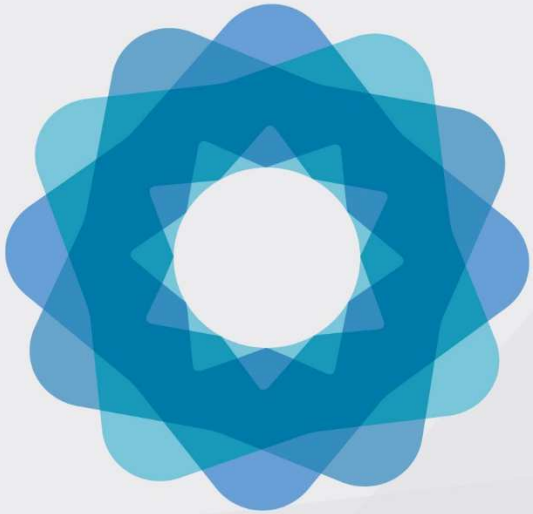

System of Environmental Economic Accounting

System of Environmental Economic Accounting

Introduction energy accounts

Sjoerd Schenau

United Nations

Content

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2. What is the purpose and advantages of accounting ?
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What is SEEA CF and SEEA Energy?

The System of environmental-economic accounting, **SEEA**, is a conceptual framework and an international statistical standard for organising statistical information on the linkages between the economy and the environment and for describing the stocks and changes of so-called environmental assets

The **SEEA Central Framework (SEEA CF)** is the general framework, which deals with all kinds of environmental related flows and stocks

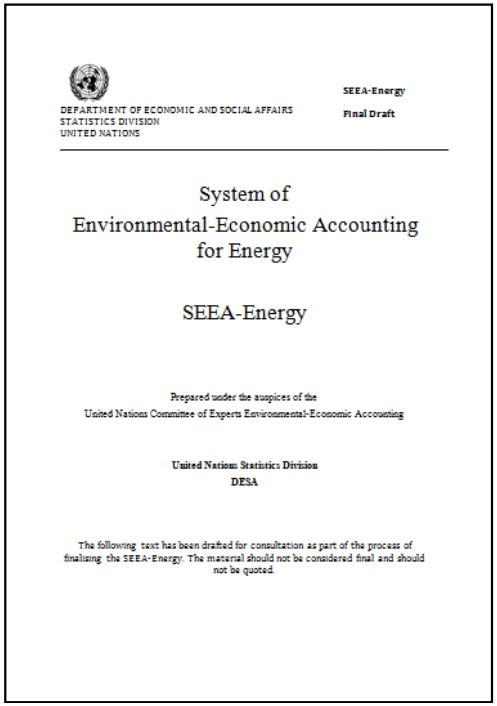
SEEA Energy is a ”subsystem” to SEEA CF, which in details decribes how information for energy flows and stocks and changes of energy resources should be organised

SEEA Energy and IRES

In the publication **SEEA Energy** you will find agreed concepts, definitions, classifications, tables, and accounts related to energy supply and use and stocks of energy resources

SEEA-Energy builds on the IRES guidance on how basic energy statistics is collected and compiled

IRES is the **International Recommendations on Energy** Statistics published by the UN Statistical Division


DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS
STATISTICS DIVISION
UNITED NATIONS

SEEA-Energy
Final Draft

System of
Environmental-Economic Accounting
for Energy

SEEA-Energy

Prepared under the auspices of the
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United Nations Statistics Division
DESA

The following text has been drafted for consultation as part of the process of finalising the SEEA-Energy. The material should not be considered final and should not be quoted.


Statistical Papers

Series M No. 93

International Recommendations for
Energy Statistics (IRES)

SEEA

SEEA Energy includes three main types of information on energy

1) The supply and use of energy (flows)

- Extraction and capture of energy from the environment
- Production, transactions and foreign trade of energy
- Losses of energy during production
- Use of energy products by industries and households

2) The stocks of energy and the changes in them

- Availability of energy resources and energy products at the beginning of a time period
- Disappearance and entering into the stocks of enrgy during the time period
- Availability of energy resources and energy products at the end of the time period
- Monetary valuation of the depletion of energy resources

3) Other economic aspects related to energy

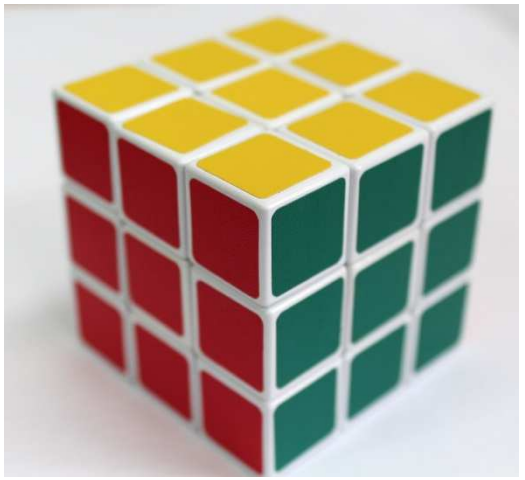
- Expenditure on environmental protection, clean-up and energy resource management
- The use of energy taxes and subsidies
- Other economic instruments like tradeble carbon emission permits
- Employment and value added of te energy sector

SEEA

Discussion

What kind of energy information is most needed in your country ?

What is the purpose and advantages of accounting ?



Accounts are always:

- **Consistent** (in time, with respect to concepts, methods, definitions and classifications)
- **Coherent** (between one account and another)
- **Comprehensive** (cover the whole economy

Statistics

- Are closer to source data
- Provide more detail

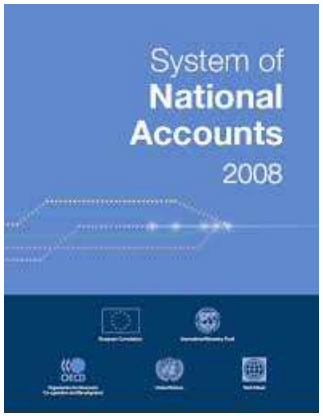
To ensure this, SEEA-Energy uses a certain type of systematic tables, i.e. accounts, to organise the data - just like SEEA CF and the national accounts (System of National accounts, SNA) do

The most important tables/accounts in SEEA Energy are **supply and use tables** for energy and so-called **asset accounts for energy**

Accounting appoach

- Measurement of **stocks and flows**
- **Accounting identities** (for example supply = use)
  →*Internal consistency*
- **Accounting boundaries** (for assets, production, geographical scope etc.)
  →*Complete description of the national economy*
- Adoption of **consistent classifications** (ISIC, CPC, etc.)

→ SEEA applies the same accounting principles as SNA



Information silos versus integrated data

Linking environmental and socio-economic data through an internationally agreed statistica framework is essential for integrated policy making.

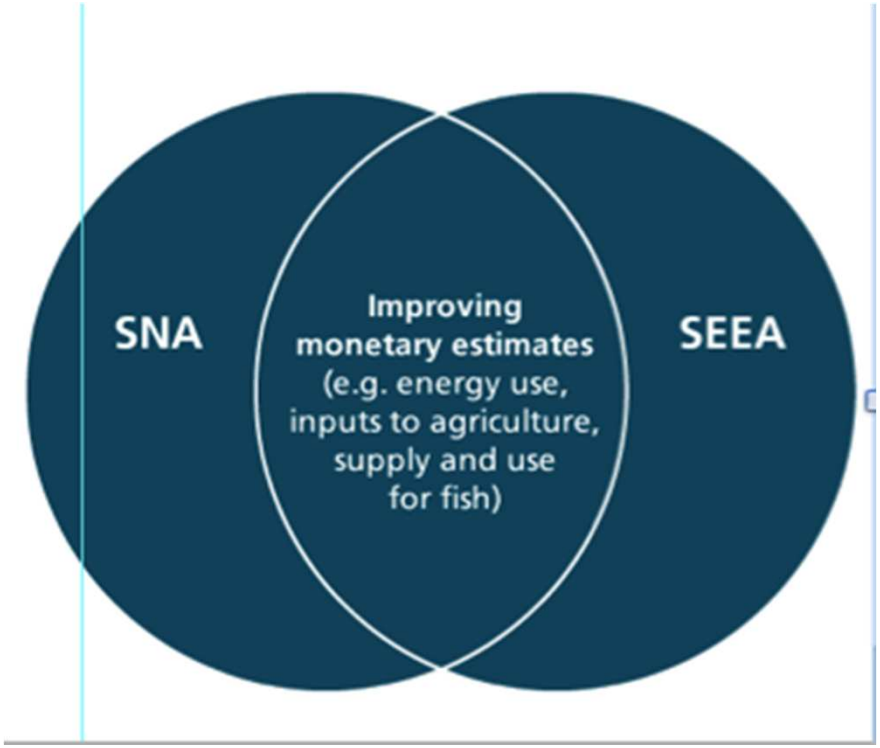
Information silos

- Developed to answer one particular question or problem
- Difficult to figure out if all information is included
- Not always easy to see the whole picture, or how it relates to other data

SEEA integrated data

- Enables analysis of the impact of economic policies on the environment and vice versa
- Identifies socio-economic drivers, pressures, impacts and responses affecting the environment
- Supports greater precision for environmental regulatio and resource management strategies
- Supports relevant perspectives on economic develop- ment, environmental sustainability and social equity

Data confrontation

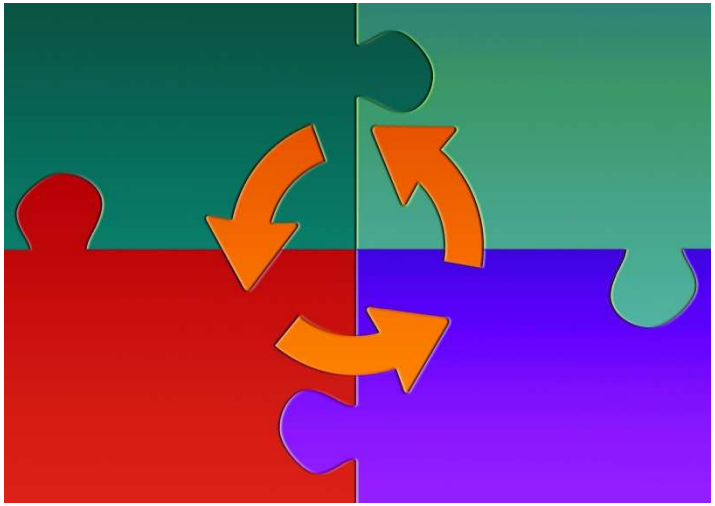


One benefit of organising information on energy according to SEEA Energy is that it improves the quality of the data through data confrontrartion.
Specifically, it becomes possible to confront physical and monetary data and to develop these data in a coherent way.
In this way the quality and coverage of physical and monetary energy data are improved.

Much of the monetary data developed within the SEEA Energy framework can be used by the national accounts (SNA) and vice versa.

Combining the accounts

A powerful feature of accounting in general and SEEA-Energy in particular is **its organisation of information in both physical and monetary terms following consistent scope, definitions and classifications**.



Combining the accounts opens for various forms of analysis:

- decoupling of energy use from economic output
- decoupling of energy use from emissions to air
- cost per joule of various energy products used by various industries etc.)
- and many others

Policy relevance and general uses of SEEA Energy accounts

SEEA-Energy can inform policy decisions related to the supply and use of energy.

SEEA-Energy supports a richer understanding of the role of energy in the economy including potentially identifying the key drivers of change.

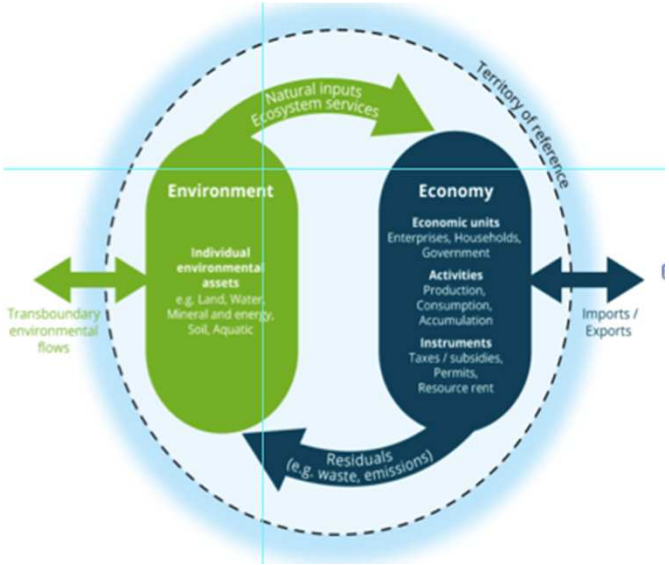
The SEEA-Energy framework supports the development of models and scenarios that can be used to assess the impact of possible policies both within a country and between countries.

Policy background

- Green Growth/Green Economy
- Broader measures of progress/Beyond GDP
- Natural Capital Accounting/ WAVES
- Well-being indicators/Measuring progress
- Wealth accounting
- Europe 2020
- Post-2015 UN development agenda/ SDGs
- Climate change policies: Paris 2015 agreement

The main types of accounts in SEEA Energy

- **Physical flow accounts** : the supply and use of energy measured by tonnes, litres or calorific values (joules)
- **Monetary flow accounts** measured by dollars, yen, euros, etc.
- **Physical asset accounts:** Energy stocks and changes in them measured by physical units
- **Monetary asset accounts:** The value of the energy stocks and changes in these values (dollars, yen, euros, etc.)



- **Other economic transactions (SNA type) related to energy**, i.e. accounts focusing on taxes, management of energy resources, adjustment of production and income accounts for the depletion of energy resources, etc.

Exercise: from what account(s) coould you derive the following information:

Physical flow accounts | **Monetary flow accounts** | **Other economic transactions**

Physical asset accounts | **Monetary asset accounts** | SNA

1. The remaining life of coal resources (under current extraction)
2. The energy efficiency of the chemical industry
3. An analyses of price differences in energy products paid by households and companies
4. A comparison of the value of the remaining coal reserves with other monatray assets
5. The energy use per capita

What is the link between SEEA Energy and other information systems?

SEEA Energy is fully coherent with **SEEA Central Framework** but describes in more detail how to account for energy

SEEA-Energy and SEEA CF complements the **national accounts** (SNA) by specifying the links between the economy and the environment and by highligting economic transactions related to the economy

SEEA- Energy retain the core accounting approaches that have been developed in the SNA context

SEEA-energy build on **basic energy statistics and so-called energy balances**, but put emphasis on the link to the economy and includes information on stocks and values – not only information on physical energy flows

Implementation of SEEA Energy is flexible

SEEA Energy is **modular** and **can be implemented in parts**

All accounts are not equally relevant for all countries.

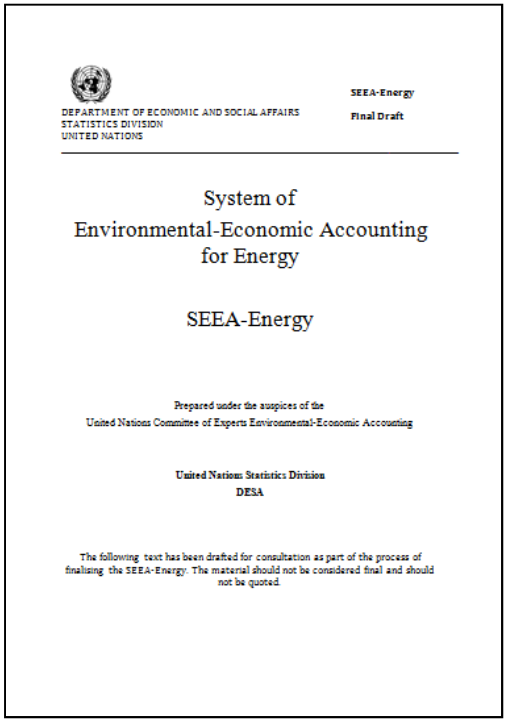
You may choose to implement only one or some of the accounting types(flows, stocks, physical, monetary), **as appropriate**

The choice of implementation depends normally on **policy priorities, the characteristics of the energy system, and the man-power available for the implementation**

However **often it is a good idea to start with the physical accounts**

In the SEEA Energy publication you will find the following seven chapters

Chapter 1 Introduction
Chapter 2 The SEEA-Energy Framework
Chapter 3 Physical Flow Accounts
Chapter 4 Monetary Flow Accounts
Chapter 5 Physical asset accounts for energy
Chapter 6 Monetary asset accounts for energy
Chapter 7 Uses of Energy Accounts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In the publication you will easily find more detailed information and explanations of the concepts, definitions and accounts you meet in this training course.

SEEA

Summary of the introduction

- **SEEA Energy** is a ”subsystem” to SEEA

Central Framework, which in details decribes how information for energy flows and stocks and changes of energy resources should be organised.

- **SEEA-energy** specifies how physical and monetary informationon energy can be organised

- **SEEA Energy** includes three main types of information on energy:
  - The supply and use of energy
  - The stocks of energy and the changes in them
  - Other economic aspects related to energy

- The most important tables/accounts in **SEEA Energy** are supply and use tables and asset accounts for energy

- **SEEA-Energy** and SEEA CF are fully coherent and complements the national accounts (SNA)

- **SEEA Energy** ensures coherence and completeness of energy information

- Combining the **SEEA Energy** accounts for instance the physical and monetary accounts opens for many types of analysis

- **SEEA Energy** is modular and can be implemented in parts as most appropriate in a specific country

Where do you find more information?

General information on SEEA and download of SEEA Central Framework, SEEA Energy and many other publications:
http://unstats.un.org/unsd/envaccounting/seea.asp

Information and download of International Recommendation of Energy Statistics
http://unstats.un.org/unsd/energy/ires/

Download of the IEA and Eurostat manual on Energy Statistics
https://www.iea.org/publications/freepublications/publication/energy-statistics-manual.html

QUESTIONS ???

SEEA