DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS
STATISTICS DIVISION
UNITED NATIONS

ESA/STAT/AC.117
UNCEEA/1/14

First Meeting of the UN Committee of Experts on Environmental-Economic Accounting
New York, 22-23 June 2006
United Nations Secretariat Building, Conference Room C

Report of the Oslo Group on Energy Statistics

Olav Ljones, Statistics Norway
20.06.2006,rev

Coordination of official statistics.

The case of energy, environment and economic statistics.

This note is based on some strategic reflections we have done in Statistics Norway about how to coordinate statistical work with special relevance to energy statistics. The Oslo Group has improvement of official energy statistics as its main task. Energy statistics is also relevant for the work program of the London Group and the UNCEEA. We should also mention that various other groups among international organizations have energy statistics on their agendas. Energy will also be mentioned in various connections with work on National Accounts and Economic/business statistics. The challenge is how we can avoid duplication of work and tedious coordination processes.

It is important that primary energy statistics is further developed as official statistics in accordance with the quality claims of official statistics. There are several important quality claims that should be recognized in this respect. Official statistics should be consistent and coherent. Estimates of energy used, should be equal in all tabulations and should be balanced with the supply of energy. Standards and classifications, definitions of energy etc should be equal or coherent. The definitions of national figures should also be equal or coherent (the national economic boundary and the physical national boundary is not equal). International comparability is also important and gives official statistics a value added.

In the principles for official statistics there is a focus on data capture and specifically on avoiding unnecessary response burden. In official energy statistics, it is important to secure that data may be reused or used for more than one purpose. For example we should use the same energy data both in energy statistics and in computations of emission to air statistics. The reuse of data for various purposes is an objective in official statistics.

The legal base for data capture has to be established. If administrative data is to be used for statistics, it is important to secure common definitions of units, products and other concepts. The legal base for such use is important. When data are collected for statistical purposes following the rules for confidentiality is imperative.

Official statistics on energy has to be based on the best scientific methods. Since energy statistics need to serve more than one user group (use) and decisions about the best compilation method can be dependent of the purpose/use of the statistics, the decision regarding the best method to use can be complex. The decision about concepts and survey design in energy statistics has to be built on a compromise between several concerns.

Another important factor regarding energy statistics is a quality claim about confidence, which is dependent of a professional independent body being responsible for energy statistics. This independency is important in order to give the users confidence in the statistics.

The problem for a National Statistical Institute is to secure internal coordination and a coherent statistical product. Statistics Norway is responsible for economic statistics including energy statistics, national accounts, environmental statistics and environmental accounts. The

national solution for consistency may be of interest, also in terms of the efforts to guarantee international coordination.

Energy statistics

Energy is a special commodity with a lot of characteristics. It is important to identify the basic characteristics that are relevant for statistics. Some of these characteristics are identified and commented in the UNSD handbook (1982). This list needs revision and updating. In energy accounts a basic idea is to balance energy data both in physical and economic terms. When working with energy accounts/balances we have to combine knowledge in basic energy science, with statistics and economics.

There is a need for a product classification of energy products. This classification should be consistent with a distinction between Primary Energy and Secondary Energy. Another important distinction is between renewable and non-renewable sources.

When designing a system for official energy statistics it is important to have a full scope. By this we mean to build a complete system of statistics on both energy production and use. This means that we should identify a system for the supply and use in energy terms and value terms that takes care of the important user needs. Some important user groups are:

- Users interested in energy markets
- Economic statistics for non-energy sector (but users of energy)
- Households as energy users
- National accounts
- Emission statistics (computations)
- Other environment statistics
- National wealth
- Sustainable development indicators

We cannot have tailor made statistics for all these purposes. The coordination challenge is to combine user needs and optimize a multipurpose system of energy statistics.

Elements to be discussed

- The production of energy (industrial classification, definitions of energy production sector)
- Use of energy as input, as energy and as "chemical" raw material
- Business register, to design a survey design to secure full coverage and avoid double counting
- Export and import
- Prices and costs
- The national economic boundary and the territorial boundary
- Technical characteristics of production process for energy production, relevant for environment statistics
- Technical characteristics for processes for use of energy as input
- Energy efficiency in production and in private household
- Energy saving concept.

National Accounts

In most systems for official statistics, the National Accounts (NA) plays a crucial role. National Accounts give the full picture of the economic situation and trends, covering all production sectors (incl. energy) and all uses of goods and services. All kinds of energy products are covered. This gives NA a possible coordinative functioning.

The primary business statistics have to be collected to fit the demands of the National Accounts. This means full coverage, no double counting, value terms, and price information used for fixed price calculations of production. Another important feature is that we also need data for the input (intermediate consumption, raw materials, etc).

Special concerns with relevance for a discussion of energy in NA are:

- Energy as product (output)
- Energy as input in production
- Use of energy in private households (consumption)
- Export and import of energy

The National Accounts are basically defined in value terms. An important part is however to do computations in fixed prices. We need information about relevant process/price indexes. This raises some important problems.

The National Accounts are built on a definition of national economy with a special subsystem for external relations (Balance of Payments). One question is if the National Accounts national boundary fits the boundary used in Energy statistics.

National Accounts puts focus on the yearly production and income. But they also include balance sheets for all sectors of the economy. Generally speaking one finds that produced capital and financial assets tend to be closer to the center of attention in regular National Accounts work. Non-produced capital, such as natural assets, is not always included in the wealth figures. However, the National Accounts do have a concept of National Wealth, being the sum of produced capital, natural assets and financial wealth. Human capital is not included. This concept of the National Accounts does not match the concept used in the Norwegian National Wealth Indicator of sustainable development. The methods for calculations of total wealth as an indicator of sustainability, uses National Accounts figures for GDP as input.

In our view, it is important to supplement the National Wealth approach with other measures, showing more direct links with the state of the environment. Statistics Norway has some experience of using National Accounts and environmental statistics together in NAMEA type formats (hybrid accounts), and such projects shall continue along with our National Wealth indicator statistics.

Environment statistics, Emissions to air

To some extent there will be overlap between claims for energy data from National Accounts and Environment statistics. While National Accounts in principle is in value terms (monetary), it is important to notify that emissions to air calculations focus on physical units. The characteristics (chemical composition, for example the sulfur content) of the fuel can be important for the estimation of the emissions. Prices are important for National Accounts but

will not be used directly in emission calculations. In the National Accounts it will perhaps not be relevant to include flaring (burning of natural gas) at drilling platforms - while this will be relevant for emission statistics. These differences are important to identify. Both concerns should be covered, with the lowest response burden.

A fruitful project at Statistics Norway has been to link emission statistics and energy statistics with the National Accounts to estimate emissions by industry (NAMEA) using the same industry categories for both sets of statistics. A statistical system that integrates energy statistics with business statistics within the overall system for official statistics will be useful for NAMEA-type projects and analysis based on this linked set of data.

It seems important that official statistics should give information about several environmental effects of various types of energy and energy production. This should not only include emission statistics. There are environmental effects both from h
Hydroelectric production (and plants) and nuclear power plants that that may be partially described by official statistics. I think however that there may also be environmental effects and risks that will be outside the scope of official statistics.

Renewable non-renewable energy sources are relevant for environment statistics. This concept seems to be in the core of resource accounts and statistics.

The reserves of non-renewable resources (like coal and other fossil fuels such as oil and natural gas) are of interest for some purposes such as natural resource asset calculations. The reserves are not, however crucial either for environment or economic (NA) purposes. It is not self-evident that reserves should be included in the portfolio of official statistics.

Sustainable development indicators

There is a common international interest in relevant indicators for sustainable development. One important part of this discussion is to identify the role official statistics should play in such indictors. Several approaches for indicators for sustainable indicators may be followed. At present it seems to be a rather wide support to the so-called National Wealth Concept Approach. The UN Handbook "Integrated Environmental and Economic Accounting (2003)" supports this approach.

There are several considerations that have to be made. One is to evaluate the basic calculations for National Wealth. The second is the decomposition into the factor contribution. For energy producing economies – energy industries are important. For non-renewable energy products it seems relevant to include sub-soil assets in value terms in the decomposition of total wealth. It is important to discuss and identify a priority list for actions to be taken for improving the National Wealth calculations. (Sub soil petroleum resources are not necessary on top of this list.)

In theory the national wealth approach should use as indicators for sustainable development, statistics that can describe the changes in National Wealth and decompose the change by types of capital. In practice however some of the sustainable indicators will have a rather weak link to national wealth and the various types of capital. Such indicators may on the other side be relevant as physical environmental indicators.

Indicators for energy production and resources (with for example a split for renewable and non renewable energy types) seem relevant for this use. Indicators for energy efficiency and energy saving seem also to be very relevant.