

Switzerland's building programme

A photograph of a two-story house with a red-tiled roof and a man helping a child with a tricycle. The house has a white facade with green shutters. A man in a blue shirt is crouching on the sidewalk, adjusting a yellow and blue tricycle for a young child sitting on the curb. The scene is set in a residential area with other houses visible in the background under a blue sky with light clouds.

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Background

- Over 40% of Switzerland's energy consumption and CO₂-emissions are due to the building sector
- 1.5m buildings are in need of refurbishment (in absolute numbers: 3.8m) but only 1% of the buildings are energetically re-furbished yearly
- Constraints: investment costs, administrative costs, lack of knowledge etc.
 - ⇒ High potential for energy efficiency and CO₂ reductions!
- Refurbishment programmes of the cantons
- 2005 – 2009: Swiss Climate Cent Foundation first building programme (175 Mio. CHF subsidies)



Politics





Politics



**Bundesgesetz
über die Reduktion der CO₂-Emissionen
(CO₂-Gesetz)
(Anreize für energetisch wirksame Massnahmen im Ge...**

Änderung vom 12. Juni 2009

*Die Bundesversammlung der Schweizerischen Eidgenossenschaft
nach Einsicht in den Bericht der Kommission für Umwelt, Raum
und Energie des Nationalrates vom 26. Januar 2009¹
und in die Stellungnahme des Bundesrates vom 25. Februar 2009
beschliesst:*

I

Das CO₂-Gesetz vom 8. Oktober 1999³ wird wie folgt geändert:

Art. 10 Abs. 1^{bis}, 1^{ter}, 1^{quater} und 2

¹bis Ein Drittel des Abgabeertrags, höchstens aber 200 Millionen
wird für Massnahmen zur Verminderung der CO₂-Emissionen



01.01.2008

Introduction
of the CO₂-tax
on heating
fuels

Dez. 2008

Investment of
100 Mio. CHF in
the building
sector

12.6.2009

Revision of
the CO₂-law

5.3.2010

Implementation
of the revised
CO₂-law and
the
ordonnance

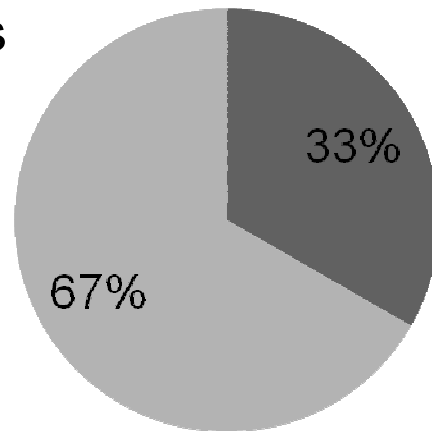


Organisation

- Federalism: constitution gives the cantons the main responsibility for building regulations
- Building renovation programme = divided into two parts:

A

Refurbishment
of building shells
(Agreement)



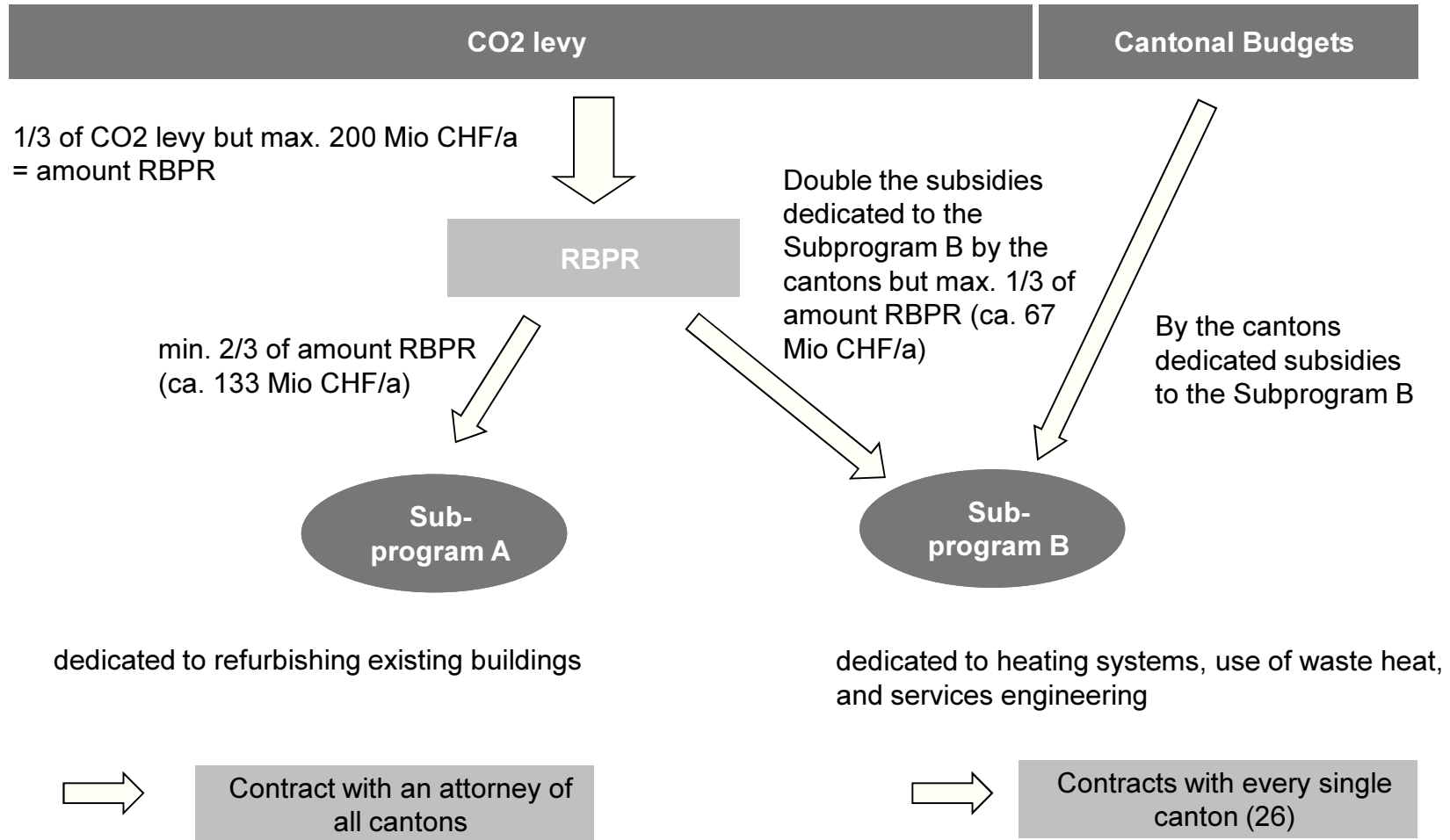
B

Renewable energies,
waste heat recovery
building services engineering
(additional)

200 Mio. CHF / year
starting from 2014, 300 Mio. CHF / year possible



Financing



RBPR = Refurbishment Building Program



Key data

- Duration of the programme: min. 10 years
- Common programme of the Confederation and the cantons
- Funds: 200 Mio. CHF / year + cantonal budgets (~100 Mio. CHF), starting from 2014...
- CO₂-reduction 2020: 1.5 - 2,2 Mio. t CO₂
- Triggering of yearly investments of ~ 1 Mia. CHF (~ 10'000 refurbishments)

Das Gebäudeprogramm 





Requirements

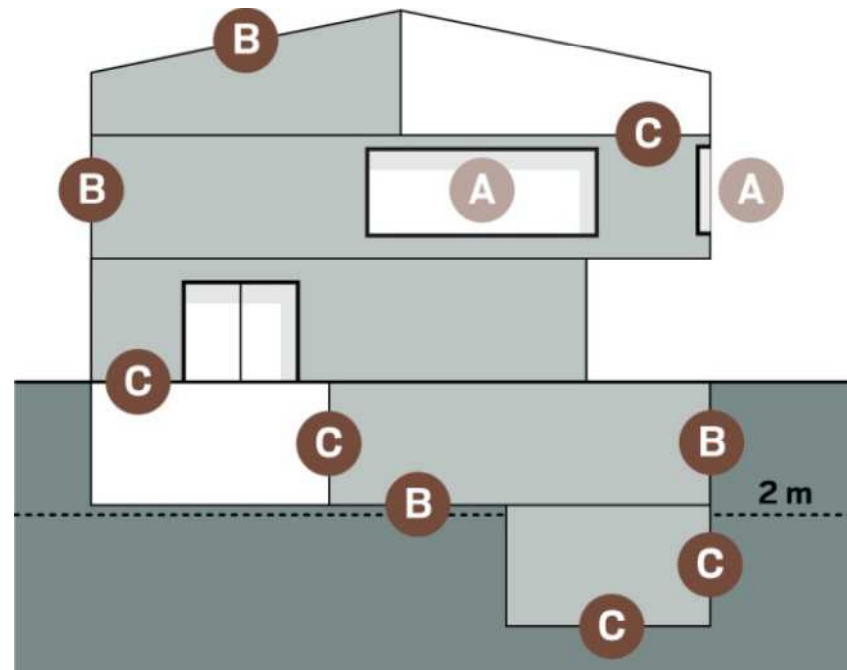
- Buildings have to be
 - built before 2000
 - heated
- Minimum standards of insulation materials and technologies have to be fulfilled (U-Values; fixed subsidy per m²)
- Application for subsidies has to be made before the start of construction
- The subsidy per application has to be at least 3'000 CHF
- Remuneration only after handing in confirmation statements from building companies



Subsidies

- Roofs,walls, floors: 15% of the investment cost are covered
- Windows: 5% of the investment costs are covered

⇒ Additional savings through lower energy costs!





Subsidies

Measure	Requirements	Subsidies
A: replacement of the windows	U-value glass ≤ 0.7 W /m ² K	30 CHF / m ²
B: walls, roof, floors Insulation towards outside	U-value ≤ 0.20 W /m ² K	30 CHF / m ²
C: walls, roof, floors Insulation towards unheated rooms	U-value ≤ 0.25 W /m ² K	10 CHF / m ²

U-value = loss of heat of a building element at a difference in temperature of 1 K



Experiences 2010-2012 (3 Years)

- More than 500 Mio. CHF paid to house owner
- Around 1.5 TWh of energy saved per year / 40 TWh of energy saved over lifetime of the measures
- Around 300'000 tCO₂ saved per year/ 8 Mio. tCO₂ saved over the lifetime of the measures



Overwhelming demand for subsidies caused already two adaptations of the programme (increase of efficiency)



For further information

www.dasgebaeudeprogramm.ch (d, f, it)

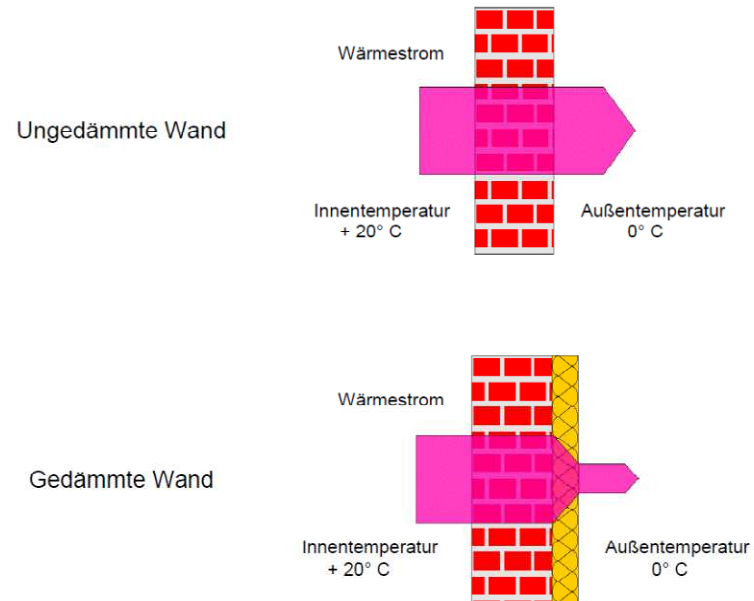




Definition U-Wert (Wärmedurchgangskoeffizient)

Der U - Wert ist der Maßstab der Wärmedämmung,
und ein Faktor zur Berechnung der Wärmemenge, welche durch einen Bauteil verloren
geht.

Einheit: Watt je Quadratmeter und Kelvin ($W / m^2 K$)



Je kleiner der U – Wert, umso besser die Wärmedämmung und um so geringer die Heizkosten

Je kleiner der U - Wert, desto größer der Spar-Wert !!