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**System of Environmental-Economic Accounting for Energy (SEEA-E)  
A project management framework for its drafting**

**Paper prepared by UNSD**

*(for decision)*

# System of Environmental-Economic Accounting for Energy (SEEA-E)

## A project management framework for its drafting

### A. Introduction

1. Energy accounts have been identified by the UN Committee of Experts on Environmental-Economic Accounting (UNCEEA) as an important domain of the international statistical standard on environmental-economic accounting – the revised SEEA-2003. During its first meeting in New York, the UNCEEA agreed that energy accounts should feature prominently in the revised SEEA-2003 (Minutes of the First Meeting of the UNCEEA, New York 22-23 June 2006).
2. In 2003, the London Group established a Subgroup on Mineral and Energy Accounts (moderated by Statistics Denmark). Thus far, the subgroup has undertaken a small survey of country practices on mineral and energy asset accounts from which it has developed an annotated outline for a publication on energy accounts. This annotated outline along with initial draft text was discussed at the last London Group meetings in New York (2006) and Johannesburg (2007)<sup>1</sup>.
3. In parallel, the UN Statistical Commission acknowledged, among other things, the importance of energy statistics and noted the need for further methodological development. As a result, the Oslo Group on Energy Statistics was established in 2006 with the objective of addressing issues related to energy statistics and contributing to improved international standards and improved methods for official energy statistics by pooling expertise in the energy community (from the Terms of Reference of the Oslo Group, Report on Energy Statistics to the Statistical Commission, March 2006<sup>2</sup>).
4. In response to the increasing demand from the international community to develop a coherent methodology with harmonized definitions, classifications and tables for energy accounts and related statistics, the United Nations Statistics Division (UNSD) has embarked on the drafting of an international statistical standard on energy accounts, the *System of Environmental-Economic Accounting for Energy* (SEEA-E)<sup>3</sup> as part of its work programme. The preparation of SEEA-E will draw upon existing international mechanisms by mobilising expertise from the energy community (Oslo Group), the national and the environmental-economic accounts community (London Group), countries and international agencies. As part of this programme, a consultant will start working with UNSD on the development of the SEEA-E in September 2007.

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<sup>1</sup> See Section C of this paper.

<sup>2</sup> See Annex I of this paper.

<sup>3</sup> The publication on mineral accounts (SEEA-M) as a separate publication should be considered while recognizing the conceptual similarities between energy and mineral accounting for both the asset and flow accounts. Significant synergies are expected between the drafting of SEEA-E and SEEA-M.

5. This paper presents the draft project management framework for the drafting of SEEA-E. It is being submitted to the UN Committee of Experts on Environmental-Economic Accounting (UNCEEA) given its mandate to ensure the overall coordination of activities in environmental-economic accounting and related statistics. In accordance with good practice adopted for the *System of Environmental-Economic Accounting for Water* (SEEA-W), the UNCEEA is requested to express its views on the objectives, scope, coverage, governance structure and timeline for the SEEA-E.

6. The paper is organized in the following sections. Section A provides the background and justification for the SEEA-E, Section B describes the objectives, scope and coverage of the SEEA-E. The outline of the SEEA-E is provided in Section C. Finally, Section D describes the governance structure and a timeline for the drafting of the SEEA-E with clear intermediate deliverables. A list of questions for the UNCEEA is presented in Section F.

7. Three annexes are included at the end of paper for ease of reference. They include the Terms of Reference of the Oslo Group, the Terms of Reference of the Subgroup on Mineral and Energy Accounts and excerpts of the report of the London Group on Environmental Accounts related to energy accounts.

## **B. Objectives, scope and coverage of the SEEA-E**

8. The aim of the SEEA-E is to provide an international statistical standard for energy accounts, consisting of agreed concepts, definitions, classifications and inter-related tables and accounts for multi-purpose analytical and policy use.

9. The drafting of the SEEA-E will also provide input in the revision of the SEEA-2003 and in particular in solving the list of issues related to mineral and energy accounts in the research agenda to elevate the SEEA-2003 to the level of an international statistical standard.

10. As a statistical standard, the SEEA-E would contain output tables and accounts, including a detailed list of variables to be compiled for national and international reporting. It will be accompanied by supporting publications such as compilation guidelines based on best practices which describe the operational production process of collection, processing and compilation including the data collection instruments and data sources to generate standard tables, accounts and time series for energy statistics. The development of the international statistical standard and the suite of related publications and activities (e.g. compilation guidelines) are all inter-related and should not be developed in isolation.

11. In addition to covering energy accounts, the SEEA-E will also cover air emission accounts. This integrated presentation will demonstrate the calculation of energy-related air emissions together with information on the technology used in the production processes. The SEEA-E would also discuss the links of energy and emission accounts with the reporting requirements of the United Nations Framework Convention for Climate Change (UNFCCC).

## C. Outline

12. The proposed outline of the SEEA-E consists of the following chapters:

*Chapter 1: Introduction.* This chapter will introduce the objectives of the SEEA-E, describe the target audience, present the relevance of energy accounts for policy-making including climate change and sustainable development policies, and describe the structure of the publication.

*Chapter 2: The SEEA-E framework.* This chapter will introduce the SEEA-E accounting framework and explain the links to energy balances. Furthermore, it will present the links with relevant international statistical standards including the 1993 System of National Accounts Rev.1, the International Standard Industrial Classification of all Economic Activities (ISIC) Rev.4, the Central Product Classification (CPC) Ver.2, and the revised Balance of Payments Manual.

*Chapter 3: Physical asset accounts.* This chapter will start with the description of the definitions and classification of energy resources. It will present the links with the United Nations Framework Classification for Fossil Energy and Mineral Resources and the classification of assets of the SNA Rev. 1. It will (a) introduce the basic structure of an asset account; (b) explain and define the asset accounts entries (e.g. stocks of energy resources, discoveries and extraction); and (c) provide recommendations on measurement units and conversion factors. It will present the SEEA-E standard asset accounts and tables populated with a numerical data set.

*Chapter 4: Monetary asset accounts.* This chapter will introduce basic concepts in the compilation of monetary asset accounts for energy resources. It will further elaborate the methodology presented in the 1993 SNA Rev.1 by providing guidance on the valuation of stocks, the treatment of decommissioning costs, discoveries and the decomposition of the changes in value between the opening and closing stocks. This chapter will present a standard table for the compilation of monetary asset accounts with a numerical example.

*Chapter 5: Physical, monetary and hybrid flow accounts.* This chapter will present the hybrid flow accounts for energy linking the national accounts with the physical flows in a supply and use table. It will include the classification of energy products and energy supply and use. It will present the energy balances and discuss the concordance between the energy balances and the energy accounts.

*Chapter 6: Air emission accounts.* This chapter will introduce the accounts for air emission related to energy use. It will include basic concepts, definitions and classifications for emission accounts.

*Chapter 7: Applications of SEEA-E.* This chapter will cover the applications of energy accounts and tables to obtain a comprehensive set of derived indicators for the measurement of climate change and sustainable development policies.

*Annex 1. Standard tables.* This annex will present the standard tables which are presented and discussed in chapters 3 to 6. The standard tables constitute the minimum data set that all countries are encouraged to compile.

*Annex 2. Classifications.* This annex will present the classifications that are relevant for the compilation of energy accounts: in particular the classification of energy assets, the classification of economic activities related to energy, classification of energy products and classifications relevant for the emission accounts.

*Annex 3. List of indicators.* This annex will present a list of indicators that can be derived from the SEEA-E.

*Glossary.* An agreed glossary of terms and definitions relevant for SEEA-E will be included.

## **D. Governance structure and time schedule**

### *Governance structure*

13. The SEEA-E is part of the regular work programme of UNSD and should be prepared under the overall guidance and coordination of the UNCEEA. In preparing the SEEA-E, UNSD will cooperate closely with the Oslo Group on Energy Statistics and the London Group on Environmental Accounting which are the city groups with expertise in energy statistics and energy accounting, respectively. The UNCEEA will submit the SEEA-E to the United Nations Statistical Commission for its adoption as an international standard.

14. The collaboration with the Oslo Group should ensure the consultation with a wide range of experts in energy statistics and energy policies from national statistical offices, energy ministries, international organizations, academia and private sector. Its breadth of expertise would provide an invaluable input in the harmonization of the building blocks of the SEEA-E including its concordances between energy statistics, balances and accounts and related classifications.

15. By contrast, the engagement of the London Group on Environmental Accounting should ensure expertise in environmental-economic accounting and in particular in energy accounts. Its Subgroup on Mineral and Energy Accounts is expected to contribute to solving a range of methodological issues on mineral and energy asset accounts and related physical and hybrid flow accounts.

16. Other groups and experts may be consulted on an ad-hoc basis especially when dealing with the links to the 1993 SNA Rev.1 (e.g. the Advisory Expert Group on National Accounts (AEG)).

17. With the mobilization of the international community through its city groups and other expert groups, UNSD is expected to realize a full coherence between energy accounts, balances and statistics in the SEEA-E.

18. Table 1 broadly outlines the sharing of responsibilities between the Oslo Group on Environment Statistics and the London Group on Environmental Accounting. The table was prepared by Statistics Norway for discussion at the last London Group meeting

in Johannesburg (Mach 2007) and subsequently updated on the basis of the discussions<sup>4</sup> at the London Group meeting. Further consultations with the Oslo and London Group will be necessary to update the table as the work progresses.

**Table 1. Sharing of tasks between the London Group and the Oslo Group**

<b>Issue</b>	<b>London Group</b>	<b>Oslo Group</b>
1. Issues related to mineral and energy asset accounts in physical and monetary terms (e.g. valuation of stocks, classification of mineral and energy resources etc.)	Under the responsibility of the London Group.	Not under the responsibility of the Oslo Group
2. Coverage of energy flow accounts in the revised SEEA	The London Group will discuss at its next meeting a paper covering the scope and coverage of the energy flow accounts in the revised SEEA-2003.  Statistics Norway will coordinate a small group composed of Statistics Netherlands, Statistics New Zealand, Statistics Denmark, Statistics Sweden, Australia Bureau of Statistics and Federal Statistical Office Germany to draft this paper	Not under the responsibility of the Oslo Group. The Oslo Group will provide input to the paper
3. Development of bridge tables between energy statistics, balances and energy accounts	The London Group will develop a proposal for the bridge table. The development of these tables will be in collaboration with the Oslo Group	The Oslo Group will collaborate with the London Group on the development of bridge tables
4. Statistical discrepancies	The London Group will address conceptual and/or methodological issues leading to differences between energy statistics and accounts should be addressed as part of the revision of the SEEA-2003	Specific data issues which lead to statistical discrepancies should be addressed by the Oslo Group
5. Harmonization of classifications, conversion factors, units of accounts	Not under the responsibility of the London Group. However, members of the London Group will contribute to the relevant electronic discussion groups established by the Oslo Group	Under the responsibility of the Oslo Group
6. Definition of production, imports and exports	Under the responsibility of the London Group, in cooperation with the Oslo Group.  Given the fundamental links of energy accounts with SNA framework, these definitions will be addressed as part of the work of the London Group on the scope and coverage of energy accounts as well as on the development of bridge tables.	The Oslo Group will cooperate with the London group

<sup>4</sup> Excerpts of the report of the London Group on Environmental Accounting (Johannesburg, 26-30 March 2007) related to energy accounts are included in Annex III.

7. Renewable energy data - physical	Not under the responsibility of the London Group. The London Group will contribute to the discussion group and will address the issue of reconciling the physical flow of renewable resources with national accounts supply and use tables.	Under the responsibility of the Oslo Group.  The Oslo Group will develop a classification for renewable energy resources.
8. Monetary mineral and energy flows	Under the responsibilities of the London Group.	Not under the responsibility of the Oslo Group
9. Link between energy and air emissions	The London Group will address methodological issues related to energy accounts and energy-related air emission accounts.	The Oslo Group will address issues related to the links between basic energy statistics and air emission statistics.

### *Time schedule*

19. The following time schedule is envisaged for the SEEA-E:

First quarter of 2008 – A preliminary draft will be prepared by UNSD for consultation with the London Group and the Oslo Group with the assistance of a consultant;

Third quarter of 2008 – A complete draft will be prepared by UNSD for discussion at an expert group meeting;

2009 – A global consultation will take place on the SEEA-E and SEEA-E will be finalized and a User-Producer Conference on the SEEA-E will be organized;

2010 - The final draft will be submitted to the UN Statistical Commission for adoption as an international statistical standard upon recommendation by the UNCEEA.

Progress reports will be periodically submitted to the UNCEEA.

### **E. Questions to the UNCEEA**

20. The UNCEEA may wish to express its views on the following questions:

- (1) *Does the UNCEEA agree with the objectives, scope and coverage of the SEEA-E [para 8-11]?*
- (2) *Does the UNCEEA agree with the proposed outline [para 12]?*
- (3) *Does the UNCEEA agree with the governance structure proposed for the drafting of the SEEA-E [para 13-18 and Table 1]?*
- (4) *Does the UNCEEA agree with the proposed time schedule for the completion of the SEEA-E [para 20]?*

## **Annex I**

### **The Mandate of the Oslo Group**

To address issues related to energy statistics and contribute to improved international standards and improved methods for official energy statistics by pooling expertise in the energy community.

#### **Actions:**

- To identify users' needs.
- To define scope of official energy statistics.
- To identify and collect national and international best practices.
- To review and contribute to the updating of UNSD handbooks and manuals on energy statistics.
- To identify gaps in coverage (e.g. fuel types, flows) and to develop methodology to cover gaps.
- To adopt link or develop bridges to international standard concepts and classifications in economic/environment statistics to facilitate the integration and interface of energy statistics with other statistical systems.

To recommend a core set of tables as minimum requirement at national and international level to satisfy major user needs.



## Annex II

### **TERMS OF REFERENCE OF THE SUB GROUP ON MINERAL AND ENERGY ACCOUNTS**

1. The Subgroup on Mineral and Energy Accounts was created by the London Group on Environmental-Economic Accounting in November 2003 in Rome and reconfirmed by the London Group at its meeting in Copenhagen in September 2004. The main objectives of the Subgroup are to further research in mineral and energy accounts and to contribute to a publication on mineral and energy accounts for consideration and approval by the Committee. The Group will take into account the work being undertaken by other groups such as the Canberra II Group, the Advisory Expert Group in National Accounts, the London Group, the Oslo Group and the Inter-secretariat Working Group on Energy Statistics.
2. The membership of the Subgroup would include experts in environmental accounting, national accounts, energy statistics from selected countries and international organizations.
3. Statistics Denmark will be the moderator of the Subgroup, in cooperation with UNSD.
4. The primary means of communication will be electronic but the Subgroup will meet during the meeting of the London Group on Environmental Accounting, where at least one session will be organized by the Subgroup.
5. The Subgroup will have a limited duration and it will cease to exist once the publication is completed.
6. The Subgroup will submit reports to the Committee through the Chair of the London Group, at times determined by its moderator. These might include progress reports, summaries of conclusions, issues and outcome papers and draft chapters of the handbook.
7. To ensure efficient discussions, issue and outcome papers, setting out the results of Subgroup's deliberations and recommendations, will be presented to the Committee according to a standard format through the Chair of the London Group.

## Annex III

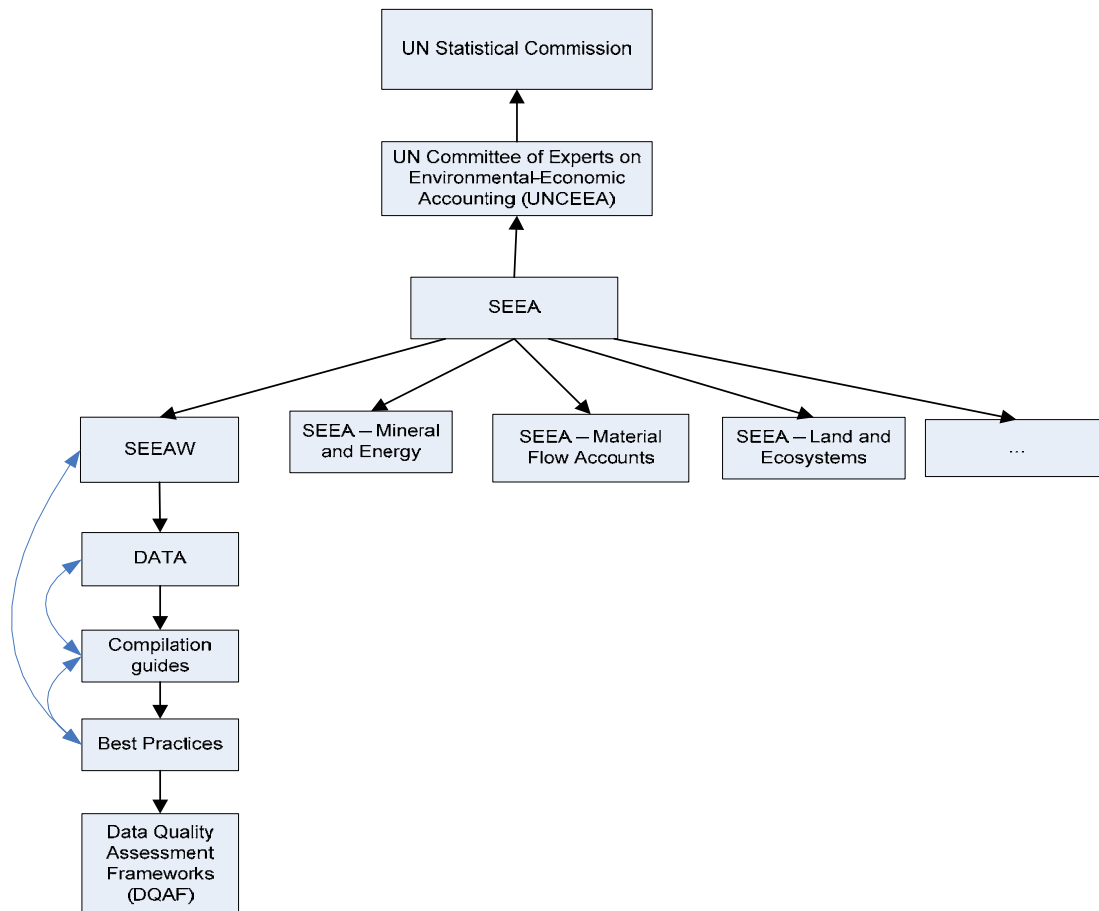
### Excerpts of the report of the London Group on Environmental Accounting related to energy accounts

(Johannesburg, 26-30 March 2007)

#### Agenda item 5 – Issues related to Chapters 3 and 4 (Cont'ed)

##### *Energy accounts – Report of Oslo Group*

17. The discussion on the work of the Oslo Group and the relationship of this work with the revision of the SEEA-2003 and in particular with the work of the London Group, raised the question of what is an international statistical standard, the relationships between standards, compilation guides and best practices. UNSD will prepare a paper describing the scope and coverage of the different types of publications to help in clarifying the objectives and scope of the different manuals being prepared.
18. By way of clarification, a representative of UNSD presented his views on the relationships between the various types of publications pertaining in particular to environmental-economic accounting and illustrated them in the following diagram:



19. The diagram displays different types of publications starting with a statistical standard and supporting publications as well as the entities overseeing their development. In the case of environmental-economic accounting, the United Nations Statistical Commission, the apex entity of the global statistical system, adopts standards such as the revised SEEA-2003 upon recommendation from the United Nations Committee of Experts on Environmental-Economic Accounting.
20. Given the broad scope of the SEEA, supporting standards to the SEEA dealing with specific issues would be developed. This is the case, for example, of the *System of Environmental-Economic Accounting for Water* (SEEAW). The standards develop output tables and accounts, including a detailed list of variables to be compiled and disseminated. The supporting publications, which develop input information, include the development of questionnaires to obtain the data and compilation guides based on best practices describing various methods to populate the standard tables and accounts. The process is not a top-down process but rather a cyclical process. The standard, the questionnaires and the compilation guides are developed on the basis of best practices which in turn are influenced by the standard. The data quality assessment framework is a qualitative assessment of the statistics collected/compiled according to the standard.
21. With regard to mineral and energy accounts, the view is that there should be a single standard, multipurpose system covering flows and stocks, in physical and monetary terms. The London Group will address issues related to asset accounts. The London Group in cooperation with the Oslo Group will address the energy flows linking statistics, balances and accounts through the development of standard tables and bridge tables. All issues related to implementation and best practices should be included in compilation guides, which should provide guidance on how to fill in the standard tables.
22. There seem to be different terminologies being used by the energy community and the national accountants. For example, energy stocks for energy statisticians refer to energy above the ground that is oil, gas, etc. which is already extracted. For national accountants, energy above the ground is called inventories, whereas stocks refer to energy below the ground, what energy statisticians call reserves. A key issue is developing a common terminology.

*Energy accounts - Issues*

23. The London Group discussed the papers LG/11/8a and LG/11/9a which described a list of issues on hybrid accounts for mineral and energy and a proposal for the division of responsibilities between the London Group and the Oslo Group to address those issues. Table 2 in the paper LG/11/8a summarizes the issues and who is working on what. The London Group requested Statistics Norway to prepare a revised Table 2, on the basis of the discussion at the meeting, for submission to the UNCEEA to facilitate the discussion on the sharing of tasks between the London Group and the Oslo Group at its next meeting in July 2007.
24. The issues presented in the above papers were discussed in detail. Recommendations by the London Group, issue by issue, are summarized below.

### Mineral and energy asset accounts in physical and monetary terms

25. Asset accounts in physical and monetary terms are the responsibility of the London Group. Issues related to the asset accounts were discussed in detail under Agenda item 7.

### Coverage of energy accounts in the revised SEEA

26. The London Group recommended that a paper covering the scope and coverage of the energy accounts in the revised SEEA-2003 be prepared for discussion at the next London Group meeting. It was considered important that the paper address the link between energy statistics, balances and accounts. Statistics Norway will coordinate a small group composed of Statistics Netherlands, Statistics New Zealand and Statistics Denmark, Statistics Sweden, Australia Bureau of Statistics and Federal Statistical Office Germany to draft this paper.

### Bridge tables and statistical differences

27. Paper LG/11/9a presented the experience of Denmark in developing bridge tables between energy statistics and energy accounts. The London Group considered bridge tables for energy as well as greenhouse gas emissions a key tool for linking energy balances and energy accounts. Standard tables linking energy statistics, balances and accounts should be developed in cooperation with the Oslo Group. As suggested in the paper, the London Group will develop a proposal for the bridge table as part of the paper discussing the scope and coverage of energy accounts in the revised SEEA-2003.
28. Energy balances in many countries include the so-called “statistical differences”, which could either be due to differences in concepts/methodologies or to the quality of data. From an environmental-economic accounting perspective, energy accounts by design have to balance. Issues of concepts/methodologies leading to differences between energy statistics and accounts should be addressed in the revised SEEA-2003. Specific data issues should be addressed in a compilation guide to be developed by the Oslo Group.

### Harmonization of classifications, conversion factors, units of accounts

29. The harmonization of energy product and industry/sector classifications, conversion factors and units of accounts is the responsibility of the Oslo Group. Members of the London Group will contribute to the relevant electronic discussion groups established by the Oslo Group.

### Definition of production, imports and exports

30. Differences in concepts, definitions and terminology of production, imports, exports inventories, stocks will be addressed as part of the work of the London Group on the scope and coverage of energy accounts as well as on the development of bridge tables. This work will be done in cooperation with the Oslo Group.

### Monetary mineral and energy flows

31. All monetary mineral and energy flows will be the responsibilities of the London Group.

### Renewable energy data - physical

32. As noted in the paper, the Oslo Group will develop a classification for renewable energy resources. The London Group will contribute to the discussion group and will address the issue of reconciling the physical flow of renewable resources with national accounts supply and use tables.