Statistical Centre of Iran

An introduction to SEEA-E

System of Environment-Economic Accounting for Energy

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System of Environment-Economic Accounting for Energy

- It is a conceptual framework for **organizing** information on energy and on the economy with the concepts, definitions and classifications of the System of National Accounts (SNA).

SEEA- E consists of the following:

- Asset accounts
- Flow accounts
- Hybrid accounts

- **Asset account:** physical and monetary units which describe the stocks at the beginning and end of the accounting year and the changes.

- **Flow account:** physical and monetary units which describe energy flows, in physical and monetary units, from the extraction from the environment, thru to supply and use within the economy.

- **Hybrid accounts:** link physical and monetary data by juxtaposing supply and use tables in physical and monetary units in order to facilitate the analysis of the linkages between the physical and monetary information.

Main differences between energy balances and energy accounts is geographical coverage.

Energy balance

- The reference territory is **national territory**.
- Statistics are compiled for units **physically located** on the territory.
- Units physically located **outside** the territory are considered as part of the **rest of the world.**

Energy accounts

- Geographic coverage based on all institutional units that are **resident** of a particular national economy **– independent** of where they are **located**.

- Units that are **not resident** units are considered to be part of the **rest of the world** and out of scope.

The use of the territory or residence principle leads to differences in:

- Imports
- Exports
- Use
- International bunkers
- etc.

Differences in definitions “supply”

- **In energy balance:**

Total energy supply=

+ Primary energy production

+ Import of primary and secondary energy

- Export of primary and secondary energy

- International (aviation and marine) bunker

- Stock changes

Differences in definitions “supply”

- **In energy account:**
- ***Supply* is defined as:** Output of products by economic activities +imports
- **Supply table shows:** the extraction ,the production and imports of energy product.
- **Use table shows:** total intermediate use of energy by industries ,private consumption of households, export and inventory changes.

Differences in definitions: "final consumption"

- **In energy balance:**

- ***Final consumption* refers to:**

The use of fuel, electricity and heat delivered to final consumers of energy for both their energy and non–energy uses.

- It essentially excludes the use of energy products in the energy industries and by other energy producers as input into transformation and energy industry own- use.

Differences in definitions "final consumption"

- **In the energy accounts**

- Is the **use** of goods and services by individual households or the community to satisfy their individual or collective needs or wants.

- However, when the goods and services are used as inputs to the production process by economic units, this is referred to as "**intermediate consumption**".

Differences in presentation

- In energy balance: doesn't follow exactly the ISIC classification, like transportation.

- In energy account: follow the ISIC classifications

Adjustment for the compilation of energy account

- Energy statistics and energy balances can be used as a data source for the compilation of the physical supply and use tables of the SEEA-E.

- *Adjustments on imports/exports*.

- *Other adjustments for geographical coverage*.

Energy indicators

- Useful tool to summarize information and monitor trends.

- The choice of the set of indicators compiled by a country depends on the national circumstances and priorities, sustainability and development criteria and objectives, as well as data availability.

- These indicators are organized in three dimensions: **social, economic and environment**.

Energy indicators

- Categorized in 3 dimensions:

- Social,
- Economic,
- Environment.

Some energy indicators related to social dimension:

Energy indicator	components
Share of households (or population) without electricity or commercial energy	-Households (or population) without electricity or commercial energy
Share of household income spent on fuel and electricity	-Household income spent on fuel and electricity - Household income (total and poorest 20% of population)
Household energy use for each income group and corresponding fuel mix	- Energy use per household for each income group (quintiles) - Household income for each income group (quintiles) - Corresponding fuel mix for each income group (quintiles)

Some indicators related to economic dimension:

Energy indicator	components
Energy use per capita	– Energy use (total primary energy supply, total final consumption and electricity use) – Total population
Energy use per unit of GDP	– Energy use (total primary energy supply, total final consumption and electricity use) – GDP
Industrial energy intensities	– Energy use in industrial sector and by manufacturing branch – Corresponding value added
Renewable energy share in energy and electricity	– Primary energy supply, final consumption and electricity generation and generating capacity by renewable energy – Total primary energy supply, total final consumption, total electricity generation and total generating capacity

Some indicators related to environment dimension:

Energy indicator	components
GHG emissions from energy production and use per capita and per unit of GDP	– GHG emissions from energy production and use – Population and GDP
Air pollutant emissions from energy systems	– Air pollutant emissions
Ratio of solid waste generation to units of energy produced	– Amount of solid waste – Energy produced

Resources

- **UNSD, 2016, International Recommendations for Energy Statistics (IRES), https://unstats.un.org/UNSD/energy/ires/default.htm**