MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Guide to using CSV files for deriving aggregate figures

Energy and Building Trends

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This document provides guidance on how to use the CSV files to produce the aggregate figures that are in the Excel webtables.

GENERAL NOTES

The Energy in New Zealand (ENZ) CSV files are structured for ease of reading and include multilevel groups that allow for categorisation of fuel types. They are constructed to align New Zealand's energy reporting with the international reporting of energy balances.

Each commodity type has top-level groups of supply, transformation and consumption. These figures are calculated by aggregating lower level totals, and treating incoming and outgoing flows to the system in different ways. These calculations form the basis of the balance tables featured in the ENZ publication.

- Electricity is an exception in that it has no supply dimension in the energy balance tables. Electricity generation is classified as "Energy Transformation", as it uses a given fuel or energy input (such as coal or gas) and transforms it into another form of energy — electricity.

Stock change refers to the net difference in the stores of each fuel, and is applicable for oil, gas and coal. These fuels are extracted from New Zealand reserves and can either be transformed, sold, or exported today, or stored for a later date.

- A *negative* stock change indicates there has been a net draw on the storage of that fuel during the period being observed.
- A *positive* stock change indicates a net addition to storage of that fuel.

SPECIFIC FILES

Coal

Table 2 - Annual Coal Supply, Transformation, & Consumption (tonnes)

- **Supply** = Production + Imports – Exports – Stock change
  - Production = Bituminous + Sub-bituminous + Lignite
    This data is also disaggregated by extraction method – i.e. underground or opencast
  - Imports = Bituminous + Sub-bituminous + Lignite
  - Exports = Bituminous + Sub-bituminous + Lignite
- **Transformation** = Electricity generation + Cogeneration + Other transformation + Production losses and own use
  - Electricity generation = Bituminous + Sub-bituminous + Lignite
  - Cogeneration = Bituminous + Sub-bituminous + Lignite
- **Consumption** = Agriculture/Forestry/Fishing + Industrial + Commercial + Residential + Transport

Table 4 - Annual Coal Supply, Transformation, & Consumption (PJ)

This is the same as Table 2, apart from production not being broken-down by extraction method.

Electricity

Table 2 - Annual Electricity Generation and Consumption (GWh)

- **Energy Transformation** = Net electricity generation – Lines Losses
  - Lines Losses = Sum of Distribution and Transmission losses
- **Demand** = Agriculture, Forestry and Fishing + Industrial + Commercial including Transport + Residential + Unallocated Onsite Generation + Unallocated Demand
  - Industrial = Mining + Food Processing + Wood, Pulp, Paper and Printing + Chemicals + Basic Metals + Other Minor Sectors
- **Method**: A variable used to filter the Demand data by method.
  - <u>Historically consistent method</u>: Previously, electricity sales data was collected on a March year basis. To produce calendar year data, MBIE used grid demand data from the Electricity Authority to disaggregate the March year data into quarterly before summing for calendar years. This series is produced to ensure that there is a historically consistent series back to 1974 that can be used for analysis and modelling purposes.
  - <u>New method</u>: A new quarterly collection of electricity sales data was introduced in 2014. The data that is collected under this quarterly survey is aggregated to calendar year. This data is available for 2014 onwards.

Table 4 - Annual Electricity Generation and Consumption (PJ)

This table presented the same as Table 2, with only difference being that it is expressed in PJ.

Gas

Annual_PJ, **Annual_Mm3**, **Annual_Bcf**

- **Supply** = Gross Production – (Gas reinjected + LPG extracted + Gas flared + Production Losses and own use)
    - Gross production = Sum of individual fields gross production
      (Kapuni, Cheal, Coppermoki, Rimu, Sidewinder, Surrey, TarikiAhuroa, Waihapa, Mangahewa, Ngatoro, Turangi, Kowhai, Tui, McKee, Maari, Kupe, Pohokura, Maui, Goldie, Kaimiro, Moturoa, Onaero, Puka, Radnor)
    - Net production = Sum of individual field's net production
- **Energy Transformation** = Electricity generation + Cogeneration + Other transformation + Production losses and own use
- **Consumption** = Agriculture/Forestry/Fishing + Industrial + Commercial + Residential + Transport
    - Industrial = Food processing + Wood, pulp, paper and printing + Chemicals + Basic metals + Other

Oil

Annual_PJ, **Annual_kt**, **Annual_mmbls**

- For all calculations, *Petrol* is the sum of regular and premium, and *Aviation fuels* are the sum of Jet A1, Avgas, and Lighting kerosene
- **Supply** = Indigenous production + From Other Sources + Imports – (Exports + Stock Change + Stock in transit + International transport)
    - Indigenous production = Crude, Condensate, Naphtha, Natural Gas Liquids + LPG
        - Crude, Condensate, Naphtha, Natural Gas Liquids: Sum of individual fields
          (Maui, Kapuni, Pohokura, Tui, Maari, Kupe, McKee, Mangahewa, Turangi, Kowhai, Ngatoro, Rimu, Cheal, TarikiAhuroa, Waihapa, , Coppermoki, Surrey, Others)
        - LPG: Sum of (Maui, Pohokura, Kapuni, Kupe, TAWN, Rimu/Kauri, Cheal, Injected to other gases)
    - Imports = Crude, Condensate and Naphtha + Blendstocks + LPG + Petrol + Diesel + Fuel oil + Aviation fuels + Other petroleum products
    - Exports: As per Imports
    - Stock change: As per imports
    - Stock in transit: As per imports
    - International transport = Petrol + Diesel + Fuel oil + Aviation Fuels + Other petroleum products
- **Transformation**:
    - Refinery Intake = Crude oil, condensate, naphtha + blendstocks + synthetic petrol

- o Refinery Output = Petrol + Diesel + Fuel oil + Aviation Fuels + Other petroleum products
  - o Electricity Generation = LPG + Diesel + Fuel Oil
  - o Non-energy use = No subordinate elements. Included here as it is part of transformation.
- **Consumption** = Agriculture/Forestry/Fishing + Industrial + Commercial & public services + Residential + Domestic transport

Prices

Annual_cents_per_unit (nominal), Annual_cents_per_unit (real)

- The data in the CSV for prices has been categorised as calendar year (YEDec) and financial year (YEMar).
- The aggregate rows for Petrol, Fuel Oil, Natural Gas, and Industrial Electricity costs are sales-weighted averages calculated from raw data received by MBIE. The totals have been included in the CSV file for completeness, however it is not possible to reproduce these weighted averages from the data supplied in the webtables.