DATA QUALITY ISSUES OF INDONESIA ENERGY BALANCES

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Workshop on Energy Statistics for ASEAN countries
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1. Preliminary
2. Structure of Indonesia Energy Balance
3. Data Collection
4. The Issues
5. Solution
The Indonesia Energy Balances publication prepared by the BPS-Statistics Indonesia (BPS) was first released in 1988. The compilation was guided by the Manual “Concepts and Methods in Energy Statistics, with Special Reference to Energy Accounts and Balances” published by United Nations, 1982.

Production of primary energy: which includes primary and secondary energy commodity from extraction

Import (+) and export (-): Foreign trade transactions that processed from Customs documents by BPS Statistics Indonesia.

International Aviation/Marine Bunker: domestic fuel data used by Indonesian airlines abroad and fuel supplied to cargo and passenger ships carrying out international shipping
2. STRUCTURE OF INDONESIA ENERGY BALANCES

Stock changes

**Total supply**: the sum of production, import (+), export (-), stock change, marine / aviation bunker.

**Total demand**: the sum of transformations, use of the energy industry, loss and final consumption by the industrial sector including non-energy use.

**Statistical difference**: the difference of energy data between the supply side and the consume side.
2. STRUCTURE OF INDONESIA ENERGY BALANCES

**Transformation**: includes activities that convert primary commodities into forms of energy more suited to use.

**Electricity generation**: the amount of fuel burned for electricity generation which divided into two parts, covering major producers of electricity and autogenerators which generate electricity for their own needs.

**Petroleum refineries**: energy needed by refineries for producers of petroleum products.
2. STRUCTURE OF INDONESIA ENERGY BALANCES

**Coke production**: the amount of coal for coke oven.

**Others**: consists of light transformation activities which not specifically specified.

**The use of the energy industry**: the energy consumed by energy extraction industry and energy transformation industry to support the transformation process.

**Loss**: including the intrinsic loss of energy that occurs during the transmission and distribution of electricity and gas.
The energy flow balance

2. STRUCTURE OF INDONESIA ENERGY BALANCES

Final consumption: Final energy consumed for energy use and non-energy purposes..

The iron and steel industry: are the energy used by the energy user industry which use enormous energy, both for transformation or final consumption.

Transportation: the energy used by the transportation industry (ISIC H category).
The structure of Indonesia's energy balances:

- ** Others sectors: commercials, agriculture **

  The use of non-energy fuels: can be divided into two types, used directly or used by the chemical industry as raw materials for the manufacture of goods such as plastics.
2. STRUKTUR OF INDONESIA ENERGY BALANCES

Medium and Large Scale of Manufacturing industry: Food, Textile, Wood, Chemical, Metal, Others

Commercial: Trade, Hotel, Restaurant, Other

Economic sector

Household

Commercial

Agriculture

Transportation

Mining

Construction

Micro and small scale of Industry

Medium and Large Scale of Manufacturing Industry
2. STRUKTUR OF INDONESIA ENERGY BALANCES

01 Manufacturing Industry
- Chemical Industry,
- Iron and Steel
- Others

02 Transportation
- Land Transportation,
- Railway,
- Air Transportation, Inland Areas and Waters,
- Other Transportation

03 Agriculture

04 Commercial

05 Household
3. DATA COLLECTION

Annual Survey of Non-Oil and Gas Mining Companies and the Directorate General of Mineral and Coal

Production

Stock Changes

Coal consumption

Export and Import

Annual Survey of Mining Company surveys, BPS

Foreign Trade Statistics

various company surveys conducted by BPS
3. DATA COLLECTION

1. Production
   - Annual Survey of Medium and Large scale of Manufacturing Industry

2. Stock Changes
   - Annual Survey of Medium and Large scale of Manufacturing Enterprises

3. Export and Import
   - Foreign Trade Statistics
3. DATA COLLECTION

1. Production
   - Annual Survey of Oil and Gas Mining Company and The Directorate General of Oil and Gas

2. Stock Changes
   - Annual Survey of Oil and Gas Mining Companies

3. Export and Import
   - Foreign Trade Statistics

CRUDE OIL AND CONDENSATE
3. DATA COLLECTION

Production

1. Annual Survey of Oil and Gas Refinery Company and The Directorate General of Oil and Gas

Stock Changes

2. Oil and Gas Refinery Survey

Export and Import

3. Foreign Trade Statistics
3. DATA COLLECTION

Production

Stock Changes

Export and Import

Annual Survey of Oil and Gas Refinery Company and The Directorate General of Oil and Gas

Oil and Gas Refinery Survey

Foreign Trade Statistics

LPG AND REFINERY GAS
3. DATA COLLECTION

Annual Survey of Oil and Gas Refinery Company and The Directorate General of Oil and Gas

Production

Stock Changes

Export and Import

Oil and Gas Refinery Survey

Foreign Trade Statistics
3. DATA COLLECTION

1. Annual Survey of Manufacturing Company and The socio-economic (household) survey

2. Production

3. Consumption

4. Export and Import

BIOMASS

- Medium and Large Manufacturing Survey, and the Survey of Micro and Small scale of Industry
- Foreign Trade Statistics
3. DATA COLLECTION

1. Annual Survey of Geothermal Mining Companies and PLN Electricity Statistics

2. Survey of Electricity Companies, and PLN Electricity Statistics
## Indonesia Energy Balances 2015

Tera Joules

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>coal</th>
<th>Briquette and coke</th>
<th>Crude oil and condensate</th>
<th>Light Petroleum Products</th>
<th>Heavy Petroleum Products</th>
<th>Other Petroleum Products</th>
<th>LPG and gas refinery</th>
<th>Natural Gas</th>
<th>LNG</th>
<th>Electricity</th>
<th>Biomass</th>
<th>Hydro Power</th>
<th>Geotherm al</th>
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Energy production data mainly comes from the Ministry of Energy and Mineral Resources and surveys of mining, energy and industrial companies conducted by BPS.

1. Some types of data products are not detailed as required in the preparation of energy balances, such as coal products not specified by types of coal. Such as hard coal, anthracite, cooking coal, brown coal, lignite.

2. Biomass production data available only charcoal and fuelwood, other biomass such as palm shells and bagasse is not available.

3. Production of some energy commodities such as coal briquette and coke of coal is very fluctuate every year. This could be caused by respond in the survey of manufacturing industry companies not yet well.

4. Micro hydro power activities can not record electricity generated.

5. Data of Blast furnace and steam energy conversion activities is not available. Need special questionnaire to obtain the data.
Energy consumption data is the biggest problem in the preparation of Indonesia Energy Balances.

1. There are only a few surveys ask about energy consumption in their questionnaire.

2. There are questions for energy consumption by manufacturing industry, however the consumption data recorded tends to be lower than the real use.

3. There is no question about energy consumed in commercial establishments annual surveys.

4. Data energy consumption by household as a result of socio economic survey, particularly for electricity tend to underestimate.

5. Biomass consumption by household small relatively, many biomass uses are not recorded by households because they are free taken from the surrounding environment.
To obtain data of electricity production by non power companies, BPS since 2011 conducted a Captive Power survey. Due to the limited number of samples, the company covered annually is limited to three service business activities. They will be surveyed alternately each year.

Taking into account the time series data for each commodity, if there is a big change in the series, then checking the raw data and justify from various related data sources.

Some commodities are unavailable in the current year, if it is believed that the commodity is still produced actually, then use the previous year’s data.
THANK YOU