PRIMARY ENERGY WEIGHTING FACTORS

For a given energy carrier, the primary energy weighting factor is the primary energy divided by delivered energy. The primary energy, also known as source energy, means energy which has not undergone any conversion or transformation process. Primary energy is the sum of a non-renewable and renewable part. The renewable part comes from non-fossil sources. The non-renewable primary energy from electricity consumption is needed for the calculations, and it depends on each country energy mix. They are calculated using standard weighting factors (Table 1) and knowing the energy mix of each country.

PRIMARY ENERGY CONVERSION FACTORS FOR ELECTRICITY

Table 1. Non-renewable primary and total primary energy weighting factors for electricity production

Energy source	Non-renewable primary energy weighting factor[1]	Total primary energy weighting factor[1]
PV	0	1
Wind	0	1
Hydro	0	1
Nuclear	3.03	3.03
Coal	2.79	2.79
Combined cycle	1.97	1.97

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[1] CEN, EN 15459 Energy performance of buildings - Economic evaluation procedure for energy systems in buildings, 2007.

PRIMARY ENERGY CONVERSION FACTORS FOR ON-SITE ENERGY SOURCES

The non-renewable and the total primary energy weighting factor used for the different energy sources used on-site: PV, wind power, gas, biogas, biomass and district cooling are shown in Table 2

Table 2. Non-renewable primary and total primary energy conversion factors for on-site energy sources

Energy source	Non-renewable primary energy weighting factor[1]	Total primary energy weighting factor[1]
PV	0	1
Wind	0	1
Gas	1.1	1.1
Biogas	0.5	1.5
Biomass	0.2	1
District cooling[2]	0.6	1.7
District heating[3]	0.7	2

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[1] CEN, EN 15459 Energy performance of buildings - Economic evaluation procedure for energy systems in buildings, 2007.

[2] Weighting factors calculated assuming a cooling production base on a Biogas CHP plant with an electrical and thermal efficiency of 60% and 32%, respectively. The distribution losses assumed are 10% and the COP of the absorption chiller is 1.2.

[3] Weighting factors calculated assuming a heat production base on a Biogas CHP plant with an electrical and thermal efficiency of 60% and 32%, respectively. The distribution losses assumed are 10%.