**Residential Buildings**

Annual space-heating demand is calculated using the heat loss coefficient method (ref: <https://www.sciencedirect.com/science/article/pii/S0378778825011016?via%3Dihub>). A regional correction factor is applied only in regions where measured data are available. The method relies on individual building properties from the Federal Register of Buildings and Dwellings (RBD) (Federal Statistical Office, 2025), the geometry of a reference building and thermal transmittance (U-value) assumptions by building archetype (ref: <https://www.mdpi.com/2075-5309/13/1/40?utm_campaign=releaseissue_buildingsutm_medium=emailutm_source=releaseissueutm_term=doilink167>) and weather data from the Meteostat Python library. The resulting annual demand per building is then temporally distributed using normalized heating-degree-hour (HDH) profiles (ref <https://www.sciencedirect.com/science/article/pii/S0378778825011016?via%3Dihub>). Aggregating the hourly building-level series yields district- or municipality-level demand.

**Industry and Services**

The space heating demand for industry and services is computed with the standard factor method (ref: <https://www.sciencedirect.com/science/article/pii/S0378778825011016?via%3Dihub>), which is based on the framework of the Sonnendach.ch project (ref: Solarkataster – analog zum PV Potential: <https://www.bfe.admin.ch/bfe/de/home/versorgung/digitalisierung-und-geoinformation/geoinformation/geodaten/solar/solarenergie-eignung-hausdach.html/>). The calculation uses using space heating energy performance indicator by building archetype, building attributes from the RBD (Federal Statistical Office, 2025), and mean annual ambient temperature from the Meteostat Python library. As with residential buildings, a regional correction factor is applied only where measured data are available, annual demand is downscaled to hourly values using normalized HDH profiles (ref: <https://www.sciencedirect.com/science/article/pii/S0378778825011016?via%3Dihub>), and the hourly building demands are aggregated to district- or municipality-level totals.

**Domestic Hot Water**

At the municipality level, the population is distributed across the residential floor area to estimate the number of residents per building. Hot-water demand is then calculated by multiplying a standard value of 850 kWh per person per year by the number of residents per building. The 850 kWh corresponds to an average hot-water use of 40 L per person per day (ref: SIA 385-2; <https://www.fws.ch/wp-content/uploads/2018/10/Market_Overview_Country_Report_Switzerland_Annex_46_DHWHP_Task1.pdf> ​) and an outlet temperature of 60 °C.

Federal Statistical Office (FSO). (2025). *Federal register of buildings and dwellings (RBD)*. <https://www.bfs.admin.ch/bfs/en/home/registers/federal-register-buildings-dwellings.html>