



International Conference

Elements of a Greenhouse Gas Neutral Society

10-11 October 2013, Berlin, Germany

**Local climate protection -
benchmarks, partnerships, guidelines
for local governments**

Hans Hertle, IFEU Heidelberg, Germany



The Institute for Energy and Environmental Research (IFEU) is a non-profit ecological research institute. It was founded in 1978 as an independent center of excellence for environmental research by scientists from the University of Heidelberg. Currently, IFEU has a staff of more than 70, mostly scientists in the fields of biology, chemistry, physics, geography, and engineering.

**35th
Anniversary
2013**

**More than 35
Years of
Experience**

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Ecornet
Ecological Research Network

Das IFEU-Institut ist Mitglied
im Ecornet (Ecological
Research Network)

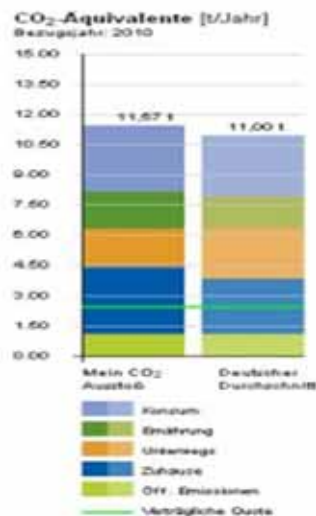
Klimaschutz +



IFEU: Different perspectives on environmental impact

Consumption perspective and **Production** perspective

Carbon footprint / Energy Balance
of Cities
SEAP



EMAS
Industries



LCA
Products



Agenda

- History of climate cities action
- Climate Cities Benchmark
- Klimaschutzplaner (Excursus: Allocation of CHP)
- Coaching kommunaler Klimaschutz
- Change Agent Course (Klimaschutzdialog)
- Personal Carbon Footprint

Germans had been shocked by oil embargo 1973



They had been shocked by high price of gasoline but even by the ban on driving
(*Sonntagsfahrverbote auf Autobahnen*)



“Conservation is the quickest, cheapest, most practical source of energy. Conservation is the only way we can buy a barrel of oil for a few dollars.”

Jimmy Carter, “Sweater and Sacrifice” Speech

Climate Cities on the road since the early 1970th

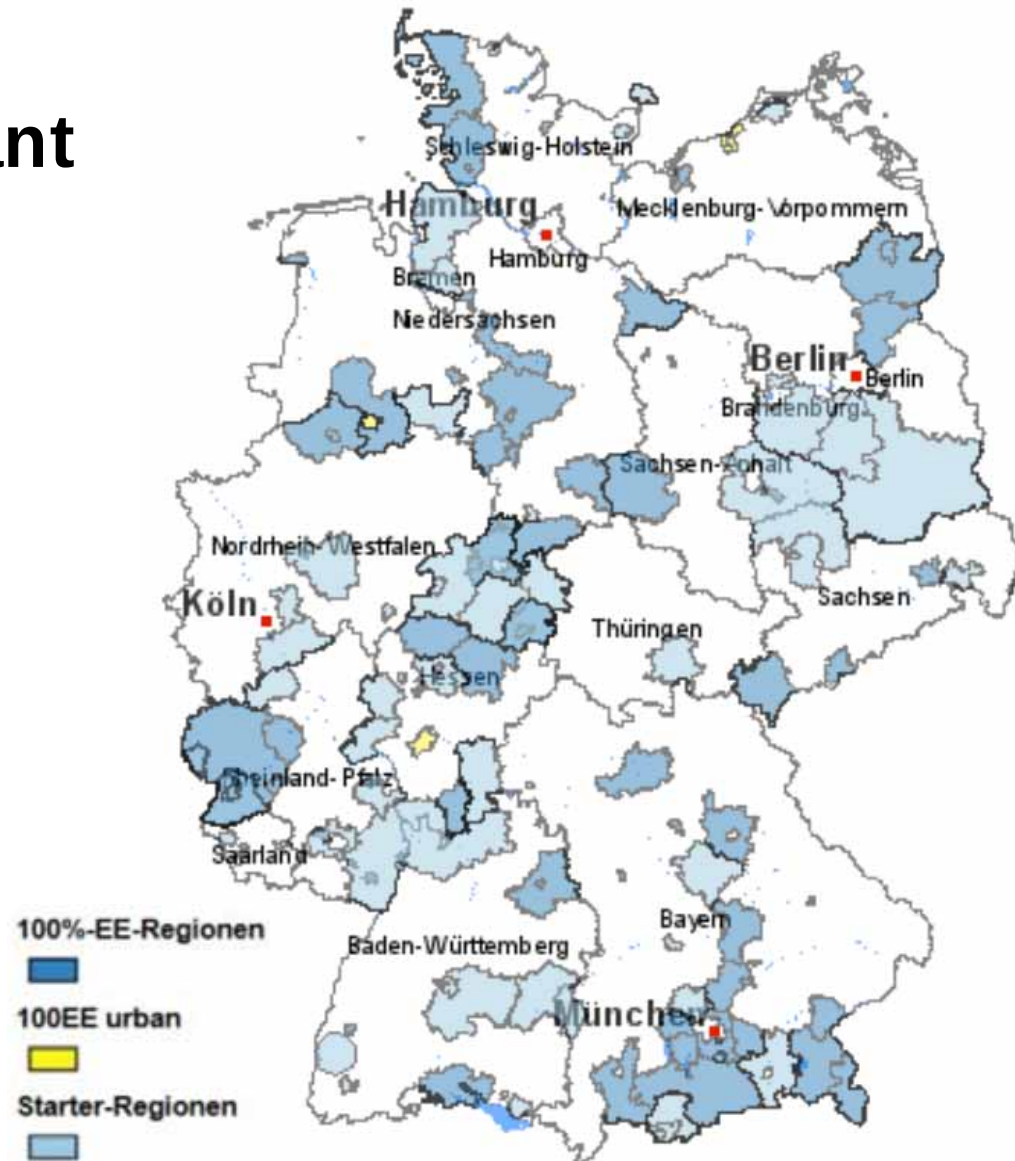
Encouraged by environmental
touched citizen some big cities
startet with efficiency
programs and promoted
renewable energy installation

(and not only shifting from coal
to oil or to natural gas)



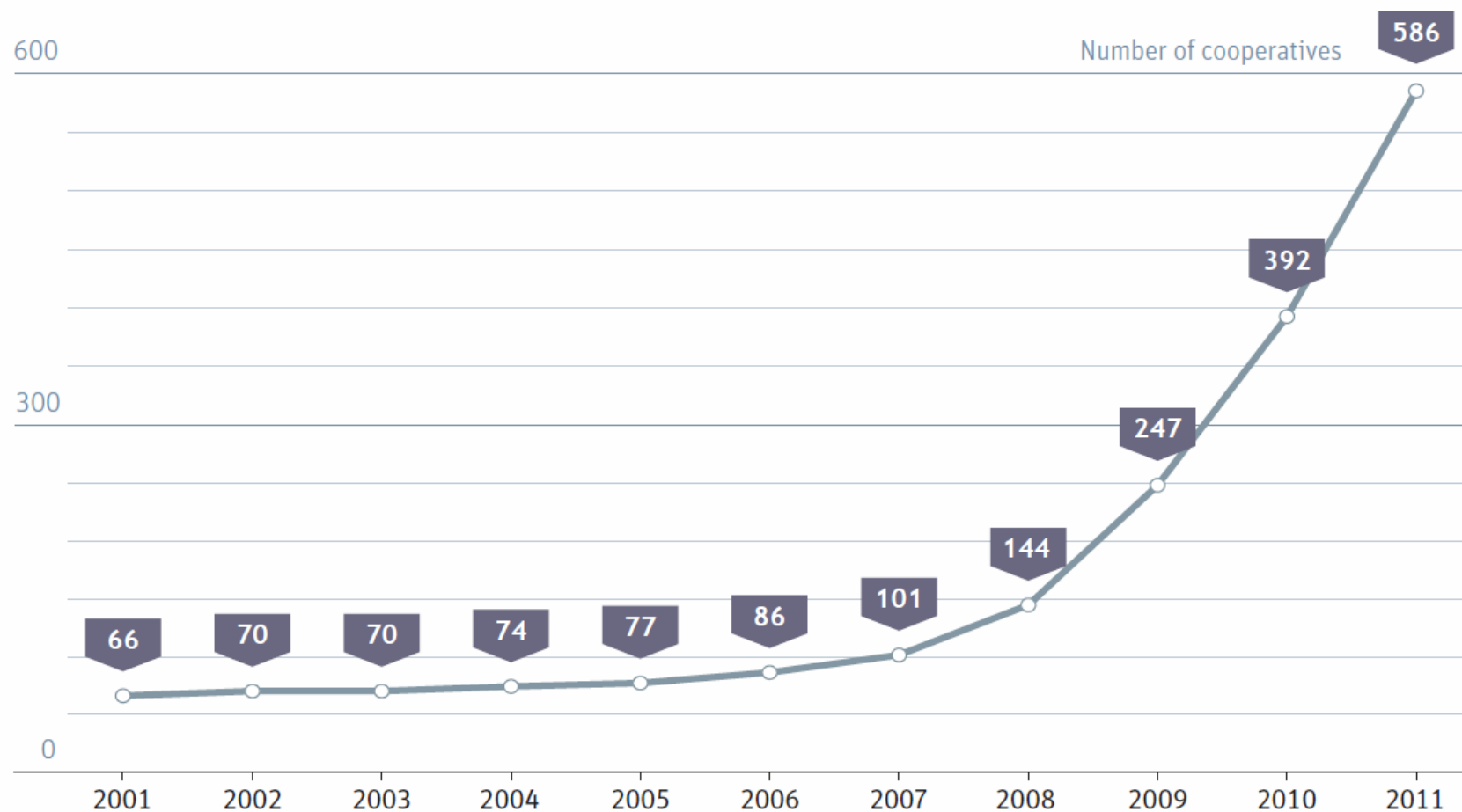
More and more small cities and regions want to switch to 100% renewable energy

(German feed in law started in 2000)

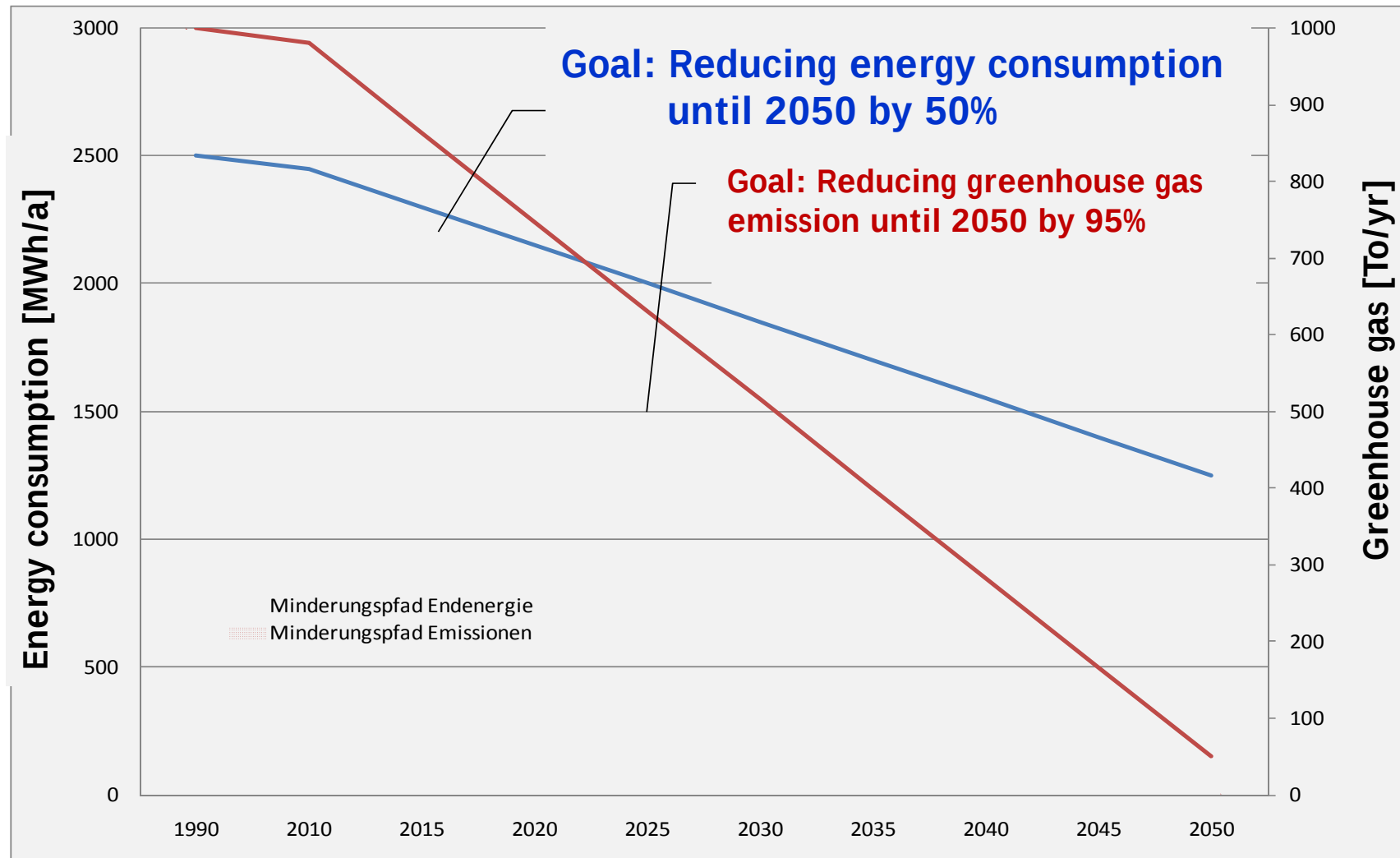


Citizens form cooperatives to drive the energy transition

Number of energy cooperatives in Germany, 2001-2011



Just now: 100% Masterplan > Ambitious goals for cities



ENERGIEWENDE: It seems to work...



...but it is rather complex

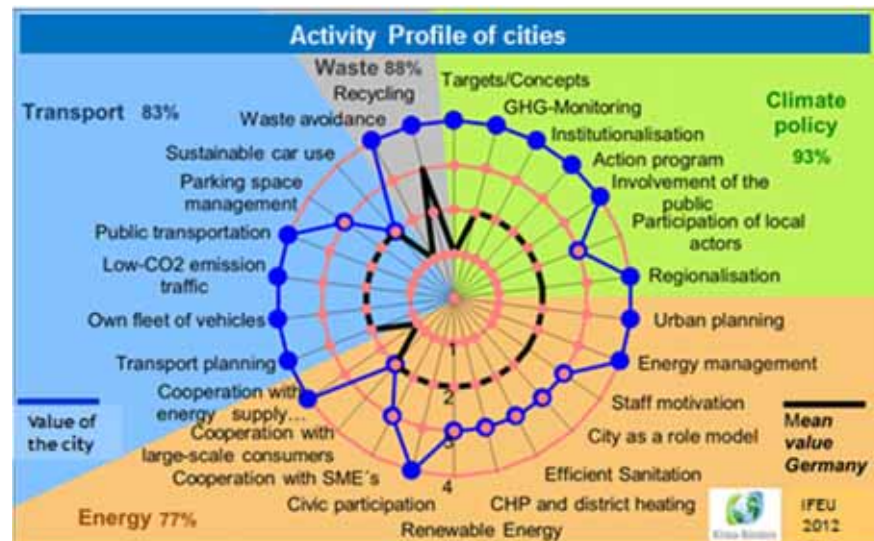
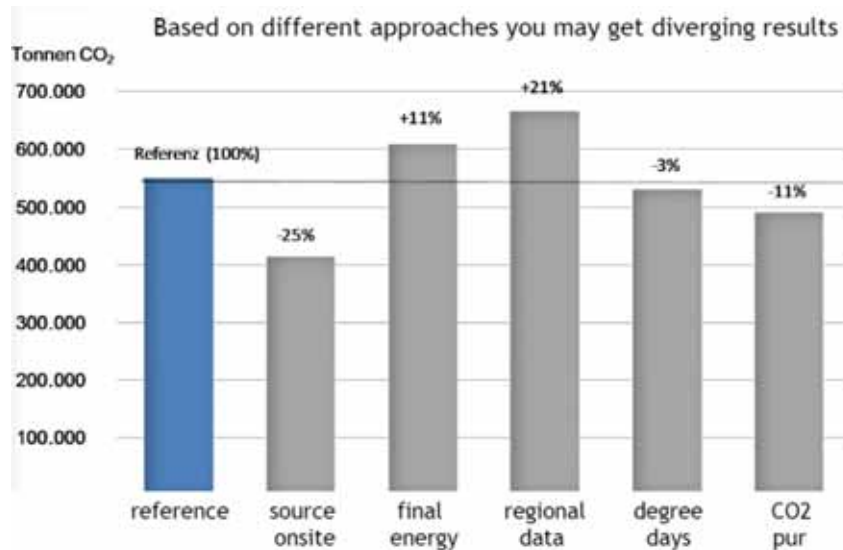


Quelle: IFEU, Fraunhofer IBP, Hochschule Regensburg

Konzept: Dr. Martin Pehnt (IFEU); Inhalte: Dr. Martin Pehnt, Udo Lambrecht, Lars Brischke (IFEU); Prof. Dr. Michael Sterner (Hochschule Regensburg); Norman Gerhardt; Christina Sager, Rolf-Michael Lüking (Fraunhofer IBP); Grafik: Doris Burghardt, Julia Engelhardt (Nimbus Designbüro)

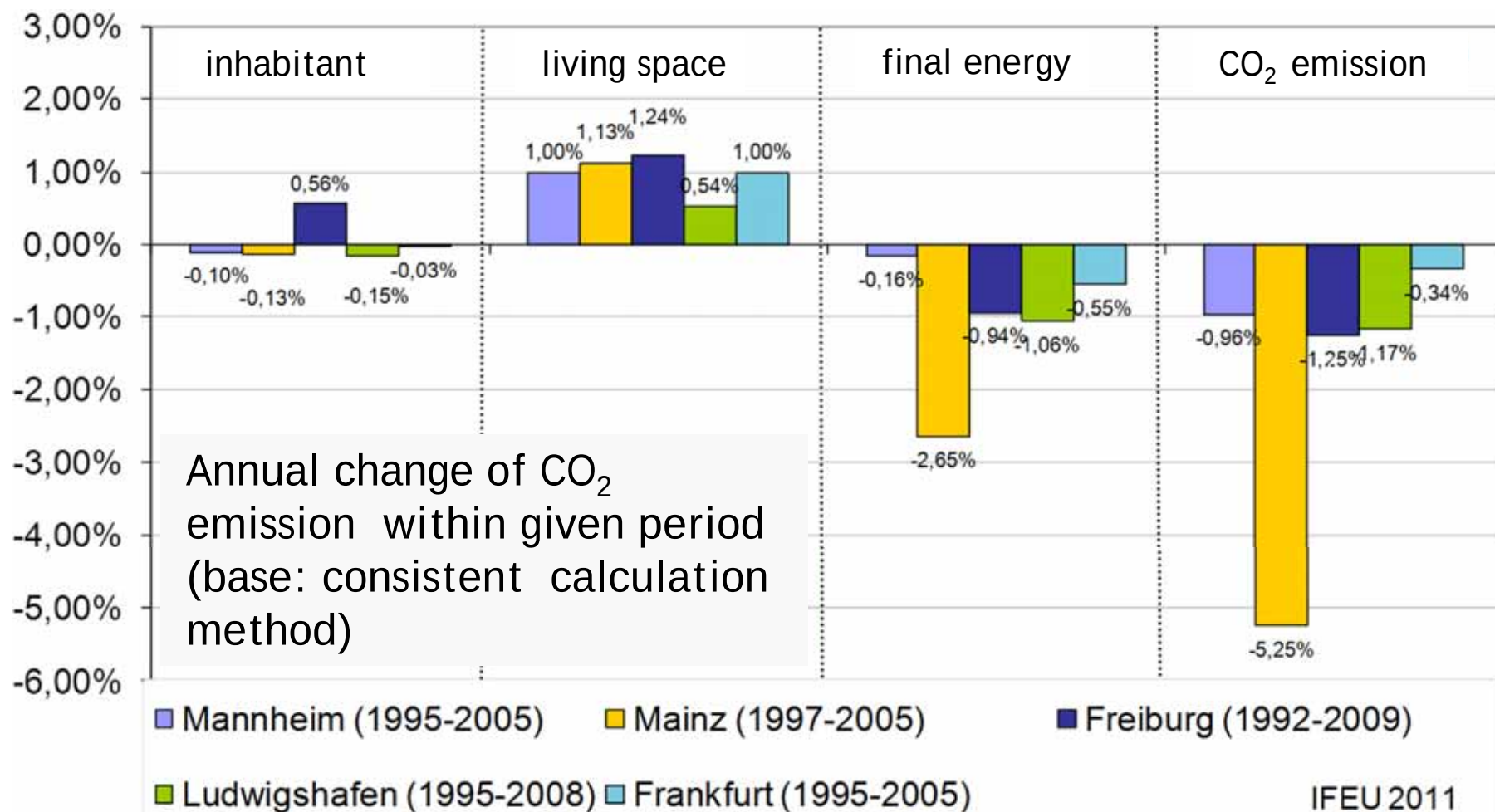
Source: IFEU, Fraunhofer IBP, Hochschule Regensburg

How to compare climate cities action and help them tuning climate measures on multi-plane level?

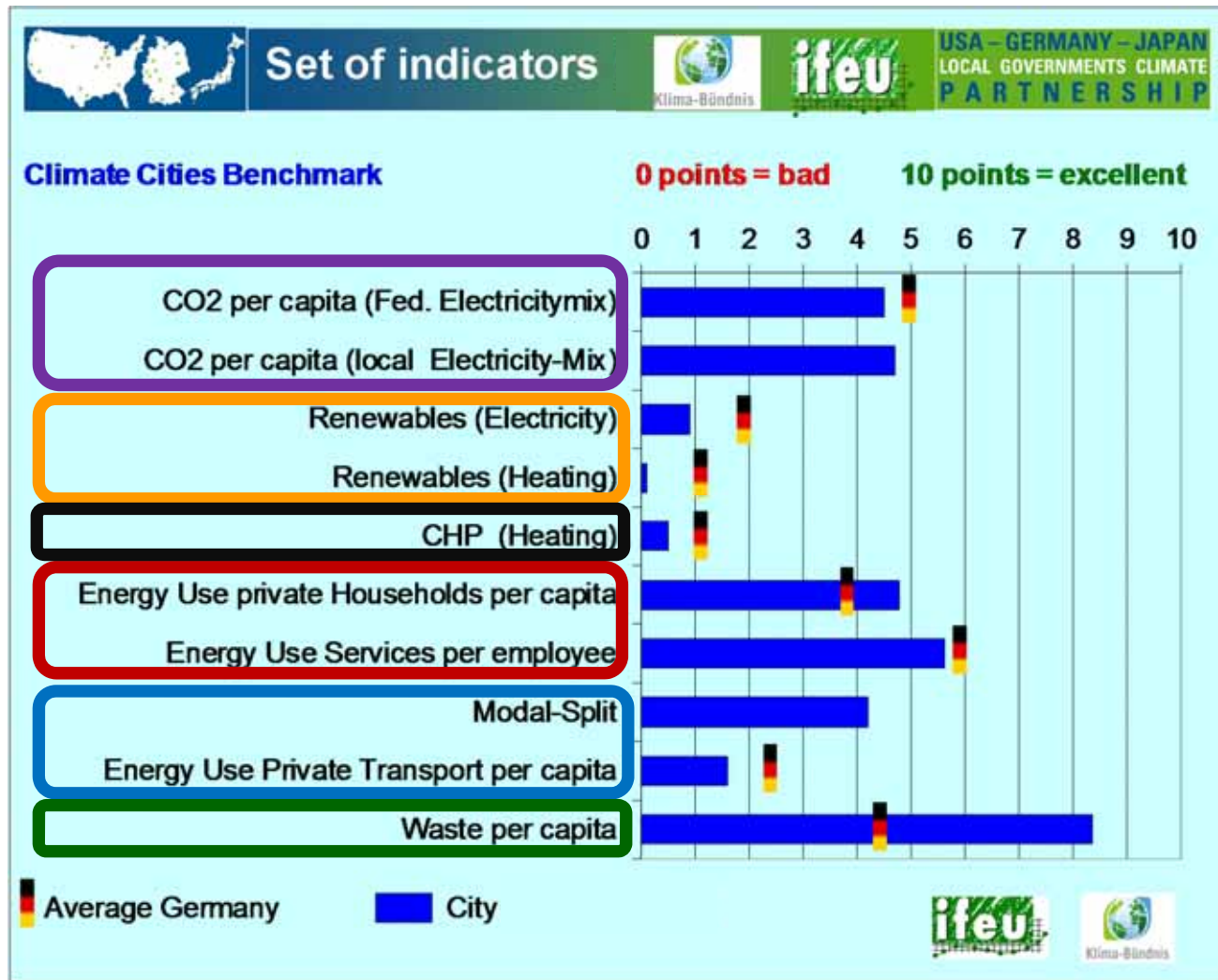


CO₂ emission are caused by different effects

Staring only at CO₂ in total may be not useful



So we need some more indicators



The Set of Indicators covers:

CO₂-Emission
Renewables

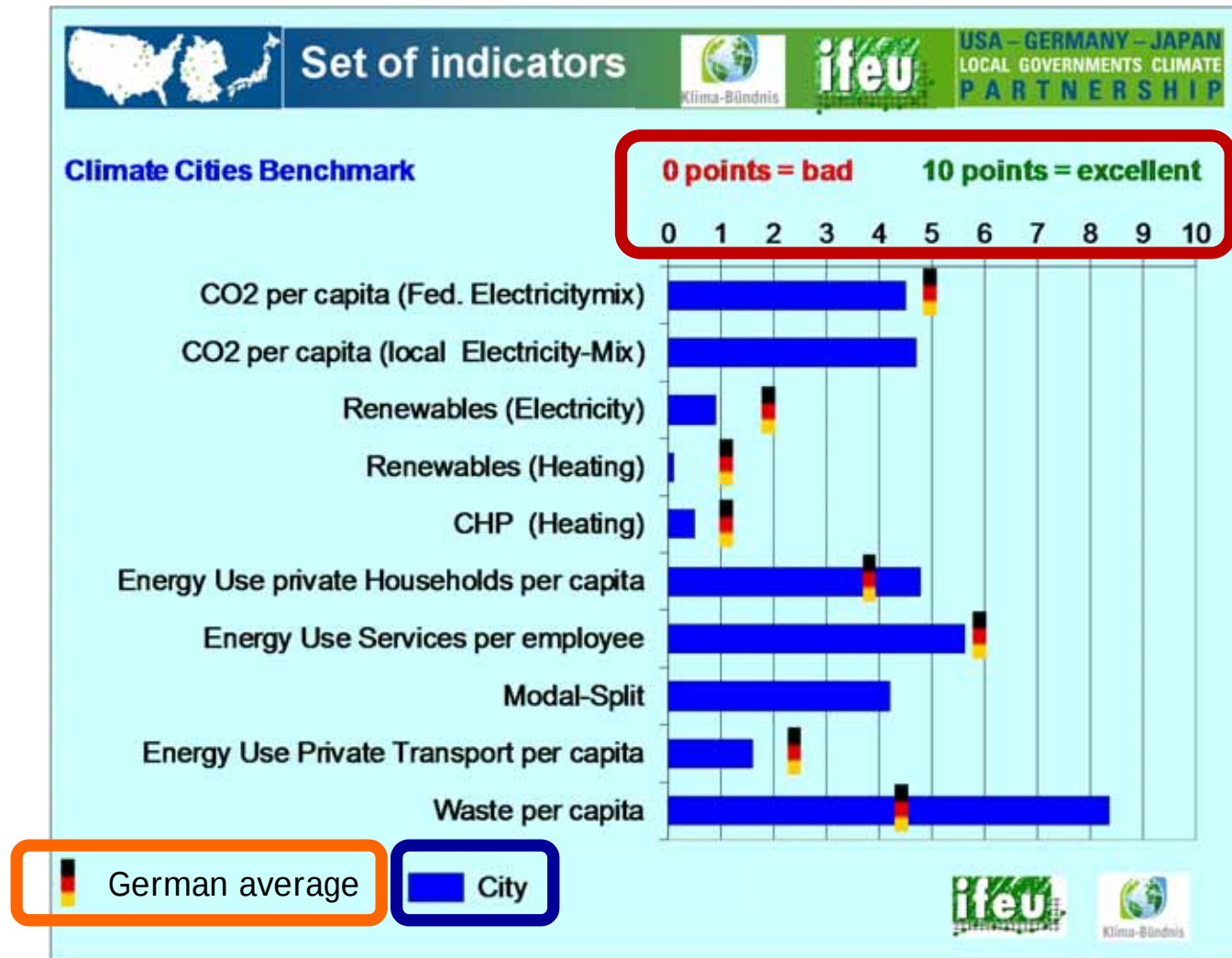
CHP

Efficiency

Mobility

and **Reduktion of Waste**

Set of indicators should base on absolute figures

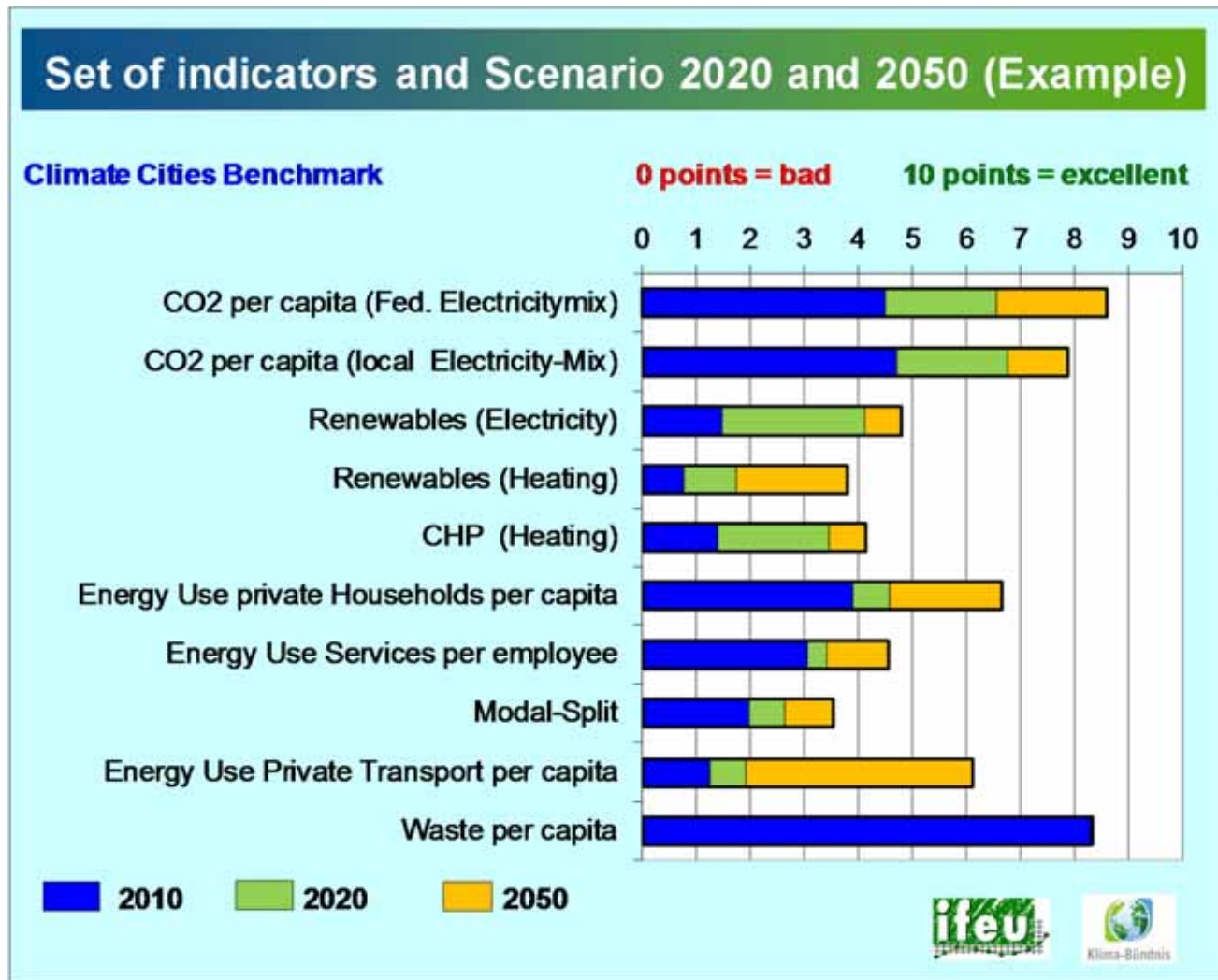


The set shows an absolute scale!
10 points is excellent (e.g. 0 tons CO₂ or 100% Renewables)

The blue beams indicate the city

The flags indicate German average

Set of Indicators can be used in the long run



The set of indicators figures out long term goals based on scenarios

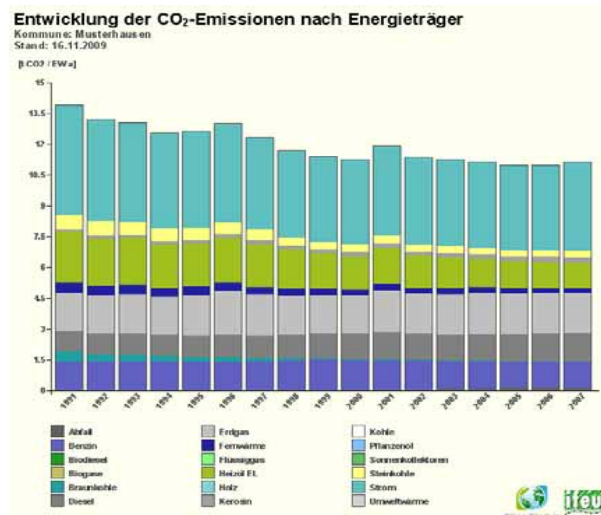
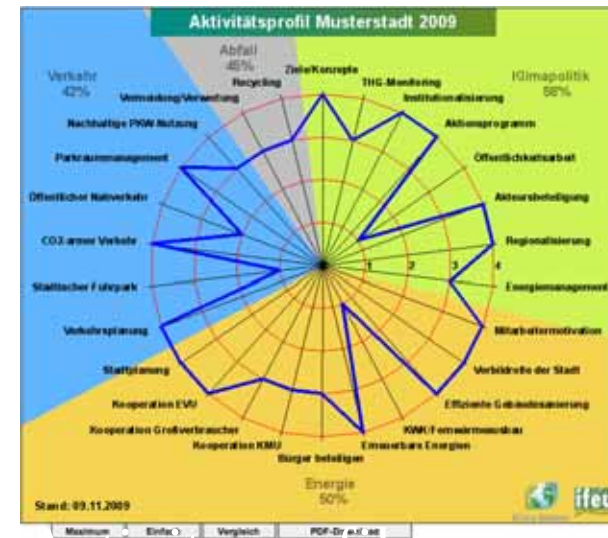
It is even useful for 100% Masterplan Cities with ambitious goals until 2050

Elements of Climate Cities Benchmark



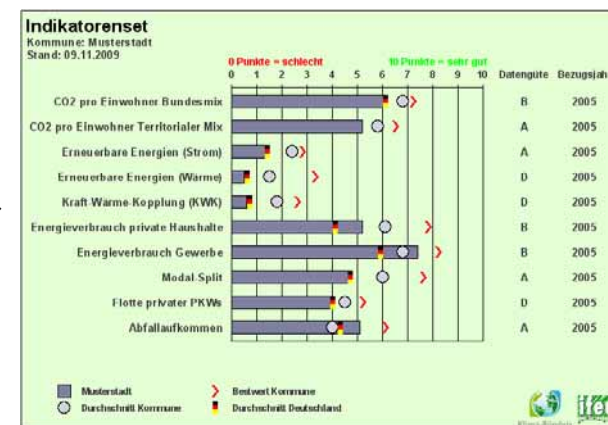
Activity Profile →

Sponsored by →

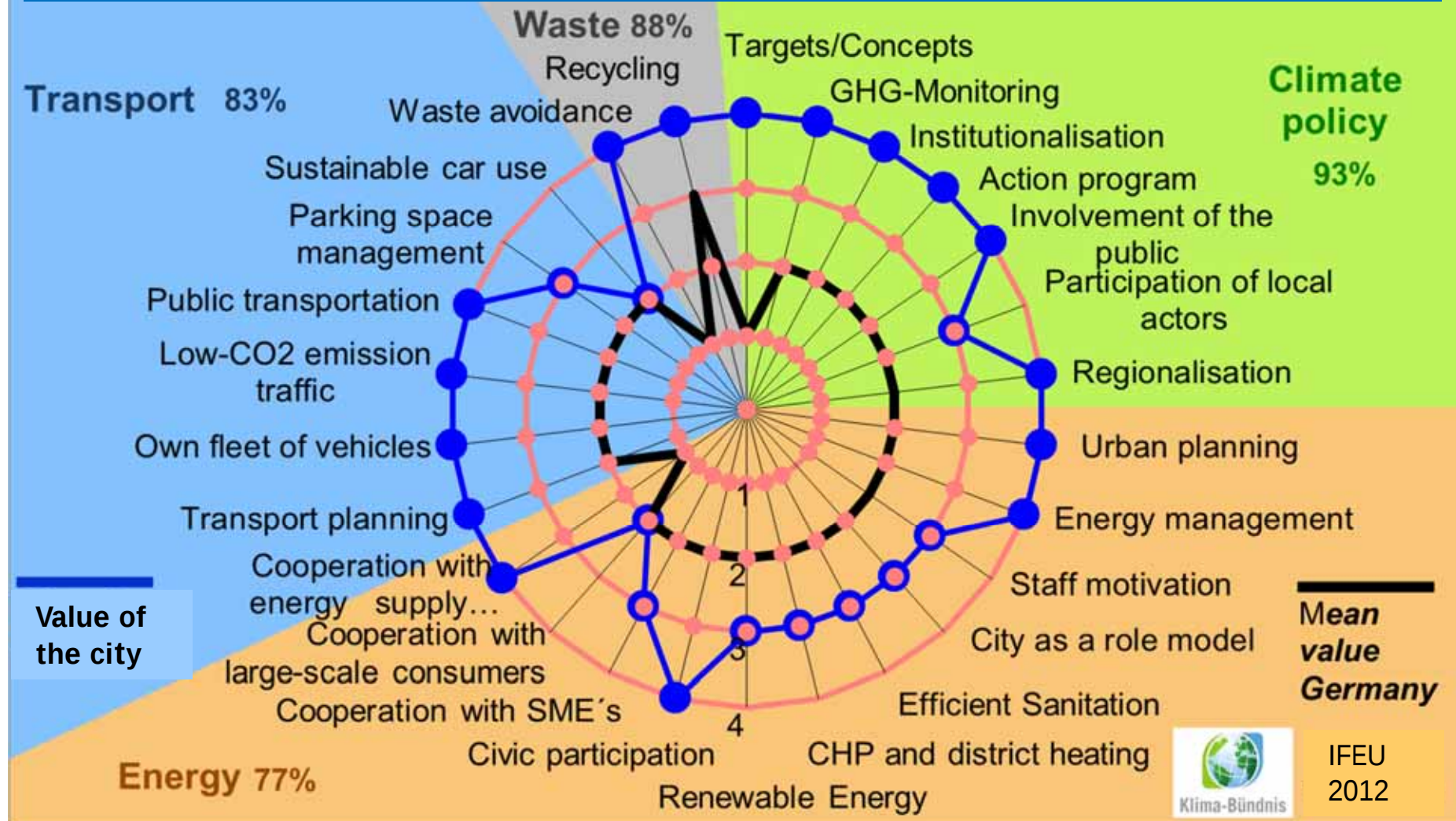


← Balance Sheet

Set of Indicators →



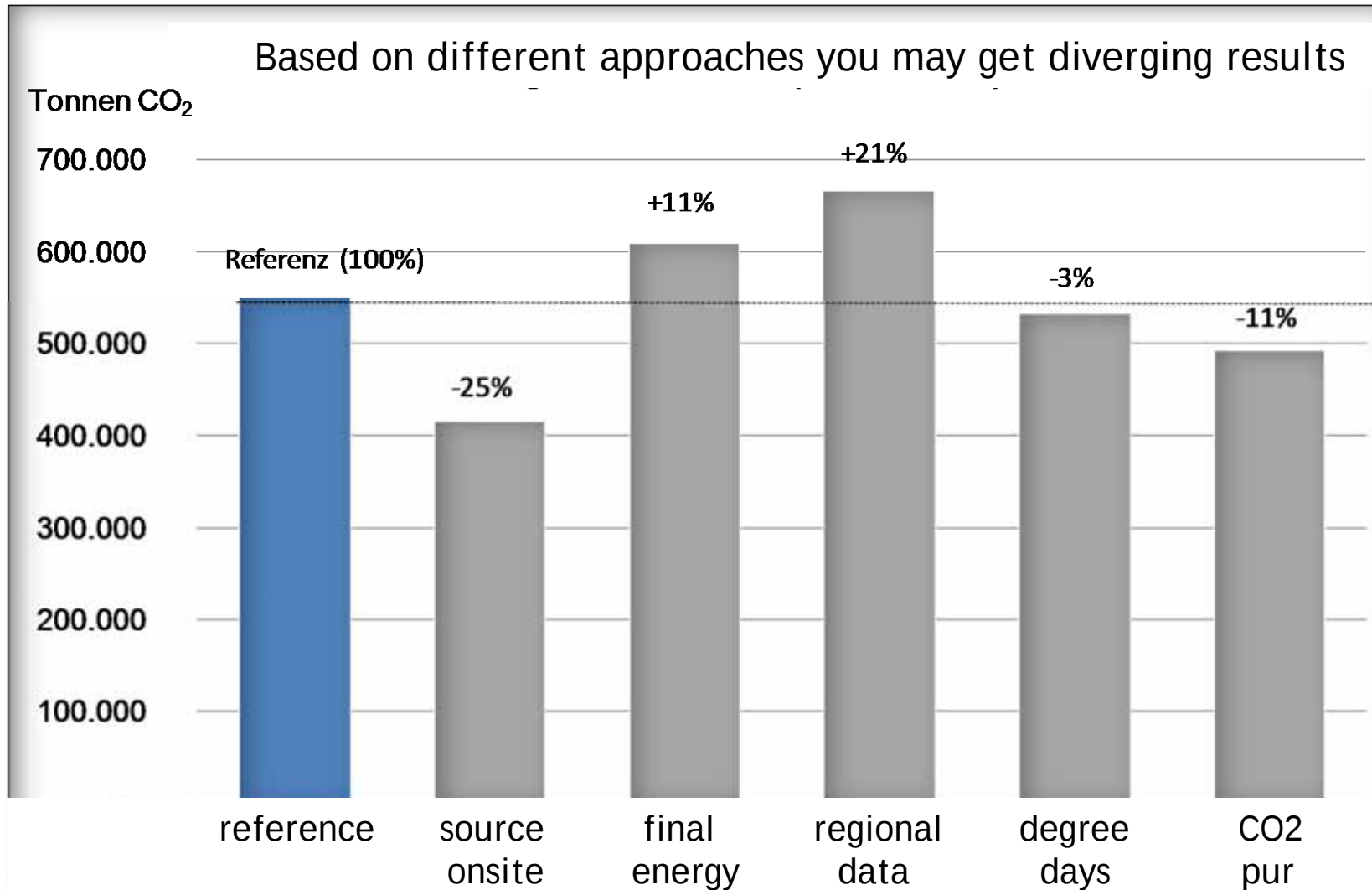
Activity Profile of cities



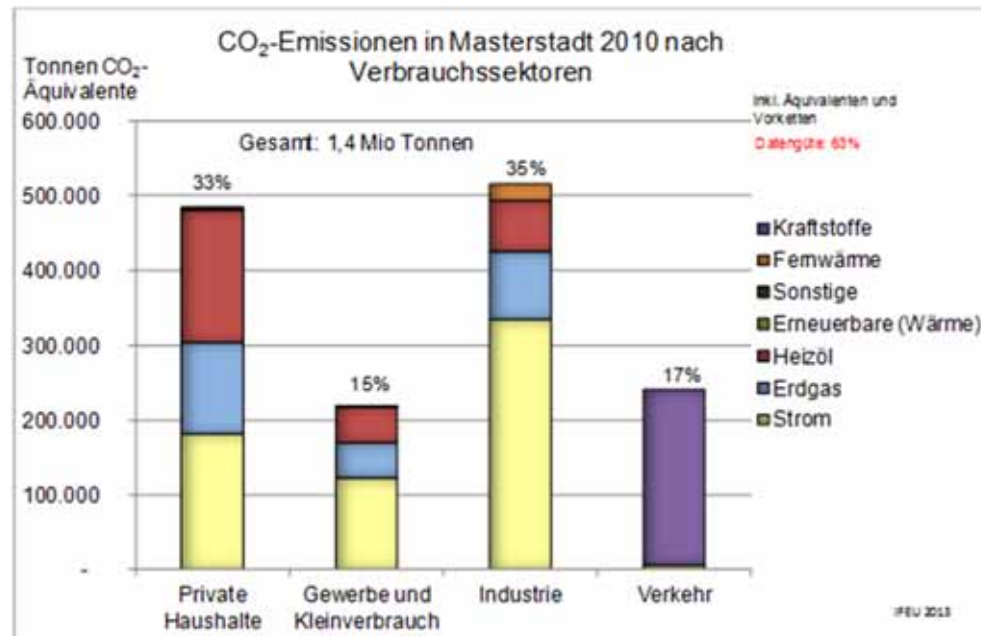
Activity profile: Multiple joice (4 step approach)

A	Climate Policy	1: getting started	2: moving forward	3: forging ahead	4: taking the lead
A1	Adopt targets and develop a concept	develop a general commitment to climate policy	add a self committing CO2 reduction target for the city or municipality	adopt detailed reduction targets for all relevant sectors	develop visions, set high targets (e.g. become a "100 % renewable" community)
A2	CO2-Monitoring (measure, verify and report performance)	prepare the implementation of a CO2 inventory and Greenhouse Gas Balance (Check data availability) for municipal facilities or estimation for the municipality	accomplish a CO2 inventory for the city according to fuels and multiple sectors including municipal facilities	publish a report about the implementation of the action program with data of energy consumption and a rough CO2 inventory of all sectors	regularly monitor indicators relevante to the climate through a benchmark system (Climate Cities Benchmark, eea, etc.)
A3	Institutionalise your climate policy	determine a responsible officer / department for climate policy	inform and involve all relevant departments and decision makers in your climate policy	set up a global administrative department for climate protection in the municipality	establish a climate protection agency (including city departments and external stakeholders)
A4	Set up and implement the action programme (define visions)	establish an action programme including basic resolutions and identify possible measures	select priority measures and realize first measures (taking into account previous activities and upcoming developments in your municipality)	detail the action program for all sectors relevant to the climate in accordance with the targets set	Intensive implementation of the action programm with measures in all sectors (incl. traffic sector)
A5	Inform about climate change and your climate policy	organize a public event on climate protection and the local commitment	set up an annual campaign on climate change	regularly inform and raise awareness for specific target groups in at least one sector	elaborate a target group-specific information and communication strategy for target groups in all relevant sectors (incl. Traffic sector)
A6	Involve local actors	set up an structures and models for participation and involvement of stakeholders	establish a permanent working group / round table on climate policy with citizens, individual target groups and stakeholders	enforce structures by carrying out first pilot projects based on active co-operation with citizens, individual target groups and stakeholders	set up long term cooperation with private sector partners, stakeholders and individual target groups (e.g. large energy consuming, supply, transportation or waste companies)
A7	Open up to the region and initiate common activities	Engagement in international networks for climate protection	set up cooperation with neighbouring municipalities to discuss the potential of common activities in the climate sector	common planning and implementation of regional climate protection activities	set up regional climate action programmes including regular monitoring of energy consumption or CO2 emissions

Balance sheet: Lack of harmonized calculation



Harmonized calculation method in progress



„Development of standardized instruments for balancing energy, potential and scenario„

Partner:

Klima-Bündnis e. V.
Frankfurt



Klima-Bündnis



Institut dezentrale
Energietechnologien
IdE Kassel

IdE Institut
dezentrale
Energietechnologien

Time schedule:

Mai 2012 until April 2015

GEFÖRDERT DURCH:



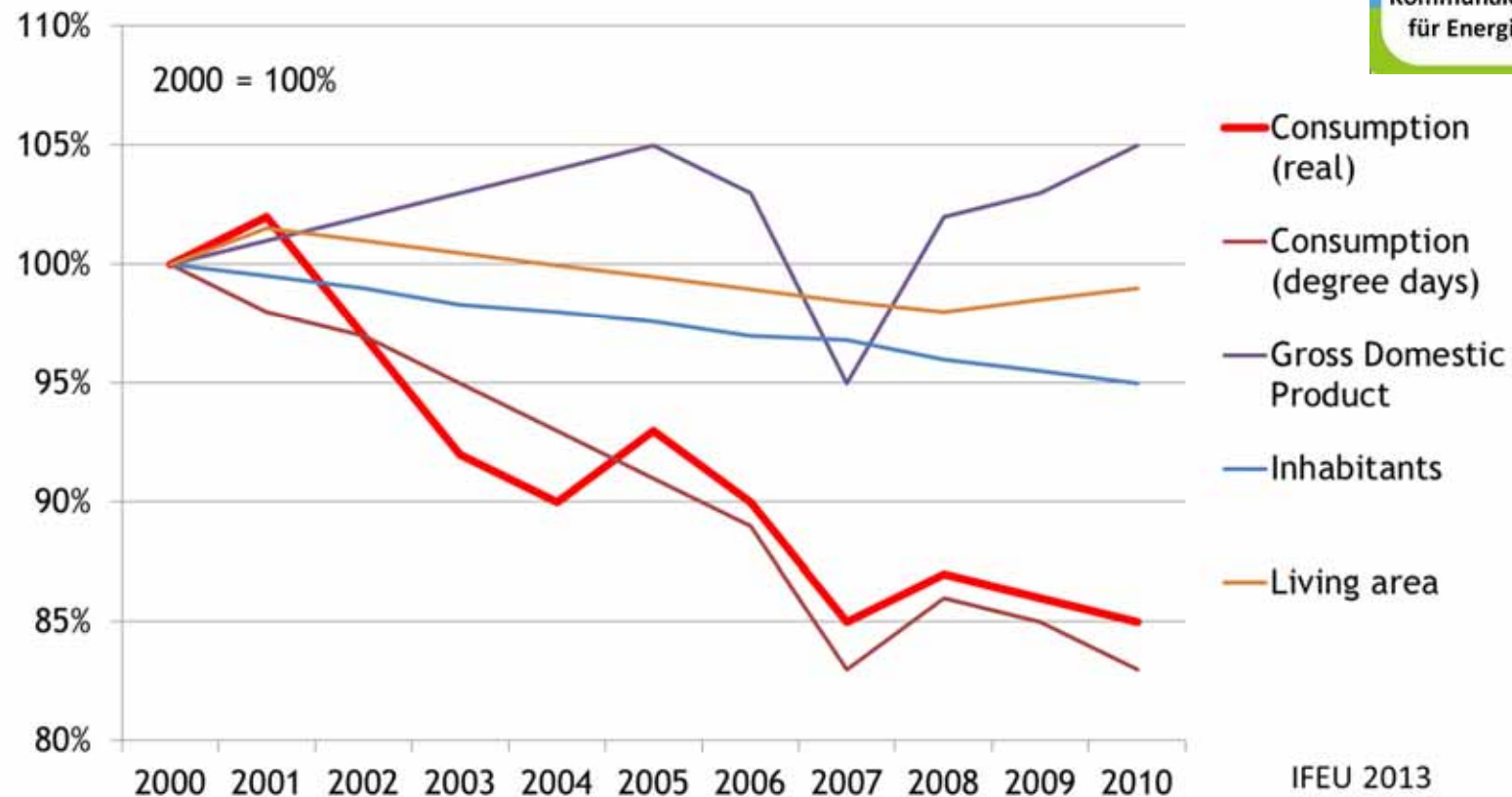
First results (stationary - 9/2013)

- ✓ Basis: Final energy within city boundaries
- ✓ CO₂-equivalent and process chain
- ✓ National grid (cardinal calculation)
- ✓ No climate correction (cardinal calculation)
- ✓ Allocation of CHP by exergetic calculation (see below)
- ✓ Quality of data must be reported
- ✓ For information only:
 - non energetic emission
 - buying green electricity
 - investment outside city boundaries
 - compensation

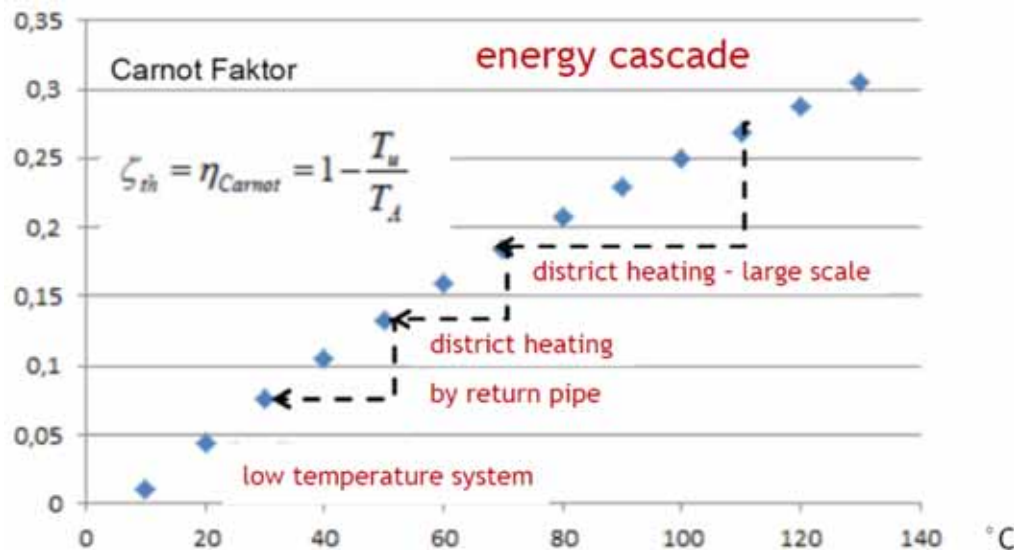


Interpretation on the long run is necessary

Energy use and other data of the city Example 2000 to 2010



Exergetic calculation method: Focus on sustainable energy systems (e.g. LowEx system or energy cascade)



Project: „Exergetische Bewertung kommunaler Strom-Wärme-Systeme“
Commissioned by Umweltbundesamt



Partner: IBP Kassel



und Richtvert Münster

Time frame: 12/2010 - 11/2013

Transformation of district heating systems can be calculated by the exergetic method (Carnot - Methode)
The „finnish“ method is not suitable!

Start up for newcomer

„Coaching kommunaler Klimaschutz“



- Smart and quick access
- Practical Guidance by standardized methods and good practice
- Free of charge for all communities
- www.coaching-kommunaler-klimaschutz.net

Partner:

Klima-Bündnis e. V.

Frankfurt



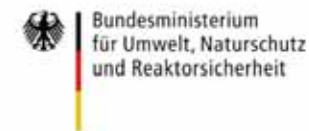
DUH

Deutsche
Umwelthilfe
Ravensburg



Time frame: 2010 - 2012

Supported by



Starter set

Portfolio of measures in 8 fields of action

- Energy management
- Energy production
- Mobility
- Urban planing
- Public relations
- Procurement
- Global responsibility (partnership)
- Funding



Concept light (Schnellkonzept)

How to manage the concept light

Opening meeting

Participation

External support

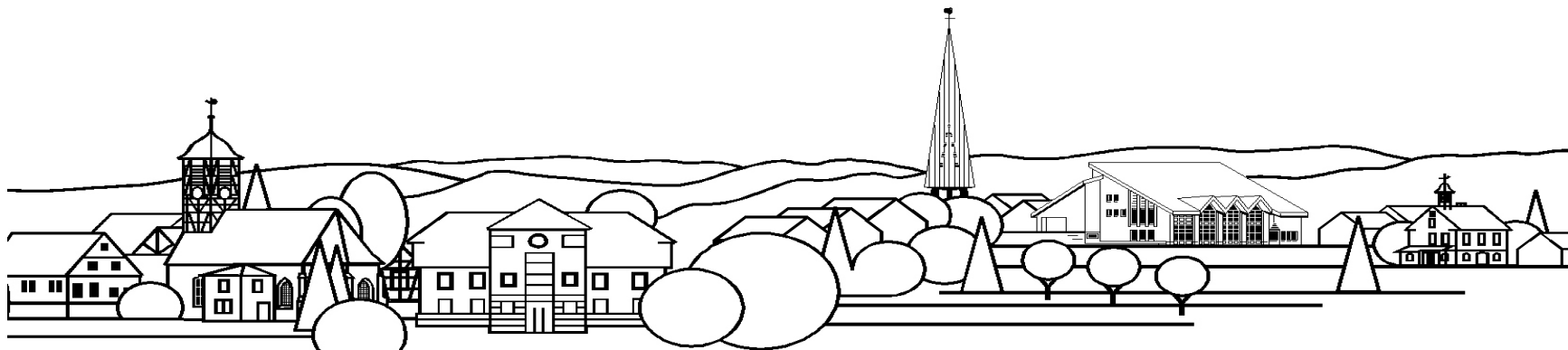
Content of the concept light

Energy balancing

Saving potencial

Catalogue of Meassures

Tools Checklist, Sample, Survey / link to other device



Tools e.g. Checklist of Status quo

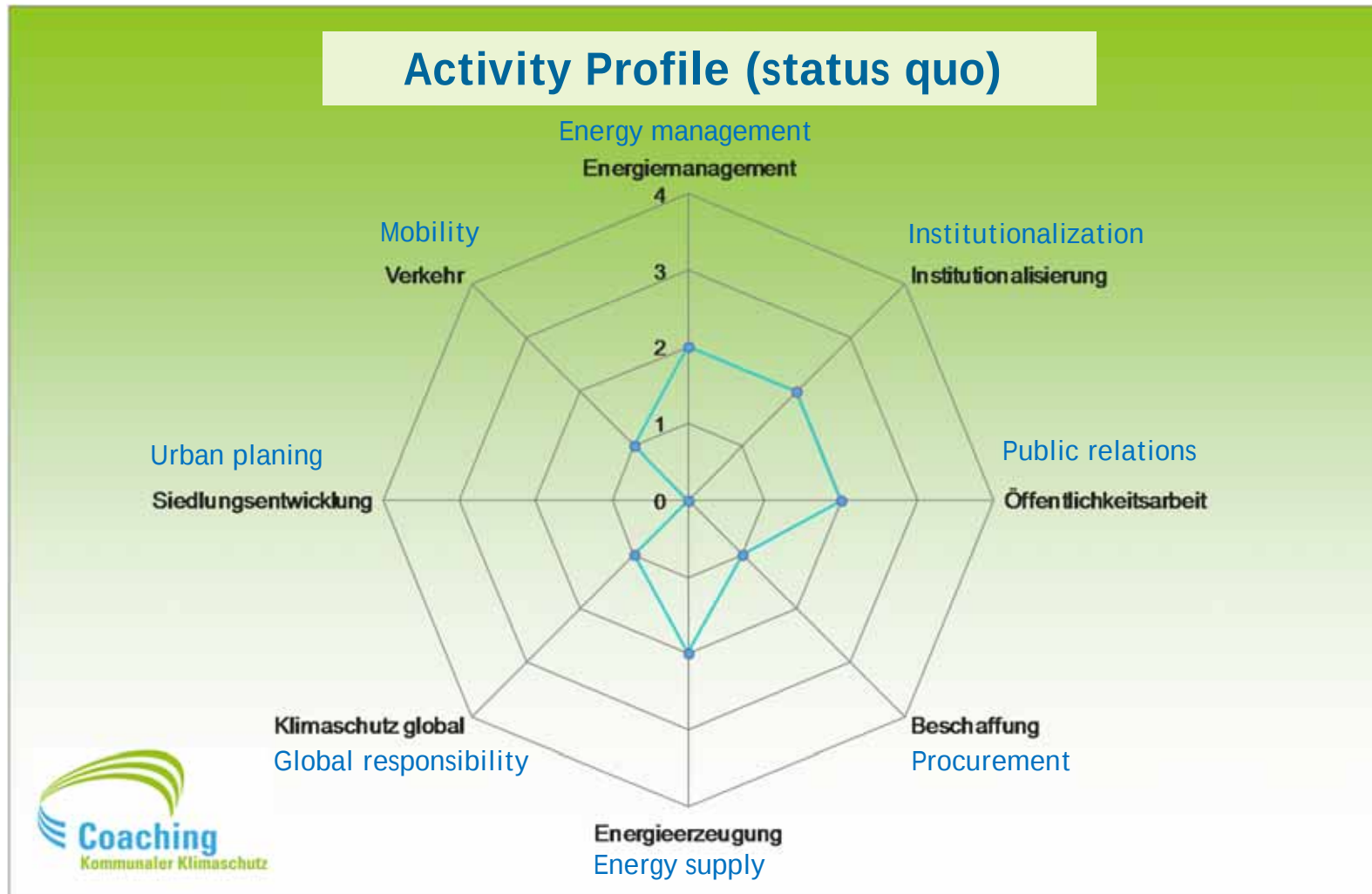
A1 Checklist Energy Management

ja	nein	Themengebiet / Frage (2 Seiten)	Wertung (%)
		Energiebeauftragter und Organisation	25%
☐	☐	Gibt es eine zentrale Koordination der Aufgaben zum Thema Energie (Energiebeauftragten)?	10%
☐	☐	Ist die Aufgabenverteilung des Energiemanagements schriftlich festgehalten?	2%
☐	☐	Sind alle bei Energie- und Sanierungsfragen relevanten Ämter und Hausmeister eingebunden?	1%
☐	☐	Gibt es eine Berichterstattung zum Thema Energie?	1%
☐	☐		
☐	☐		
☐	☐		

A2 Checklist Institutionalization

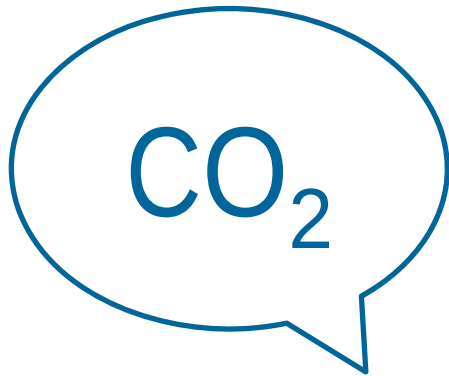
ja	nein	Themengebiet / Frage (2 Seiten)	Wertung (%)
		Ziele und Strategien	30%
		<i>Politisch kurz- und mittelfristig verankerte Klimaschutzziele (z.B. bis 2020 oder 2025)</i>	
☐	☐	Gibt es ein CO ₂ -Einsparziel der Kommune?	5%
☐	☐	Gibt es ein Energieeinsparziel der Kommune?	2%
☐	☐	Gibt es Ziele im Bezug auf den Ausbau Erneuerbare Energien?	2%
☐	☐	Gibt es Ziele im Bezug auf den Ausbau von Kraft-Wärme-Kopplung?	2%
☐	☐	Gibt es Ziele zu Einsparung von Endenergie/CO ₂ in kommunalen Gebäuden?	1%
☐	☐	Gibt es Ziele zur Erreichung der Klimaziele der Bundesregierung?	2%

Tools e.g. Activity Profile (small)



Capacity building „Klimaschutzdialog“

Change agent course for local climate action „heroes“



Within the framework of „**climate dialog**“ (Klimaschutzdialog – Prozessoptimierung, Kommunikation und Mobilisierung im kommunalen Klimaschutz)

Time frame: 2013 to 2015

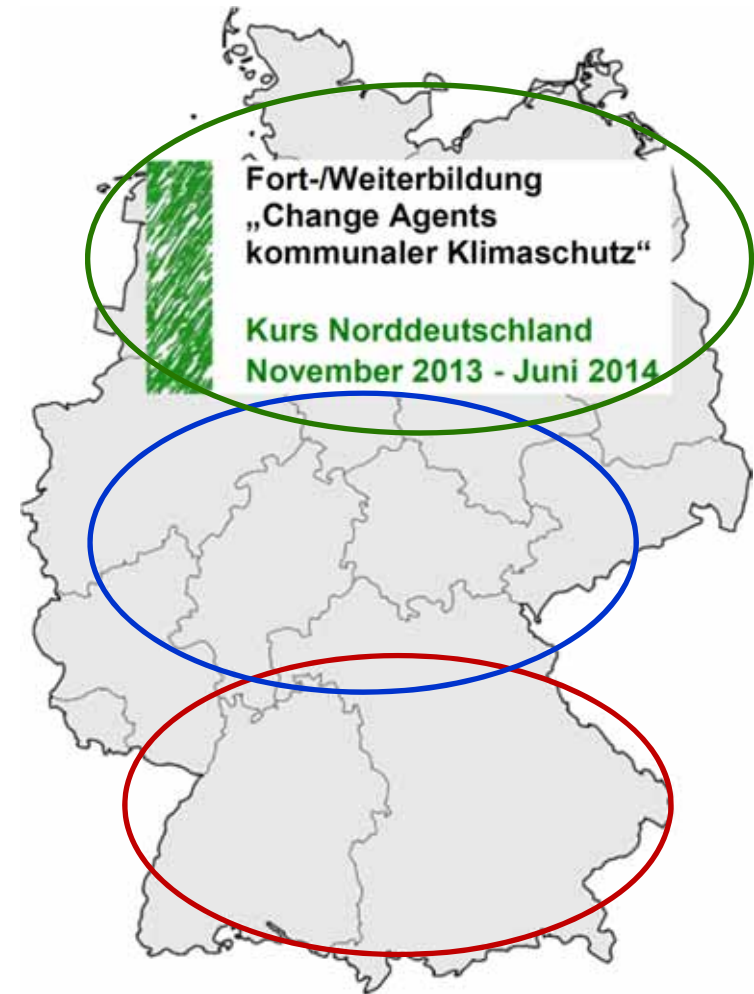
Commissioned by Bundesumweltministerium (BMU)

Supported by „Nationale Klimaschutzinitiative“



Change agent course

- Pilot course (just running)
- Course north 2013/2014 (fully booked)
- Course south 2014
- Course middle/east 2014/2015



Partner



EBUS

Institut für Entwicklungsberatung
und Supervision



Klima-Bündnis



At the end climate change building may be ready but...



...even citizens have to hit the target!

TAKE THE FOOTPRINT CALCULATOR!



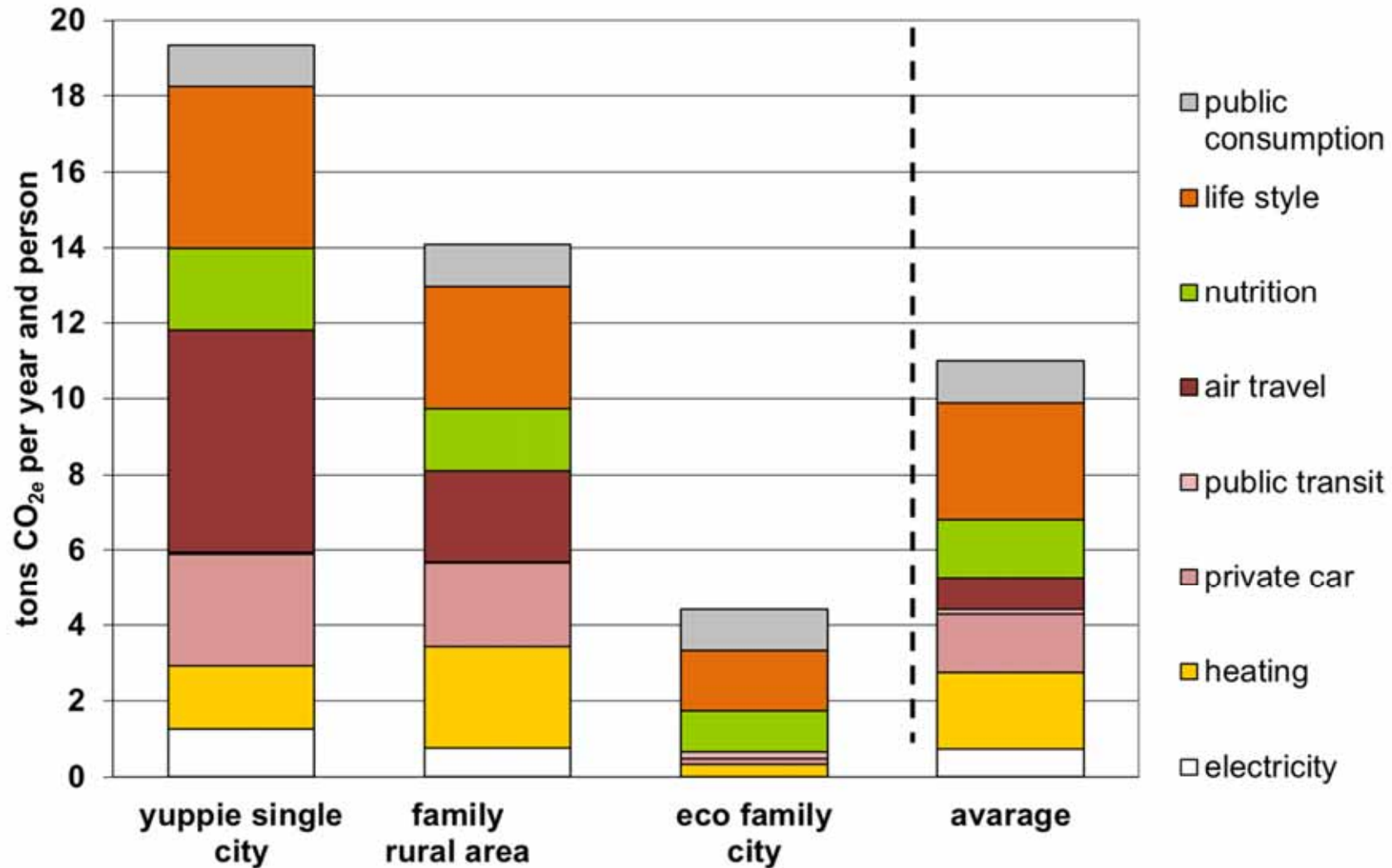
http://www.ifeu.de/english/index.php?bereich=ene&seite=CO2_fussabdruck

Balancing your own CO₂e emissions

- Calculation of single person or household
- Comparison with German average and acceptable quota
- Balancing even for single fields of needs
- Public consumption is fixed on the short run
- Yearly updating and recording possible
- Offline version for scientific project available



Range of carbon footprint



And don't forget



„Was du nicht messen kannst, kannst du nicht lenken“

Peter Ferdinand Drucker (1909-2005)

US-amerikanischer Ökonom

und Pionier der modernen Managementlehre

Thank you for your attention

