klimaaktiv

Decarbonization
a big picture for communication

Johannes Fechner

IDEEN KONZEPTE LÖSUNGEN 17&4

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Dipl.Ing., Energy advisor, Passive House Trainer

Managing Partner of 17&4 Organisationsberatung GmbH,

consulting, projects, moderation, communication for sustainable development, esp. building and energy, since 1988

EU- and national projects

klimaaktiv (since 2004)

University lecturer

Energy Strategy 2050

Energy conservation

BUILDING RENOVATION

Financial Instruments

Nearly Zero Energy Buildings

Mobility in Czech cities

Energy efficiency in Transport

Decarbonization

how is this related

who does that concern

who decides

what must who know

Energy Strategy 2050

Energy conservation

BUILDING RENOVATION

Financial Instruments

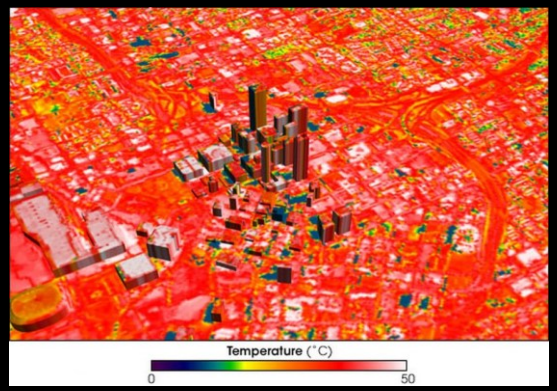
Nearly Zero Energy Buildings

Mobility in Czech cities

Energy efficiency in Transport

Decarbonization

AIDA, a simple concept used in marketing and advertising, keep in mind those four steps for climate/energy communication to the public.

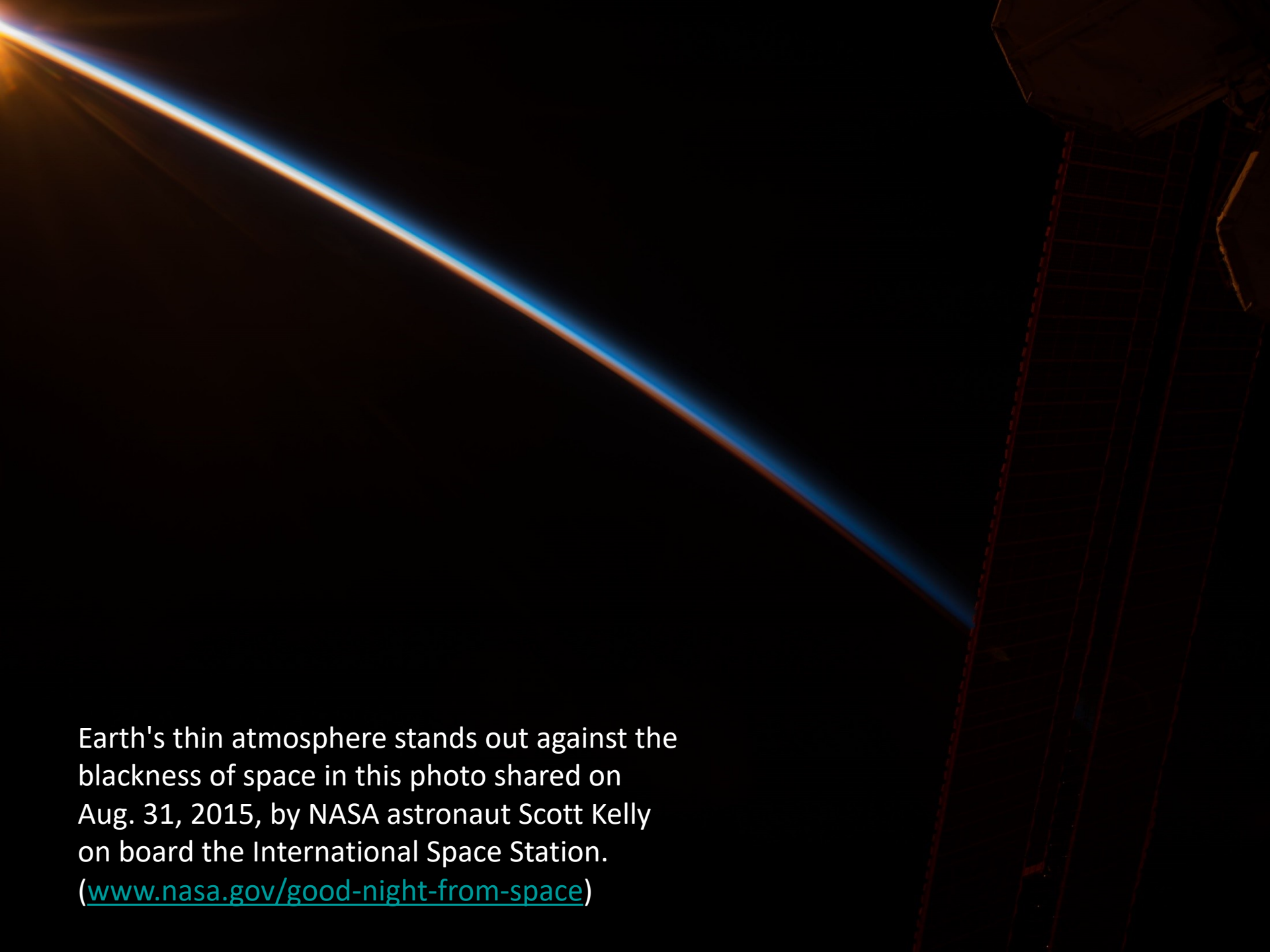


ATTENTION

INTEREST

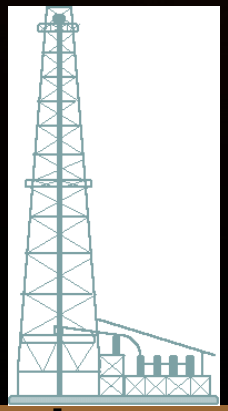
DESIRE

ACTION



Earth's thin atmosphere stands out against the blackness of space in this photo shared on Aug. 31, 2015, by NASA astronaut Scott Kelly on board the International Space Station. (www.nasa.gov/good-night-from-space)

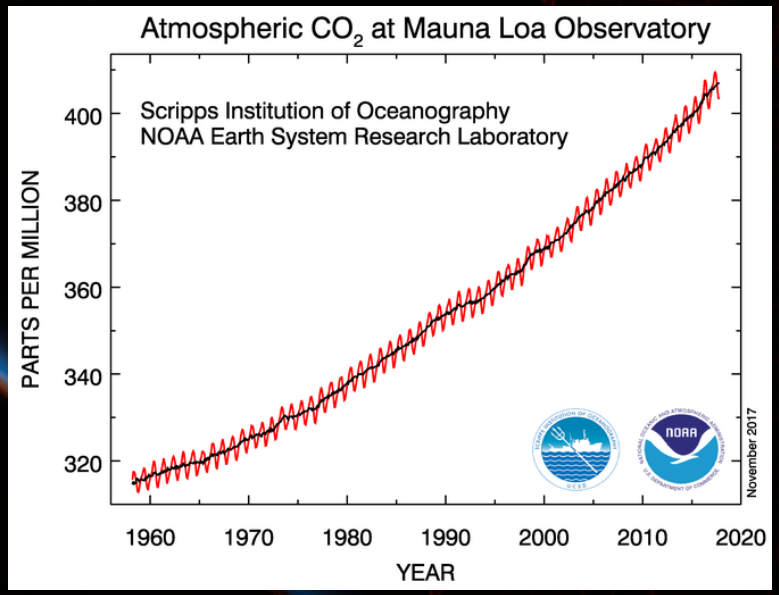
36 000 Mio. t CO_2 pro Jahr



$C + O_2 = CO_2$

12 g + 2 • 16 g = 44 g

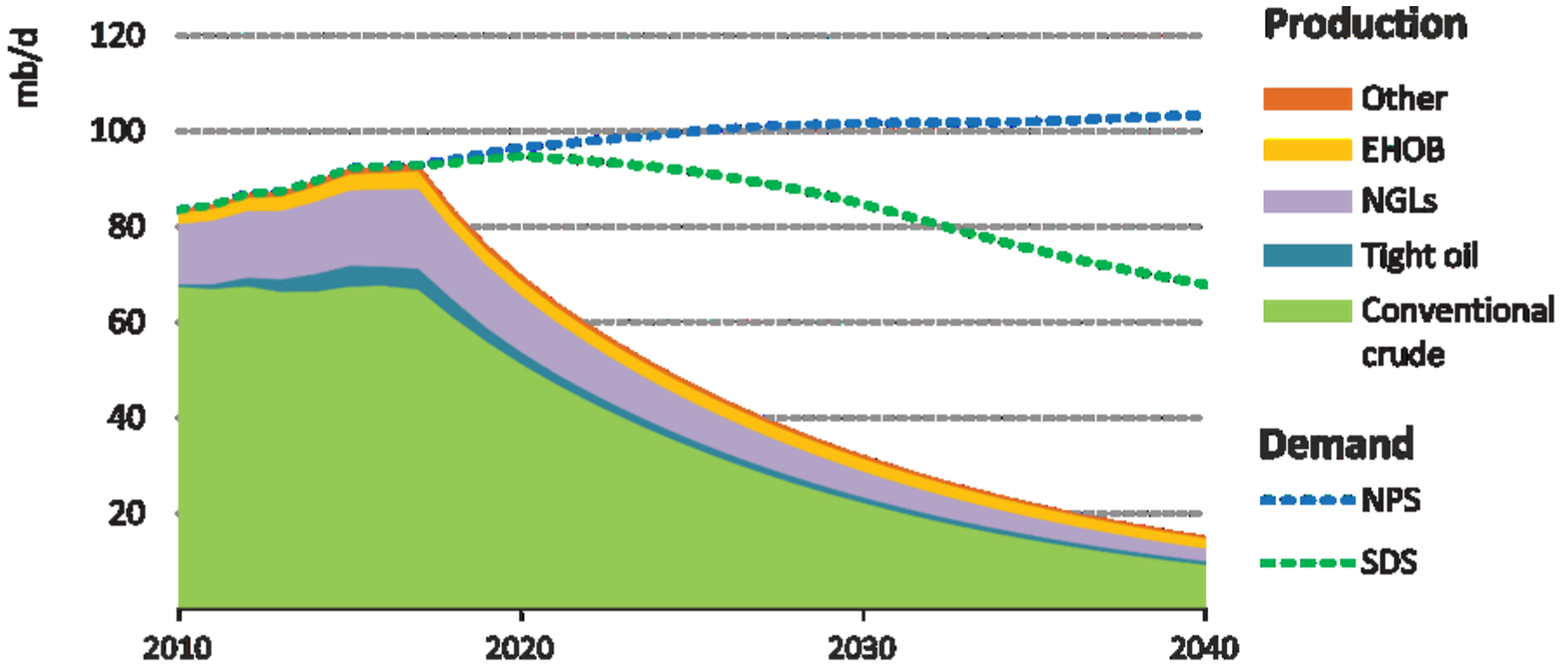
1750: 280 ppm CO_2



2018: 410 ppm CO_2

Mehr: klimaaktiv e-learning

WORLD ENERGY OUTLOOK 2018: OIL



With no new investment, global oil production would halve by 2025: an average loss of nearly 6 mb/d every year

Note: EHOB = extra-heavy oil and bitumen; NGLs = natural gas liquids; NPS = New Policies Scenario; SDS = Sustainable Development Scenario.

https://hans-josef-fell.de/drastischer-einbruch-der-globalen-erdoelfoerderung-in-den-kommenden-jahren

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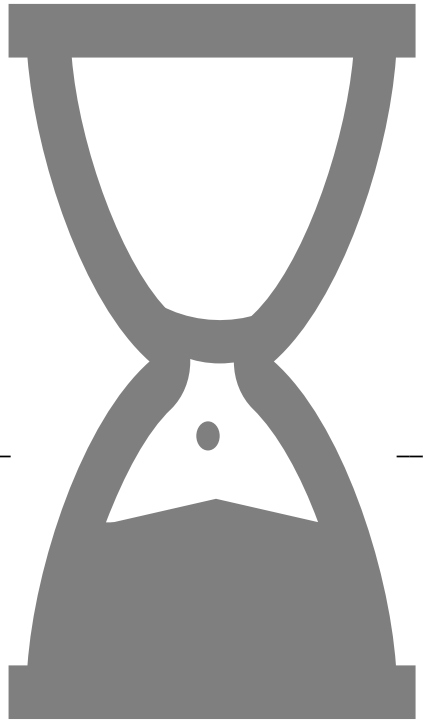
Stromwende
Wärmewende
Mobilitätswende

Elektřina
Teplo
Pohyblivost

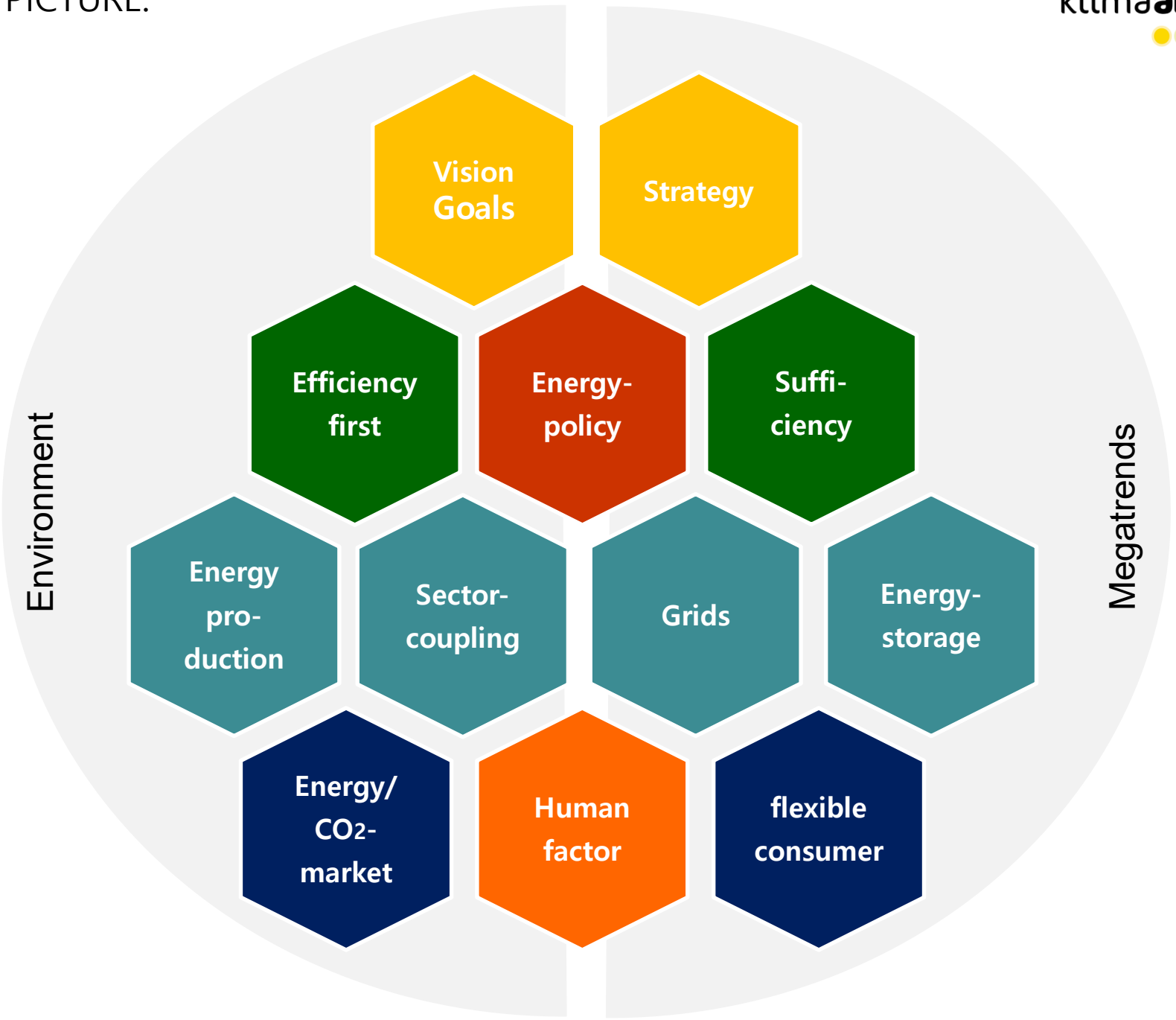


Energiewende

Energetická revoluce

Energy transition

BIG PICTURE:



J. Fechner

WHY A BIG PICTURE?

To create understanding of a complex system

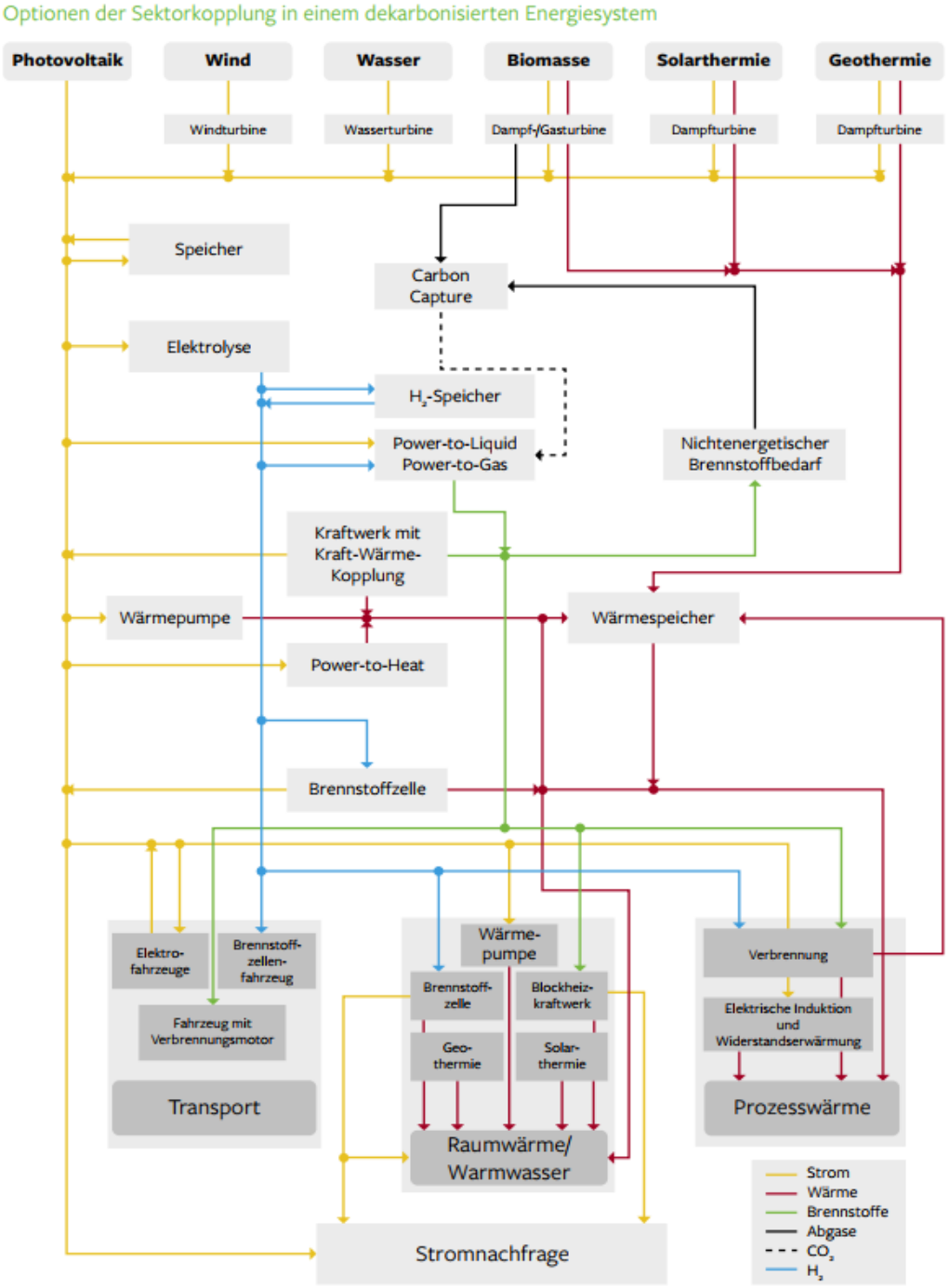
To make our goal and the strategy clear

To enable communication and negotiation

Shared perspectives and particular interests

General education > democratic decision-making

Action instead of ignorance and resignation!



SRU 2017; Datenquelle: BMWi 2015b; UBA 2016b; MARSCHEIDER-WEIDEMANN et al. 2016

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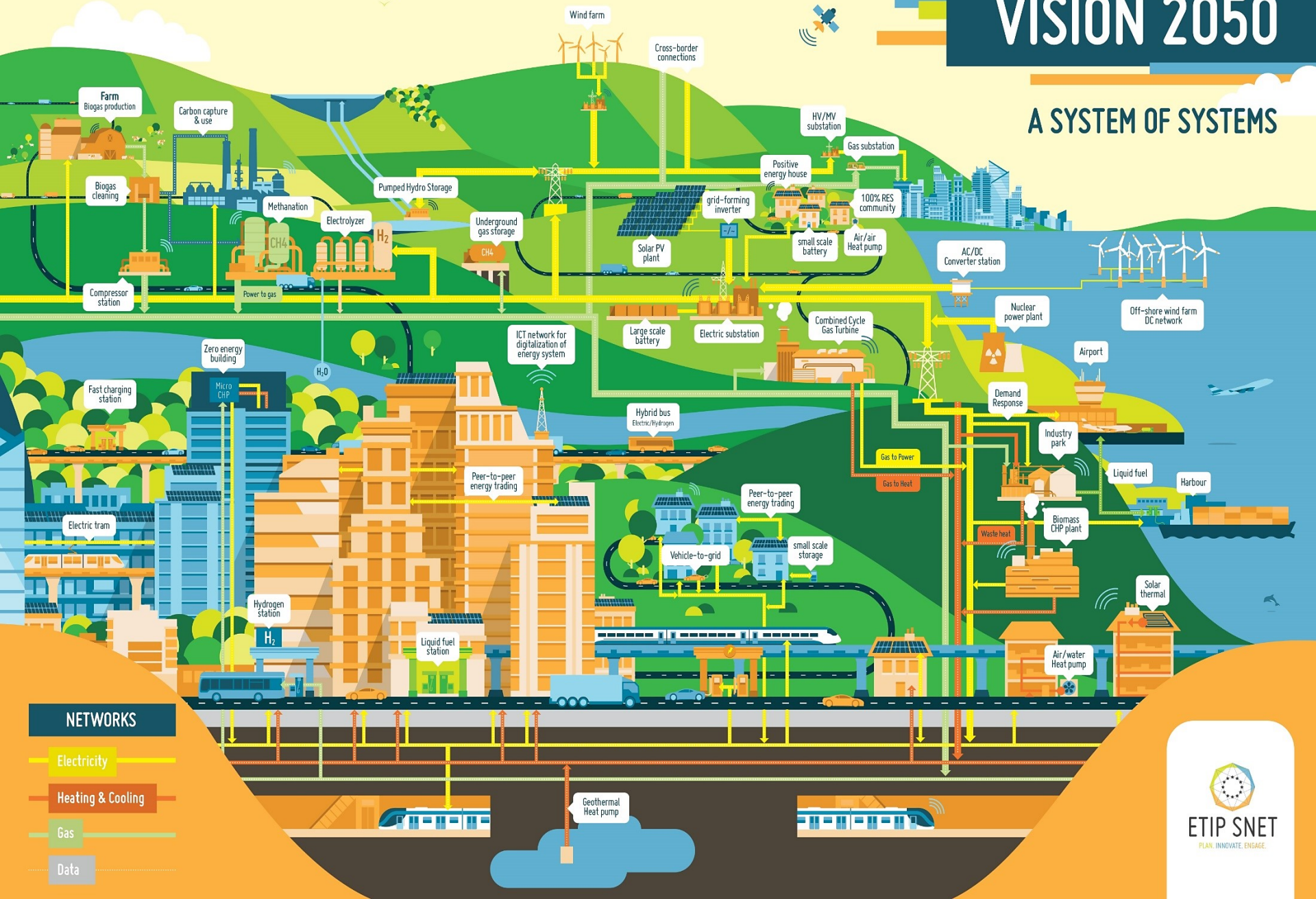
SEKTOR-COUPLING

previously separate systems are linked.

Use of large energy stores outside the electricity sector, increase flexibility, compensate the volatility of volatile renewable energy.

VISION 2050

A SYSTEM OF SYSTEMS



ETIP SNET

PLAN. INNOVATE. ENGAGE.

Vision
Goals

Vision
Goals

Strategy

Paris Agreement

EU: 2030 climate and energy framework

National Energy and Climate Plans

Climate Change Adaptation Strategy

Roadmaps of associations

Business Strategies

…

Instruments

Resources

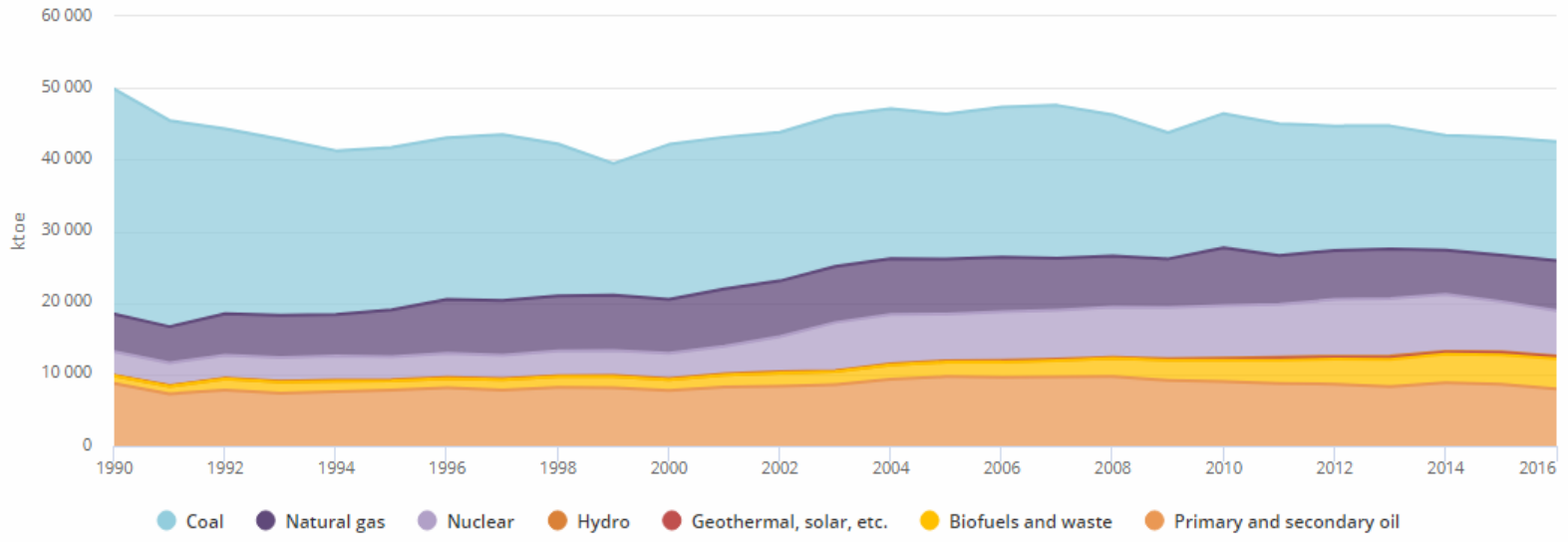
Responsibilities

Schedule

Monitoring

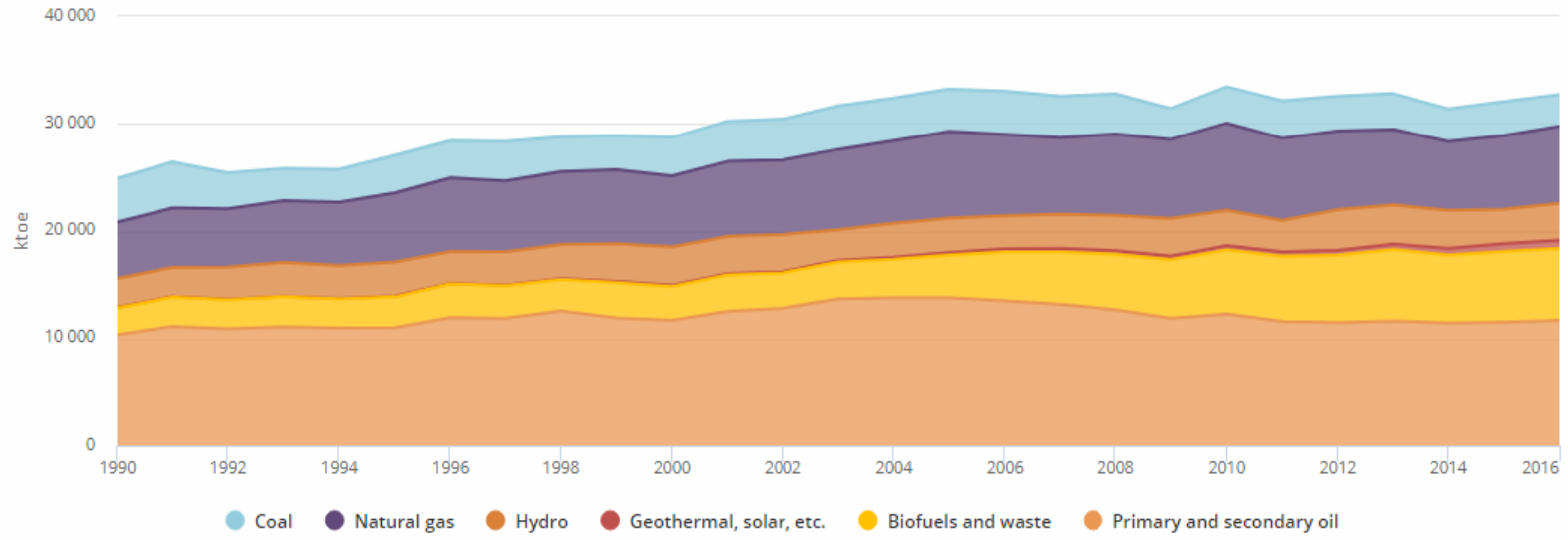
Total Primary Energy Supply (TPES) by source*

Czech Republic 1990 - 2016



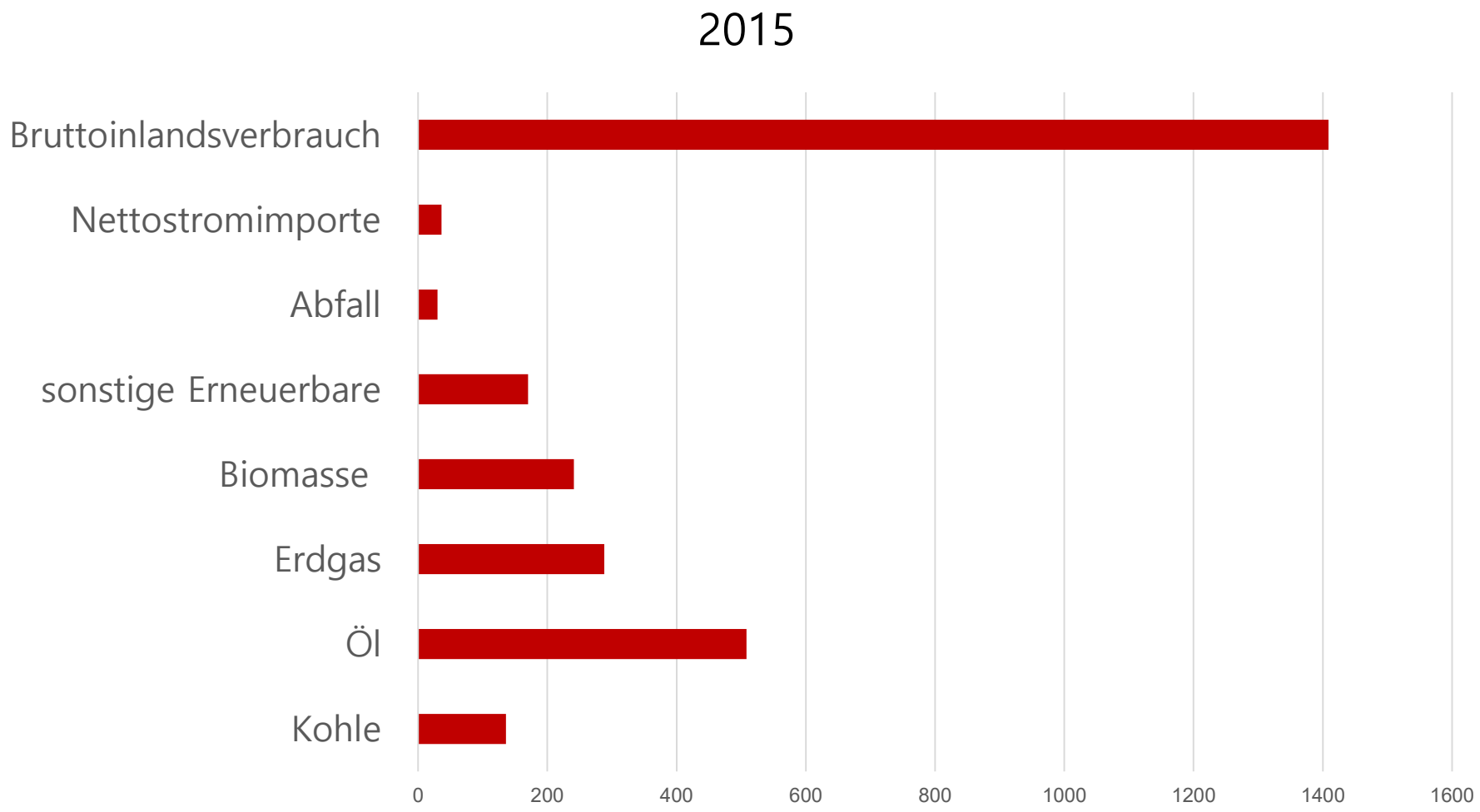
IEA World Energy Balances 2018

Austria 1990 - 2016



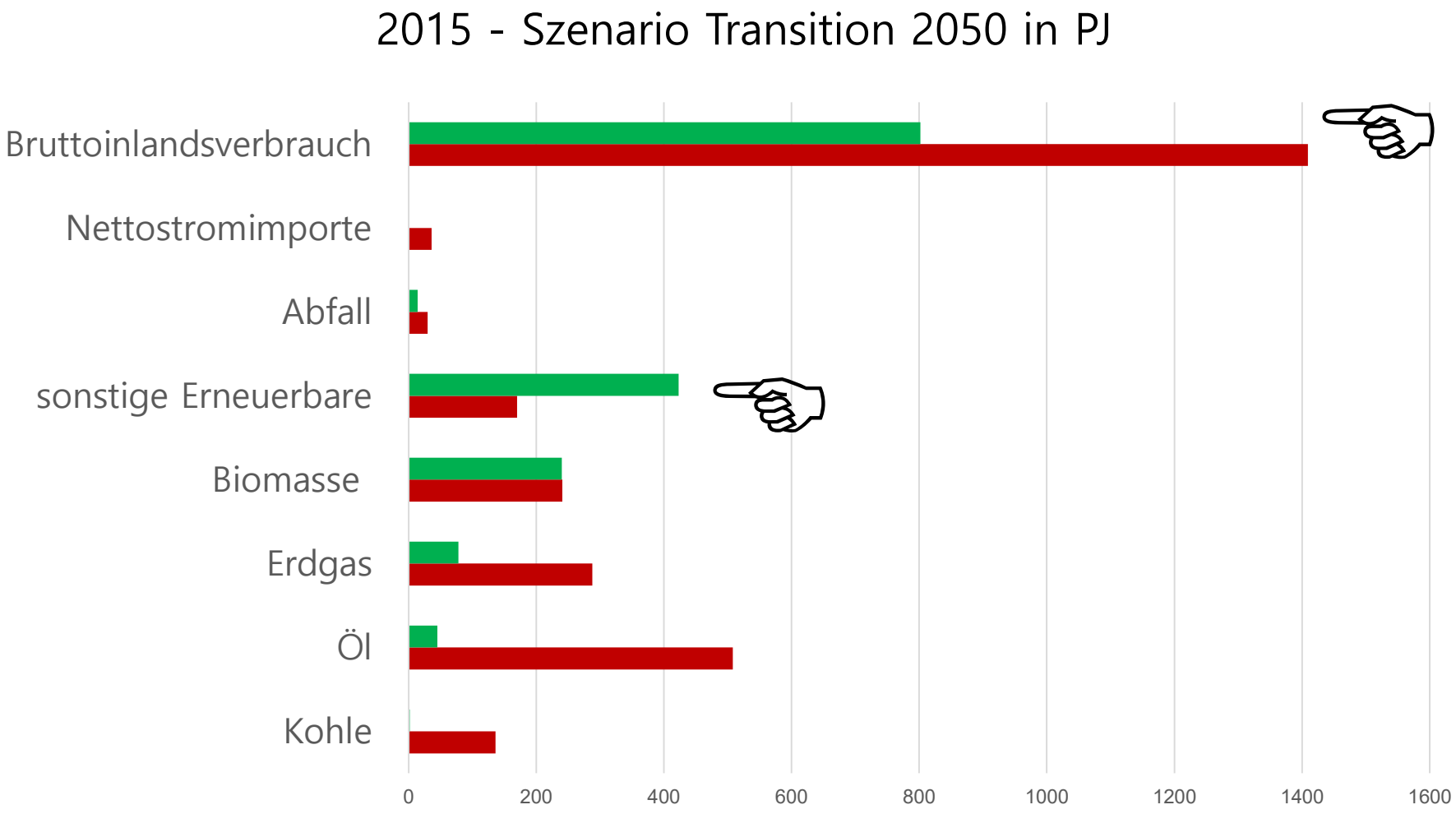
IEA World Energy Balances 2018

GROSS DOMESTIC CONSUMPTION AUSTRIA TODAY



Bruttoinlandsverbrauch (Quellen: STATISTIK AUSTRIA 2016a, Umweltbundesamt)

GROSS DOMESTIC CONSUMPTION AUSTRIA TODAY – TRANSITION 2050



Bruttoinlandsverbrauch (Quellen: STATISTIK AUSTRIA 2016a, Umweltbundesamt)

TARGETS 2030

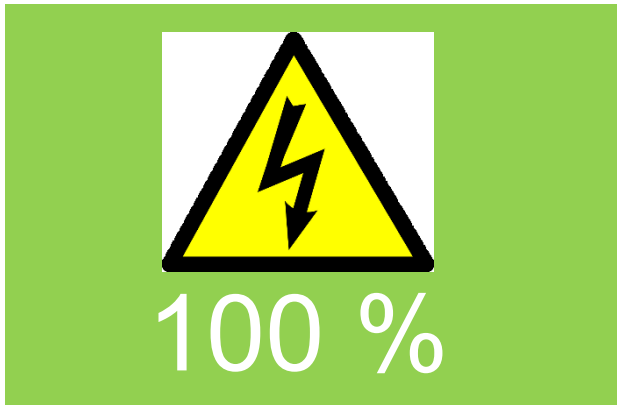
Austria

Greenhouse gas emissions -36%
compared to 2005

Primary energy intensity -25 to -30 %
related to GDP, compared to 2015

If by 2030 primary energy demand > 1,200 PJ, more energy to be covered by renewable energy

Share of renewable energy 40 - 45 %
(gross final energy consumption)



LIGHTHOUSE PROJECTS

1: Efficient freight logistics

2: Strengthening rail-bound public transport

3: e-mobility offensive

4: Thermal building renovation

5: Renewable heat

6: 100,000-roof photovoltaic and small storage program

7: Renewable hydrogen and biomethane

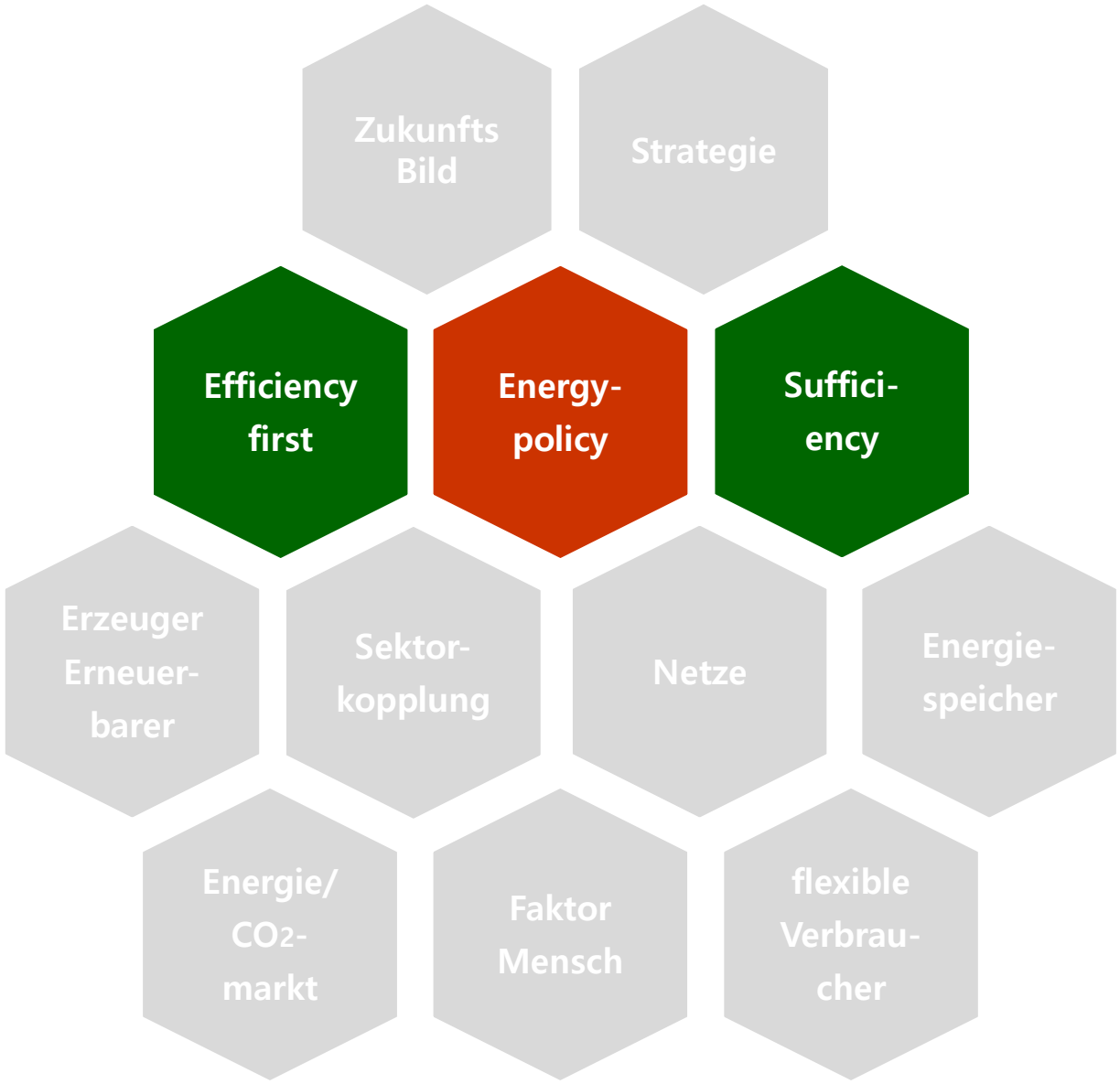
8: Green finance

9: Energy research initiative 1 - Building blocks for the energy systems of the future

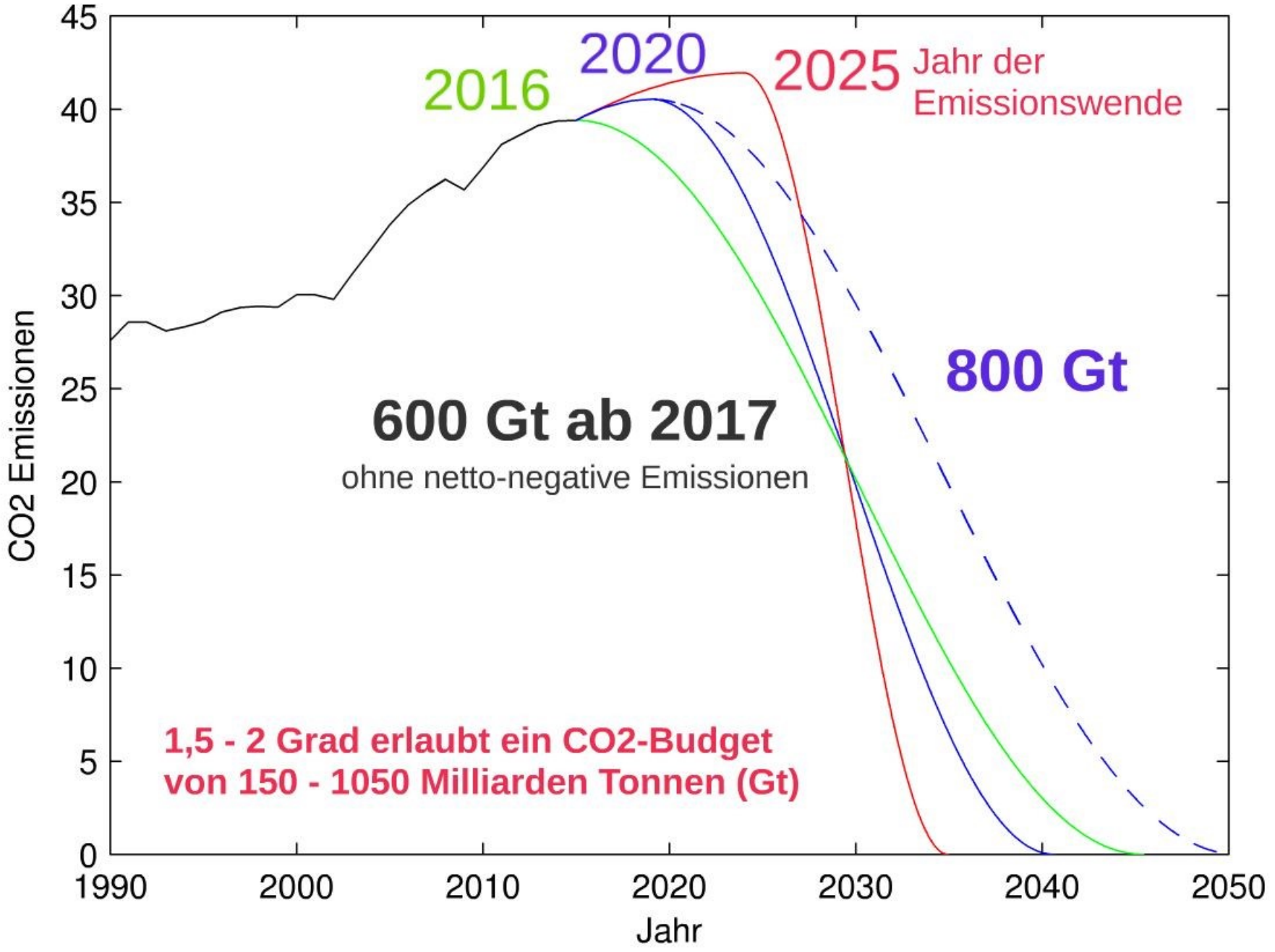
10: Energy research initiative 2 - Program mission innovation austria

11: Communication - Creating Education and Awareness for a Sustainable Future

12: Bio-economy Strategy


Zukunfts Bild
Strategie
Efficiency first
Energy-policy
Suffici-ency
Erzeuger Erneuer-barer
Sektor-kopplung
Netze
Energie-speicher
Energie/ CO2-markt
Faktor Mensch
flexible Verbrau-cher

J. Fechner


2016
2020
2025
Jahr der Emissionswende
800 Gt
600 Gt ab 2017
ohne netto-negative Emissionen
1,5 - 2 Grad erlaubt ein CO2-Budget
von 150 - 1050 Milliarden Tonnen (Gt)
CO2 Emissionen
Jahr
0
5
10
15
20
25
30
35
40
45
1990
2000
2010
2020
2030
2040
2050

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Der „Amerikaner“

Triebwagen Type Z, 1939

Nr. 4208 No. 4208	114 kW
Sitz-/Stehplätze seats/standing places	46/47
gebaut 1939 vom Third Avenue Transit System, New York built in 1939 by the Third Avenue Transit System, New York	
in Wien von 1950 bis 1969 im Personenverkehr used for passenger transport in Vienna from 1950 to 1969	
Ausstellungszustand Version shown	1964
Verband der Eisenbahnfreunde, Wien	

45 Triebwagen der Type Z, 1939 für die später eingestellte New Yorker Straßenbahn gefertigt, wurden 1949 zur Linderung des Wagenmangels nach Wien gebracht. Die eleganten Fahrzeuge bestachen durch großen Fassungsraum, hohe Fahrgeschwindigkeit und damals revolutionär anmutende automatische Falttüren mit h
Trittbrettern. Wegen ihrer übe
(knapp 2,5 Meter) blieb ihr Ei
beschränkt. Ab 1950 fuhren d
die sich bei den Fahrgästen g
erfreuten, vorerst auf der Linie
dorf. 1969 fand ihre Ära in Wie

E-mobility

Tram, 1939
114 kW for 94 persons

BMW i3 electric, 2018
125 kW for 4 persons

Rebound-Effects

EFFICIENCY

may raise energy demand

Efficiency first:

European principle

Flex-Efficiency:

Volatile Renewables

> DSM, storage,

> pricing (EU-level agreement)

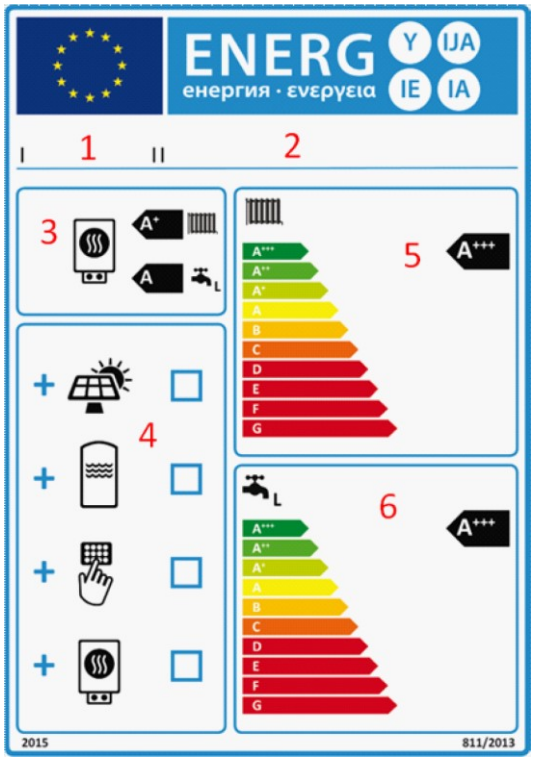
"… the cost-savings associated with efficiency improvements can increase consumption.

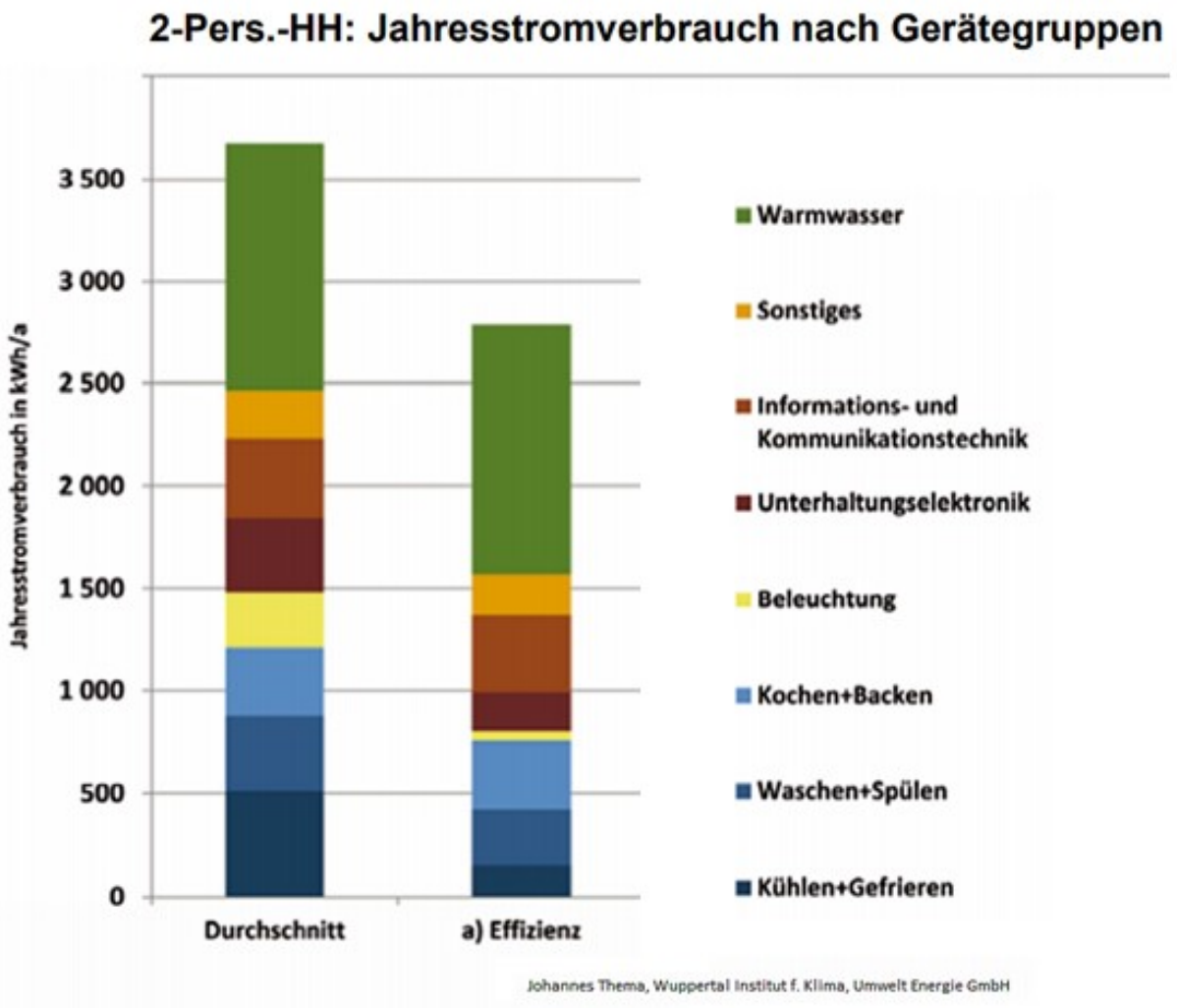
(Jevons-Paradox or rebound effect)"

Fred Luks, economist, Vienna

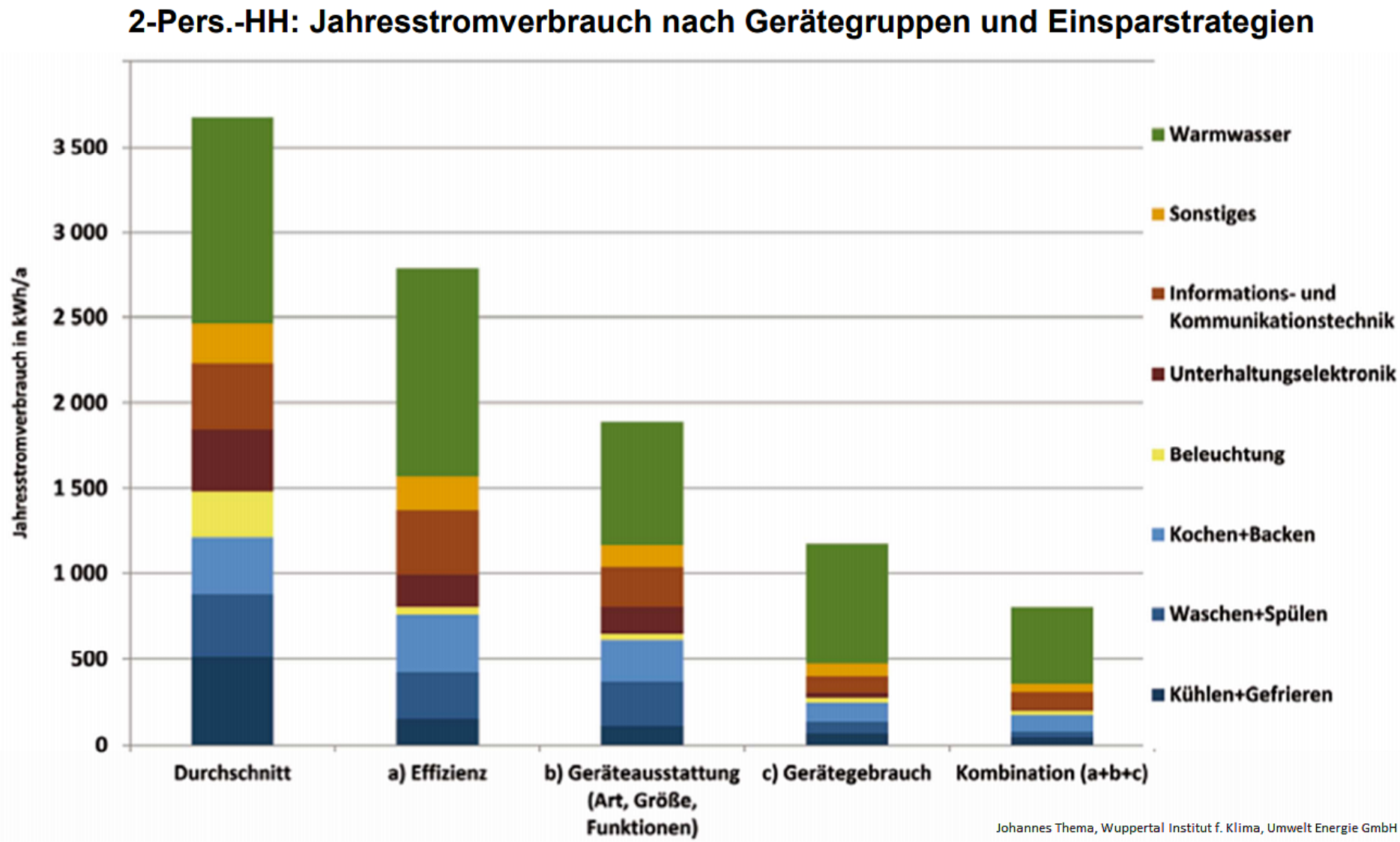
https://mobil.derstandard.at/2000088851900/Wie-Wachstum-wirklich-wirkt

ENERGY EFFICIENCY





EFFICIENCY + CONSISTENCY + SUFFICIENCY



Johannes Thema, Wuppertal Institut f. Klima, Umwelt Energie GmbH

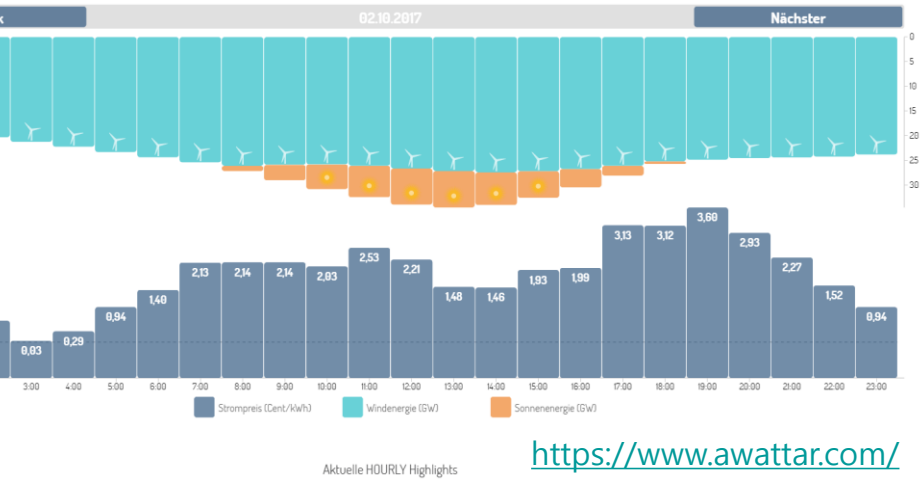
SUFFICIENCY

Measures – not only individual level

- Car sharing instead of ownership (grey energy and operational)
- Habitation: space per person
- Lighting level oriented on real demand
- Reduction of hot water in public buildings
- a 5kW consumption cap for households (Isle of Eigg in Scotland)
- …

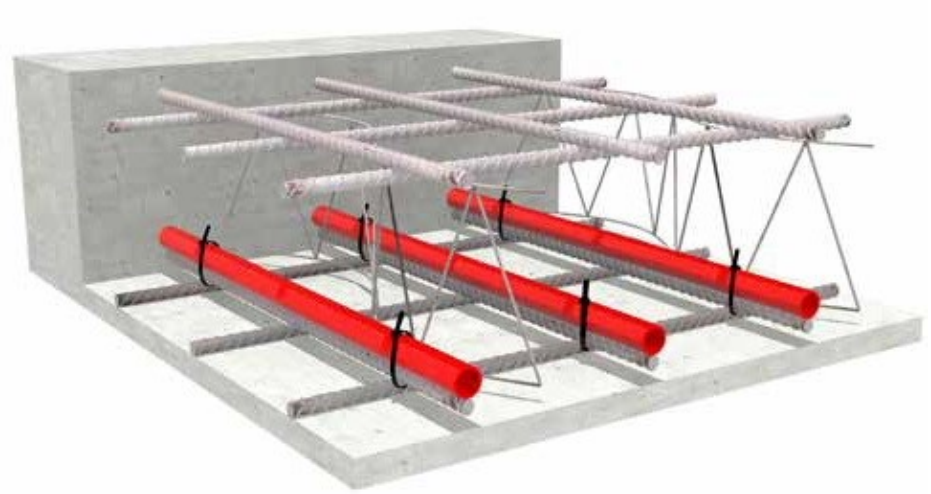
DSM + STORAGE + COOLING

Without additional costs



https://www.awattar.com/

AT: 50,000 residential units p.a.,
4 million m² of concrete ceilings:



Storage capacity 1.8 GWh for 2 - 6 days without additional costs
Shift of power demand with heat pump up to 6 days
Flexible tariffs coming soon

ENERGY AGENCIES IN AUSTRIA

Interface between energy policy, administration and private sector for realisation of energy efficiency and renewable energy.

AEA - Austrian Energy Agency

Energie- und Umweltagentur Niederösterreich (eNu)

Oberösterreich: Energiesparverband (ESV)

Energieagentur Steiermark

Energie Tirol

Energieinstitut Vorarlberg

FB - Forschung Burgenland GmbH

Wien: urban innovation

Lokale Energieagentur GmbH (LEA)

Grazer Energieagentur (GEA) etc.

AUSTRIAN ENERGY AGENCY

Attention > Interest > **Demand** > Action

We know what ist important for people - and in general this is not energy efficiency.

- But it can be climate adaptation, health and clean air, even autarcy
- Social Dimension: Personal image, peer groups
- Money.

But: „*There is no desire to consume energy*" (Reinhard Haas)

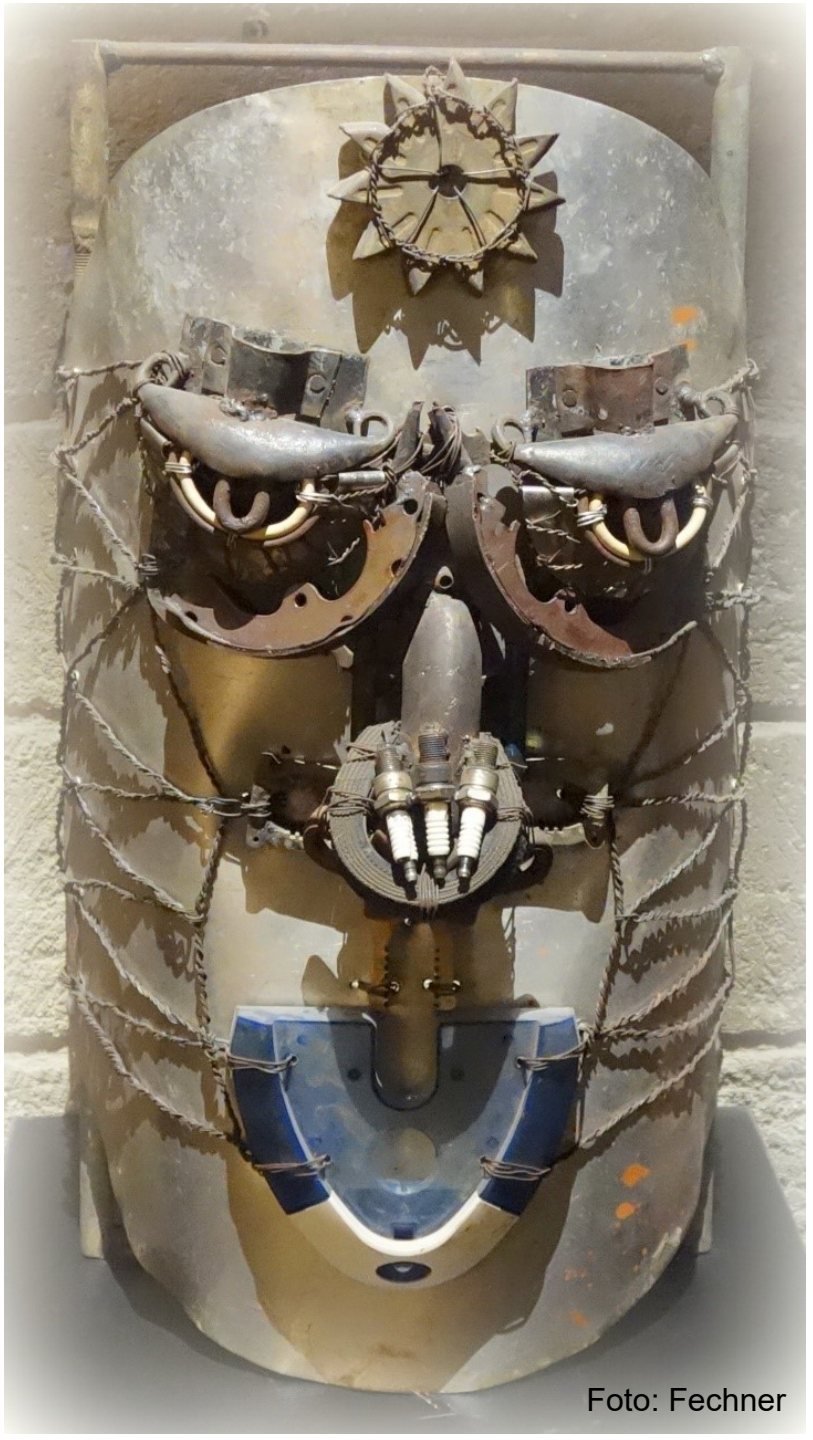


Foto: Fechner

ENERGY-ADVICE/CONSUTING

61 institutions in Austria provide energy advice for the public, focus on

- Thermal renovation
- Heating system
- Renewable energy
- Subsidies

Bundesministerium
Nachhaltigkeit und
Tourismus

klimaaktiv

… the Austrian climate protection initiative and integral part of the Austrian climate strategy.

Primary objective is to launch and promote climate-friendly technologies and services.

- Develops high standards of quality (klimaaktiv building)
- Provides education and training for professionals in cooperation with education institutions
- Gives information and advice
- cooperates with a large network of partners

E-LEARNING KLIMAAKTIV

RECOMMENDED, BUT IN GERMAN!

INFORMATION

Klimaschutz - warum

Klimaschutz - Strategien

Technologien und Gesamtbild

Werkzeuge und Berechnungen

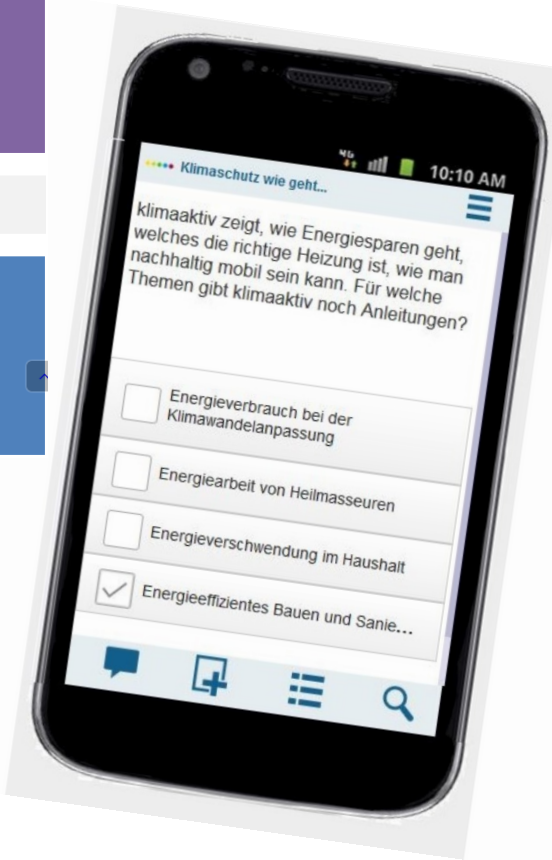
Netzwerke Klimaschutz

KURSE ONLINE

Energie im Gebäude
7 Kurse

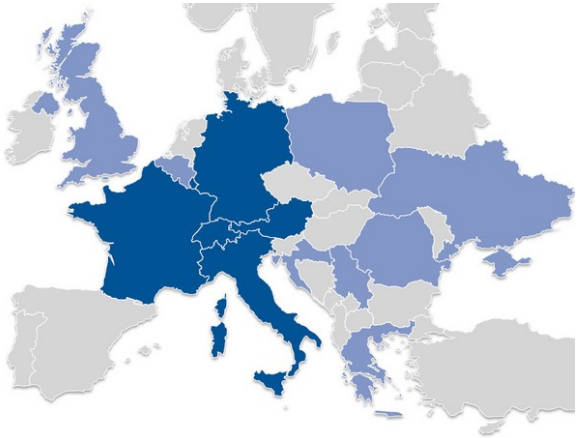
Energie in der Gemeinde
und im Betrieb

Energie und Klima - gut
zu wissen



www.klimaaktiv-elearning.at/Lernplattform/

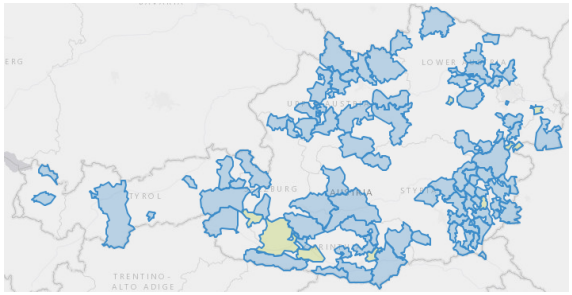
european energy award



… supports municipalities willing to contribute to sustainable energy policy and urban development through the rational use of energy and increased use of renewable energies.

- Energy management, tools and audit

More than 1,500 municipalities participating in Europe, in Austria 194 municipalities (e5).



Klima- und Energie-Modellregionen

Wir gestalten die Energiewende

Climate and energy model regions should become role models for other regions. The long-term vision: 100 % exit from fossil energy.

The central element is a model region manager. Together with partners from the region, projects are implemented in the following areas:

- Renewable Energy, Reduction of Energy Consumption, Sustainable Building, Mobility, Agriculture, Awareness

Program of the Climate and Energy Fund, which co-finances regional climate protection projects and regional model region management.

Wir sind

Klimabündnis Gemeinde

The Climate Alliance is a climate protection network in Austria. Communities, schools, and businesses build a partnership with indigenous organizations in the Amazon.

- Awareness, local level, mobility, schools

Fotos: Klimabündnis

RESUMEE

Energy transition is the big challenge for our generation.

It can succeed if we cooperate.

What can we do?

- Participate in the public discourse
- Communicate better than deniers
- Provide solutions that work

DI Johannes Fechner

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