

Issue paper 3.1

Towards Standard International Energy Classification (SIEC): An outline of the scope and classification scheme

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I. Background

1. From the first energy crisis of mid 70th both countries and international, regional or supranational organizations started to compile more detailed and timely energy statistics. However, the underlining methodology was not sufficiently harmonized. Recognizing the growing importance of energy statistics and the apparent need for the improvement of the cross country comparability the United Nations Statistics Commission began to discuss various issues relevant to energy statistics. In particular, at the 19th session (1976) the Commission proposed to convene an expert group to consider the preparation of an international classification of energy as part of the development of a global system of integrated energy statistics.
2. The United Nations Statistics Division (UNSD) implementing the Commission's recommendation published in 1987 a handbook *Energy Statistics: Definitions, Units of Measure and Conversion Factors*¹. The handbook provided valuable information on a number of topics but it did not propose a classification of energy products, nor contained any correspondence with the existing international product classifications.
3. At its 24th (1987) session the Commission requested the preparation of a standard international classification for energy². Yet, until now, such classification is not developed and definitions used by different international organizations of energy products still need harmonization. After conducting a programme review of energy statistics at its 36th Session (2005) the Commission decided to speed up the revision of the energy statistics methodology and approved the establishment of the Oslo Group on Energy Statistics and the Inter-secretariat Working Group on Energy Statistics to assist the revision process. The Commission emphasized that one of the priority areas is harmonization of the definitions of energy products and flows.

¹ "Energy Statistics: Definitions, units of measure and conversion factors", Studies in methods, Series F, no. 44. United Nations, New York 1987.

² Statistical Commission, Report on the twenty-fourth session (23 February – 4 March 1987), ECOSOC, Supplement No. 6., E/1987/19, E/CN.3/1987/26

4. In the late eighties the World Customs Organization developed the *Harmonized Commodity Description and Coding System* (HS) which was adopted by the Commission as a foundation for all its product-type classifications including the *Standard International Trade Classification* (SITC). The Commission approved recently the latest revisions of the *Central Product Classification* (CPC, Ver.2) and the *International Standard Industrial Classification of All Economic Activities* (ISIC, Rev.4) which are very much relevant for development of official energy statistics.
5. The Harmonized System has a special importance for the process of harmonizing definitions and classification of energy products as all international transactions in energy products are defined in terms of HS. Energy products are widely traded internationally and energy companies are familiar with HS or its national equivalents. The correspondence with HS is expected to facilitate data collection as the documentation that energy importing/exporting companies have to provide for customs purposes includes the relevant HS code, so those companies can provide national statistical offices and energy ministries/agencies with data on imports and exports of energy commodities according to the HS. This makes the HS application relatively easy to expand to the production and other flows of the same commodities.
6. CPC aggregates the HS headings into product groupings which are of particular interest for economic statistic and for various users. ISIC, while being a classification of activities and not products, allows for establishing of a relationship between industries and their outputs. SIEC should contain a correspondence between the revised definitions of energy products, HS, CPC and ISIC as this is necessary for a better integration of energy statistics into economic statistics and for the increase of its analytical value.
7. Preparation of SIEC is a part of the global project on developing *International Recommendation for Energy Statistics* (IRES). SIEC is to serve as a tool for the unique identification of energy products and their various groups in the data collection, data processing and data dissemination both at national and international levels. SIEC, being linked to the already widely adopted international product classifications, will provide a more solid foundation for official energy statistics.
8. SIEC development is closely linked to the harmonization of the definitions of energy products/sources which is underway now and both processes should be seen as complementary. The preparation of SIEC implies resolving a number of various issues. Please find below a list of issues (formulated in the form of questions) which, in our view, should be clarified as much as possible from the very beginning. The purpose of this list is to initiate a structured discussion on the scope and the classification scheme of the future SIEC. Any comments will be very much appreciated.

II. Issues

Issue 1. Items to be classified in SIEC.

9. The intended scope of SIEC should be defined. In order to create such a definition it is needed to identify which items are to be classified in SIEC. **Do we agree that:**
- i. SIEC should include: (a) products [results of economic activity] which are used or might be used as the sources of energy; (b) energy in the form of produced electricity and heat (in any other energy form?) and (c) main (by convention) by-products of the production of the sources of energy?
 - ii. <are any other kinds of items missing?>;
 - iii. Energy in objects/forms which are not results of economic activity is out of SIEC scope?
 - iv. Energy flows are explicitly excluded from SIEC scope?

Issue 2. List of basic SIEC headings and their definitions.

10. The basic headings are the mutually exclusive and not further sub-dividable subsets of the classification universe. It is important to make sure that their definitions will be both useful and operational.
11. **Do we agree that** while developing the list of basic headings and their definitions the following is taken into account as much as possible:
- (i) Definitions should be based on physical/chemical characteristics of products;
 - (ii) Definitions should be as simple as possible and implementable (e.g., in terms of availability of data sources and data collection methods);
 - (iii) The correspondence between the basic headings of SIEC, HS, CPC and ISIC should be established.

Issue 3. The classification criteria.

12. The basic headings are to be grouped into a hierarchy of the higher level classification headings to provide analytically important information by reflecting the agreed classification criteria. It is essential, therefore, to make sure that we have an explicit list the classification criteria to consider.
13. **Do we agree that** the classification criteria for use in structuring the SIEC universe into the higher level headings are (in no particular order):
 - i. main kinds of primary fuels/energy
 - ii. physical state (e.g., solids, liquids, gas etc),
 - iii. type (or degree) of processing, and
 - iv. separation of primary and secondary products,
 - v. separation of non-renewable and renewable sources of energy?

Issue 4. The classification scheme.

14. The number of classification levels and the number of headings at each level will depend on the adopted classification scheme that is on (a) the list of agreed classification criteria and (b) the sequencing of their application. An example of the classification scheme is provided below.
15. The first question is what criterion to use to define the highest level headings of the classification. We may begin by separating the SIEC universe into sections covering main types of primary fuels and their derivatives (secondary sources of energy). For example, SIEC may have such sections as “Coal and its derivatives”, “Oil, gas and its derivatives”, ... “Biomass”, “Electricity and Heat” etc.
16. **The question is how many sections SIEC should have? Please, propose.**
17. Each section can be subdivided into divisions to separate primary and secondary sources/products. In turn, divisions might be split into groups to reflect the physical state of particular derivatives and into groups and classes to identify specific products.
18. Important: The identification of each basis heading as comprising the non-renewable or renewable sources can be provided in an Annex by listing the headings in one of the two memorandum items: “Non-renewable sources of energy “ and “renewable sources of energy”. The reasons for dealing with the non-renewable/renewable sources of energy in an annex might be (1) SIEC if focusing on physical/chemical characteristics of sources/products which makes it structure clear and uniformly applicable and (2) separation of sources/products into non-renewable/renewable is more subjective and policy/region dependent;

therefore, if a certain product will be moved from non-renewable to renewable it will not change the main SIEC structure and its coding system.

19. An example of application of such a classification scheme to coal is provided below.

Standard International Energy Classification

Section 1 Coal and its derivatives

Division 11 Coal, primary

Group 111	Coking coal
Group 112	Other bituminous coal and anthracite
Group 113	Sub-bituminous coal
Group 114	Lignite/brown coal
Group 115	Peat

Division 12 Coal fuels, secondary

Group 121 Coal fuels, secondary, solid

Class 1211	Patent fuels
Class 1212	Coke-oven coke
Class 1213	Gas coke
Class 1214	Briquettes

Group 122 Coal fuels, secondary, gaseous

Class 1221	Gas-works gas
Class 1222	Coke-oven gas
Class 1223	Blast-furnace gas
Class 1224	Oxygen steel-furnace gas

ETC.

Annexes to SIEC

Annex 1. Memorandum items

- I Non-renewable sources of energy
- II Renewable sources of energy.

Annex II Correspondence between SIEC, HS, CPC and ISIC

SIEC		HS07	CPC, Ver.2	ISIC, Rev.4
Code	Heading			
111	Coking coal	ex 2701.11	1101.0	0510
<i>ETC.</i>				

20. **Can the example of SIEC classification scheme as given above** be used for further development of SIEC or another approach should be tried?

Issue 5. The coding system.

21. The coding system of SIEC should provide an easy and unique identification of a given product (product group) in the data collection, processing and dissemination.
22. **Do we agree that** the coding system should be numerical and hierarchical, so that from a given code it will be immediately clear to what section, division, group and class the product belongs?