PLANETE ENERGIES

Transcript Vidéo – WHAT ARE THE MAIN UNITS OF MEASUREMENT IN THE ENERGY SECTOR?

What Are the Main Units of Measurement in the Energy Sector?

WATT = International unit used to measure the POWER of a device or system.

1,000 watts = 1 kilowatt (kW)

1,000,000 watts/1 million watts = 1 megawatt (MW)

1,000,000,000 watts/1 billion watts = 1 gigawatt (GW)

1,000,000,000,000 watts/1 trillion watts = 1 terawatt (TW)

Watt electrical (We) = Unit used to measure power provided as electricity.

Watt thermal (Wth) = Unit used to measure power provided as heat.

Watt-peak (Wp) = Unit used to measure maximum power capacity.

Power should not be confused with THE AMOUNT OF ENERGY CONSUMED OR PRODUCED by a device or system.

To calculate energy consumed: E = P x t

E: Energy consumed/P: Power/t: Time used

Example for an electric oven: Power = 3,000 watts (W)/Average time used per week = 1 hour 30 minutes

E = 3,000 W x 1.5 h/Energy in watt-hours consumed in one week = 4,500 Wh

Or ≈ 200 kWh/year (taking school holidays into account)

To MEASURE THE ENERGY CONSUMED OR PRODUCED, we need tiny figures. Example: 1 joule = energy consumed by a 1-watt system in 1 second. 1 joule = 1 Wh divided by 3,600.

Calorie (cal) = Quantity of heat required to raise the temperature of 1 gram of water by 1 degree Celsius. Often used in nutrition. Energy content of food = Amount of heat released when burned.

Or huge figures!

Ton of oil equivalent (toe) = Amount of energy released by burning 1 metric ton of crude oil./1 toe = 11,630 kWh

Ton of coal equivalent (tce) = Amount of energy released by burning 1 metric ton of coal./1 tce = 0.7 toe

Summary:

- The watt is an international unit used to measure the power of a device or system.

- To measure the energy consumed or produced by a device or system, the most common unit is watt-hours.

- But other less commonly used units exist, such as joules and calories