



future energy efficient
buildings & districts

**Swiss Competence Center for Energy Research
(SCCER, Efficiency)**

Prof. Matthias Sulzer

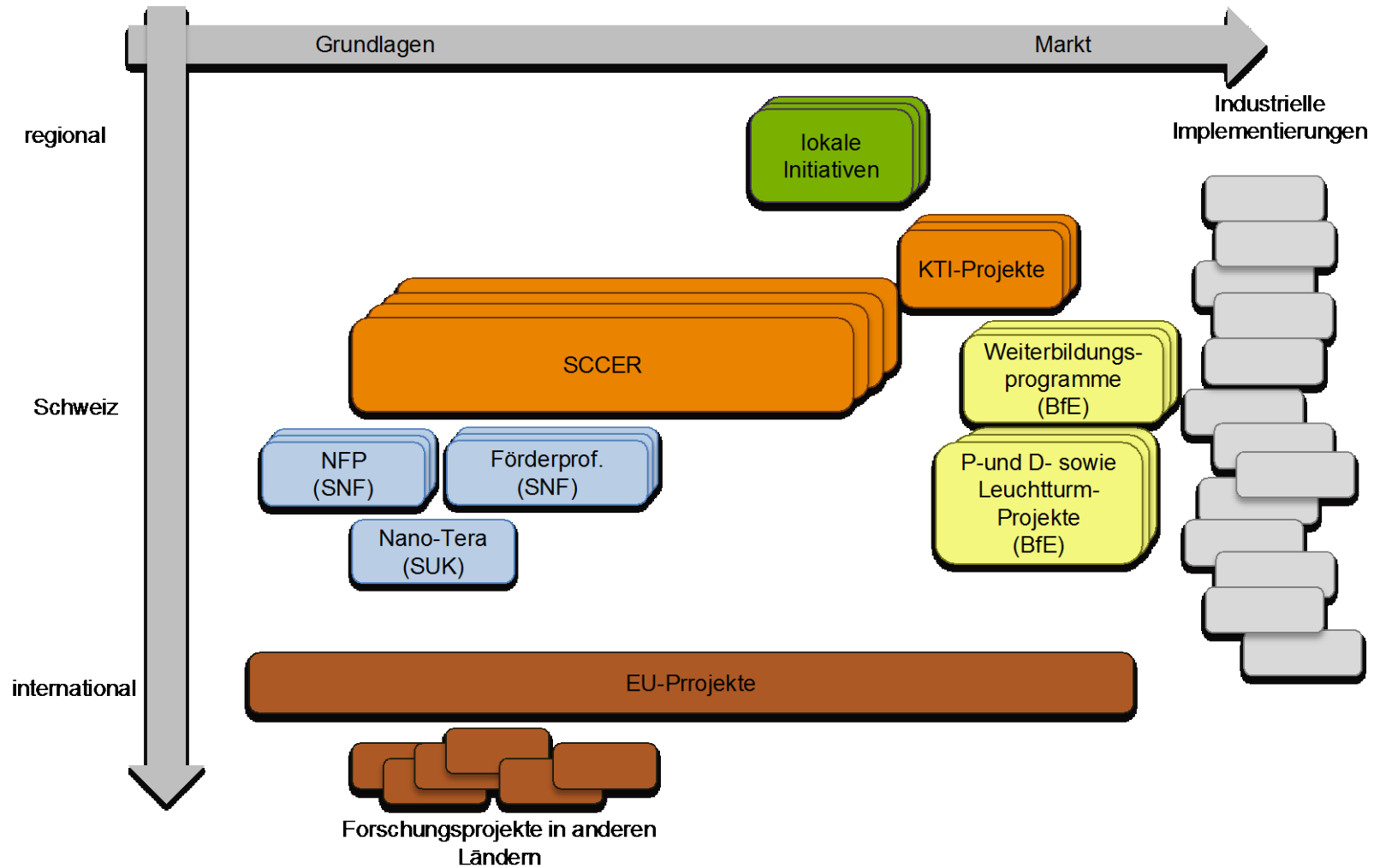
Dozent Energie- & Gebäudetechnik

Deputy Leader SCCER - FEEB&D

Horw, 12. November 2014

Forschen für die Energiewende

Positionierung der SCCERs in der Forschungslandschaft




Aktionsplan "Koordinierte Energieforschung"

SCCER
Swiss Competence Center for
Energy Research

HSLU 'inside'

 **Future Energy Efficient
Buildings & Districts**

**Heat & Electricity
Storage** 
Swiss Competence Centers
for Energy Research

 **Efficiency of Industrial
Processes**

**Efficient Technologies
and Systems for Mobility** 

**Future Swiss Electrical
Infrastructure** 
Shaping the Future Swiss Electrical Infrastructure

Supply of Electricity 
SWISS COMPETENCE CENTER for ENERGY RESEARCH
SUPPLY of ELECTRICITY

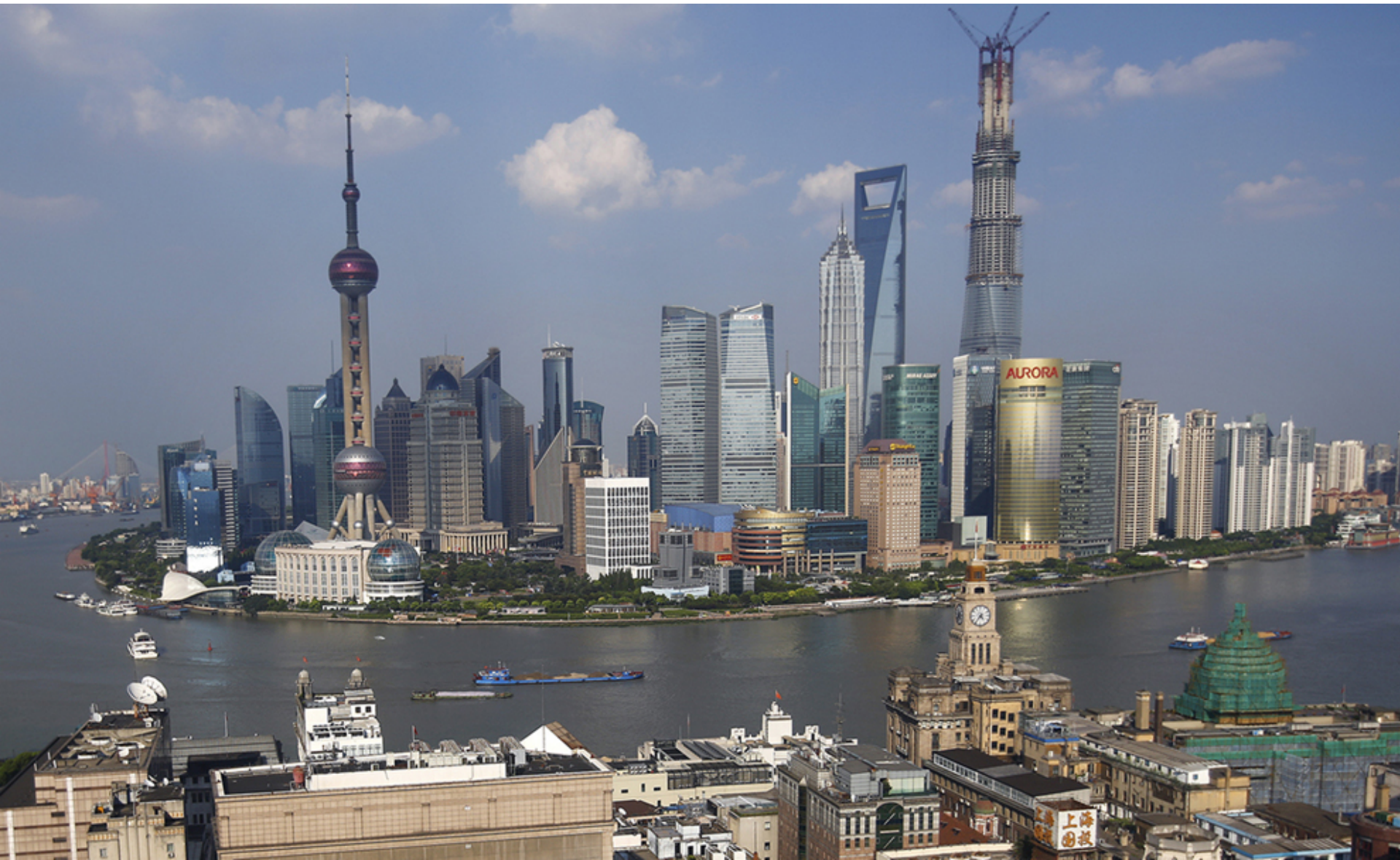
 **Research in Energy,
Society and Transition**

**Biomass for Swiss
Energy Future** 
Biomass for Swiss Energy Future
Swiss Competence Center for Energy Research

Shanghai, Pudong District, 1987



Shanghai, Pudong District, 2013



Inauguration Papst Benedikt XVI, 2005



Luca Bruno / AP

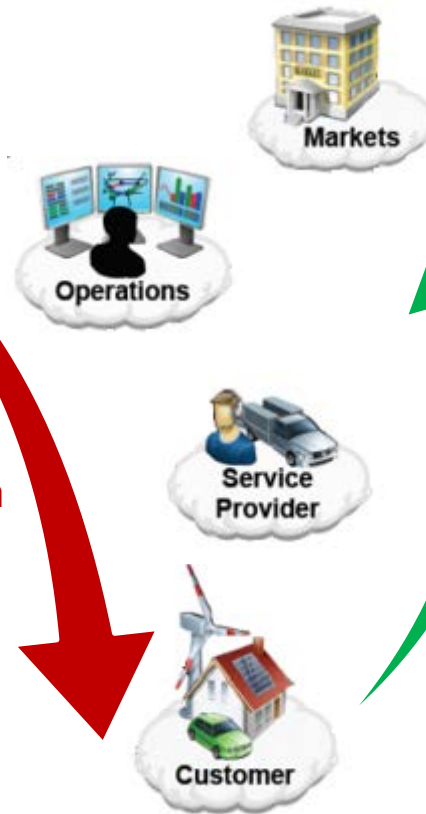
Inauguration Papst Francis I, 2013



Michael Sohn / AP

Energiewende

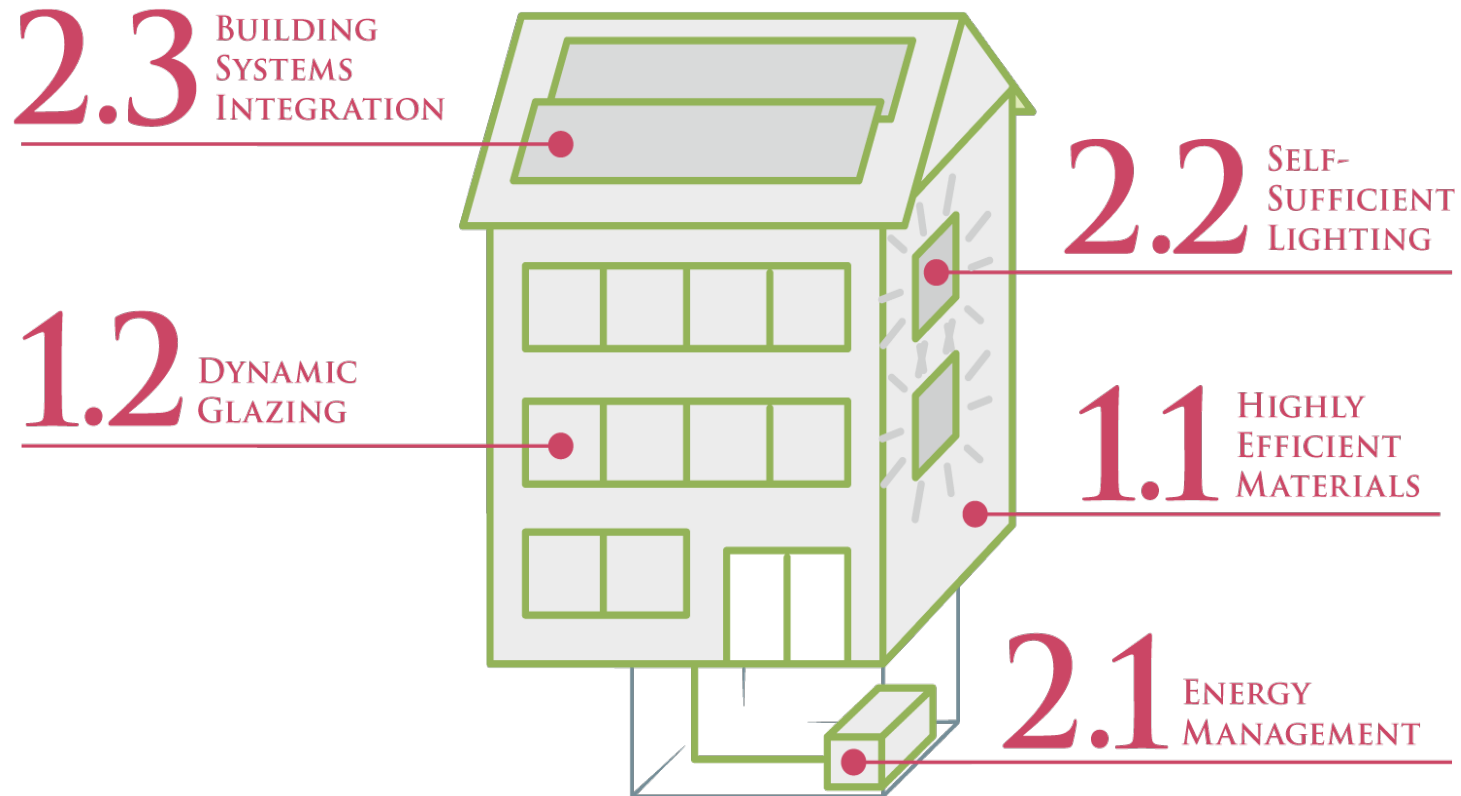
HEUTE = top-down
wenige Teilnehmer
(Swissgrid, Energielieferanten
und Elektrizitätsversorgungs-
unternehmen) organisieren
die Energieversorgung



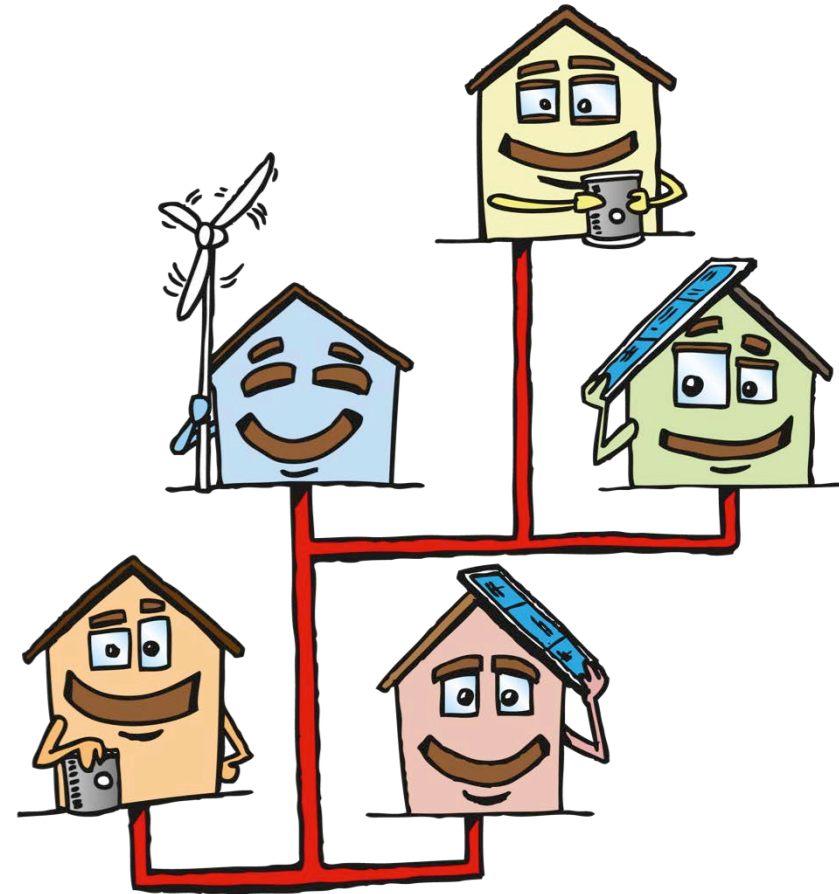
ZUKUNFT = bottom-up
viele Teilnehmer
(Konsumenten, Prosumenten
und Energiedienstleister)
organisieren die
Energieversorgung

Quelle:
EnergyOn/Misurio 2014
NIST Smart Grid Framework 2013

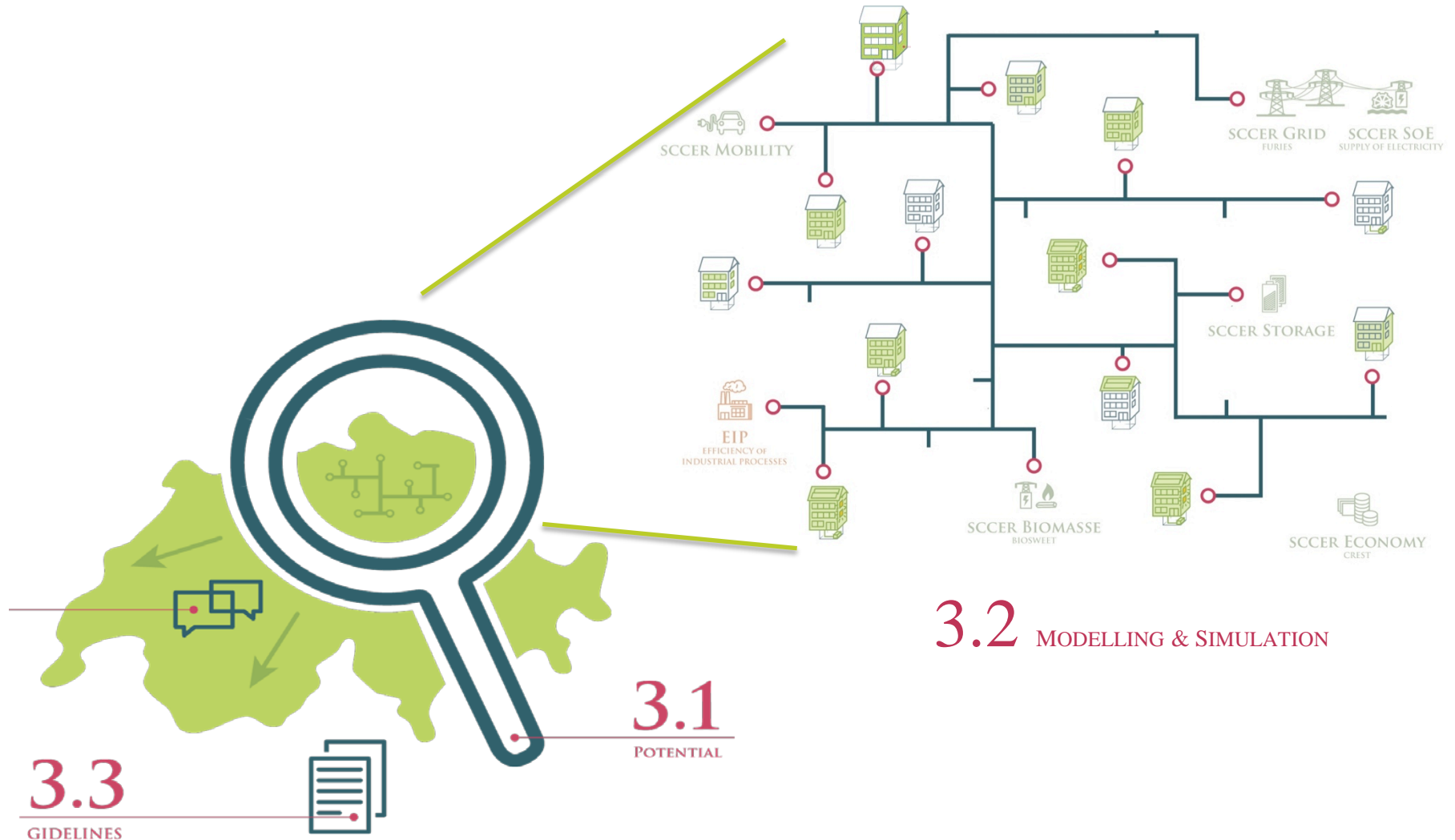
Neue Materialien und Komponenten reduzieren den Energiebedarf



Vernetzung nutzt lokale, erneuerbare Energie wirkungsvoller



Dezentrale Energiesysteme



3.3
GUIDELINES

3.1
POTENTIAL

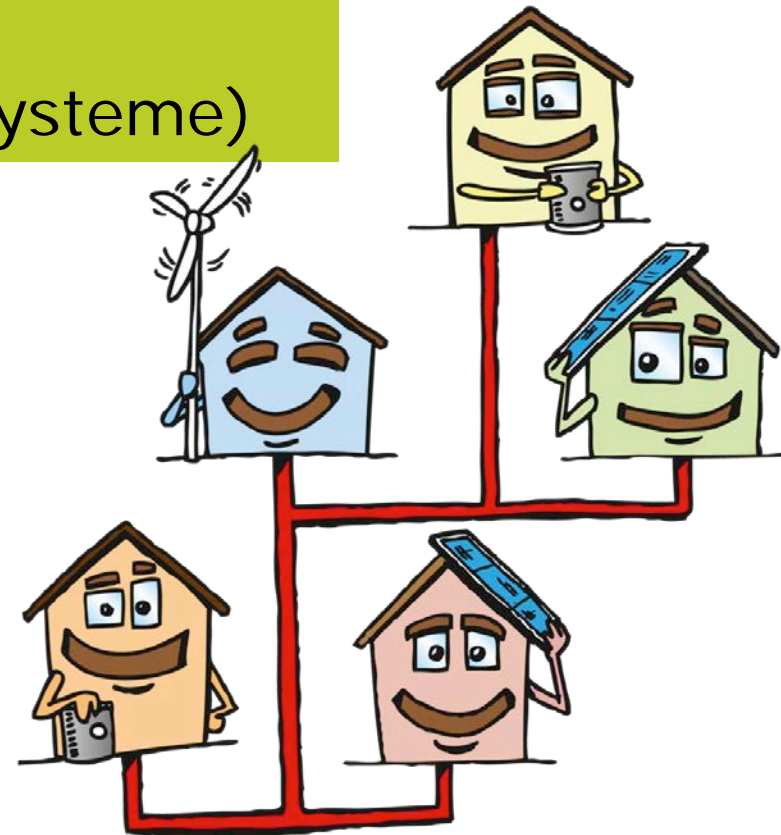
3.2 MODELLING & SIMULATION

Die Forschung für die Energiewende ebnet den Weg für einen Gebäudepark, welcher ...

effizient (Energiebedarf reduzieren)

intelligent (Internet of things)

vernetzt (Dezentrale Energie Systeme)



Academic partners



Materials Science & Technology



Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich



ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE



Fachhochschule
Nordwestschweiz

Lucerne University of
Applied Sciences and Arts

**HOCHSCHULE
LUZERN**

Engineering and Architecture
FH Zentralschweiz



**UNIVERSITÉ
DE GENÈVE**

In cooperation with the CTI



Energy

Swiss Competence Centers for Energy Research



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Commission for Technology and Innovation CTI


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future energy efficient buildings & districts

Heat & Electricity Storage 
Swiss Competence Centers for Energy Research

 **Efficiency of Industrial Processes**
EFFICIENCY OF INDUSTRIAL PROCESSES

Efficient Technologies and Systems for Mobility 
sccer mobility

Future Swiss Electrical Infrastructure
 Shaping the Future Swiss Electrical Infrastructure

Supply of Electricity 
SWISS COMPETENCE CENTER for ENERGY RESEARCH SUPPLY OF ELECTRICITY

 **Research in Energy, Society and Transition**
Swiss Competence Centers for Energy Research
Competence Center for Research in Energy, Society and Transition

Biomass for Swiss Energy Future 
Biomass for Swiss Energy Future
Swiss Competence Center for Energy Research



Swiss Competence Centers
for Energy Research

Swiss Competence Center for Energy Research (SCCER, Storage of Electricity and Heat)

Prof. Dr. Jörg Worlitschek

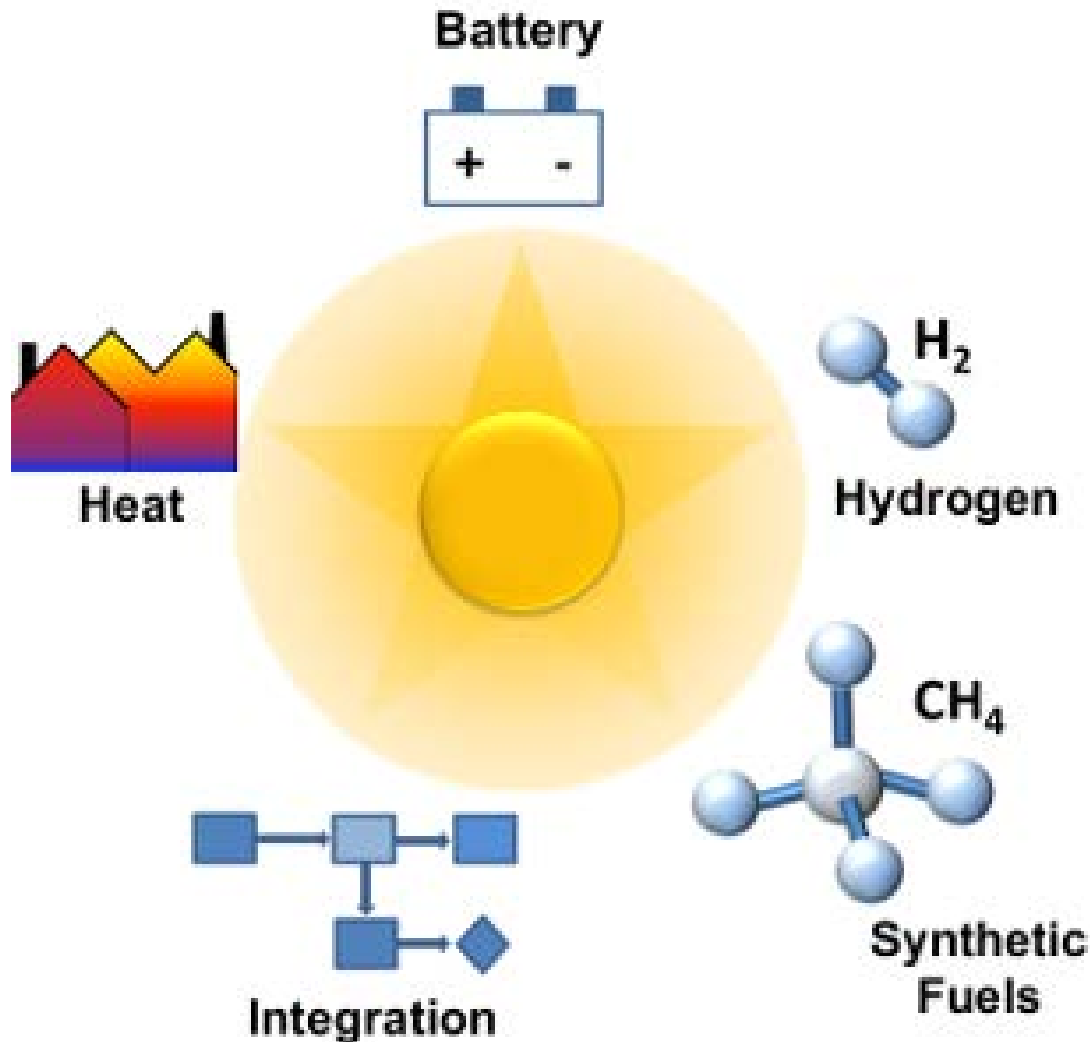
Dozent Maschinentechnik

Leiter Forschungsgruppe Thermische Energiespeicher

Studiengangleiter Master MSE

Horw, 12. November 2014


SCCER Storage of Electricity & Heat



Storage
Swiss Competence Centers
for Energy Research

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 **Energy**
Swiss Competence Centers for Energy Research

 Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Competence Center for Technology and Innovation CTI

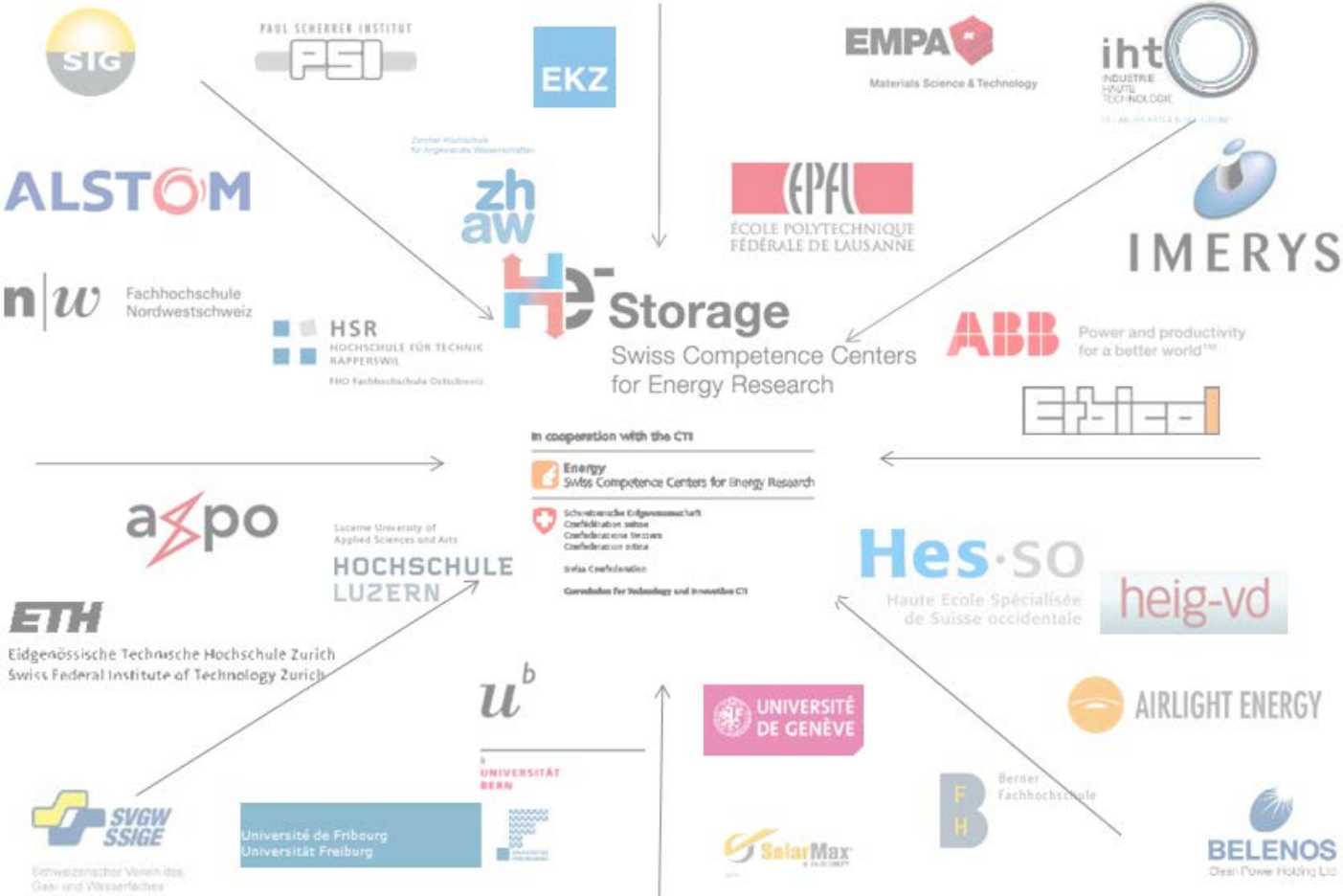
SCCER Storage of Electricity & Heat

Storage
Swiss Competence Centers
for Energy Research

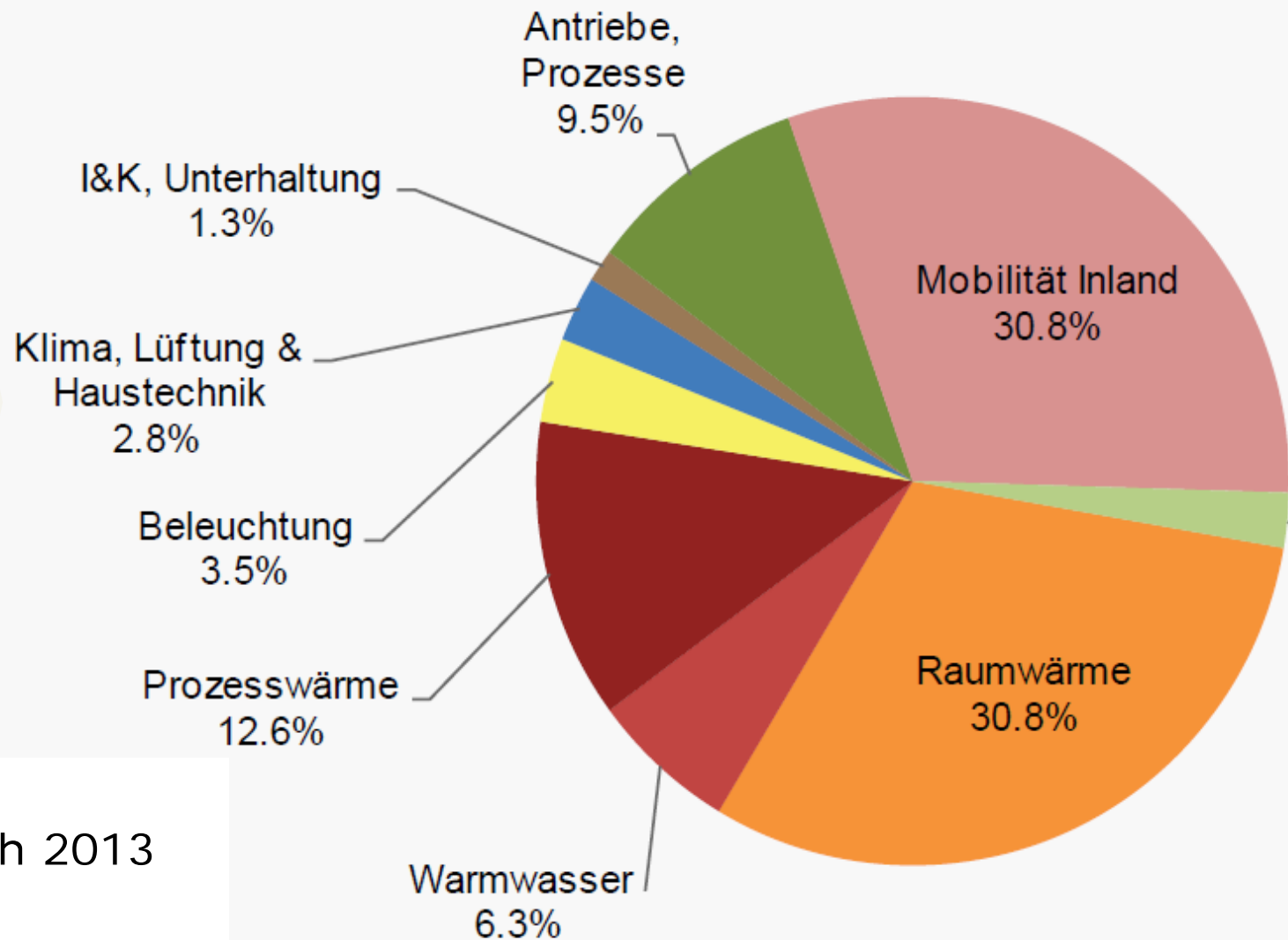
- In cooperation with the CTI
-
- Energy**
Swiss Competence Centers for Energy Research
-
- Schweizerische Eidgenossenschaft
Confédération suisse
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Competence for Technology and Innovation CTI

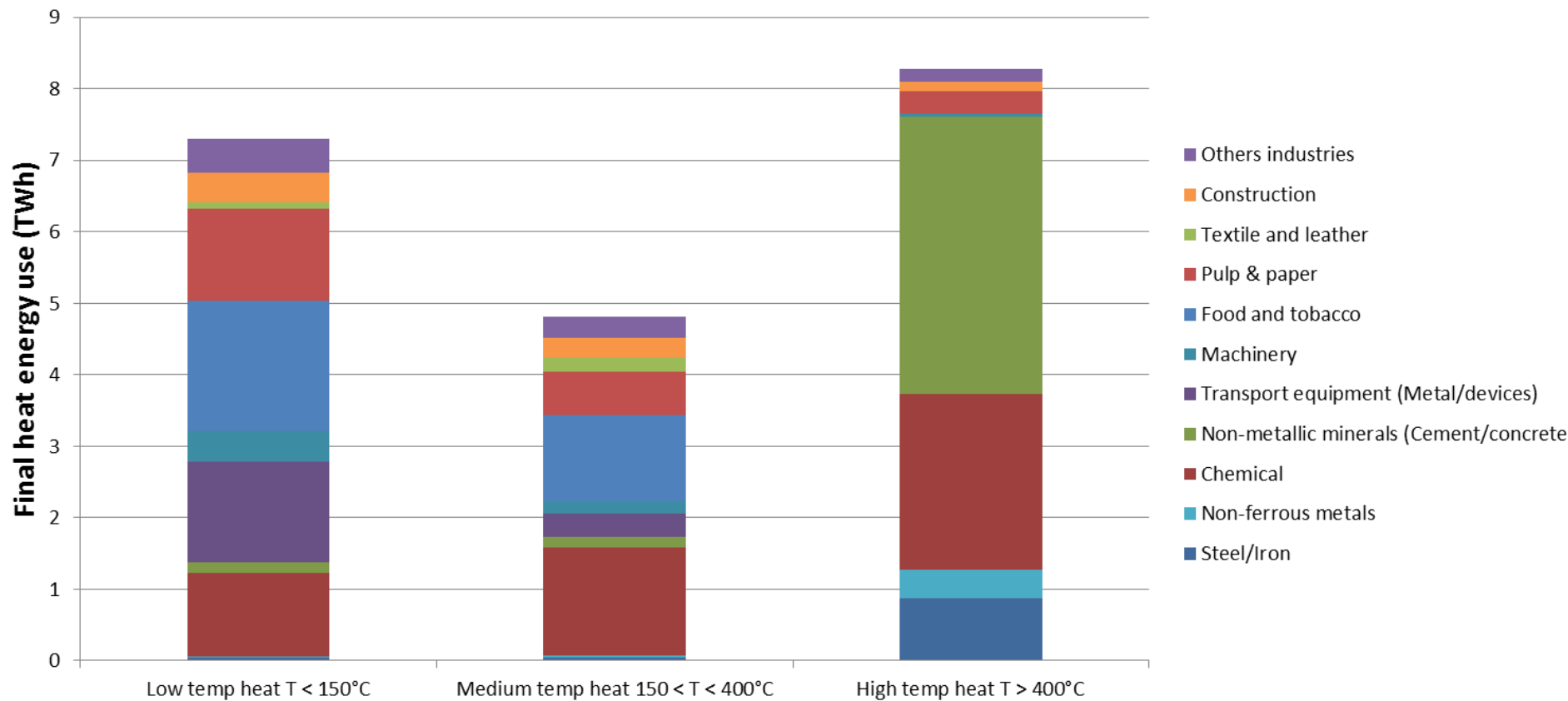


Energieverbrauch Schweiz

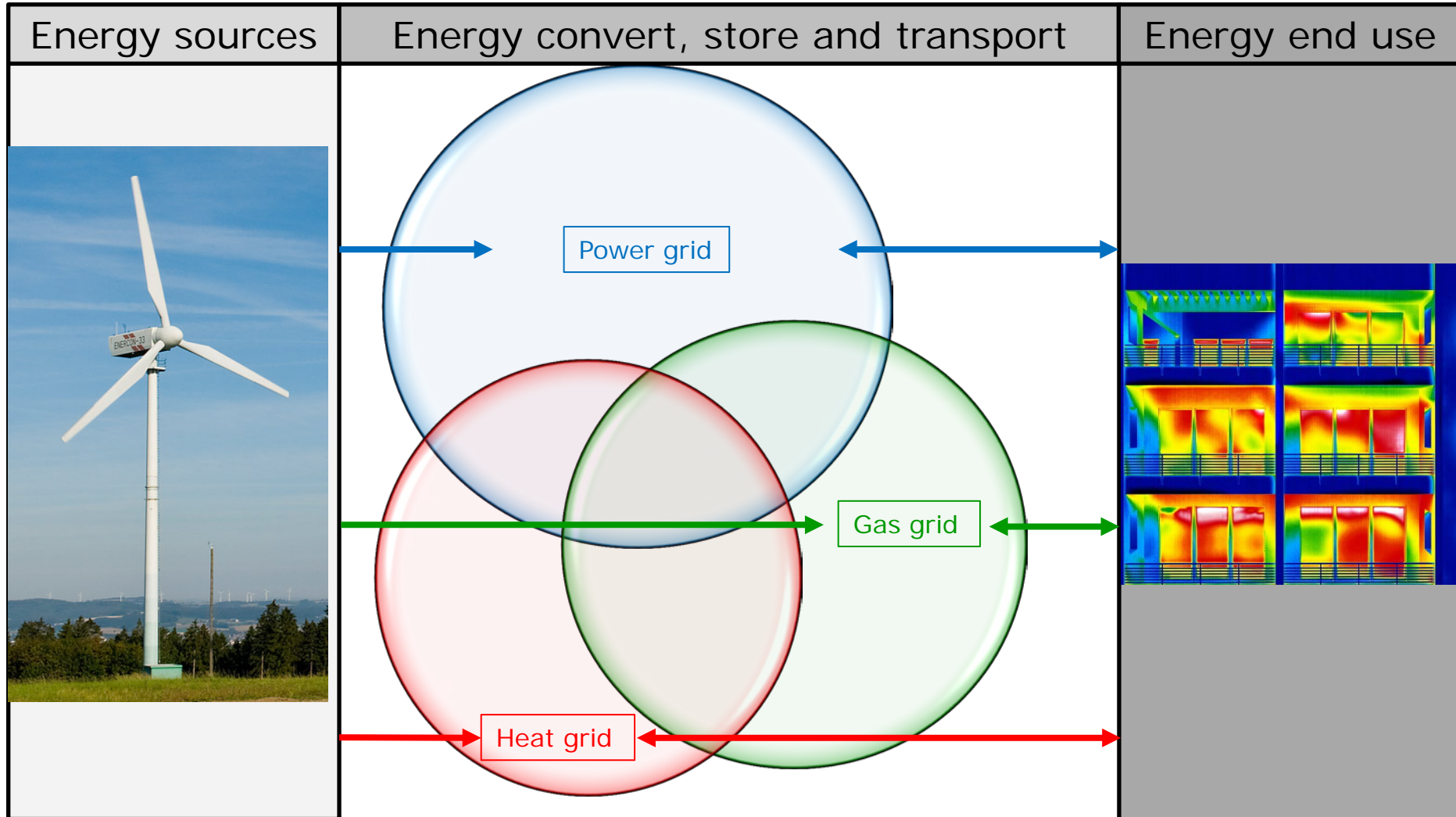


Energieverbrauch 2013

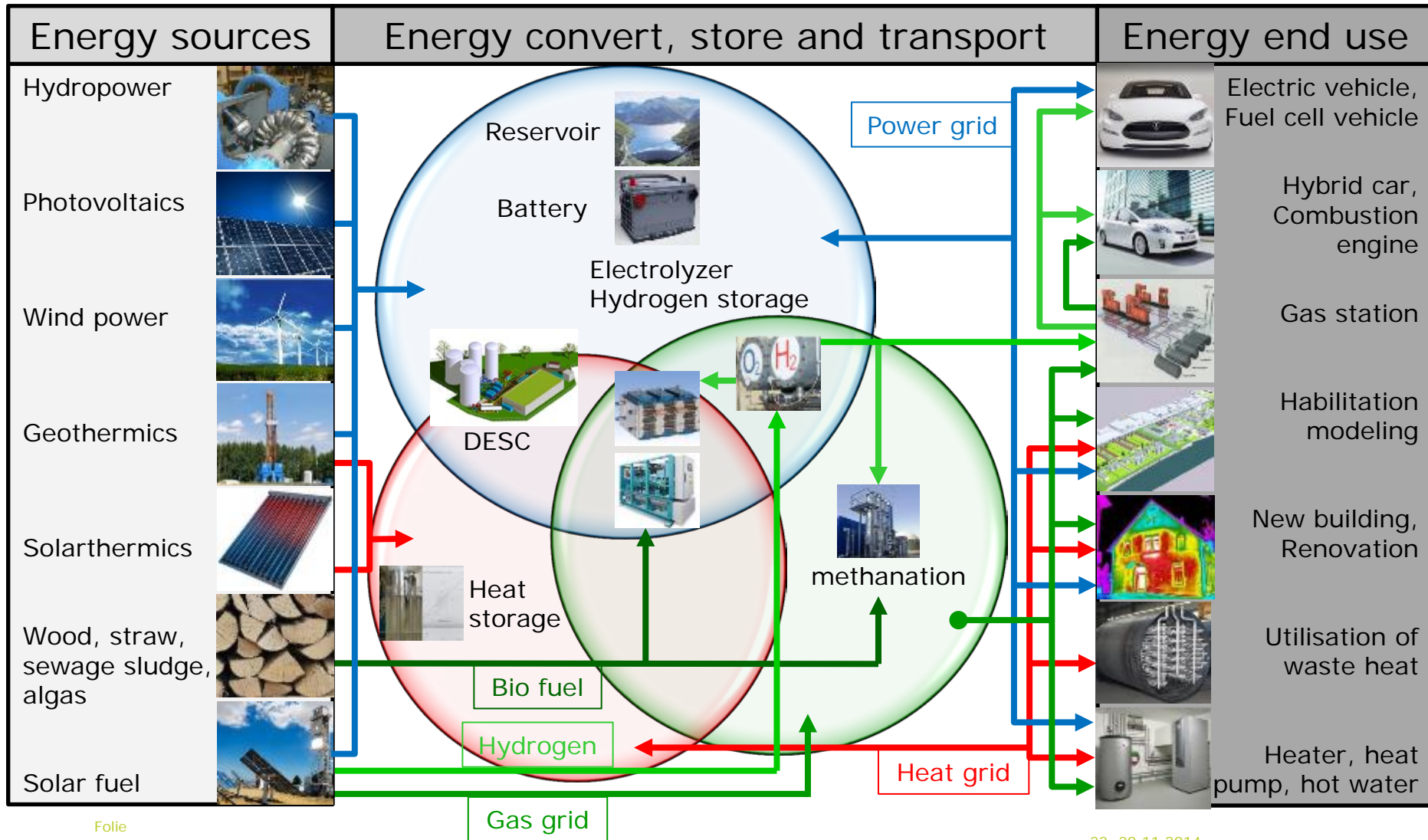
Energieverbrauch Industrie



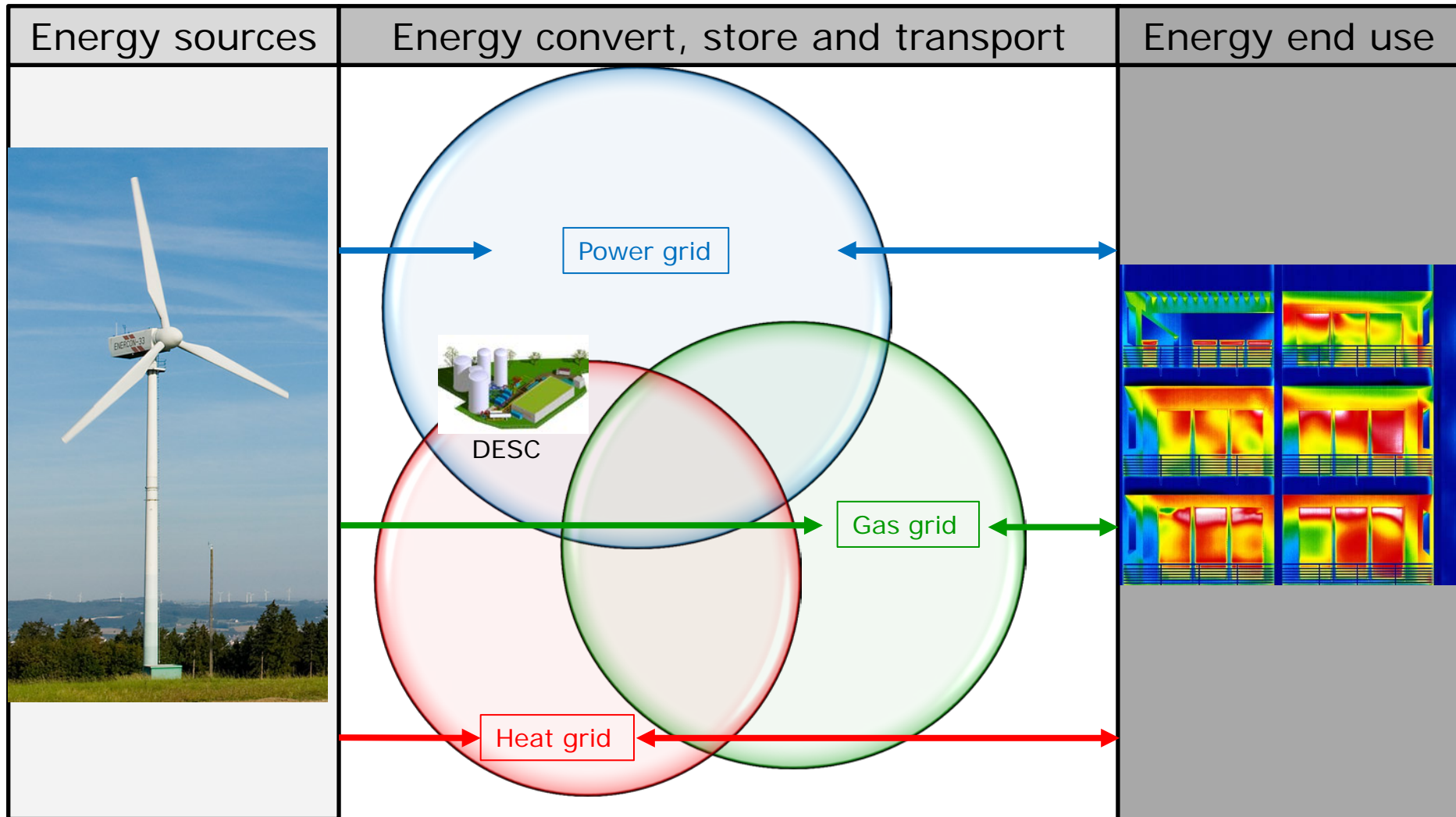
Energiezukunft Schweiz



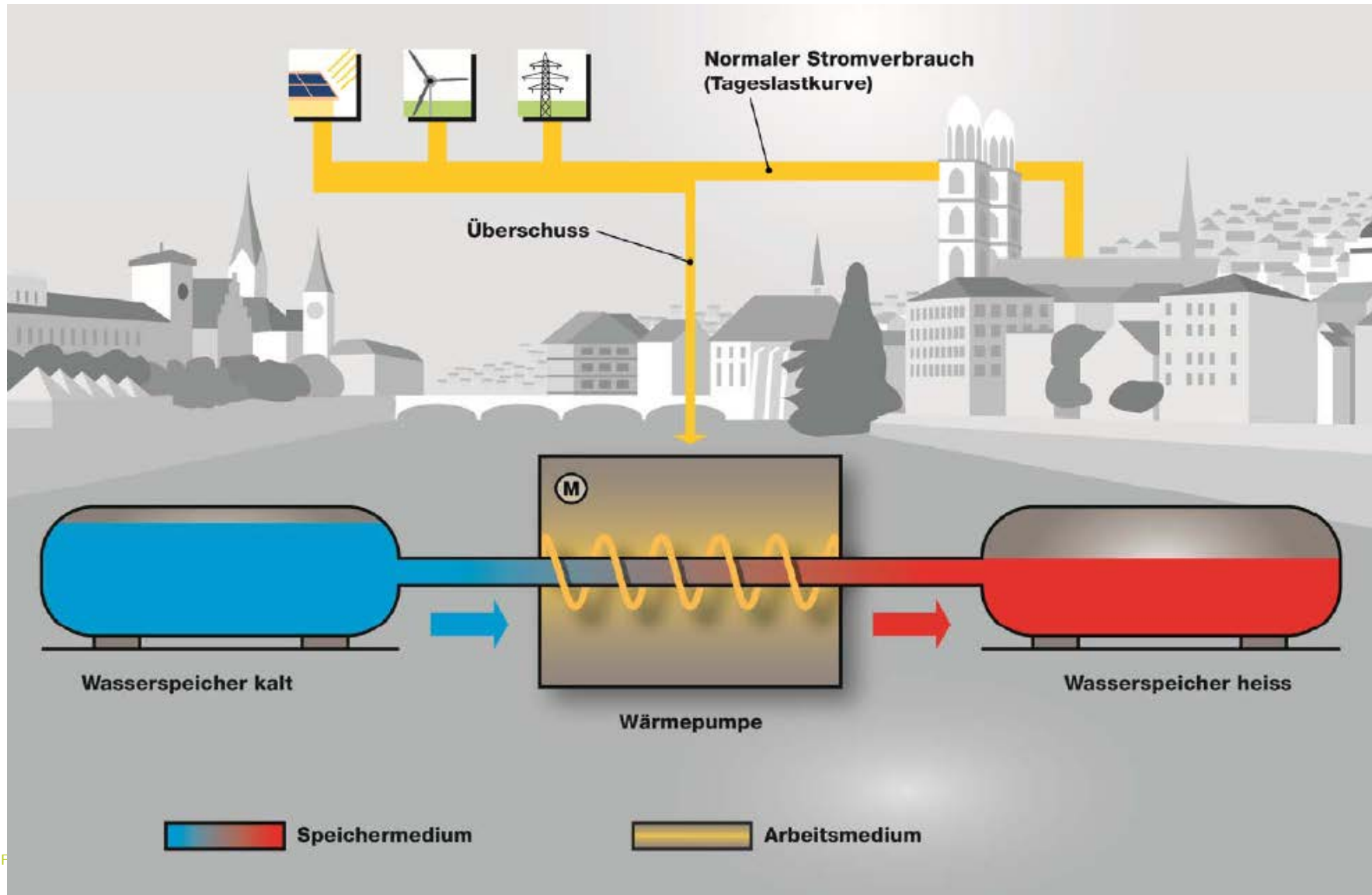
Energiezukunft Schweiz



Energiezukunft Schweiz



Chance für die Schweizer Industrie DESC 'Dual Energy Storage & Converter'



Mehr Interesse?

Swiss Symposium Thermal Energy Storage

Freitag, 16. Januar 2015

9.20 – 17.30 Uhr

Hochschule Luzern – Technik & Architektur


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LUCERNE – Lucerne Competence Center for Energy Research

Lucerne University of
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**HOCHSCHULE
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Swiss Confederation

Commission for Technology and Innovation CTI

SCCER (Kompetenzzentren) 72 M



LUCERNE

Lucerne Competence Center for Energy Research
Lucerne School of Engineering and Architecture



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Supply of Electricity



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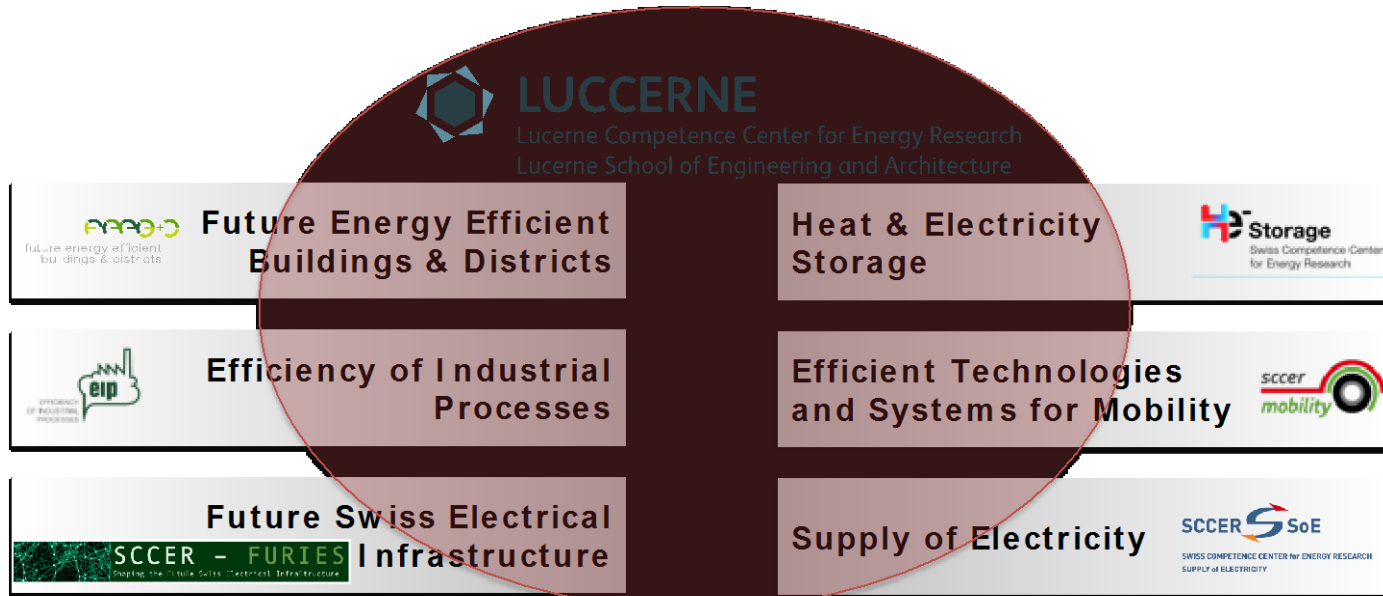


LUCERNE –

gemeinsam bringen wir die Energiewende voran !

Wir:

- Forschen in multi-disziplinären SCCER Themen
- Stimulieren den Austausch und die Zusammenarbeit zwischen den Disziplinen
- Nutzen die Synergien zwischen den Disziplinen der Forschungsinstitutionen und der Industrie
- Fördern, akquirieren und führen Projekte mit der Industrie



Forschen für die Energiewende