Hackathon – Energy flows – Simplified version – Canada 2015

The CANSIM table 128-0016 contains various variables. For the sake of simplicity, we selected a set of variables that allow you to create a complete energy flow Sankey diagram. This document provides explanation on fuel types and demand/supply characteristics.

An Excel file (Energy\_flows\_128-0016\_mapped) has been sent to you with this document. You can create the energy flow diagram based on the sheet **CAN15\_Mapped**. Please note that the confidential values were set equal to 33[[1]](#footnote-1).

**Fuel types**

**Primary**

* **Crude oil =** *Crude oil*-*Production*
* **Coal =** *Total coal*-*Production*
* **Natural gas** = *Natural gas*-*Production*
* **NGLs** = *Gas plant natural gas liquids (NGL's)*-*Production*
* **Primary electricity, hydro and nuclear[[2]](#footnote-2)** *= Primary electricity, hydro and nuclear-Production*
* **Steam (excluded)**
* **Breakdown of *Total coal* (excluded)**

**Secondary**

* **Coal products** = Coal-*Transformed to coke and manufactured gases* = the sum of *Coke-Production* and *Coke oven gas*-*Production*
* **Refined petroleum products** = *Crude oil*-*Transformed to refined petroleum products* = *Total refined petroleum products-Production*
* **Secondary electricity, thermal** = The sum of *Electricity transformed by utilities and industry* comingfrom all thermal energy (Coke oven gas, Total refined petroleum products, Natural gas, Total coal)
* **Electricity generation** = The sum of *Primary electricity, hydro and nuclear-Availability* and *Secondary electricity, thermal-Availability*
* ***Steam* (excluded)**
* **Breakdown of *Total refined petroleum products* (excluded)**

**Supply and demand characteristics**

**Included**

* ***Production*, *Availability*, *Imports* and *Exports*** are the four main variables used in the representation of energy flows.
* ***Inter-product transfers***shows the transfer of similar products between different product forms; for example, still gas to natural gas, natural gas to produce hydrogen in petroleum refineries.
* ***Stock variation*** represents the difference between opening and closing inventories (closing inventories – opening inventories).
* ***Statistical difference*** = *Net supply* – *Producer consumption* – *Non-energy use* – *Energy use, final demand*
* ***Other adjustments*** includes cyclical billing variations, metering differences and losses in transportation. In the case of crude oil, includes sales to non-refineries. It is use to balance the demand and supply when there are confidential data. This variable is not applicable to electricity generation.
* ***Total transportation*, Total i*ndustrial*, *Residential*, *Commercial and other institutional*, *Public administration*, and *Agriculture*** are the 6 sectors of final consumption (breakdown of *Energy use, final demand*).
* ***Producer consumption*** represents the energy consumed by the producer himself.
* ***Non-energy use*** is, for example, the refined petroleum products used in the confection of plastic toys.

**Excluded**

* ***Stock change, utilities and industry*** is no longer used in RESD and you should see no data under this category.
* ***Inter-regional transfers*** are excluded at the Canadian level.
* ***Net supply*** is the amount available after the amounts used in transformation processes are subtracted. *Net supply = Availability* – *Stock change, utility and industry* – *Transformed to electricity by utilities* – *Transformed to electricity by industry* – *Transformed to coke and manufactured gases* – *Transformed to refined products* – *Transformed to steam generation*.
* ***Energy use, final demand***is excluded since we use its breakdown by sector (*Total transportation*, *Total industrial*, *Residential*, *Commercial and other institutional*, *Public administration*, *Agriculture*).
* The breakdowns of the 6 sectors of the final demand are excluded, because it would create too many links for one diagram. You could create a second Sankey graph with those breakdowns like this example:

<https://www.iea.org/Sankey/#?c=Canada&s=Final%20consumption>

1. You are free to impute confidential values with the method of your choice. [↑](#footnote-ref-1)
2. If you are looking to split the hydraulic and nuclear electricity generation, you would need to look at the CANSIM table 127-0007. This table also contains information on other types of electricity (wind, solar,…) that can be incorporated in your energy flow diagram. [↑](#footnote-ref-2)