DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS
STATISTICS DIVISION
UNITED NATIONS

ESA/STAT/AC.157
UNCEEA/3/9

Third Meeting of the UN Committee of Experts on Environmental-Economic Accounting
New York, 26-27 June 2008
United Nations Secretariat, Conference Room C

Preparation of International Recommendations for Energy Statistics

Paper prepared by UNSD

(for discussion)

Preparation of International Recommendations for Energy Statistics

Progress report prepared by UNSD

UNCEEA Meeting
New York, 26-27 June 2008

A. Introduction

1. The *International Recommendations for Energy Statistics* (IRES) are being developed in accordance with the decisions of the United Nations Statistical Commission at its 36th and 37th sessions which, inter alia, recognized the significance of energy statistics, recommended their development as part of official statistics and called for the revision and further development of the relevant international standards[1]. These decisions followed a programme review of energy statistics conducted by Statistics Norway and the recommendations of the Ad-Hoc Expert Group on Energy Statistics (New York, 23-25 May 2005).

2. The preparation of IRES is part of the UNSD work programme intended to firmly position energy statistics and accounts within the system of official statistics based on the Fundamental Principles of Official Statistics. In particular, UNSD decided to review and consolidate the revised recommendations on energy statistics, balances and accounts, which merit adoption by the Commission, into two documents, namely the *International Recommendations for Energy Statistics* (IRES) and the *System of Environmental-Economic Accounting for Energy* (SEEA-E).

3. This report focuses on IRES. It has been prepared for the UN Committee on Environmental-Economic Accounts (UNCEEA) to inform on the proposed scope and coverage of IRES and the process that has been put in place for its preparation. Section 2 of this report introduces the scope and coverage of IRES; section 3 describes the process and timetable for its preparation; and section 4 poses questions for the UNCEEA. The detail outline of IRES is included in Annex I and the questions that have been circulated as part of the international consultation on IRES are presented in Annex II.

A. Scope and Coverage

4. IRES will provide a coherent set of internationally agreed concepts and definitions including definitions of data items to be collected and published by the agency(ies) in the country responsible for the production of energy statistics and energy

[1] Reports on the thirty-sixth session and on the thirty-seventh session of the Commission

balances. It will also describe use of energy balances in compilation of energy accounts and other statistics. IRES will also provide recommendations on data sources, data compilation strategies, data quality, metadata and dissemination of energy statistics.

5. The list of data items in IRES will serve as a reference list from which countries can select the relevant items according to their situation taking into account, for example, users' needs, resources, priorities and respondent burden. This list will be developed in such a way that satisfies the major user needs such as: international questionnaires on energy statistics, energy balances, environmental-economic accounts for energy, national accounts and air emissions (the latter is linked to the data requirements for reporting to the United Nations Framework Convention for Climate Change (UNFCCC)).

6. The main focus of IRES will be on basic energy statistics and energy balances. IRES will cover recommendations on statistics in physical and monetary units; short terms and structural statistics; and statistics on flows and stocks.

7. IRES and SEEA-E are two complementary documents and their preparation is fully coordinated. While IRES will comply to the extent possible with the SEEA-E conceptual structure and data needs, SEEA-E will develop its accounting standards on the basis of the IRES (e.g., using IRES definitions of data items and classifications of energy products and flows). IRES will include a chapter on bridge tables that allow the compilation of supply and use tables of the energy accounts from the energy balances.

8. IRES will also describe how basic energy statistics and energy balances are used for the calculation of air emission following the guidelines and international reporting standards on air emission for climate change.

9. Additional guidance on more practical/technical matters (e.g., good practices, country case studies, etc.) to assist countries in implementation of IRES and SEEA-E is to be provided in the *Energy Statistics Compilers Manual* (ESCM). ESCM is seen as compilation guidance and, as such, is not supposed to go through the formal adoption by the Commission. It is foreseen as a 'live document' being electronically maintained and periodic ally updated as needed.

B. Process and time table for the reparation of IRES

10. IRES is tentatively scheduled to be submitted to the UN Statistical Commission at its 41st session (March 2010). The preparation of IRES is organized according to the following steps with provisional dates (see report of the 3rd meeting of the Oslo Group):

a) Preparation of an annotated outline of IRES for a worldwide consultation (end of March 2008);

b) Worldwide consultation with countries and international organizations on the scope and content of IRES (April-May 2008);

c) Organization of an International Workshop on Energy Statistics to focus on the user needs and data collection capabilities, especially of the developing countries (Mexico, December 2008);

d) Preparation of the first version of IRES and its review by the 4th meeting of the Oslo Group (February 2009);

e) Review of the first version of IRES by the Intersecretariat Working Group on Energy Statistics at its next meeting

f) Worldwide consultation on the provisional draft IRES (May-June 2009);

g) Preparation of the amended draft of IRES, its review and endorsement by the UN Expert Group on Energy Statistics [Q4, 2009]; and

h) Submission of the final draft of IRES to the 41st session of the UN Statistical Commission for adoption (December 2009).

11. As also recognized by the Oslo Group during its 3rd meeting in Vienna, the time schedule is very tight and effective work of parties involved will be required to meet the deadline. The International Workshop on Energy Statistics will be an important milestone to take stock of the progress in the preparation of IRES.

12. The first stage of the worldwide consultation has been launched on 12 May 2008 with national statistical offices, energy ministries/agencies active in compilation and dissemination of energy statistics and the interested international organizations to ensure that all stakeholders had an opportunity to express their views. The main objective of this consultation is to provide countries with an opportunity to express their views on the intended scope, structure and contents of IRES and to express their interest in actively participating and providing inputs in the preparation of IRES. An annotated outline which was prepared in close cooperation with the Oslo Group was circulated together with a number of questions. In order to facilitate countries response, unofficial translation of the letter and the draft outline of IRES are made available in French, Spanish and Russian. Preliminary results of this consultation will be reported orally during the UNCEEA meeting.

13. A website has been created by UNSD to allow countries to follow the preparation of IRES and will be periodically updated. The webpage also contains all the documents that are circulated for the worldwide consultation (http://unstats.un.org/unsd/energy/ires/default.htm).

14. UNSD is preparing, in cooperation with the Secretariat of the Oslo Group, a list of issues that need to be addressed by the Oslo Group and the InterSecretariat Working Group on Energy Statistics and other relevant groups with a timeline and list of contributors. The discussion on these issues will take place through the Electronic Discussion Forum of the Oslo Group, during the International Workshop on Energy Statistics (December 2008), the 4th Oslo Group meeting (February 2009) and the next

meeting of Intersecretariat Working Group on Energy Statistics. The London Group will be consulted as well..

15. The role of UNSD is to coordinate the preparation of IRES, ensure a global consultation, consolidate and edit the inputs into the successive versions of the draft IRES, submit the final document to the Statistical Commission and coordinate the preparation and publication of ESCM. The Oslo Group and the Intersecretariat Working Group on Energy Statistics are the main content provider to IRES and ESCM in accordance to their mandates given by the Statistical Commission. The London Group on Environmental Accounting will also be consulted during the preparation of IRES as well as the United Nations Committee of Experts on Environmental Economic Accounting (UNCEEA), given its coordination role in environment statistics and environmental-economic accounting.

16. Table 1 below summarizes the timetable for the preparation of IRES.

Table 1. Timetable for the preparation of IRES

	2007	2008				2009				2010
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Issues		Issue list discussed at the Oslo Group (Vienna, 4-6 Feb)	Preparation of the list of issues and Discussion mainly through the electronic discussion Group of the Oslo Group							
Drafting	Preparation of the annotated draft outline for IRES		Preparation of the annotated outline	Consolidation of work done so far and preparation of a preliminary draft		Preparation of an initial draft of IRES	Preparation of a provisional draft of IRES on the basis of the Oslo Group recommendations			
Consultation	Outline of IRES presented at the Meeting f the Intersecreatariat Working Group on Energy Statistics	Annotated outline and issues discussed at the Oslo Group meeting (Vienna, 4-6 Feb 08)	First stage of the worldwide consultation on the scope and content of IRES UNCEEA reviews progress of work and process (NY, 26-27 June)	Consultation on selected issues during the London Group Meeting (Brussels, Sept) Consultation with the Intersecreatariat Working Group on Energy Statistics	International Workshop on Energy Statistics discusses selected issues (Mexico City, December) Report on progress of work to the UNSC	Oslo Group meeting discusses the initial draft of IRES. Consultation on selected issues during the London Group Meeting (Bruxeles, Sept)	World-wide consultation on the provisional draft of IRES	Participation in User Producer conference on SEEA-E.	Expert Group Meeting on the amended draft of IRES	
Final draft of IRES									Final draft for the SC	SC approval

A. Questions to the UNCEEA

The UNCEEA may wish to express its views on the proposed scope and structure of IRES, as well as on process and time schedule for its completion.

Annex I: Outline

The annotated outline of IRES presented below has been prepared in consultation with the Oslo Group and includes the comments received during the 3rd meeting of the Oslo Group (Vienna, 2-6 February 2008). This outline has been circulated to countries as part of the first stage of the worldwide consultation on IRES.

Chapter 1. Introduction

This chapter is intended to formulate the objectives of *International Recommendations for Energy Statistics* (IRES). It will be emphasized that the main objective of IRES is to provide a firm foundation for a long-term development of energy statistics as a part of official statistics based on the *Fundamental Principles of Official Statistics*. The chapter will stress the importance of energy statistics for sound decision- and policy-making, identify needs of the major user groups and describe how they are dealt with in the subsequent chapters. The historical background of IRES will be presented with a special reference to the recent decisions of the United Nations Statistical Commission on updating the UN handbooks on energy statistics, energy balances and accounts. This chapter will also describe the relationship between IRES and the *Energy Statistics Manual* by IEA/Eurostat and the forthcoming United Nations publications, namely *Energy Statistics Compilers Manual* (ESCM) and *System of Environmental-Economic Accounting (SEEA)* which is expected to provide international standards on energy accounting.

Chapter 2. Scope of Energy Statistics

The purpose of this chapter is to define the scope and coverage of energy statistics. The chapter will begin with a broad definition of energy as a physical phenomenon and proceed to its definition in a statistical context, so that the concept of energy content of energy source/carriers is made operational for statistical purposes. The role of laws of thermodynamics in energy statistics will be acknowledged. The chapter will recommend to treat energy statistics as a complete system (a) covering production, import/export, transformation and final use/consumption of energy sources/carriers and (b) describing the main characteristics and activities of the energy sector. The existing differences in terminology currently used in energy statistics and other economic statistics (such as *use* versus *consumption*, *stocks* versus *inventories*) will be recognized with the intention to resolve them and/or clearly define their areas of application. The use of *International Standard Industrial Classification of All Economic Activities, Revision 4* (ISIC Rev 4) as well as of the territory and residence principles and the related definitions of the statistical population will be discussed (e.g., use of the territory principle in energy balances and the residence principle in energy accounts). The chapter will clarify the scope of energy statistics including by defining the economic territory and the production boundary. The detailed definitions of the data items will be provided in chapter 7 after all necessary conceptual/classification issues are dealt with.

Chapter 3. Standard International Energy Classification

This chapter will introduce *Standard International Energy Classification* (SIEC) which is intended to organize the internationally agreed definitions of energy sources/carriers into a hierarchical classification system, which would clearly represent the relationships between them and provide a coding system for use in data collection and data processing. It is proposed that SIEC will use physical/chemical properties, including energy content, of the energy sources/carriers as an underlying classification criterion. It is also expected that SIEC will provide a clear identification of the energy sources/carriers as primary/secondary and renewable/non-renewable. The chapter will describe the classification scheme of SIEC and its relationships with other international product classifications such as the Harmonized Commodity Description and Coding System 2007 (HS07) and Central Product Classification, Version 2 (CPC, Ver.2). The full text of SIEC will be provided in an Annex. Every effort will be made to ensure that SIEC is ready on time. However, if it will not be possible to finalize it prior to IRES submission to the UN Statistical Commission for adoption, the chapter will limited to description of a list of agreed definitions. SIEC, in such a case, might be issued as a separate publication.

Chapter 4. Units of Measurement and Conversion Factors

This chapter will describe physical units of measurement (SI) for the different products, recommend standard unit of measurement (currently, joule), describe other measurement units (ton of oil equivalent, etc.) and recommend default conversion factors between units in absence of country-, region-, and/or activity-specific conversion factors. The importance of specific conversion factors will be emphasized in this chapter. The factors will be presented in a separate Annex to IRES.

Chapter 5. Flows, Stocks and Related Concepts

The main purpose of this chapter is to provide (a) a clarification of the boundary between flows and stocks, (b) a description of the relationship between stocks and other related concepts (reserves, resources, inventories etc.), (c) a definition of the boundary between energy and non-energy flows, (d) general definitions of particular energy flows such as energy production, transformation, non-energy use, final energy use/consumption, etc. and (e) a description of the differences between flows/stock defined on the basis of territory and residence principles. This chapter will also contain details on classification of the energy sector and energy users (in terms of ISIC, Rev.4 for industries) and households. The recommendations on measurement of flows and stocks in standard units of volume, weight and energy will be given and the issues relevant to a monetary measurement will be introduced and discussed. In general, chapter 5 is intended to provide an overview of the flows from extraction, production to use/consumption in order to facilitate the understanding of data items presented in Chapter 6.

Chapter 6. Statistical Units and Data Items

This chapter will contain recommendations on the statistical units (and their characteristics) for use in data collection from both energy and non-energy sectors. The reference list of data items for collection (together with their definitions) will be provided. The list will cover energy flows and stocks of all energy sources/carriers while the definitions of particular data items will reflect specificity of each

source/carrier. Chapter 6 will be more technical than chapters 2 and 5. It will recommend, for instance, from what units (e.g., establishments, enterprises, households) data items are to be collected and what kinds of data items can be collected from each of them. This chapter will provide a basis for the subsequent chapters on data sources and data compilation (chapter 7) as well on construction of energy balances (chapter 8). It is envisaged that the list of data items and their definitions will focus more on processes/transactions rather then on products since the definitions of energy products will be presented in chapter 3. As chapter 5 will provide general definitions of flows, chapter 6 will explain any possible exceptions and details for specific products to be taken into account in the definition of particular data items.

Chapter 7. Data Sources and Data Compilation Strategies

This chapter will provide an overview of data sources (for example, administrative data, surveys etc.) and data collection/compilation strategies/methods relevant for both supply and use/consumption of energy. The guidance on the compilation of metadata will be provided as well. The importance and principles of effective institutional arrangements would also be emphasized and promoted. The purpose of this chapter is to focus on the main types of data sources and key elements of data compilation strategies such as organization of data collection from the various sources and merging those data. Details on methodology of estimation, imputation and seasonal adjustments are to be deferred to ESCM. The exact boundary between IRES and ESCM in this respect is to be clarified during the IRES drafting process.

Chapter 8. Energy Balances

The objective of this chapter is to describe energy balances and their role in organizing energy statistics in a coherent system. It will contain recommendations on the balances compilation based on concepts, definitions and classifications and data items described in the previous chapters. The chapter is to cover both energy supply and use/consumption. It will highlight importance of energy balances for making informed policy decisions including by the identification of a set of indicators that can be derived from the balances and used for this and other analytical purposes. The forthcoming ESCM will start off where IRES will stop and is intended to provide an overview of good practices in the compilation of energy balances, elaborate selected country cases etc.

Chapter 9. Data Quality

This chapter will describe the main dimensions of energy data quality and to provide recommendations on how to set up a national energy data quality framework, including development and use of indicators of quality and data quality reporting. The importance of metadata availability for ensuring a high quality of energy statistics will be stressed as well.

Chapter 10. Dissemination

This chapter would provide recommendations on energy statistics dissemination mechanisms, addressing data confidentiality, release schedules, core tables, dissemination of metadata and reporting to international/regional organizations.

Chapter 11. Use of Energy Balances in Compilation of Energy Accounts and Other Statistics

The chapter will contain (a) an explanation of the conceptual relationships between basic energy statistics and balances, on one hand, and energy accounts on the other, including a description of how energy might be integrated into the national accounting framework on the basis of the forthcoming international standards on energy accounts which is being developed as a part of the SEEA revision and (b) a description of bridge tables that allow the compilation of energy accounts from the energy balances. Details on good practices in the compilation of bridge tables are to be elaborated in ESCM. Also, this chapter is to provide examples on the use of basic energy statistics and balances for other purposes (e.g., climate change, including emission calculations, etc.)

Annex

Standard International Energy Classification (SIEC)

The Annex provides a full text of SIEC as well as the correspondence tables between SIEC, HS07 and CPC, Ver.2.

Glossary

Default Conversion Factors

Index

Bibliography

Annex II: Questions circulated in the worldwide consultation

A. Objectives

Question 1. Do you agree that IRES should contain a comprehensive set of recommendations aiming at strengthening energy statistics as a part of official statistics serving multiple data users?

YES ☐
NO ☐

Question 2. Do you agree that the recommendations should be flexible enough to ensure their implementation in all countries irrespective of the level of development of their statistical systems? In particular, that the list of data items to be described in IRES should be seen as a reference list from which countries can select the relevant items according to their situation taking into account, for example, identified user needs, resources, priorities and respondent burden?

YES ☐
NO ☐

B. Scope

Question 3. Do you agree that IRES should cover all relevant aspects of the statistical process from underlying concepts and classifications to data compilation strategies and data dissemination polices?

YES ☐
NO ☐

Question 4. Do you agree that IRES should focus on basis energy statistic and energy balances?

YES ☐
NO ☐

C. Structure

The draft structure of IRES and the draft content of its particular chapters are subject to possible changes during the drafting process. However, it is very important to know from the start whether there is a broad endorsement of the IRES draft outline in general and of its particular chapters. In this context we would highly appreciate your answers the question 5.

Question 5 Do you broadly endorse the draft content of:

Chapter 1: **YES** ☐ **NO** ☐

Chapter 2: **YES** ☐ **NO** ☐

Chapter 3: **YES** ☐ **NO** ☐

Chapter 4: **YES** ☐ **NO** ☐

Chapter 5: **YES** ☐ **NO** ☐

Chapter 6: **YES** ☐ **NO** ☐

Chapter 7: **YES** ☐ **NO** ☐

Chapter 8: **YES** ☐ **NO** ☐

Chapter 9: **YES** ☐ **NO** ☐

Chapter 10: **YES** ☐ **NO** ☐

Chapter 11: **YES** ☐ **NO** ☐

Question 6. Are there topics that in your view should be addressed in IRES, but are not included in the draft outline? If, Yes, please specify in **Respondent comments**

YES ☐
NO ☐

D. Your country involvement

Question 7. Is your agency interested in an active participation in the revision process? If, Yes, please identify in **Respondent comments** the topic(s) on which you would like to provide input.

YES ☐
NO ☐