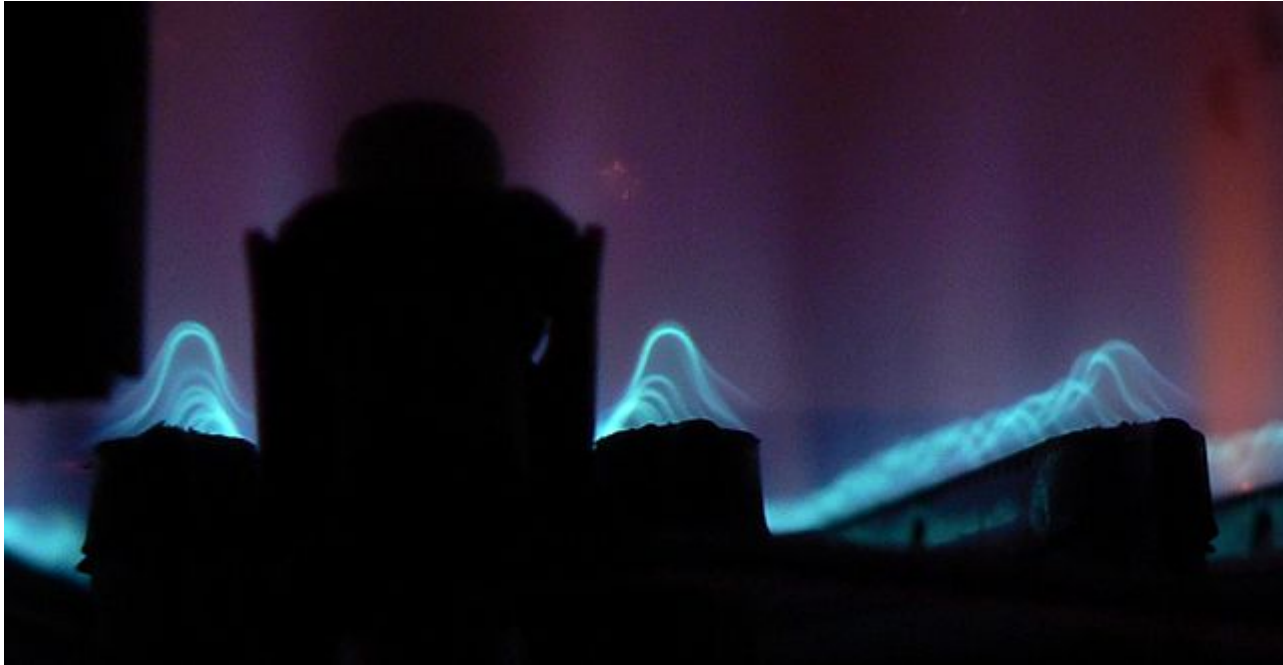


## What can I choose in the calculator?

The calculator lets you choose the share of total decentralised heat demand covered by Decentralised Boilers in Switzerland in the selected year (2035 or 2050).

## Decentralised Boilers



## Contents

- Impact
- Global markets
- Definition
- Constraints
- Assumptions
- References

## IMPACT - What are the impacts of Decentralised Boilers?

In Switzerland, increasing the share of Decentralised Boilers will have the following impacts:

### Energy system

- 😊 Will not impact final energy demand.
- 😊 Decrease total electricity consumption.
- 😞 Likely to increase total natural gas and heating oil consumption.
- 😞 May decrease the share of renewable energy sources in the energy mix unless wood boilers are the primary choice.

😞 Likely to decrease energy independence and energy security by requiring more fossil imports.

## Environment & Climate

😞 Likely to increase CO2 emissions if natural gas or heating oil boilers are the primary choice.

😊 Could decrease CO2 emissions if wood boilers are the primary choice.

😞 May increase deposited waste if heating oil systems are replaced by natural gas or wood boilers leading to oil storage tanks being removed.

## Society & Economy

😊 May decrease the cost of the energy transition if natural gas boilers are the primary choice.

😞 May increase the cost of the energy transition if heating oil or wood boilers are the primary choice.

😊 Could support the Swiss forestry sector and forest stewardship if wood boilers play a significant role.

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

# GLOBAL MARKET - What is the global market for Decentralised Boilers?

The global market for heating, which includes both boilers for heating and for domestic hot water, was estimated to be worth about US\$37 billion in 2012. About half of this, or US\$19 billion, was in Europe.[1]

## DEFINITION / CONSTRAINTS

### DEFINITION - What are Decentralised Boilers?

Decentralised Boilers burn fuels such as natural gas, heating oil or wood and generate hot water. They can be used for domestic hot water and for space heating. Boilers can also be used to generate hot air for space heating but this technology is not very widespread in Switzerland.

Current condensing boilers operating on natural gas or heating oil typically capture about 90-95% of the energy content of the fuel. Both non-condensing and condensing wood-fired boilers are available with typical energy efficiencies in the range of 80-90% and 90-95% respectively.

### CONSTRAINTS - What are the key barriers facing Decentralised Boilers deployment?

- Switch of energy source likely to require change in consumer habits and therefore outreach and

education.

- Installation of wet heating system is disruptive to building fabric.
- Switch to wood boilers requires storage space for fuel and footprint of boiler slightly larger than the one of oil or gas boilers.
- Switch to wood boilers may require elimination of existing heating oil storage tanks.
- Cheapest option (natural gas) does not bring significant environmental benefits.

## ASSUMPTIONS - What are the assumptions considered in the calculator?

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{ color: #fe6b00; margin-bottom: 10px; font-size: 14px; line-height: 17px; } #wrapper #content
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```
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#newsWrapper .news p { font-size: 16px; margin-bottom: 20px; } #wrapper #content
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div.page { overflow: auto; }
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The model contain three types of centralized boilers: gas boiler, oil boiler and wood boiler.

Next tables contain the assumptions that have been introduced in the Decentralized boiler model of the calculator.

Efficiency [%]		
	2035	2050
<b>Gas</b>	102	105
<b>Oil</b>	100	102
<b>Wood</b>	85	90

Emissions		
		2011-2050
<b>CO<sub>2</sub>-eq. emissions [kgCO<sub>2</sub>-eq./MJ<sub>fuel</sub>]</b>	<b>Gas</b>	0.0733
	<b>Oil</b>	0.0893
	<b>Wood</b>	0.00452
<b>Deposited waste [UBP/MJ<sub>fuel</sub>]</b>	<b>Gas</b>	0.614
	<b>Oil</b>	1.41
	<b>Wood</b>	1.18

Cost		
		2011-2050
<b>Specific investment [CHF<sub>2010</sub>/kW<sub>th</sub>]</b>	<b>Gas</b>	178
	<b>Oil</b>	547
	<b>Wood</b>	933

## REFERENCES

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font-size: 26px; text-transform: uppercase; color: #1d1d1b; margin-bottom: 20px; } /* TEXTE PAGES
ET ADMION */ #content.text, .redactor_box { font-family: Arial, Helvetica, Sans Serif; font-size: 16px;
color: #333333; padding: 20px; } #content.text body, .redactor_box body { background: none; }
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[1] [BSRIA, Trends in world traditional and renewable heating markets, MC Expocomfort 2014](#)

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