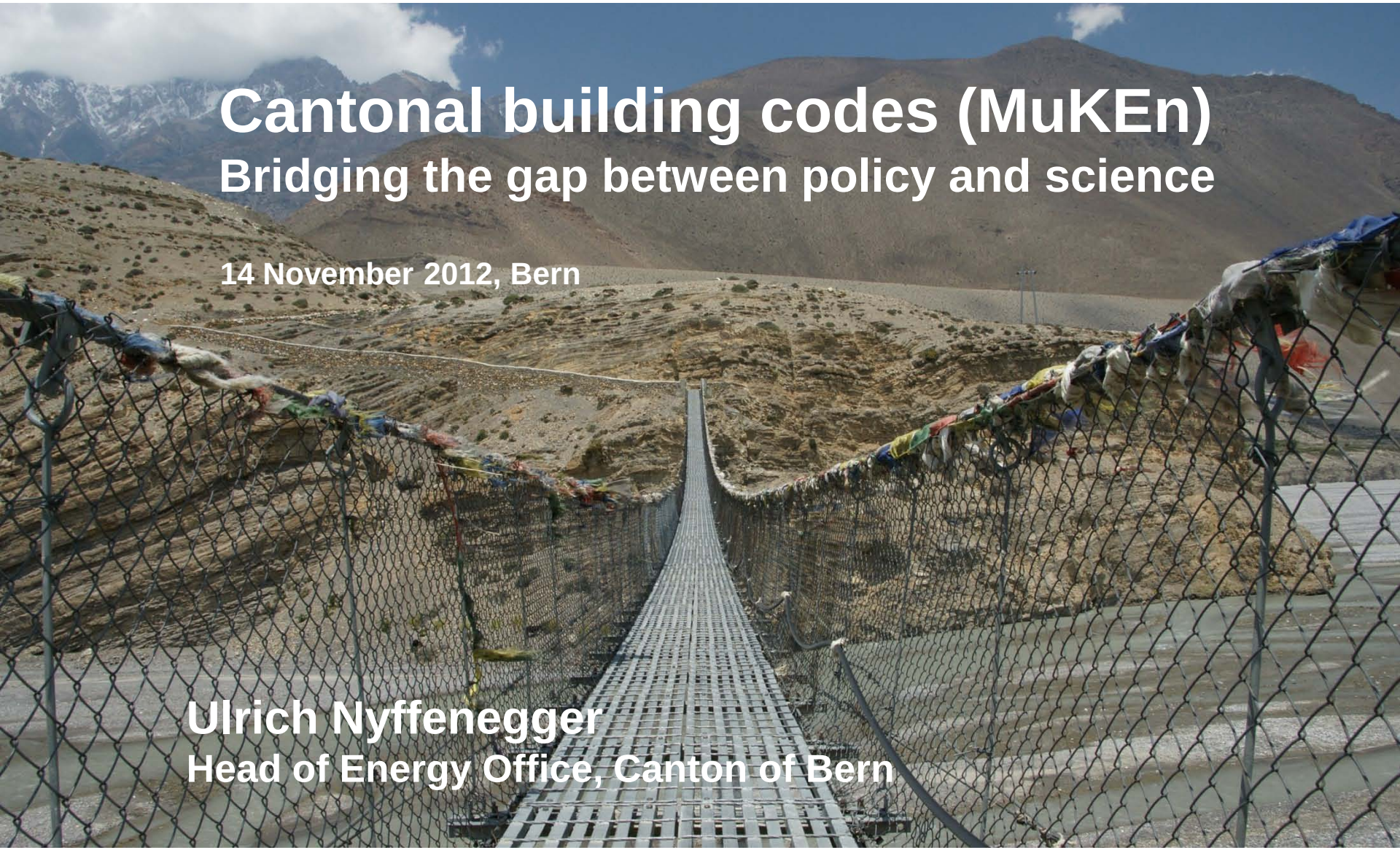


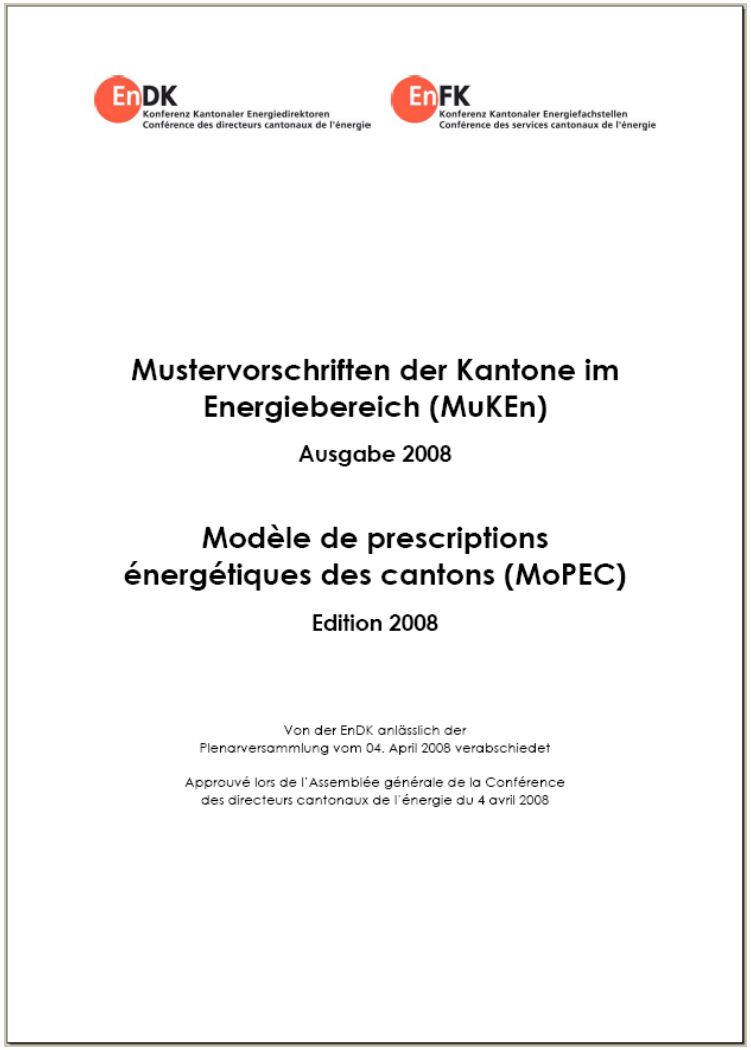
Cantonal building codes (MuKEn)

Bridging the gap between policy and science

14 November 2012, Bern

Ulrich Nyffenegger
Head of Energy Office, Canton of Bern

Conference of Energy Directors: MuKEn



Musterverordnung der
Kantone im
Energiebereich

(model energy code for the cantons)

Ulrich Nyffenegger, BVE / Amt für Umweltkoordination und Energie

Harmonization goals

Uniform regulations

- ✓ Simplification and cost savings for builders and professionals working in several cantons
- ✓ Standardized construction products

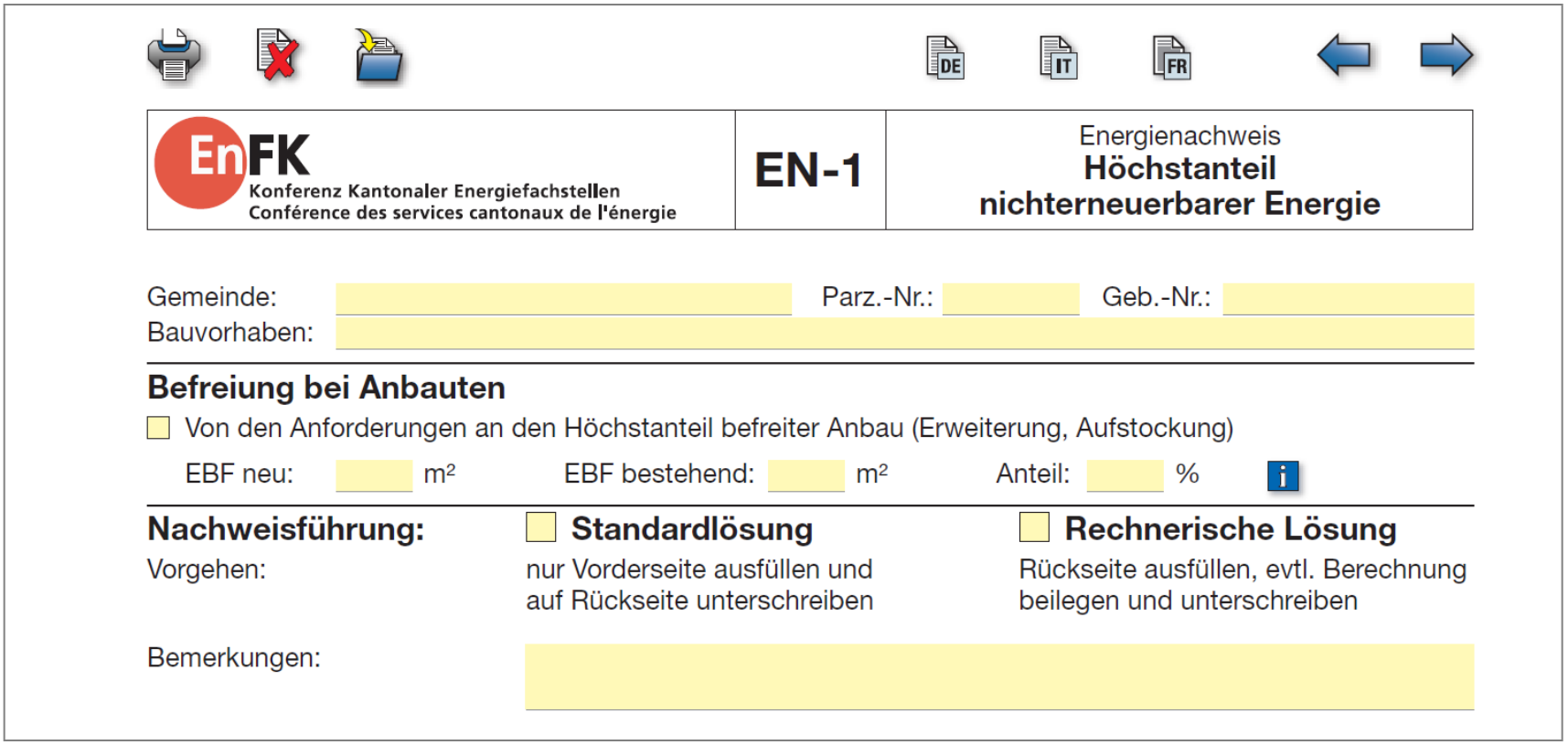
User-friendly regulations

- ✓ Energy-relevant regulations
- ✓ Practical to implement

Shared means of implementation

- ✓ Cost savings in implementation files and forms
- ✓ More efficient implementation

Forms in 3 languages for 26 cantons



EnFK Konferenz Kantonaler Energiefachstellen
Conférence des services cantonaux de l'énergie

EN-1

Energienachweis
Höchstanteil nichterneuerbarer Energie

Gemeinde: Parz.-Nr.: Geb.-Nr.:
Bauvorhaben:

Befreiung bei Anbauten

☐ Von den Anforderungen an den Höchstanteil befreiter Anbau (Erweiterung, Aufstockung)

EBF neu: m² EBF bestehend: m² Anteil: %

Nachweisführung:

Vorgehen:

☐ **Standardlösung**
nur Vorderseite ausfüllen und auf Rückseite unterschreiben

☐ **Rechnerische Lösung**
Rückseite ausfüllen, evtl. Berechnung beilegen und unterschreiben

Bemerkungen:

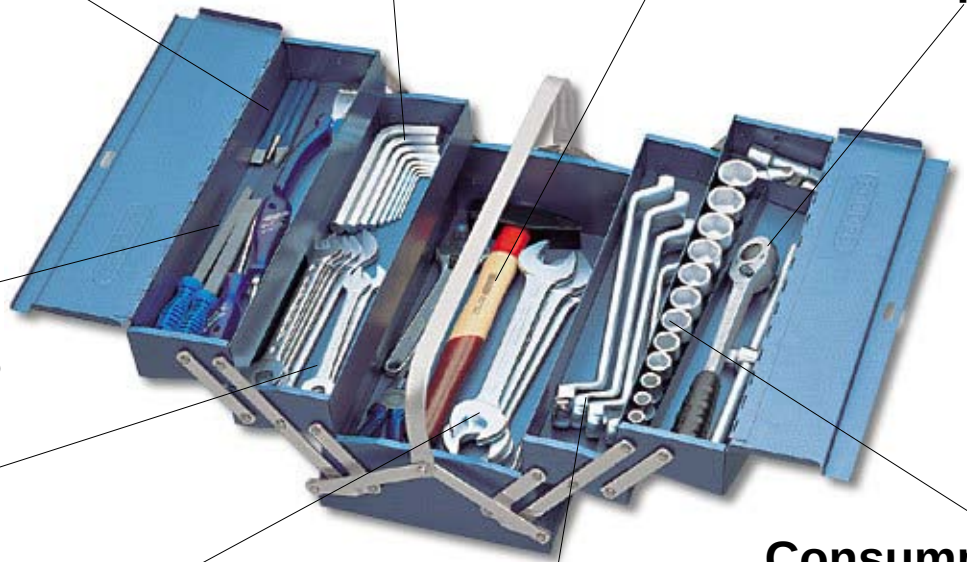
Model code modules

Basic module for buildings

Electrical energy efficiency

Building energy certificate

Open-air heating/ Open-air pools



Vacation homes

Implementation confirmation

Energy planning

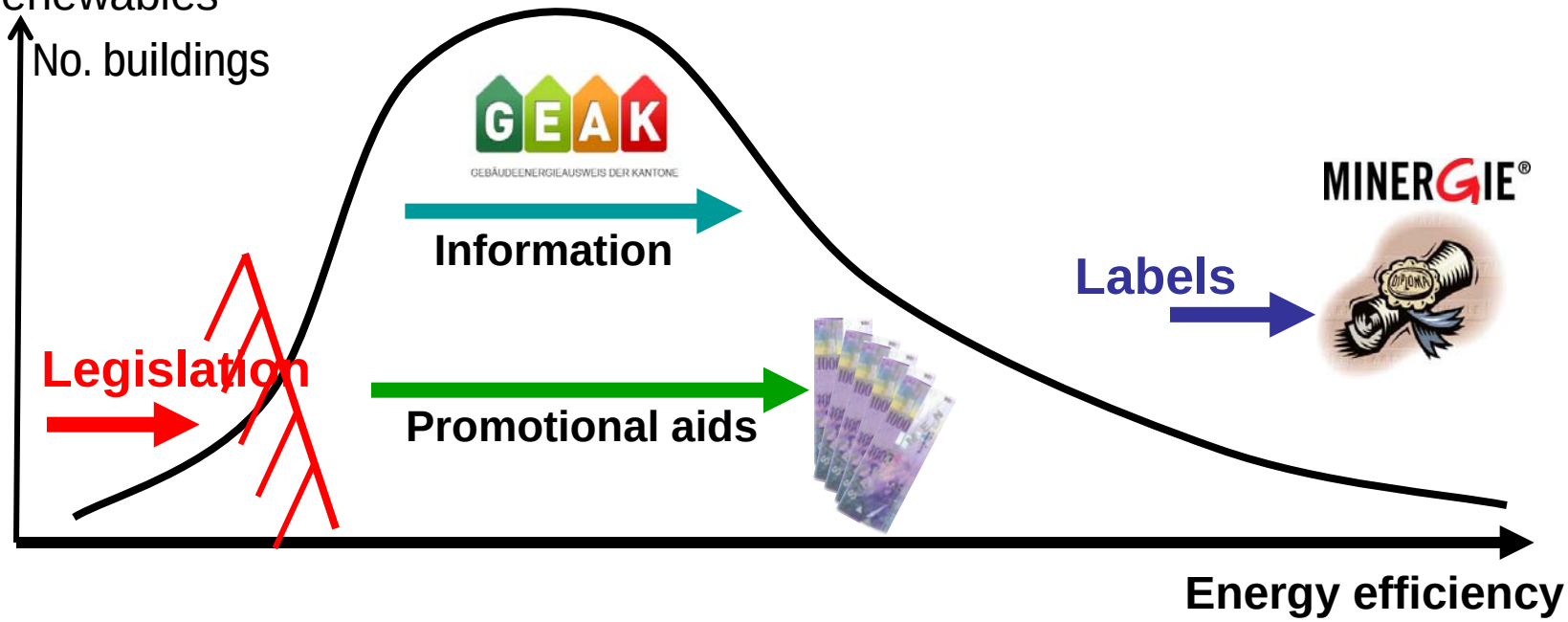
Consumption-based heating cost accounting and invoicing

Use / heat insulation

Push-and-pull strategy for building stock

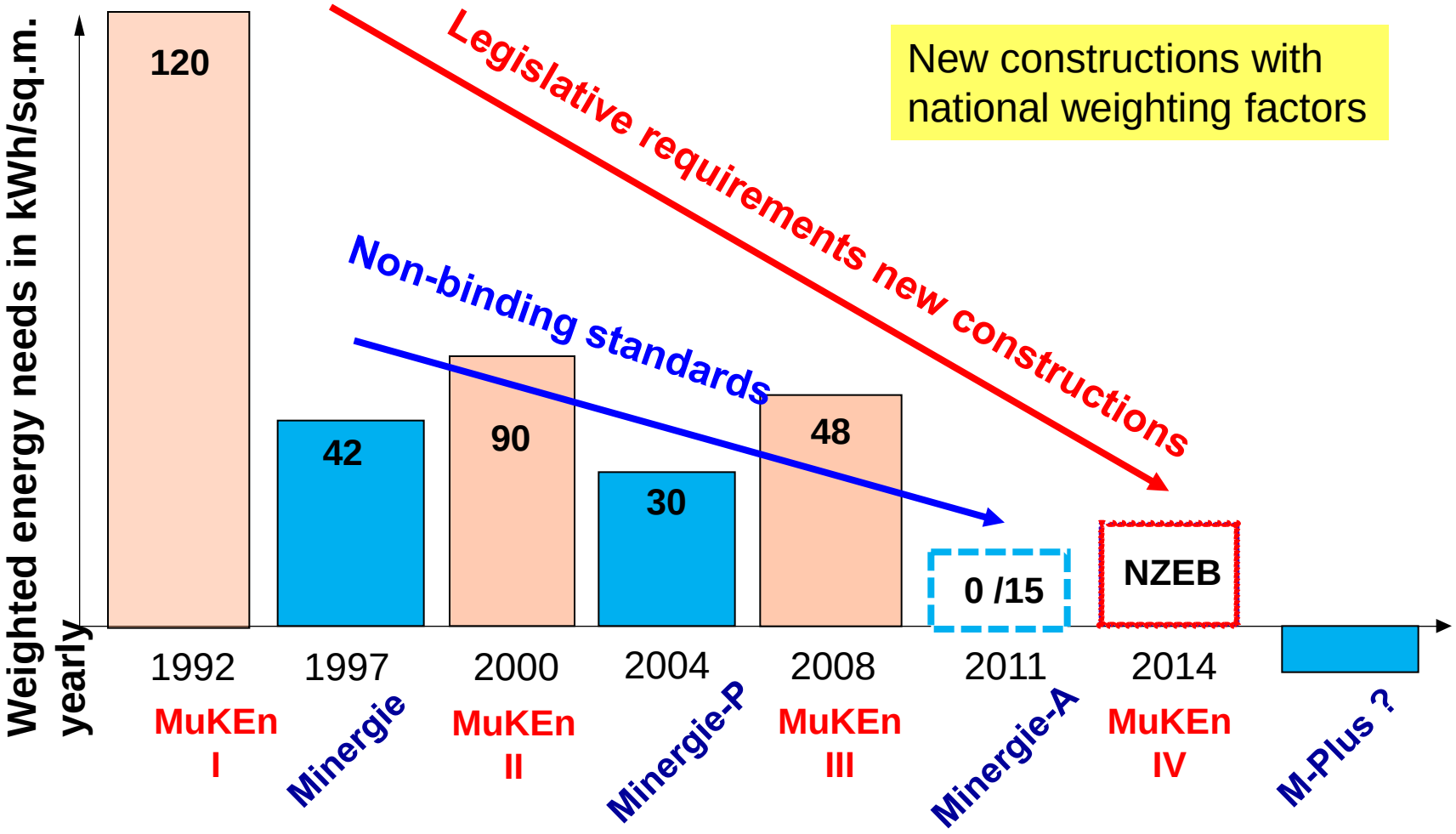
Legislation
Basic requirements
- good building shell
- max. proportion non-renewables

Non-obligatory quality label
Higher requirements
- Better building shells
- Renewable energy



Advantage: experience of non-binding labels!

Changes in energy efficiency (heating) CH



Lowest-cost buildings thanks to MuKEn

Every building has a different optimal cost for the same energy goal, depending on length, size and builder.

➔ **Free choice of measures allows for individual cost optimization**

1. **Regulated efficiency target for building shells**
2. **Target values for overall heating energy efficiency**

➔ **Free choice: more insulation or more renewables**

No banned/mandatory technology ➔ higher **acceptance**
Competition among suppliers ➔ fosters **innovation**

Heating target values and maximum proportion non-renewable energies

➔ **Minimum values building shell (two-way)**

- **Individual part** (wall/roof 0.2 W/sq.m.K; window 1.2 W/sq.m.K)
- **System attestation** (60 kWh/sq.m. for SFHs, 12 building types in all)

➔ **Values maximum proportion non-renewable energy**

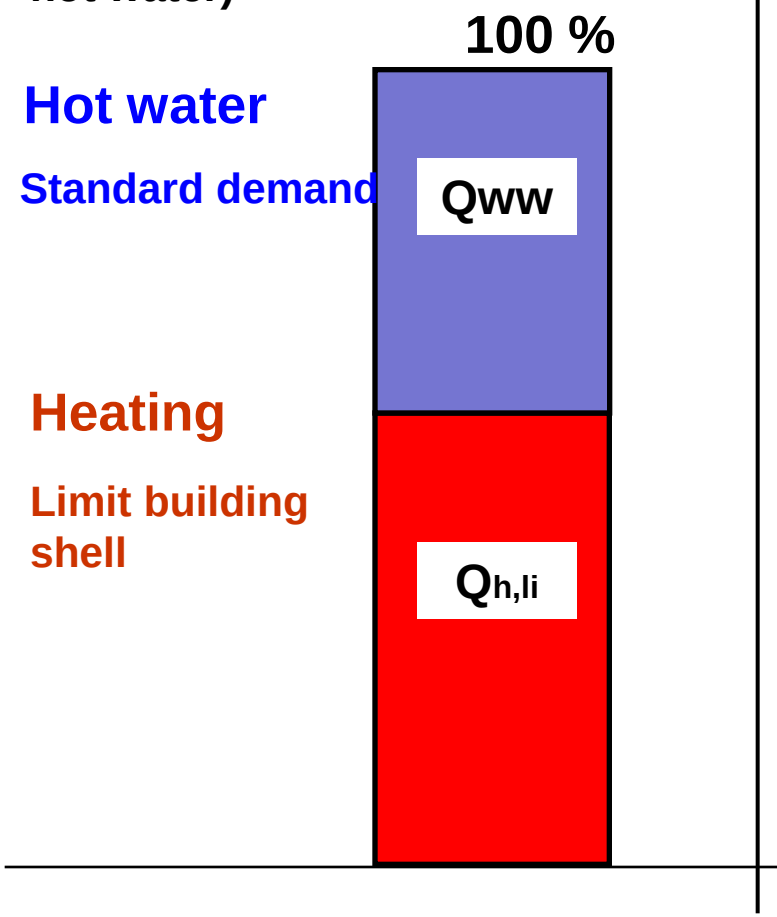
max. 80% non-renewable, weighted energy

National weighting factors for energy certificates

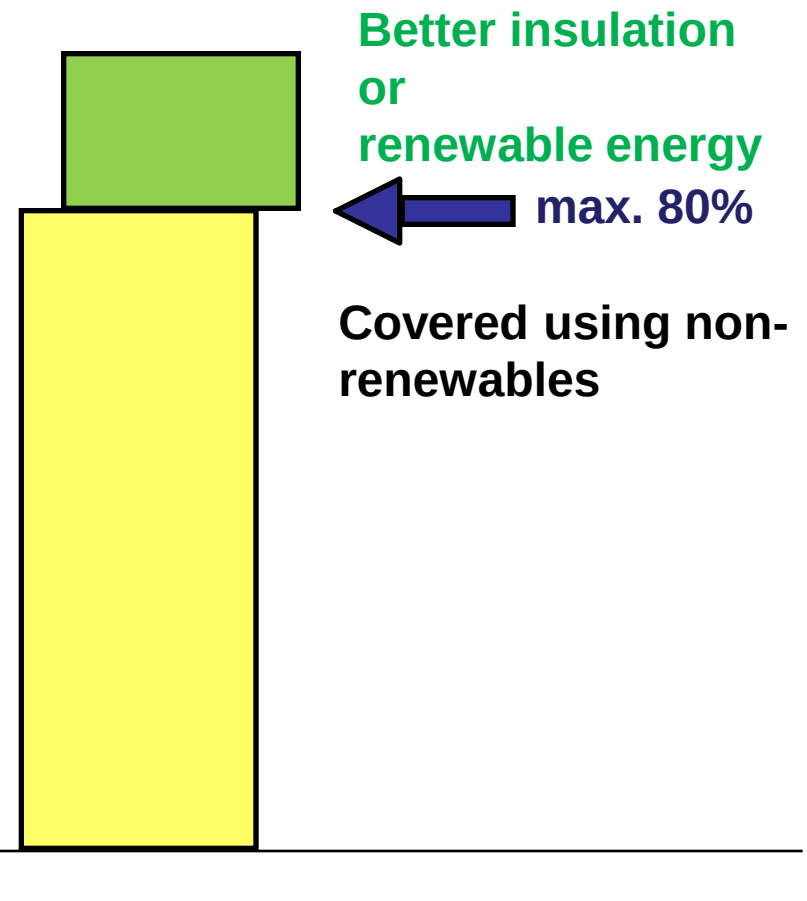
Energy source	Weighting factor
Electricity	**2.0**
Heating oil, natural gas, coal	**1.0**
Biomass (wood, bio gas, sewage gas)	**0.7**
Waste heat (incl. district heating via waste incineration , sewage treatment, industry)	**0.6**
Solar, ambient heat, geothermal heat	**0**

Maximum proportion non-renewable energy

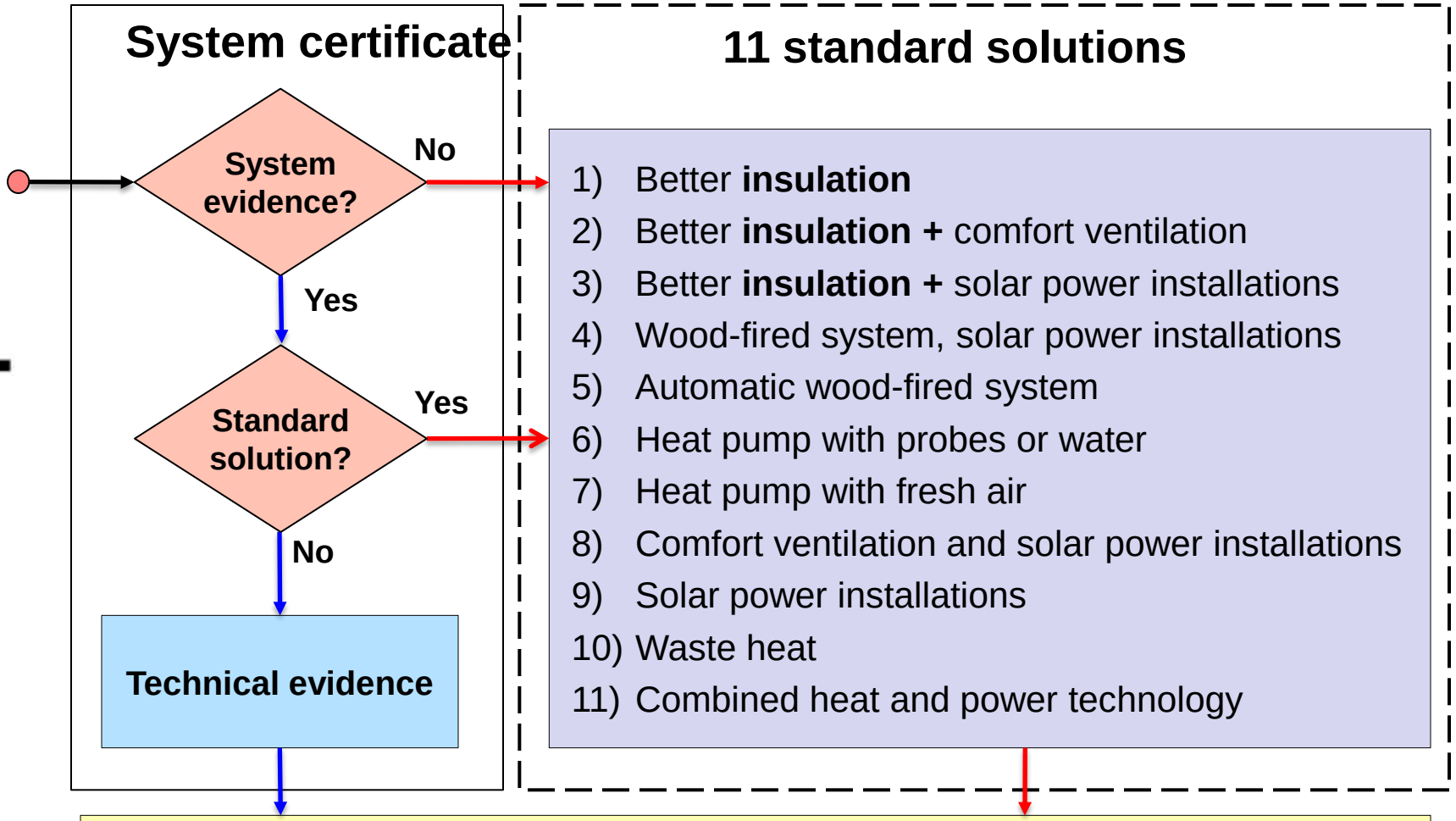
Heating needs ceiling (heating + hot water)



Coverage of heating energy needs (heating + hot water)



Free choice – efficiency or renewables



Requirement for the highest proportion of non-renewable energy met

Push-and-pull to bridge the gap between policy and science

- **Harmonization of simplified promotion and implementation**
- **Non-binding (comfort) standard as trailblazer and test area**
- **Basic efficiency requirements (building shell)**
- **Target values for weighted overall energy efficiency**
- **Free, cost-optimized choice between efficiency / renewables**
- **Simplified certification possibilities (standard solutions)**

Legislative requirements:	www.endk.ch g,f,i
Minergie standard:	www.minergie.ch g,f,i
Building energy certificate:	www.geak.ch g,f,i
Energy Office, canton of Bern	www.energie.be.ch g,f