

What can I choose in the calculator?

The calculator lets you fix a value to the thermal efficiency of new and existing buildings in Switzerland in the selected year (2035 or 2050).

Building Efficiency



Solar Decathlon 2009

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IMPACT - What is the impact of increasing the Building Efficiency?

In Switzerland, increasing the thermal efficiency of new and existing buildings will have the following

impacts:

Energy system

😊 Reduces final energy demand.

😊 Reduces final energy demand.

Reduces total heating oil and natural gas consumption.

😊 Reduces final energy demand.

Likely to increase energy independence and energy security by reducing fossil imports.

Environment & Climate

😊 Reduces final energy demand.

Very likely to reduce global CO2 emissions.

😊 Reduces final energy demand.

Reduces emissions of harmful pollutants in built areas.

😞 Likely to generate additional deposited waste from building envelope refurbishment.

Society & Economy

😊 Building efficiency measures for new buildings are often some of the most cost effective options to reduce energy demand.

😞 However, the largest energy demand reduction opportunity resides in refurbishments which are typically much less cost effective.

😊 May improve balance of payments by reducing oil and natural gas imports

😊 Reduces Confederation income from the tax on mineral oil under the current taxation system.

😞 Likely to require behavioural change as well as building refurbishment to be effective.

GLOBAL MARKET - What is the global potential for increasing Building Efficiency?

Building energy efficiency measures are expected to contribute about 24% of the total global final energy consumption reduction between now and 2035 even though buildings represent about 32% of the total final energy consumption. Furthermore, this is considered to represent only about 20% of the energy demand reduction potential if efficiency measures were applied to the whole building stock.[2]

DEFINITION / CONSTRAINTS

DEFINITION - What does the Building Efficiency indicator represent?

The indicator covers passive measures that influence the heat demand of new and existing buildings; it does not concern the technologies supplying the heat.

Typical measures would include wall, floor and loft insulation, improved window glazing, design measures focused on solar gain, as well as improved building controls.

CONSTRAINTS - What are the key barriers impeding the increase of Building Efficiency?

- Improving the energy efficiency of the building stock requires refurbishment of existing buildings which is physically disruptive.
- Buildings often suffer from split incentives where the stakeholder responsible for capital investments (owner) is different from the stakeholder in charge of operating expenses (tenant).
- Despite potential mid-/long-term economic returns, private building owners are typically very sensitive to initial capital costs, especially if their period of ownership may not be long enough

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ASSUMPTIONS - WHAT ARE THE ASSUMPTIONS CONSIDERED IN THE CALCULATOR?

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#content.text #wysiwyg, .redactor_box #wysiwyg { margin-bottom: 80px; } hr { background: none;
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The annual average heating demand for 2035 and 2050 is calculated assuming several parameters. The main assumptions are:

- [Rate of refurbishment for buildings depending on their age.](#)
- [Efficiency performance for new buildings depending on their construction year.](#)
- [Efficiency performance for refurbished buildings depending on their refurbishment year.](#)

VALUE RANGE - WHAT RANGE OF VALUES CAN I CHOOSE?

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The expected future value ranges for the average [energy performance](#) of the Swiss building stock are:

- 2035 → 41 - 57 kWh/m²
- 2050 → 21 - 43 kWh/m²

In 2011 the Swiss building stock consumed an average of 92 kWh/m² ^[1].

REFERENCES

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[1] [PROGNOS 2012, Die Energieperspektiven für die Schweiz bis 2050, Energienachfrage und Elektrizitätsangebot in der Schweiz 2000–2050.](#)

[2] IEA 2012, World Energy Outlook 2012, New Policies Scenario. Note that this figure includes all building energy demand and not just heating.

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