###### 4.8.1.2.2 Animal waste

###### 4.8.1.2.3 Other vegetal materials and residues

- 4.8.1.3 Black liquor
- 4.8.1.4 Charcoal
- 4.8.2 Liquid biofuels
  - 4.8.2.1 Biogasoline
  - 4.8.2.2 Biodiesels
  - 4.8.2.3 Other liquid biofuels
- 4.8.3 Biogases
  - 4.8.3.1 Landfill gas
  - 4.8.3.2 Sewage sludge gas
  - 4.8.3.3 Other primary biogases
  - 4.8.3.4 Secondary biogases
- 4.9 Waste
  - 4.9.1 Industrial waste
  - 4.9.2 Municipal waste
- 5 Nuclear Energy
- 6 Electricity
- 7 Heat