Data Analytics | Data Explanation

Full Forms:

* GW = gigawatts
* TWh = terawatt-hours
* MW = megawatts

IMP Pointers:

* Energy and Electricity are two separate things.
  + Primary energy
    - Primary energy is the energy available as resources – such as the fuels burnt in power plants – before it has been transformed. This relates to the coal before it has been burned, the uranium, or the barrels of oil.
    - Primary energy includes energy that the end user needs, in the form of electricity, transport and heating, plus inefficiencies and energy that is lost when raw resources are transformed into a usable form.
* "Installed capacity"
  + refers to the maximum amount of electricity that can be generated by a power plant or a group of power plants under specific conditions. It is typically measured in megawatts (MW) or gigawatts (GW). This capacity represents the total potential output of the renewable energy source (like wind, solar, or hydro) if it were to operate at full capacity continuously.
  + In simpler terms, installed capacity is like the horsepower of a car's engine—it tells you the maximum power the engine can produce, but not necessarily how much power it actually produces all the time. The actual output can vary depending on factors like weather conditions, maintenance, and efficiency of the technology.

Data/1-country-renewable-production/**modern-renewable-energy-(consumption)**.csv

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Entity | Code | Year | Other renewables (including geothermal and biomass) electricity generation - TWh | Solar generation - TWh | Wind generation - TWh | Hydro generation – TWh |
|  |  |  |  |  |  |  |

Data/1-country-renewable-production/**modern-renewable-production**.csv

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Entity | Code | Year | Electricity from wind - TWh | Electricity from hydro - TWh | Electricity from solar - TWh | Other renewables including bioenergy - TWh |
|  |  |  |  |  |  |  |

Data/1-country-renewable-production/**renewable-share-energy**.csv

Title: Share of primary energy consumption from renewable sources, 2023

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Code | Year | Renewables (% equivalent primary energy) |
|  |  |  |  |

Data/1-country-renewable-production/**share-electricity-renewables**.csv

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Code | Year | Renewables - % electricity |
|  |  |  |  |

Data/1-country-renewable-production/**hydropower-consumption**.csv

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Code | Year | Electricity from hydro - TWh |
|  |  |  |  |

Data/1-country-renewable-production/**hydro-share-energy**.csv

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Code | Year | Hydro (% equivalent primary energy) |
|  |  |  |  |

Data/1-country-renewable-production/**share-electricity-hydro**.csv

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Code | Year | Hydro - % electricity |
|  |  |  |  |

Data/1-country-renewable-production/**installed-solar-pv-capacity**.csv

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Code | Year | Solar energy capacity - GW |
|  |  |  |  |

Data/1-country-renewable-production/**share-electricity-solar**.csv

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Code | Year | Solar - % electricity |
|  |  |  |  |

Data/1-country-renewable-production/**solar-energy-consumption**.csv

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Code | Year | Electricity from solar - TWh |
|  |  |  |  |

Data/1-country-renewable-production/**solar-share-energy**.csv

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Code | Year | Solar (% equivalent primary energy) |
|  |  |  |  |

Data/1-country-renewable-production/**share-electricity-wind**.csv

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Code | Year | Wind - % electricity |
|  |  |  |  |

Data/1-country-renewable-production/**wind-generation**.csv

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Code | Year | Electricity from wind - TWh |
|  |  |  |  |

Data/1-country-renewable-production/**wind-share-energy**.csv

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Code | Year | Wind (% equivalent primary energy) |
|  |  |  |  |

Data/1-country-renewable-production/**cumulative-wind-gigawatts**.csv

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Code | Year | Wind energy capacity - GW |
|  |  |  |  |

Data/1-country-renewable-production/**installed-geothermal-capacity**.csv

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Code | Year | Geothermal energy capacity - MW |
|  |  |  |  |

Data/1-country-renewable-production/**biofuel-production**.csv

|  |  |  |  |
| --- | --- | --- | --- |
| Entity | Code | Year | Biofuels Production - TWh |
|  |  |  |  |

Data/2-energy-production-and-consumption/electricity-generation.csv

The data is in time series format

* Entity: shows the countries and continents
* Code: code for countries not included for continents
* Year: the year the data was recorded
* Annual change in primary energy consumption: percentage change in primary energy.

Data/2-energy-production-and-consumption/electricity-generation.csv

The data is in time series format

* Entity: includes countries, regions and even associations like ASEAN(Ember) which are 11 south east asian countries.
* Code: code for countries not included for continents
* Year: the year the data was recorded
* Electricity generation - TWh: tells electricity generation in one trillion watt hours

Data/2-energy-production-and-consumption/global-energy-substitution.csv

* Entity: only contains the world (as 1 place)
* Code: code for the world which is OWID\_WRL

"Substituted energy" refers to an adjustment applied to energy sources like renewables and nuclear to estimate what their consumption would look like if they were as inefficient as fossil fuels.

The rest of the data calculates different types of energy produced

* Biofuels (TWh, substituted energy)
* Solar (TWh, substituted energy)
* Wind (TWh, substituted energy)
* Hydropower (TWh, substituted energy)
* Nuclear (TWh, substituted energy
* Gas (TWh, substituted energy)
* Oil (TWh, substituted energy)
* Coal (TWh, substituted energy)
* Traditional biomass (TWh, substituted energy)
* Other renewables (TWh, substituted energy)

Data/2-energy-production-and-consumption/per-capita-electricity-generation.csv

The data is in time series format

* Entity: shows the countries and continents
* Code: code for countries not included for continents
* Year: the year the data was recorded
* Per capita electricity - kWh: energy consumption per person

Data/2-energy-production-and-consumption/per-capita-energy-use.csv

The data is in time series format

* Entity: shows the countries and continents
* Code: code for countries not included for continents
* Year: the year the data was recorded
* Primary energy consumption per capita (kWh/person): calculates the average total energy consumed per person, including all forms of energy (fossil fuels, nuclear, renewables, etc.) before any conversion losses are considered.

Data/2-energy-production-and-consumption/primary-energy-cons.csv

The data is in time series format

* Entity: shows the countries and continents
* Code: code for countries not included for continents
* Year: the year the data was recorded
* Primary energy consumption (TWh): calculates the average total energy consumed per entity, including all forms of energy (fossil fuels, nuclear, renewables, etc.) before any conversion losses are considered.

Data/3-electricity-production-from-renewables/share-electricity-renewables.csv

The data is in time series format

* Entity: includes countries, regions and even associations like ASEAN(Ember) which are 11 south east asian countries.
* Code: code for countries not included for continents
* Year: the year the data was recorded
* Renewables - % electricity: renewable energy as a percentage of total electricity.