Eco Footprint of PT in Vienna until 2035
Economic value of built infrastructure

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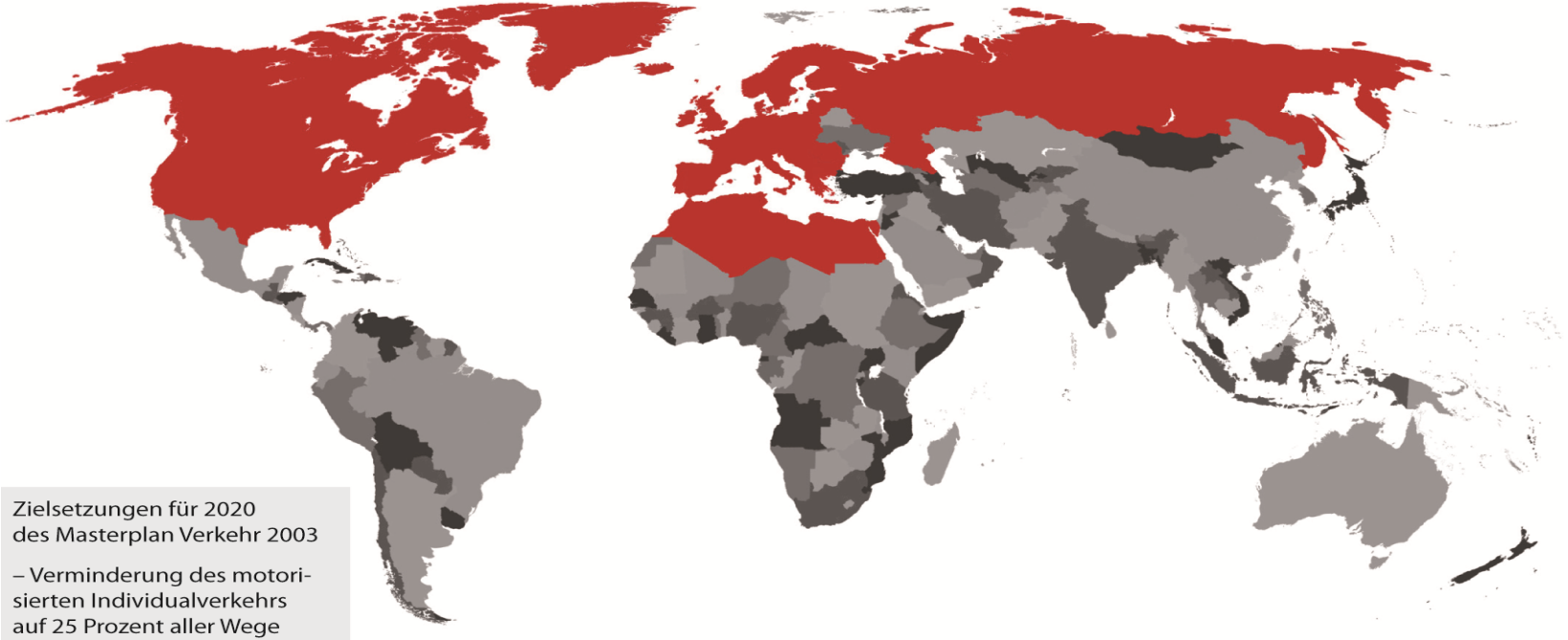
01.12.2014

Die Stadt gehört Dir.

WIENER LINIEN

Billion trips a year



Zielsetzungen für 2020
des Masterplan Verkehr 2003

– Verminderung des motorisierten Individualverkehrs auf 25 Prozent aller Wege
– Steigerung des öffentlichen Verkehrs von 34 auf 40 Prozent

Means each inhabitant of the red marked countries uses WL once a year

What we provide ….

5 U-Bahnlinien

28 Straßenbahnlinien

83 Autobuslinien *)

Linienlängen

74,2 | 214,8 | 648,4

Haltestellen

101 | 1.031 | 3.320

Fahrgäste

838 Mio. 2010

Fahrgäste

875 Mio. 2011

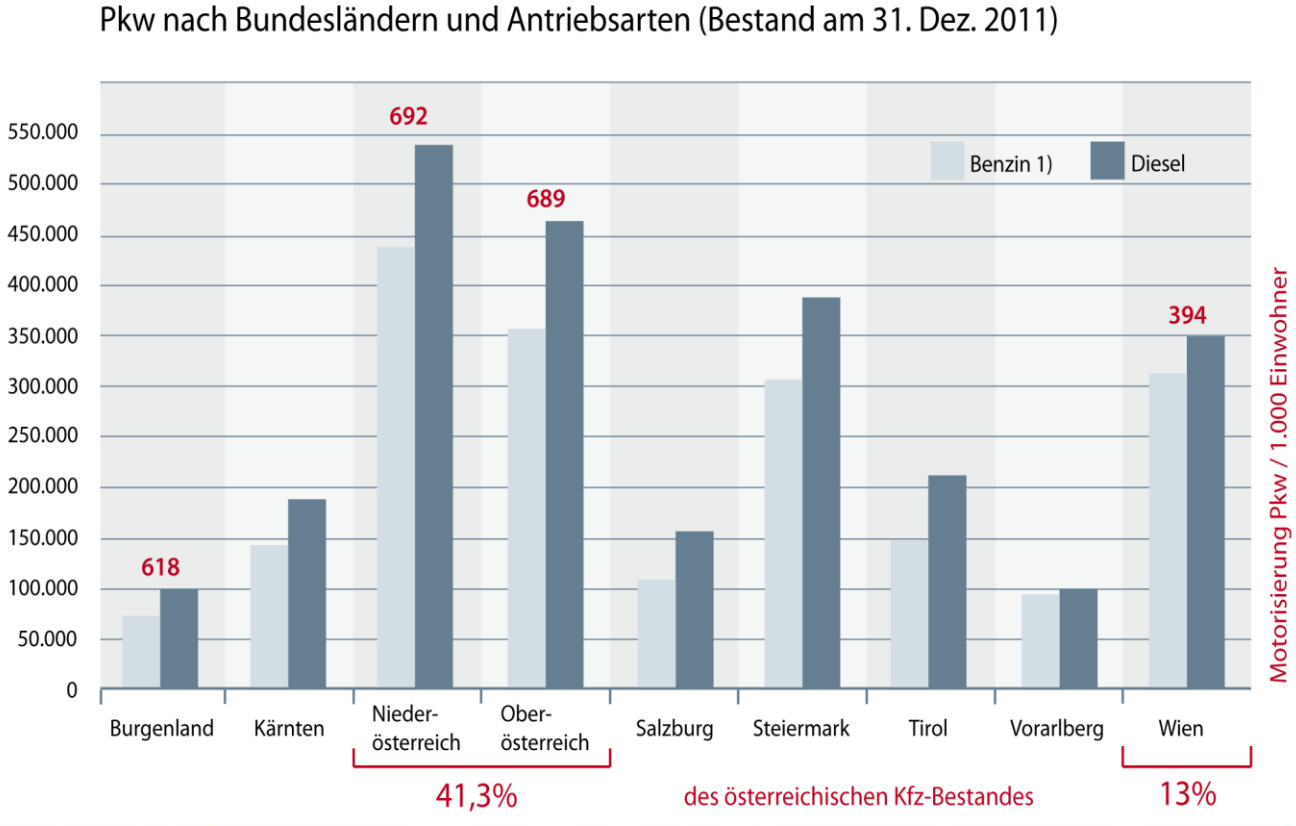
Gesamtpersonal Ø 2011

1005 weiblich

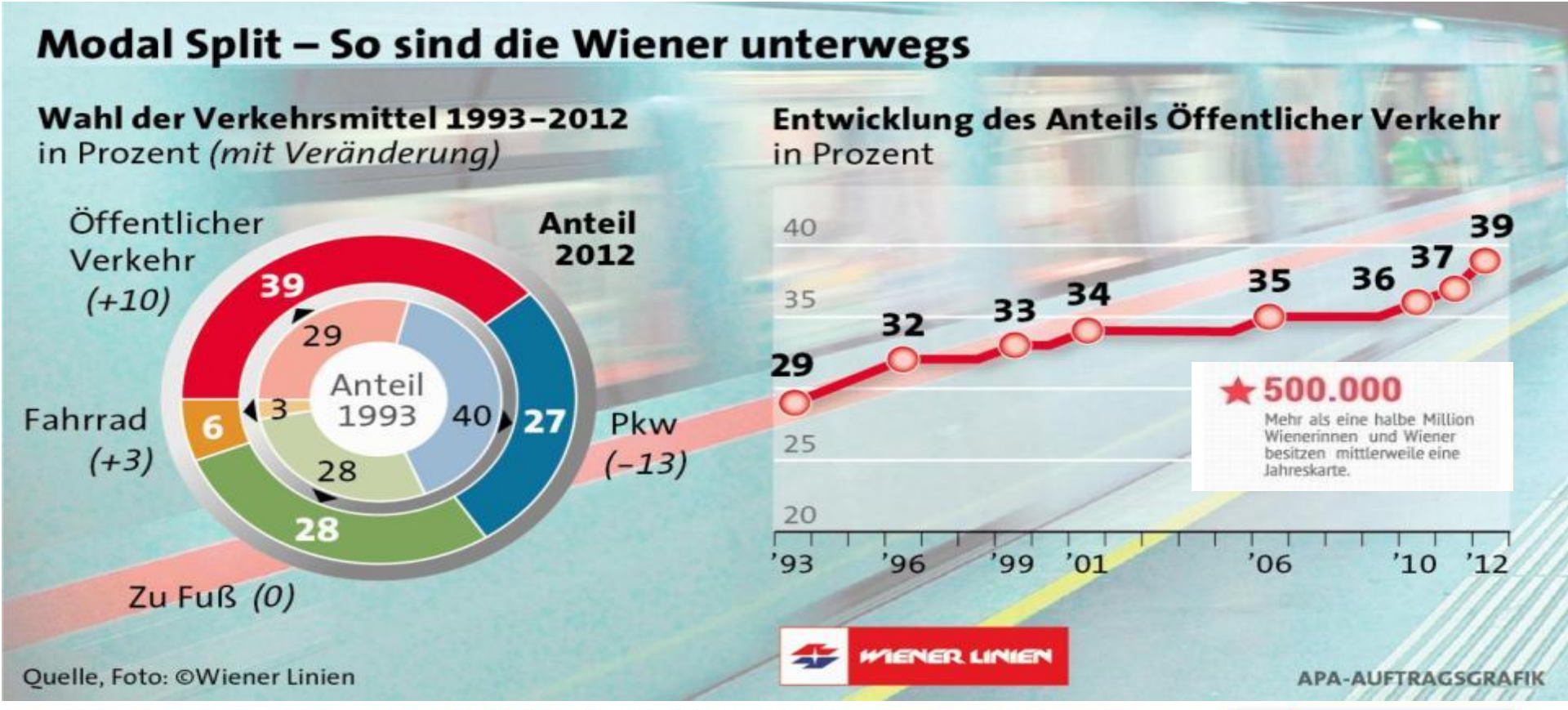
8.371

*) inkl. Auftragsverkehr und Nightline = 90

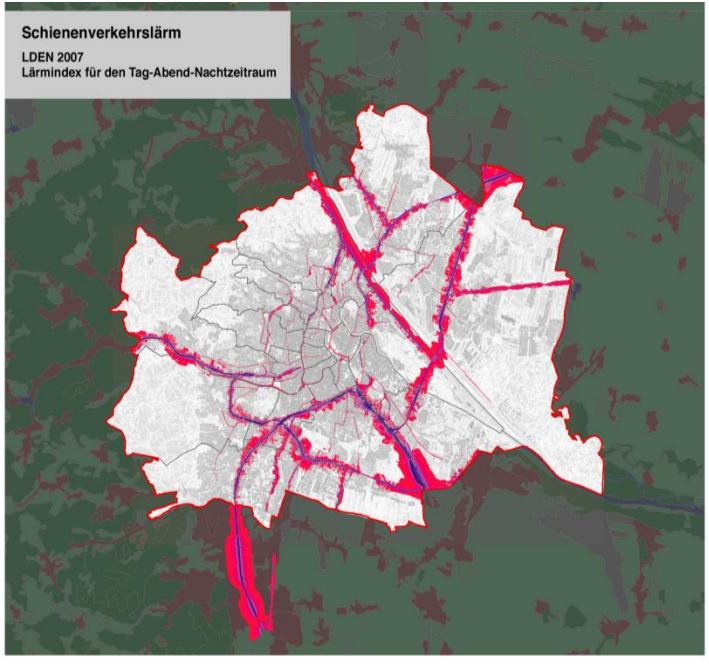
How people decide … cars/1000 Inabitants



It‘s the market – stupid!



… and how it influences their living …



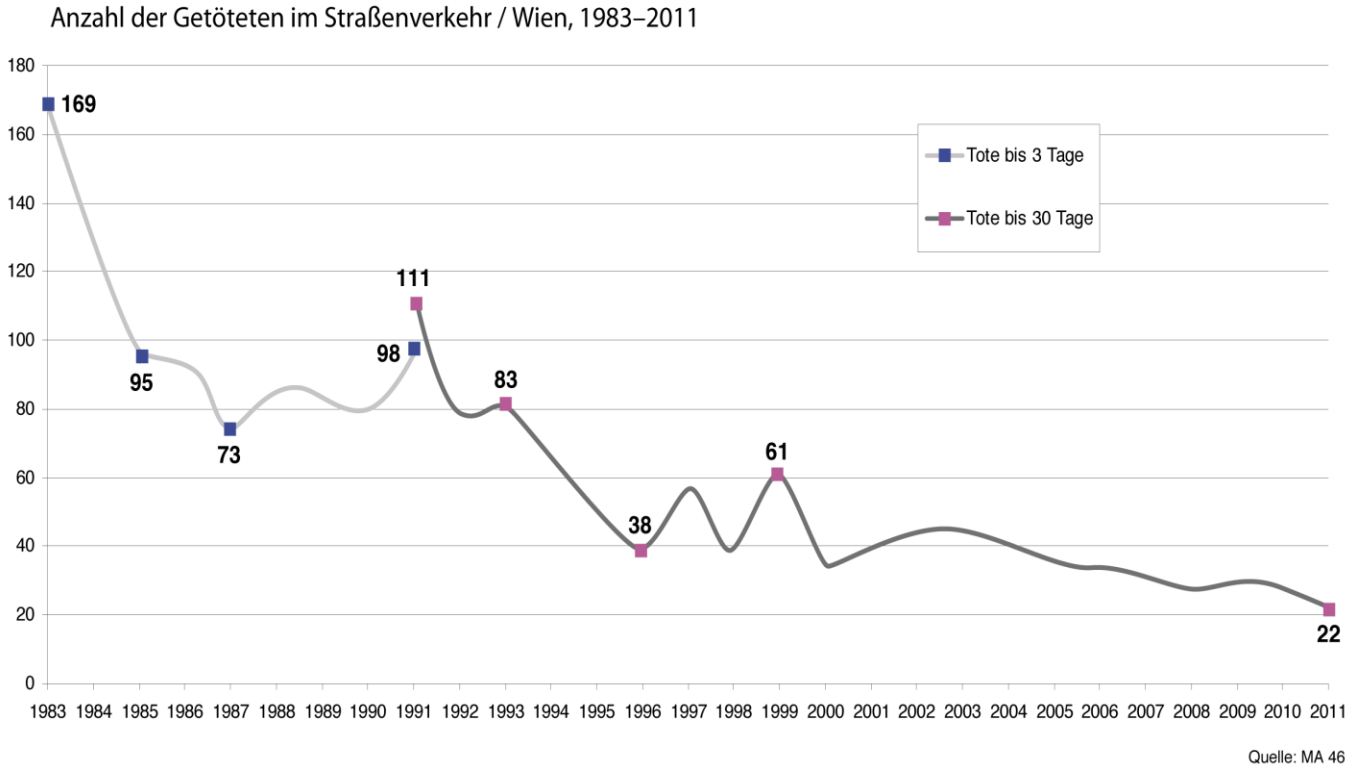
Environmental Noise Directive (END)
Ergebnisse 2007

Legende:

Lärm-Immissionen,
Angaben in Dezibel

- 40 - 45 dB
- 45 - 50 dB
- 50 - 55 dB
- 55 - 60 dB
- 60 - 65 dB
- 65 - 70 dB
- 70 - 75 dB
- 75 - 80 dB
- Über 80 dB

… and how it influences their lives



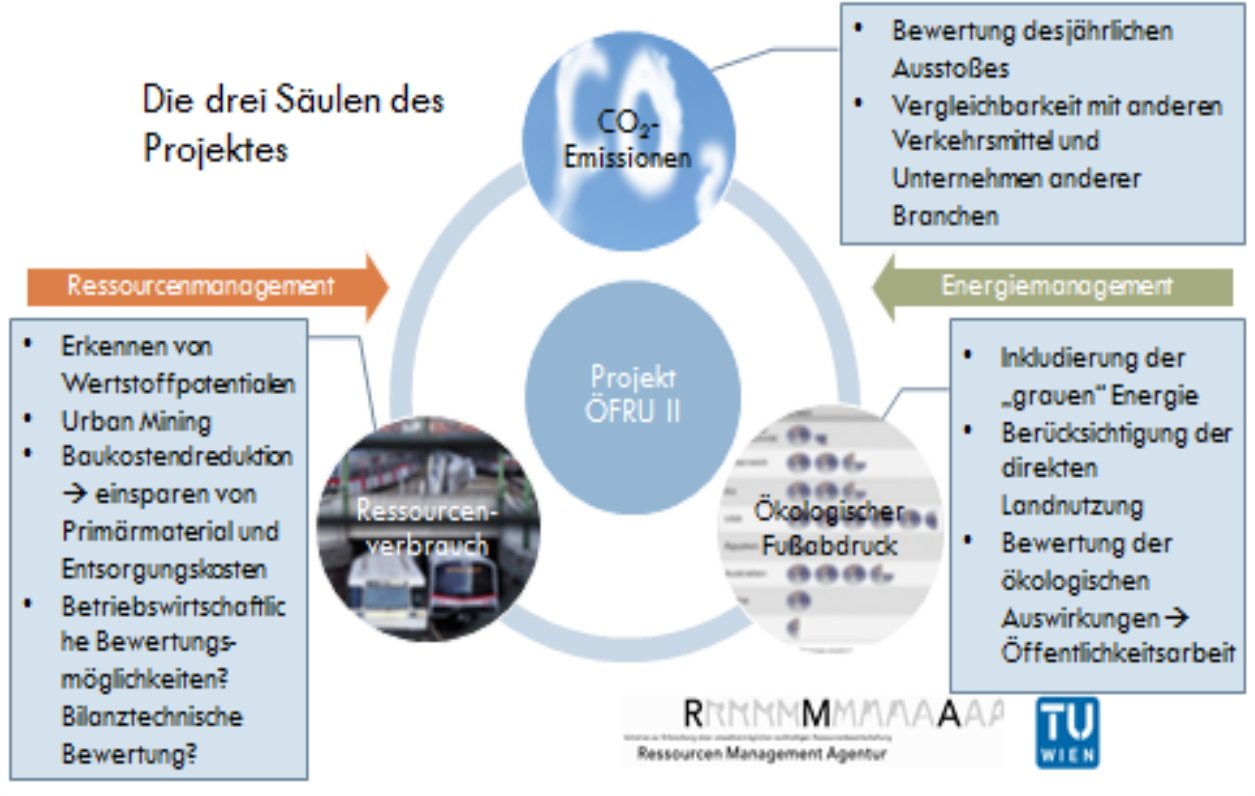
Whatelse do we care about in Vienna?

„cities are **efficient** concerning eco **footprint**...“ – STEP 2025

„...develope vienna towards **resource efficient** smart city, ...“ – STEP 2025

„...**cut CO_2-Emissions** by 35 % until 2030 (baseline 1990).“ – Smart City Wien Rahmenstrategie (Smart City Strategy)

CO_2-Emissionen; Ökologischer Fußabdruck, Ressourcenverbrauch → Wofür was?

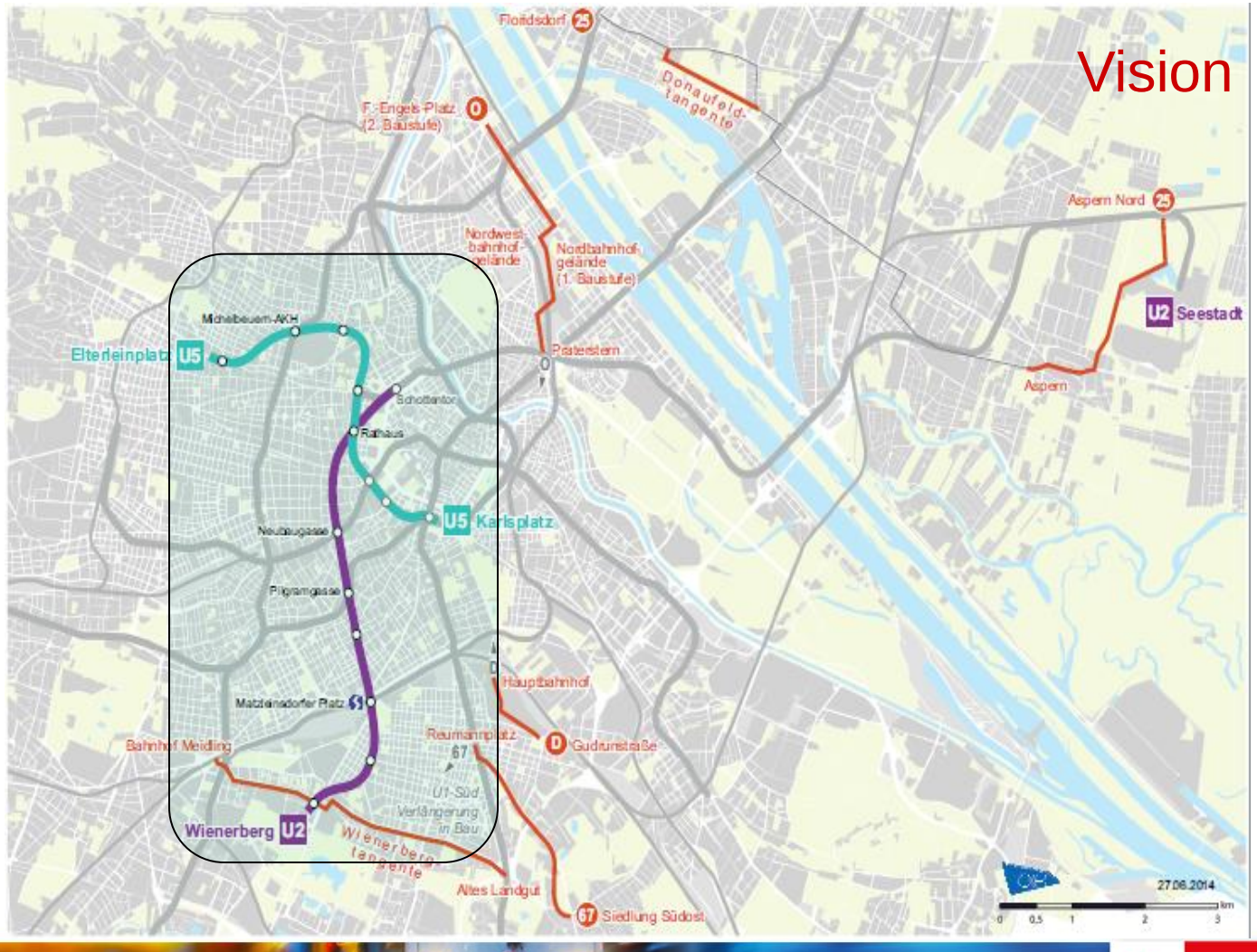


Targets

1. Eco Footprint for Viennese PT-Network of 2012.
   - Subway, Tram and Bus (WL only!)
   - Traction enegy and supply seperated

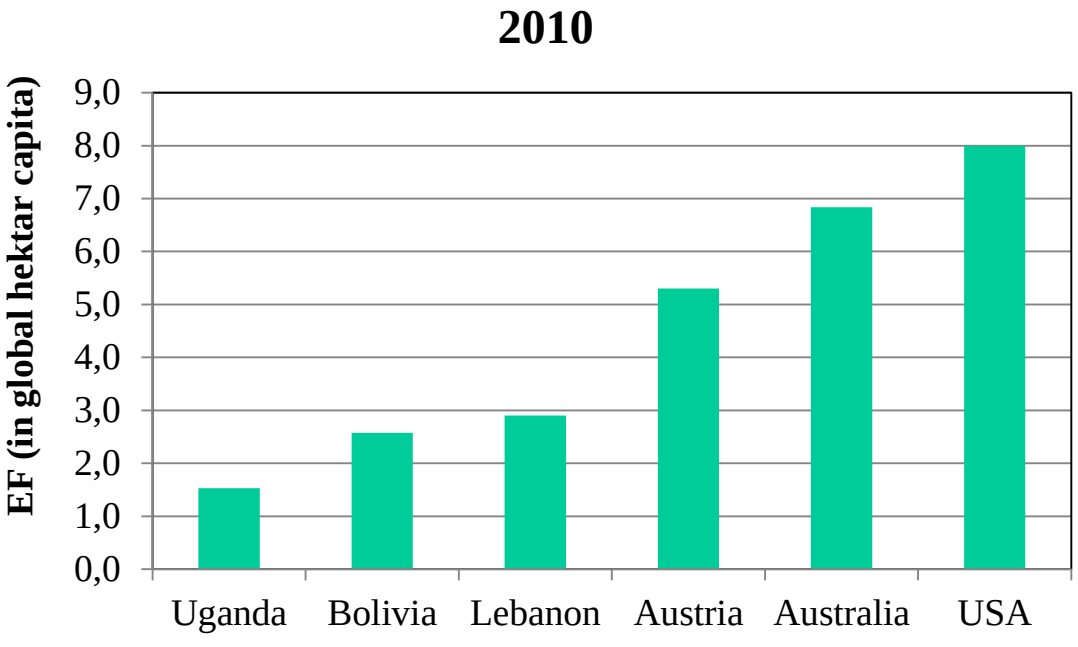
2. Three scenarios until 2035 (BAU, Subway+, Tramway+)
   - Footprint and CO_2-emissions?
   - Resources needed?

Vision



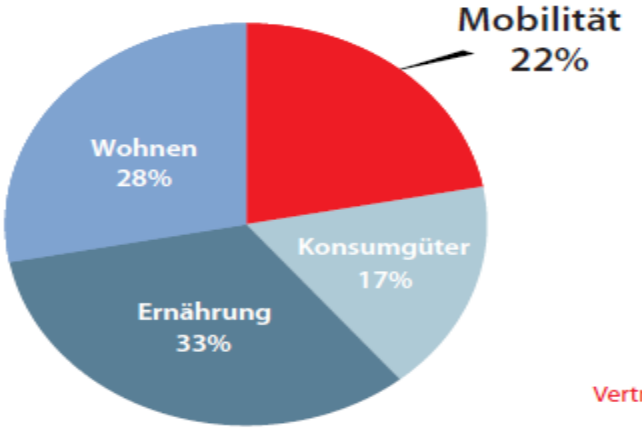
Facts about the eco footprint?

Source: steppingforward.org.uk



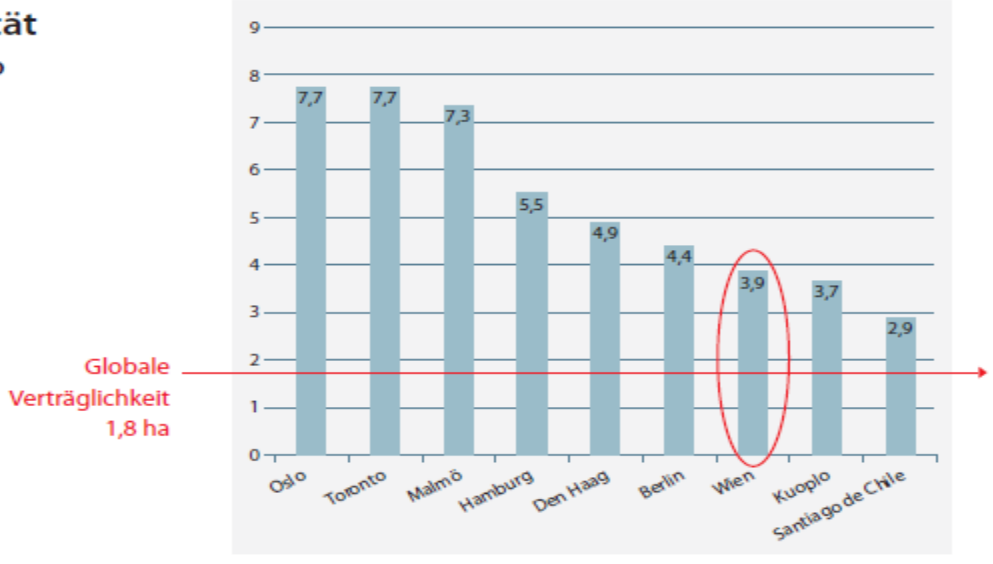
Source: footprintnetwork.org

Austrian situation



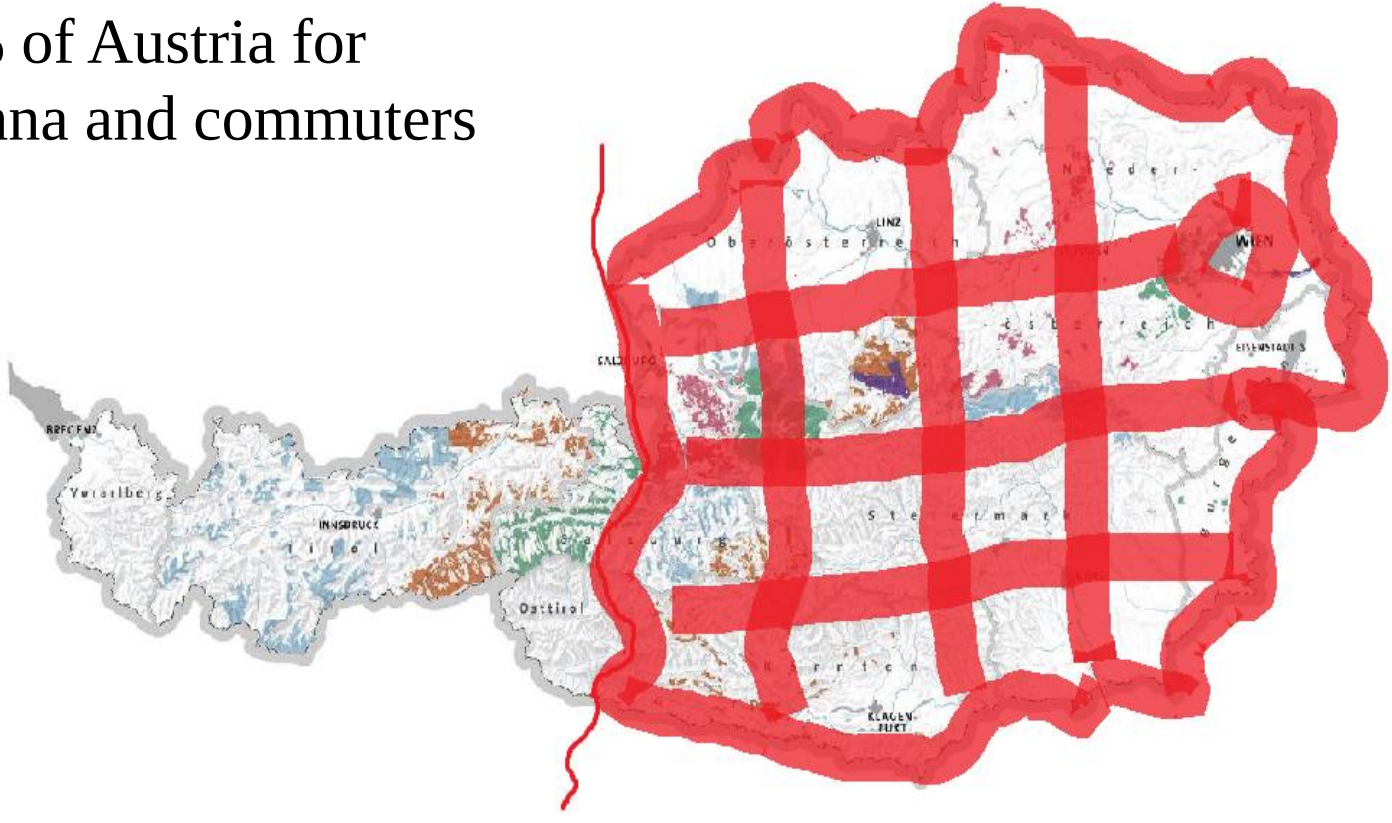
Quelle: VCÖ 2007

Ökologischer Fußabdruck
in Österreich: Mobilität ist wichtig!



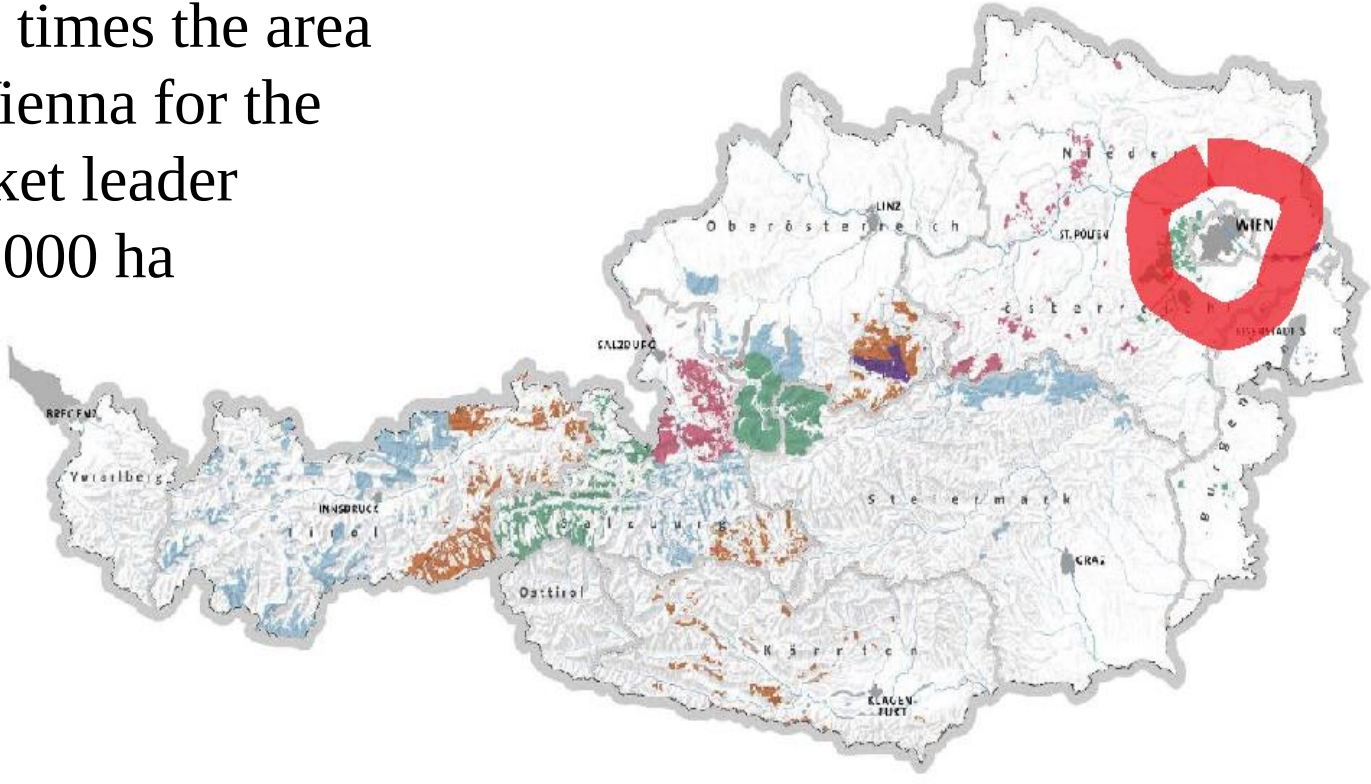
naked truth

80% of Austria for
Vienna and commuters



PT footprint, small is beautiful!

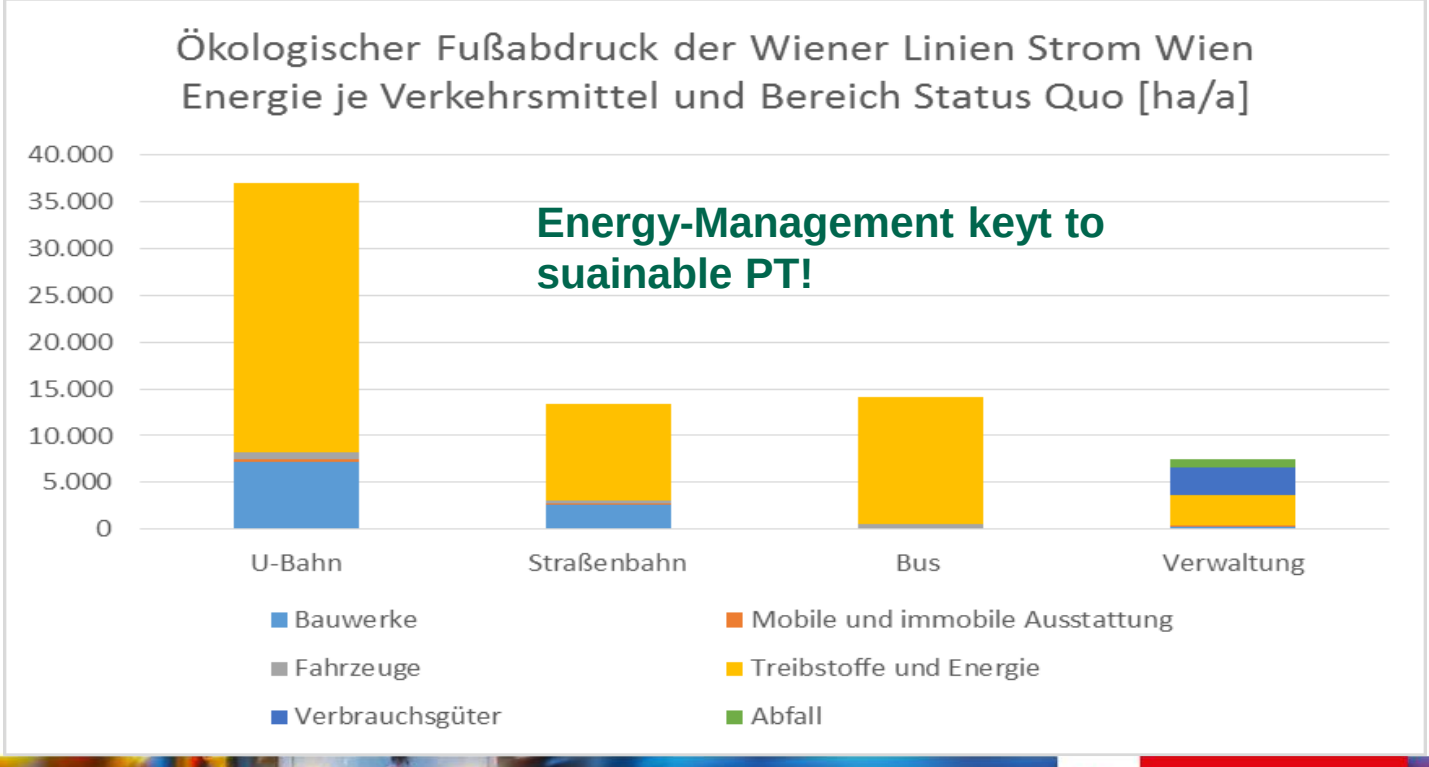
Two times the area of Vienna for the market leader ~70.000 ha



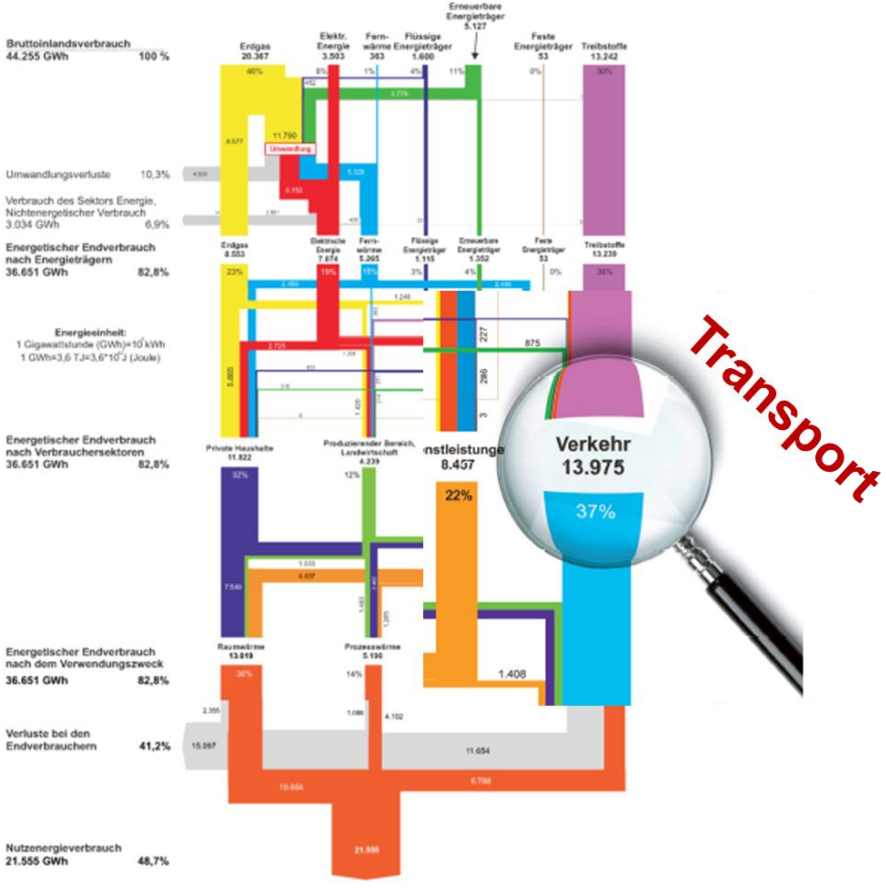
EF of WL energymix „Wien Energie“
1% of viennese footprint

Dominant:

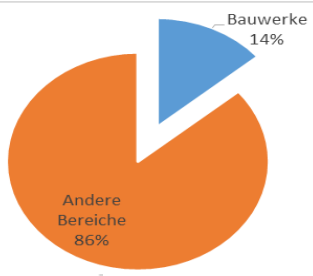
- Subway >50%
- Energy >75%

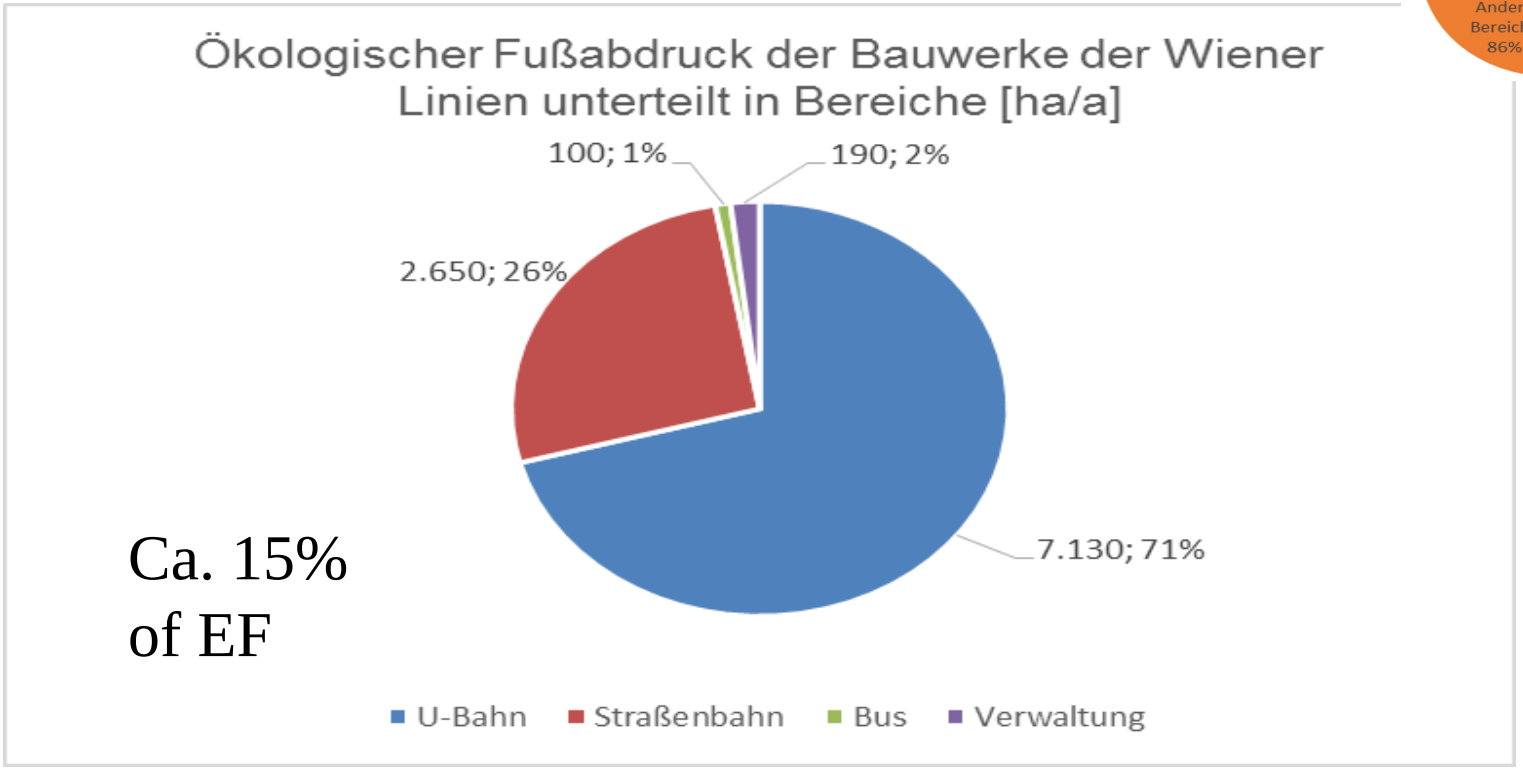


Big Picture Energy



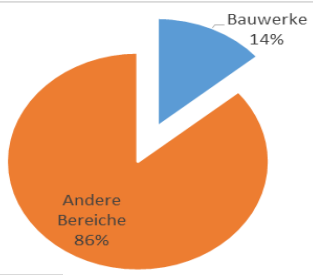
Buildings

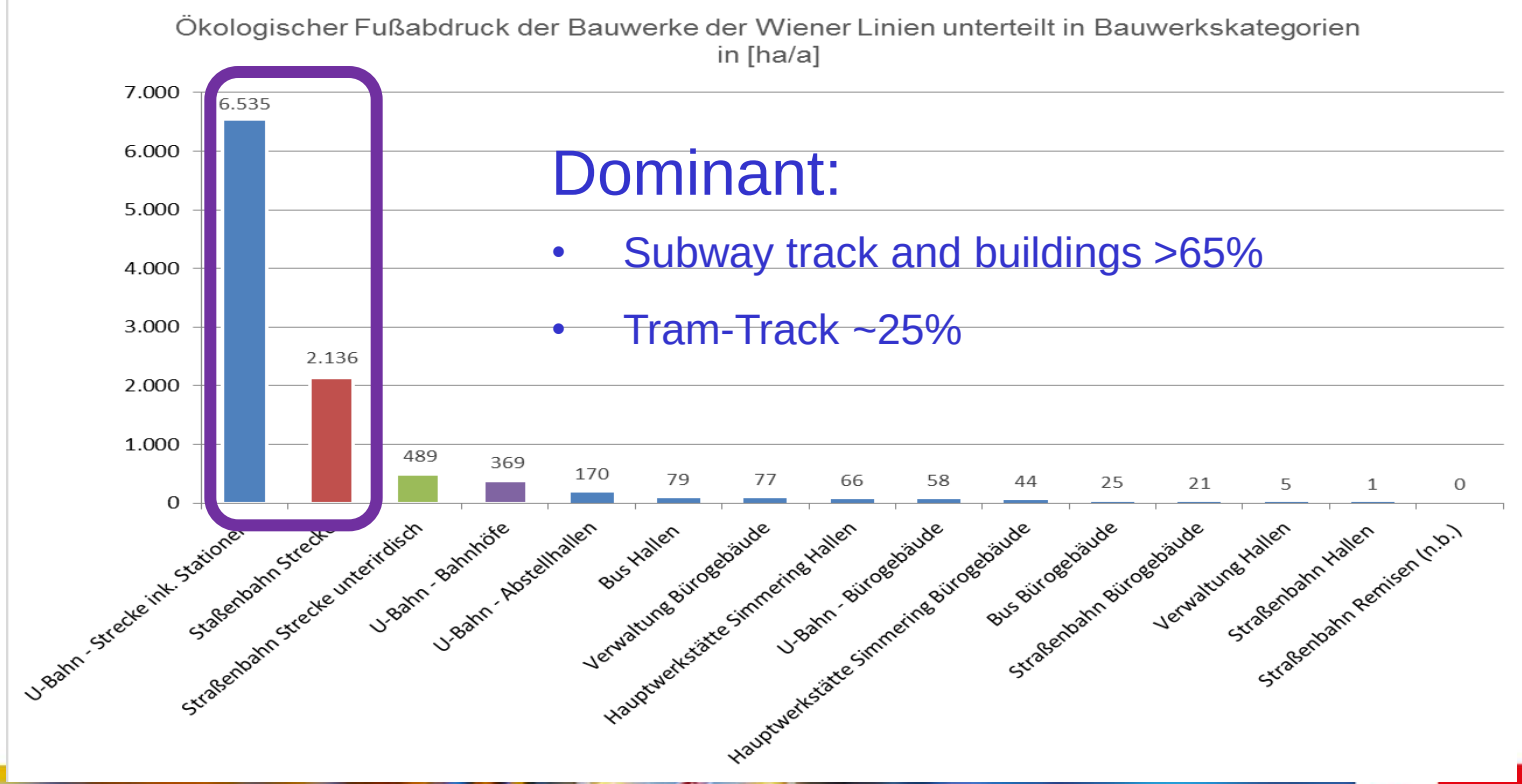




Ca. 15%
of EF

EF of buildings - Materials

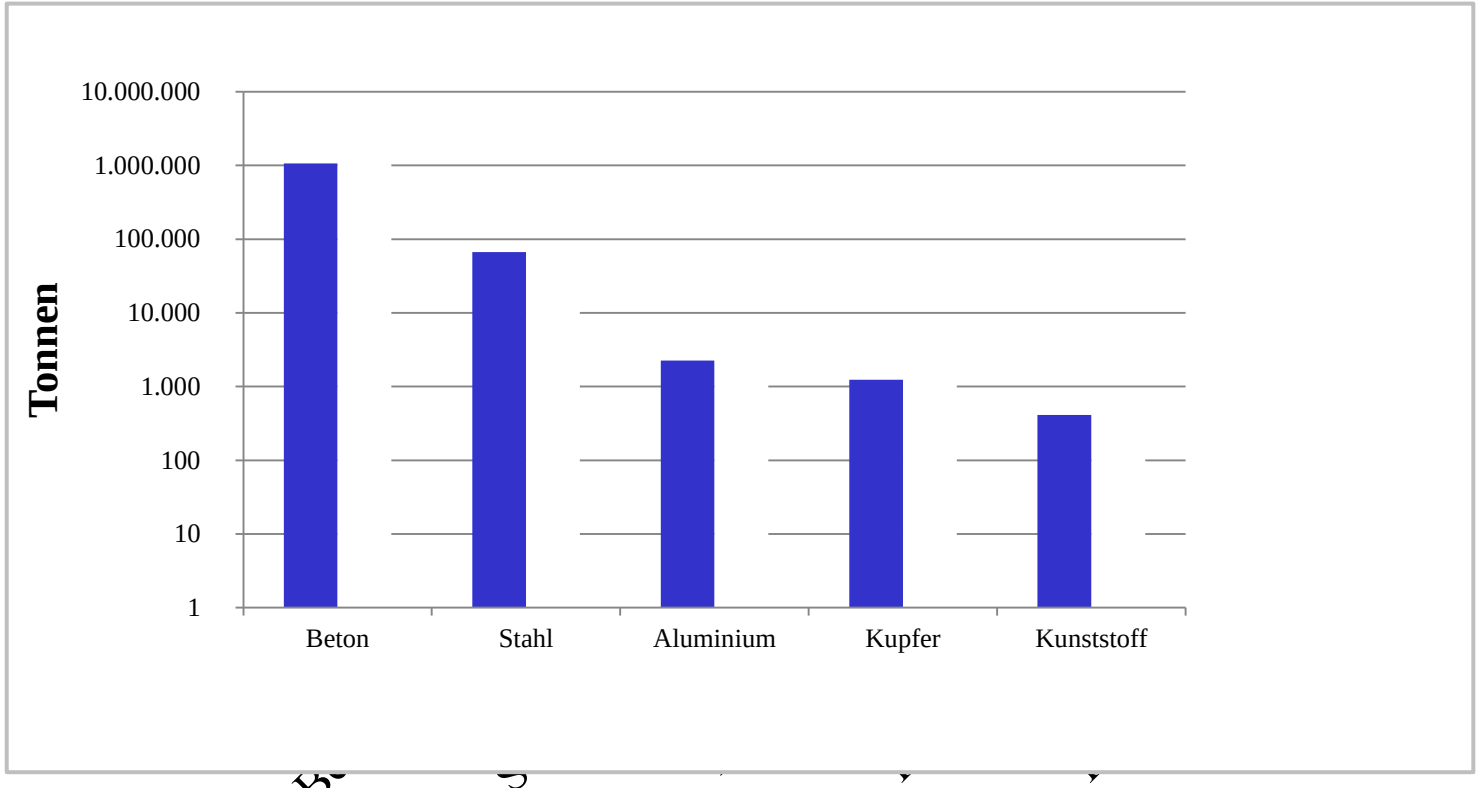




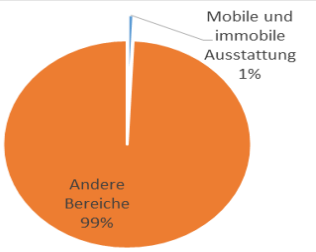
Dominant:

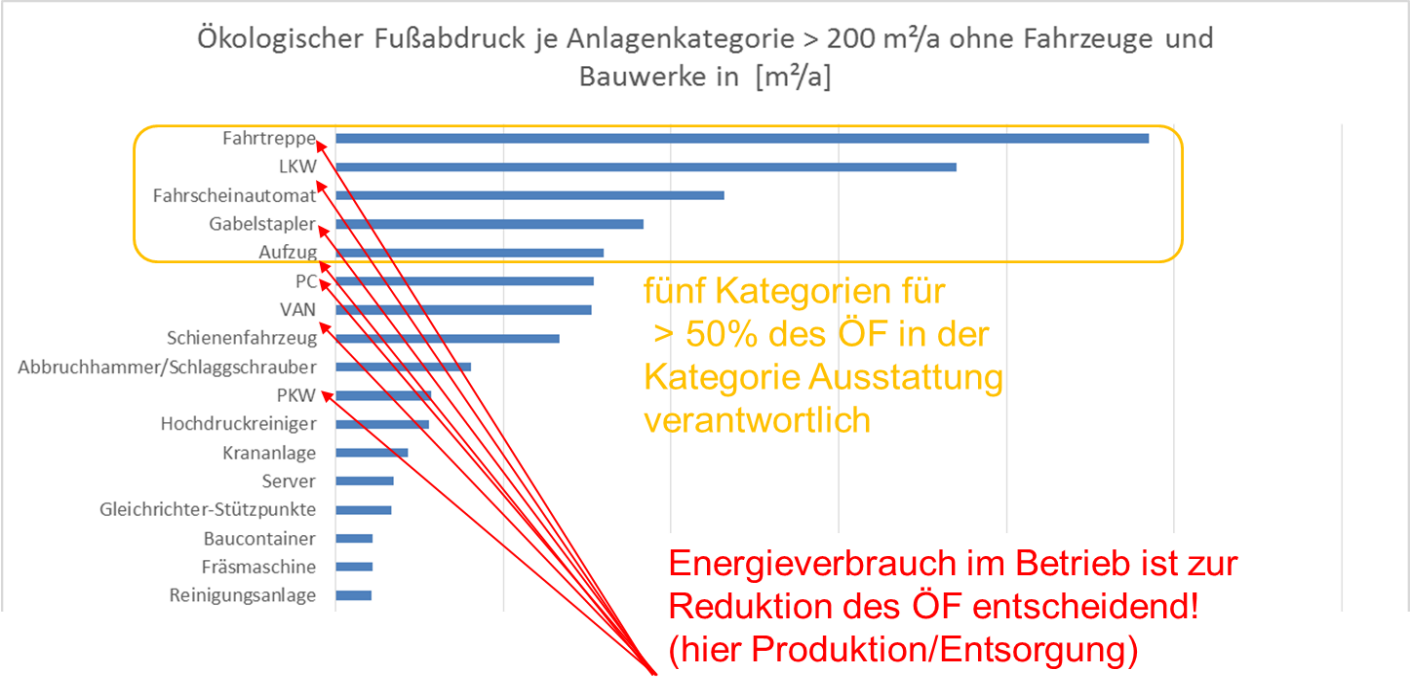
- Subway track and buildings >65%
- Tram-Track ~25%

Material world

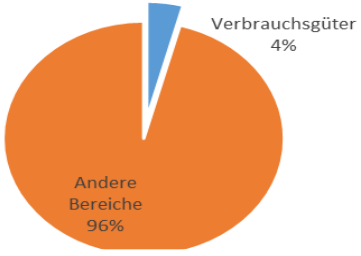


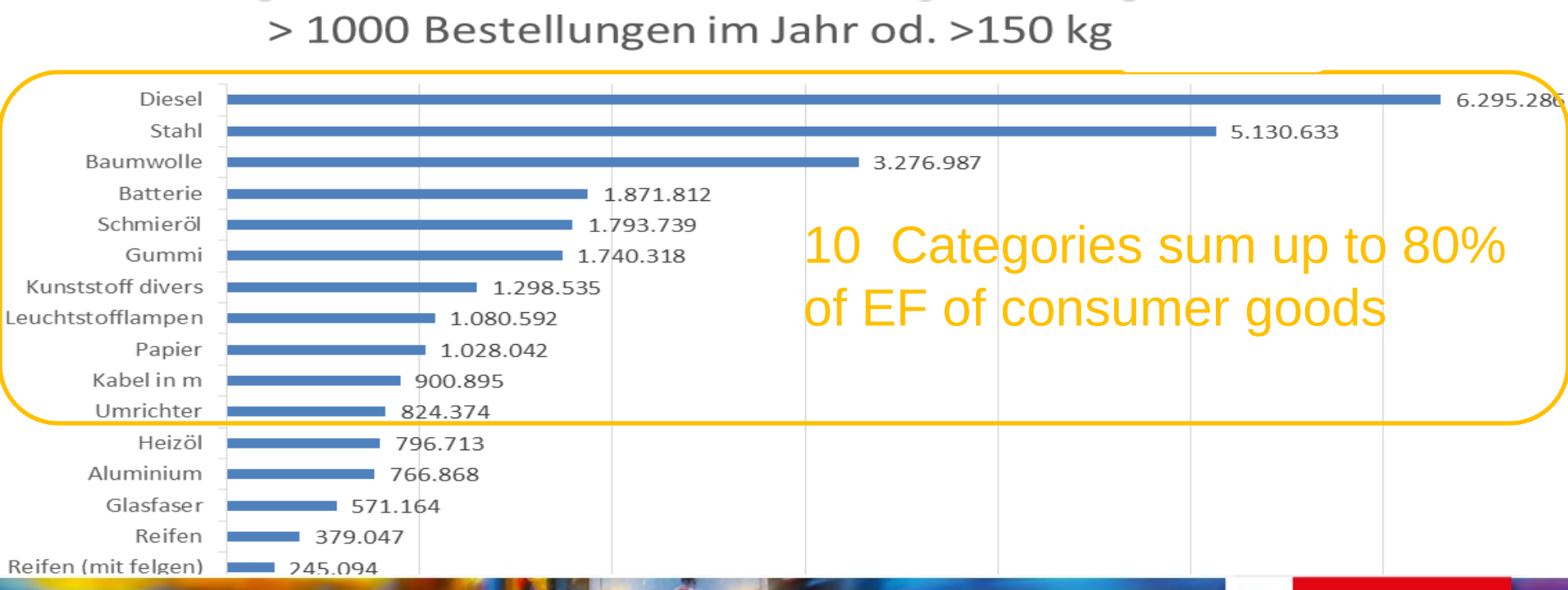
And then? Mobile und immobile assets





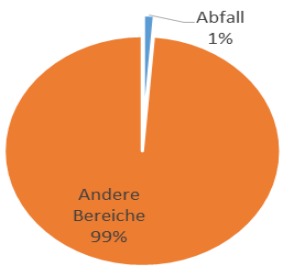
Eco procurement



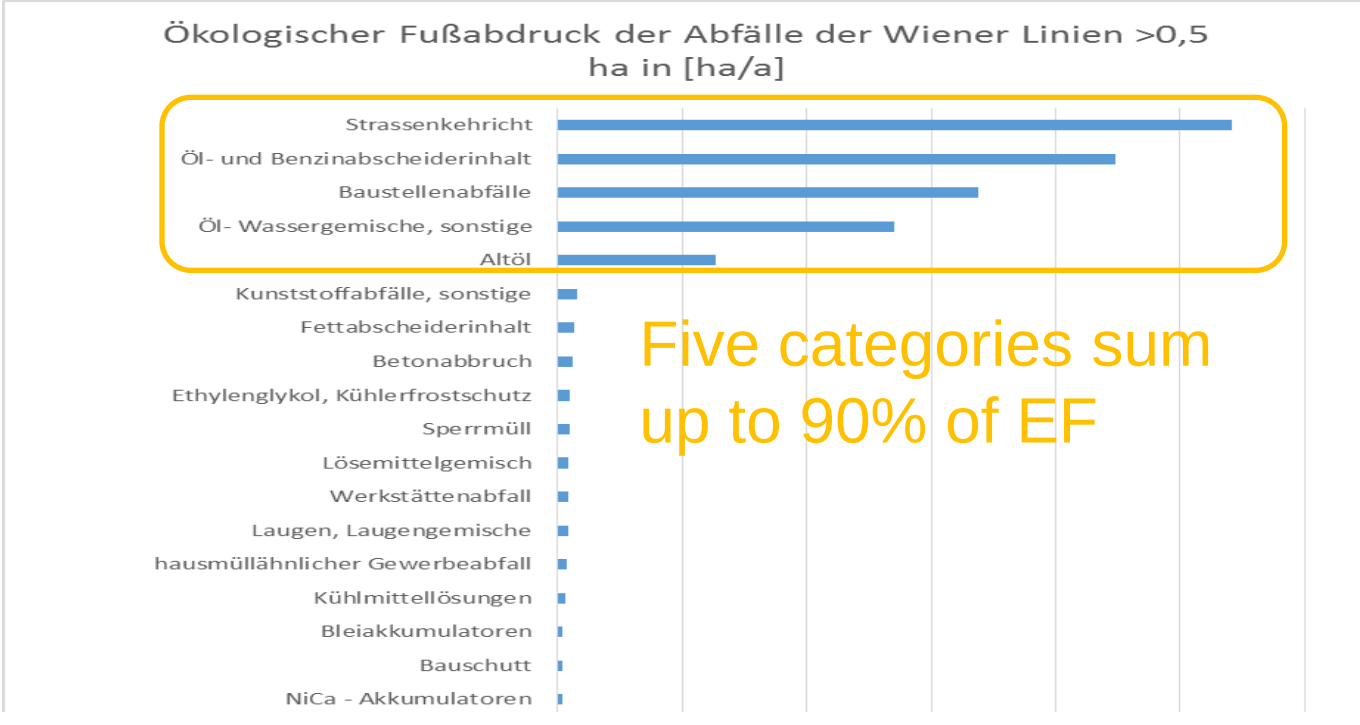


10 Categories sum up to 80% of EF of consumer goods

Waste management



Only 5 categories relevant!

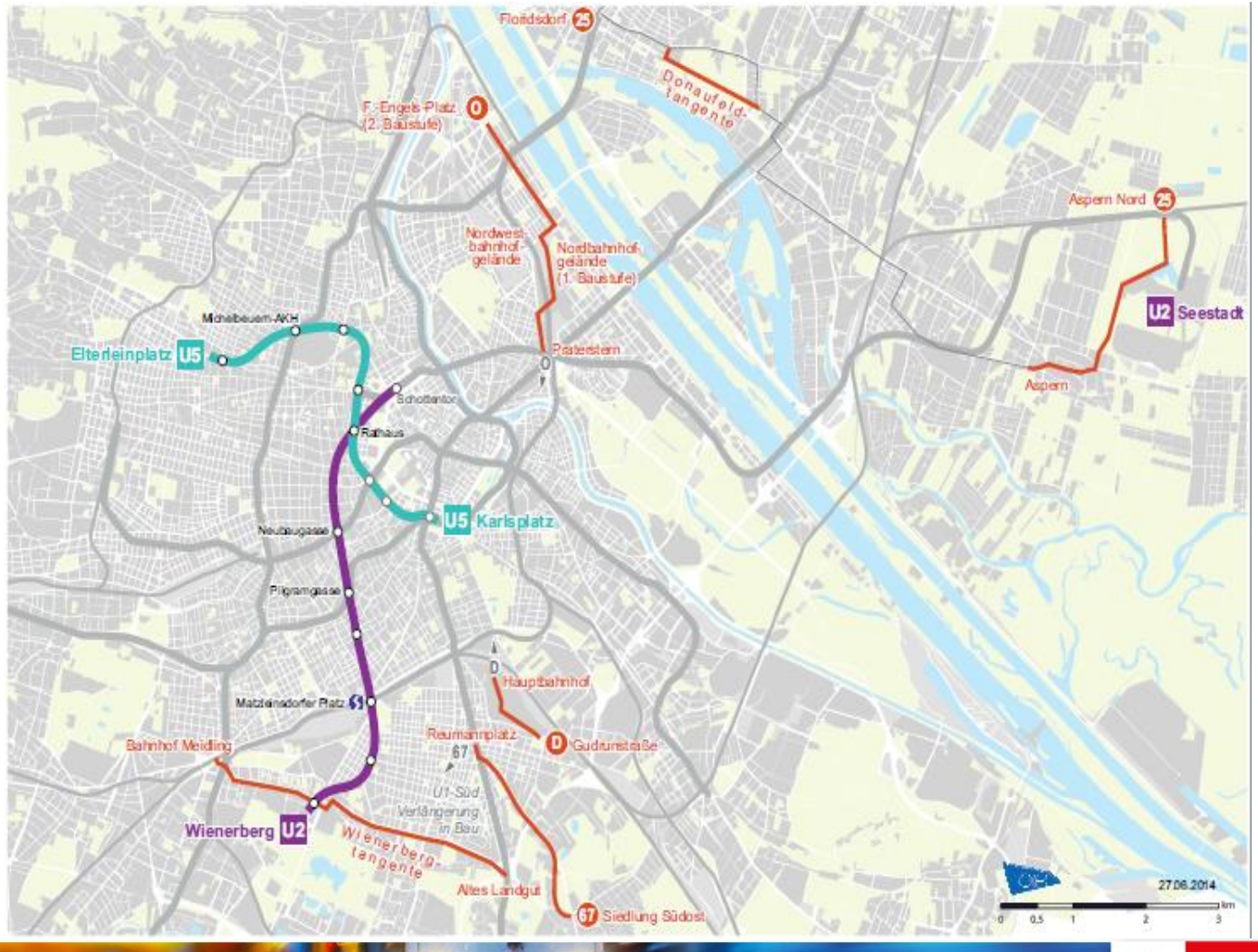


conclusions

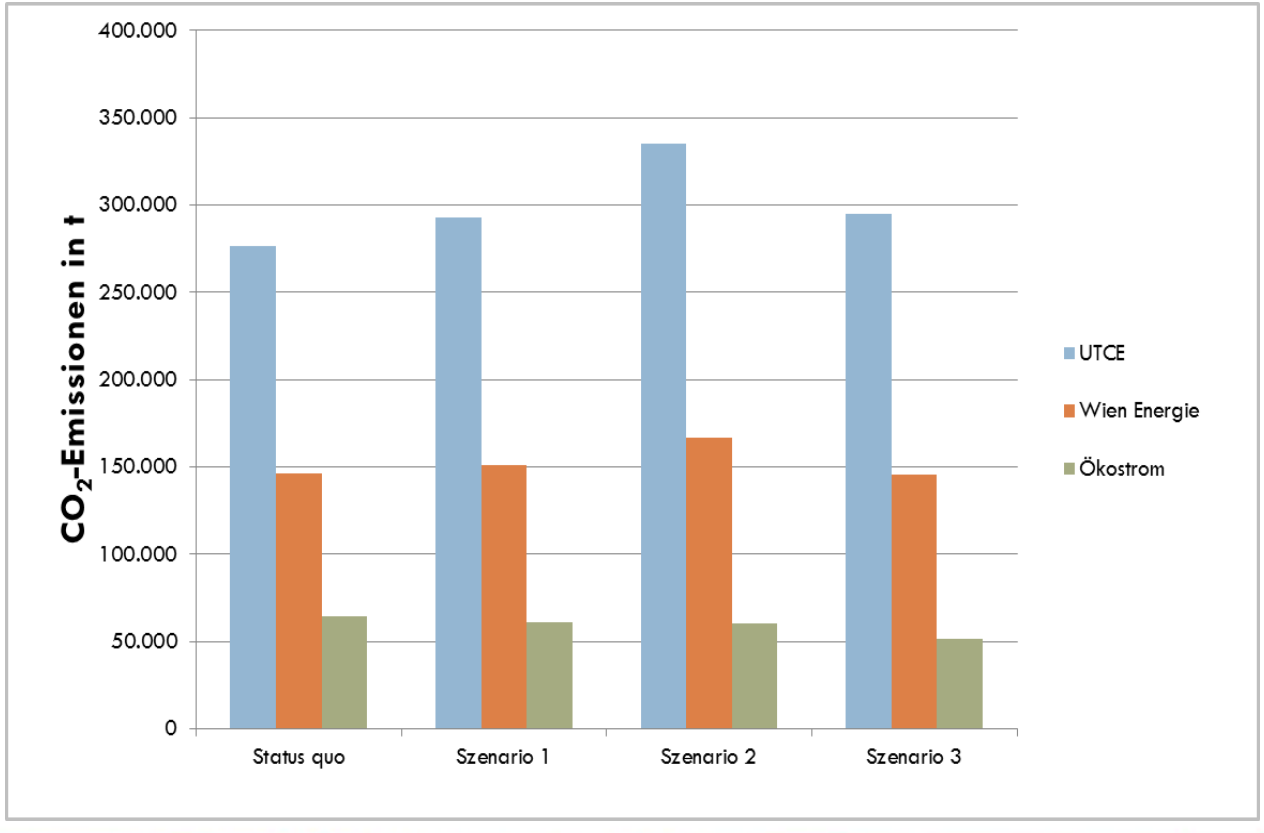
- energy mix is dominant by 50 %; - 70 % (UTCE)
- Subway makes the game
- Buildings also important

Vision

1. „Wiener Linien 2035 – 1“ BAU
2. „Wiener Linien 2035 – 2“ Subway U2/5
3. „Wiener Linien 2035 – 3“ Tramway-enlargement with same capacity as U2/5



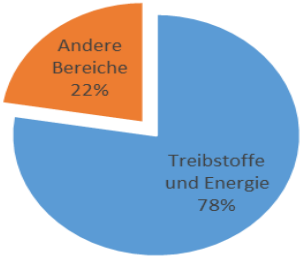
CO2?


400.000
350.000
300.000
250.000
200.000
150.000
100.000
50.000
0
CO_2-Emissionen in t
Status quo
Szenario 1
Szenario 2
Szenario 3
UTCE
Wien Energie
Ökostrom

CO2-Emissions, whats up?

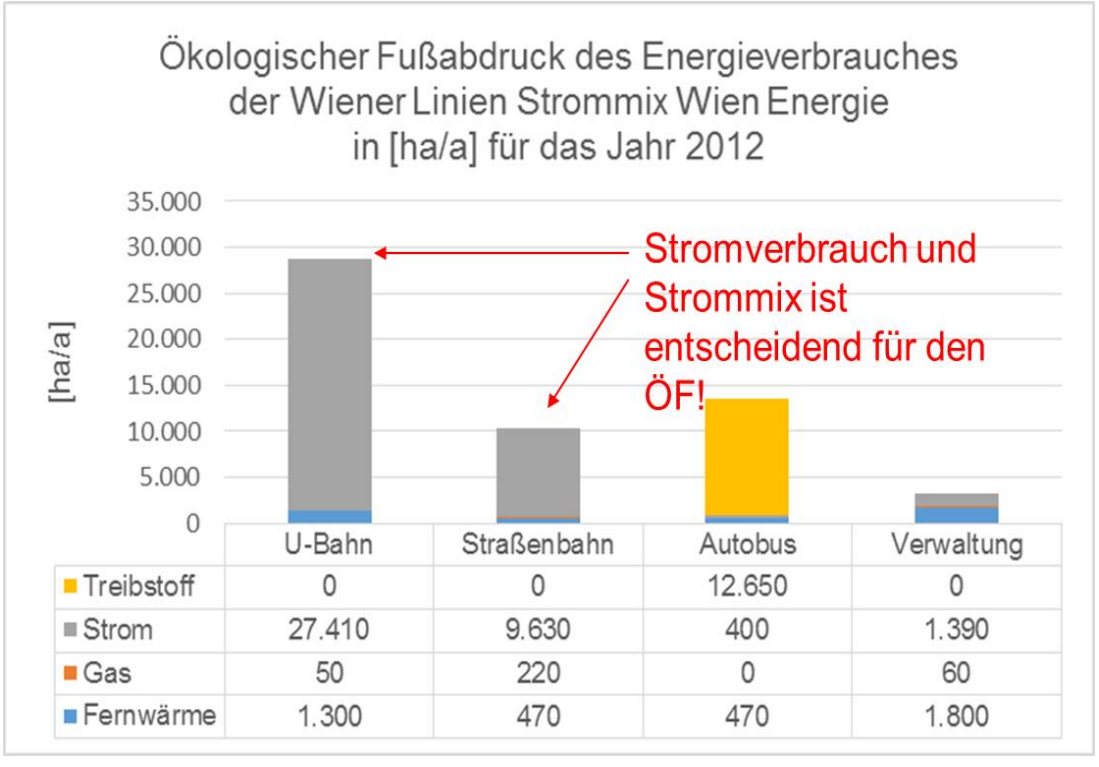
- Bus is on the way – e-bus!
- Tram is slightly better than metro
- Energy mix beats it all!

Fuels and Energy (Wien Energie)



Energy> 75%

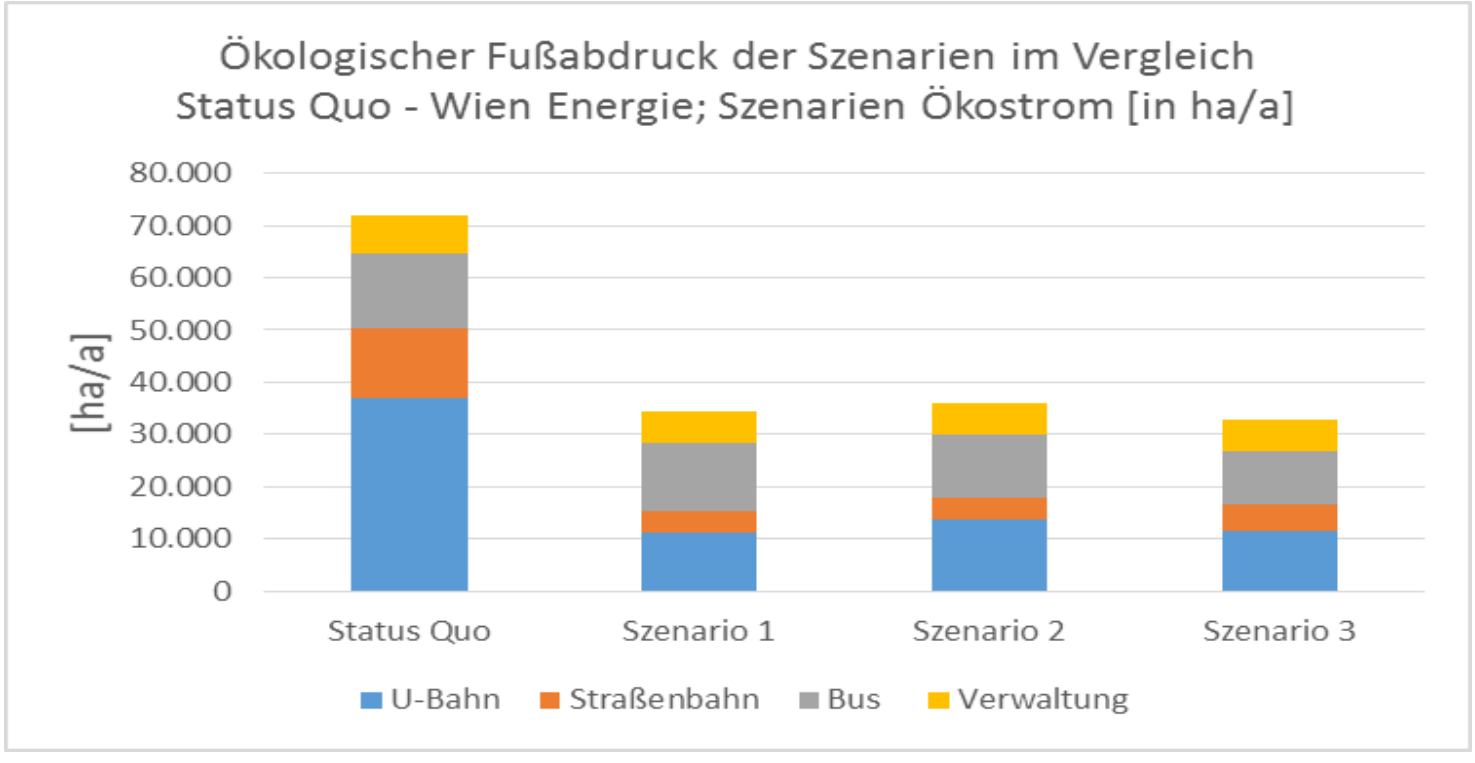
Relevant:
Electric >70%
Fuels >200%



	U-Bahn	Straßenbahn	Autobus	Verwaltung
Treibstoff	0	0	12.650	0
Strom	27.410	9.630	400	1.390
Gas	50	220	0	60
Fernwärme	1.300	470	470	1.800

And then? 2035

-50% with renewables

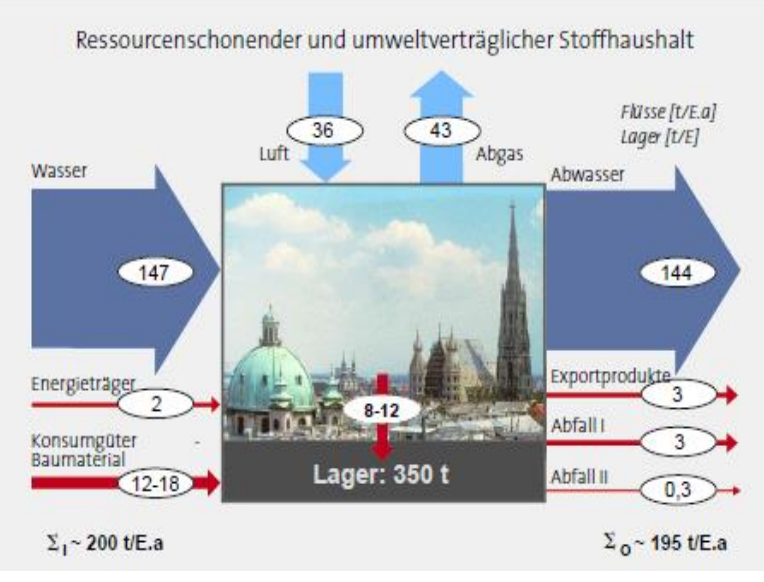


Conclusions resources

- EF is stable in all scenarios
- 1,0 to 4,3 Mio t inert materials
- >90% of Ressourcen can be recycled.
- > 60% grey materials
- No information on ecological aspects

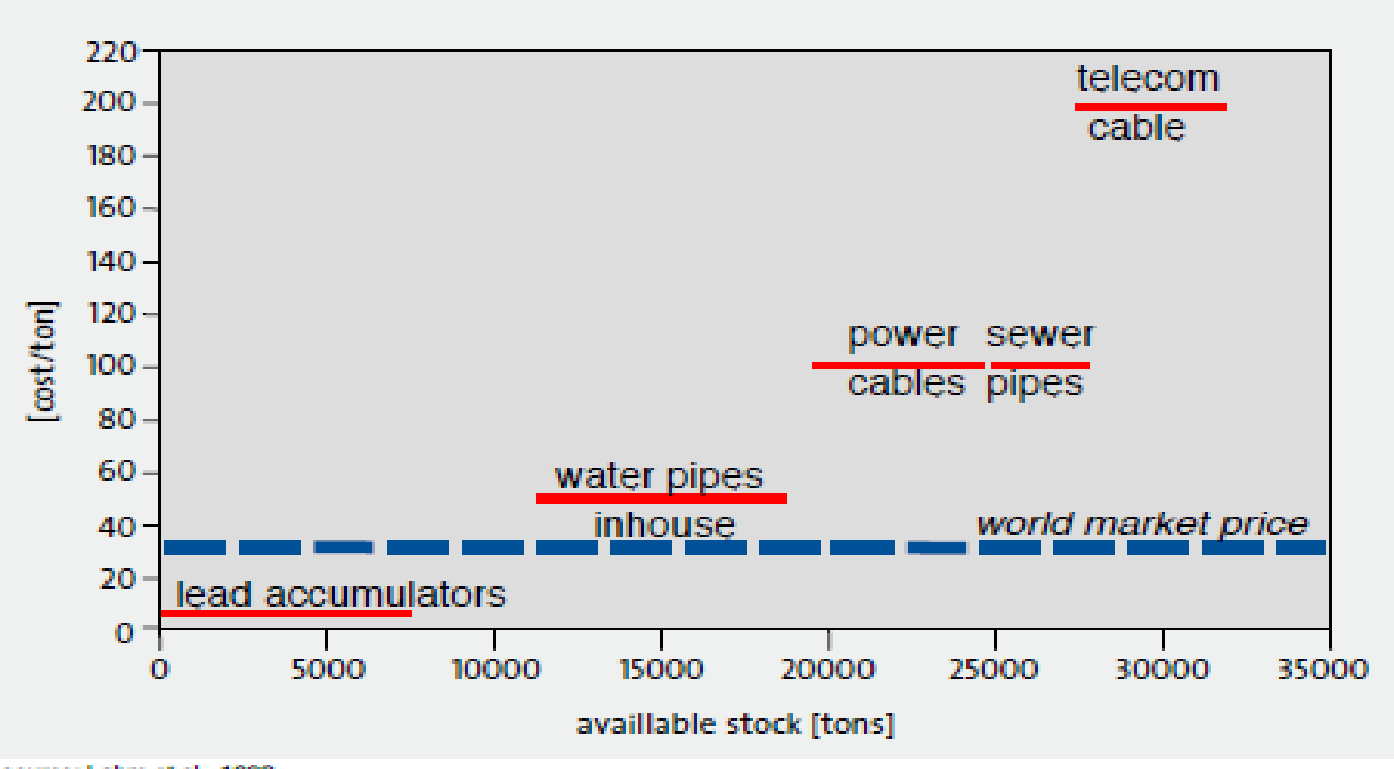
And now?

1. Resource-Management at WL
2. BIM-System concerning materials and substances



Next steps, “urban flows” – economic facts!

It‘s economy, stupid!



source: Lohm et al., 1989

Vielen Dank für Ihre Aufmerksamkeit