

For Our Environment

Energiewende in Deutschland

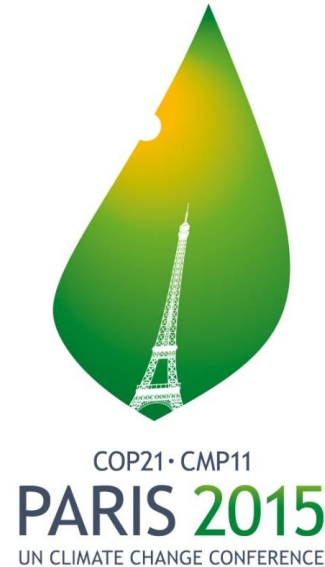
Handlungsfelder

Dr. Harry Lehmann

General Director at the Federal Environment Agency, Germany

Head of Division I – Environmental Planning and Sustainability Strategies

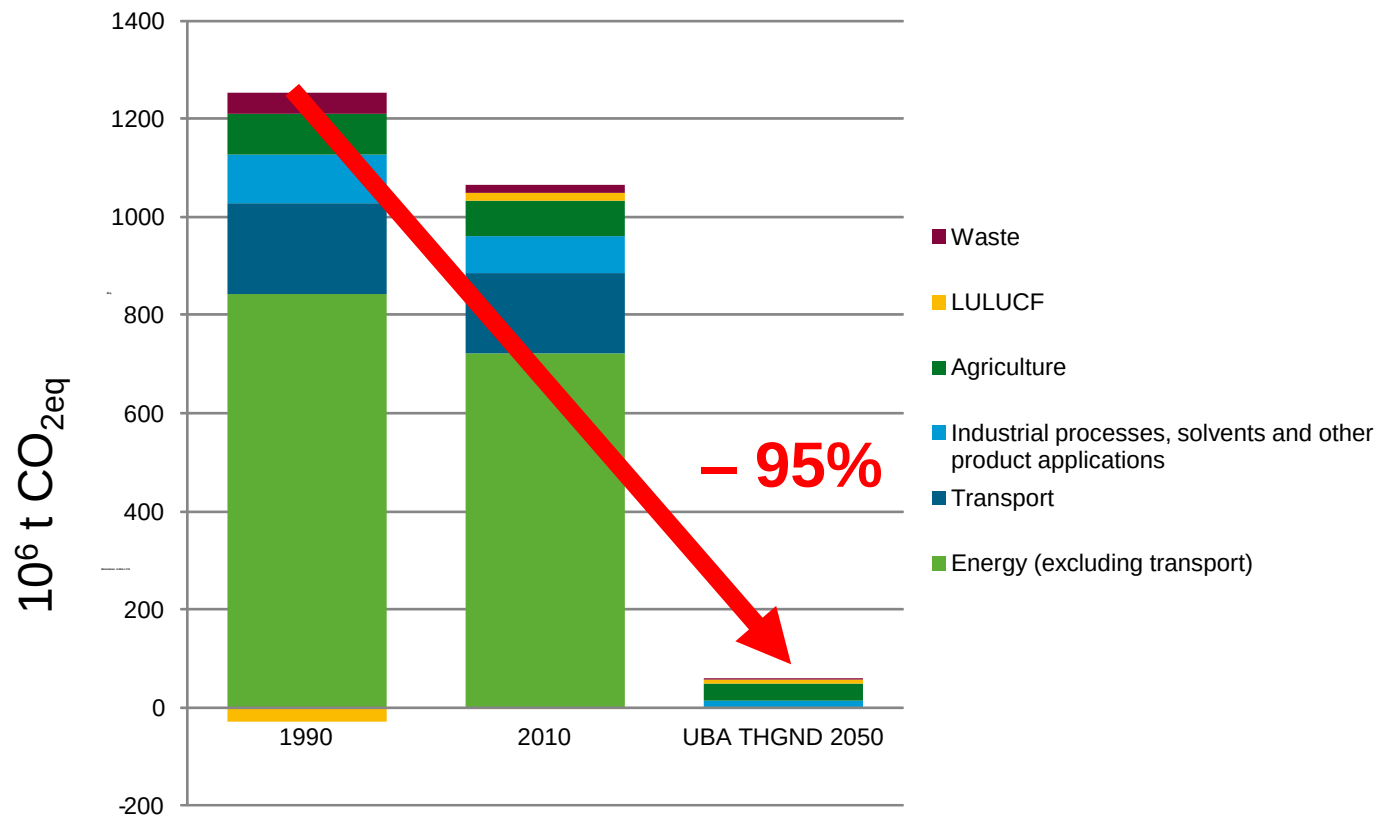
The Paris Agreement



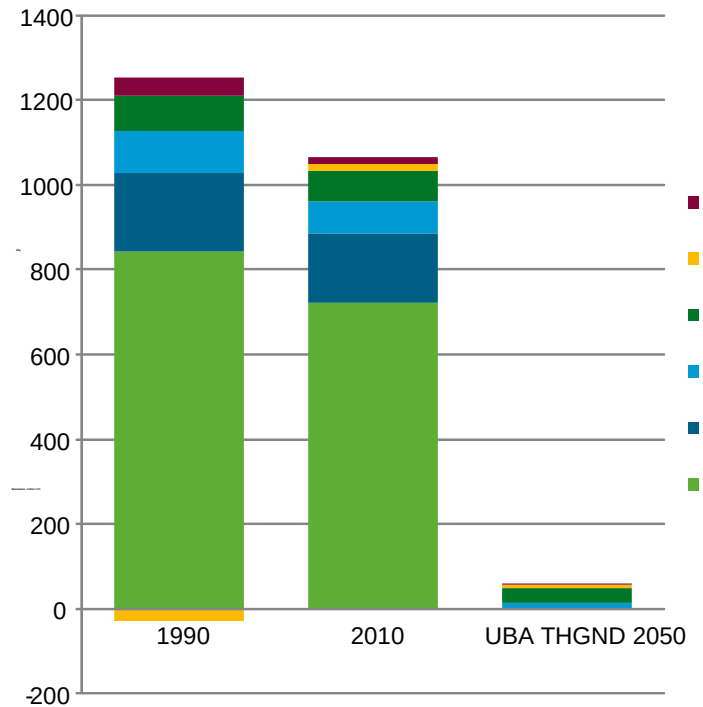
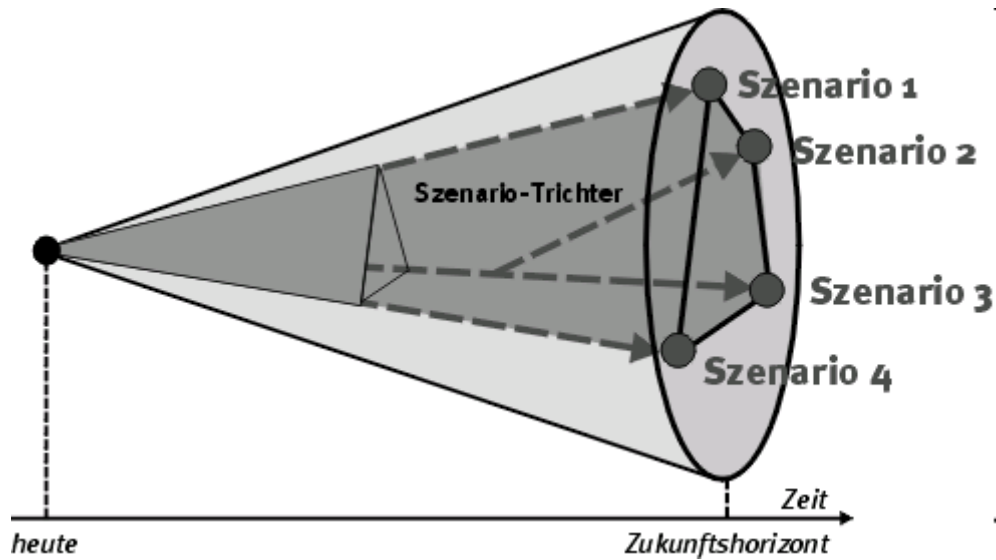
Consequences (Article 4):

- *“decarbonization” of all societies...*
- *Germany has to increase goals*
- *-95 % Greenhouse Gas Emission in 2050 (industrialized countries)*

Treibhausgas Neutrales Deutschland



Treibhausgas Neutrales Deutschland

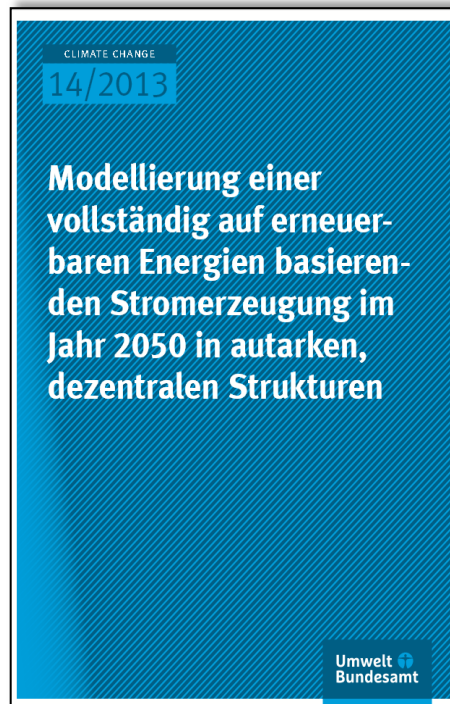


Annäherung mit systemischen / holistischen Szenarien

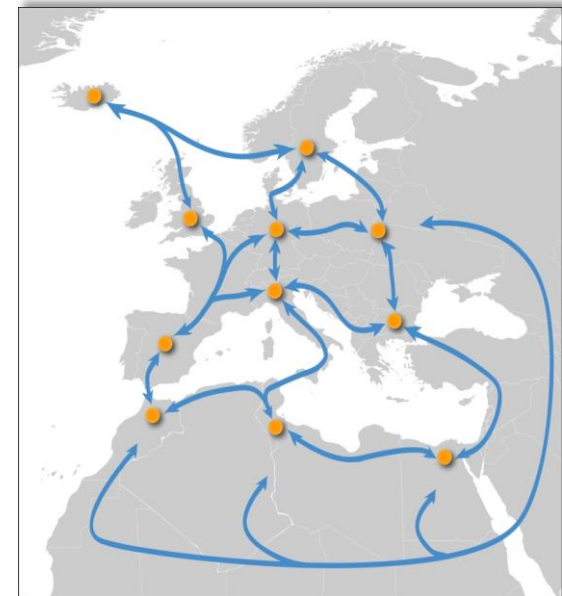
Archetypen einer 100% EE Versorgung



„Regionenverbund“
(2010)



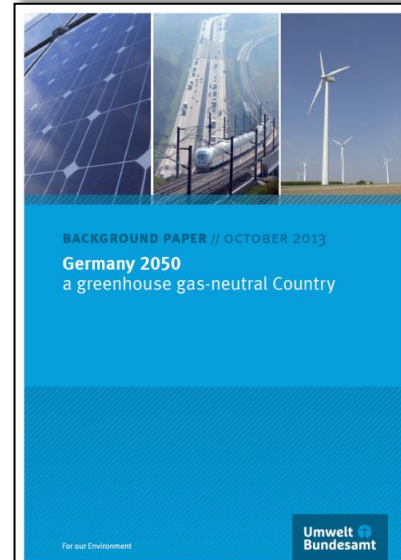
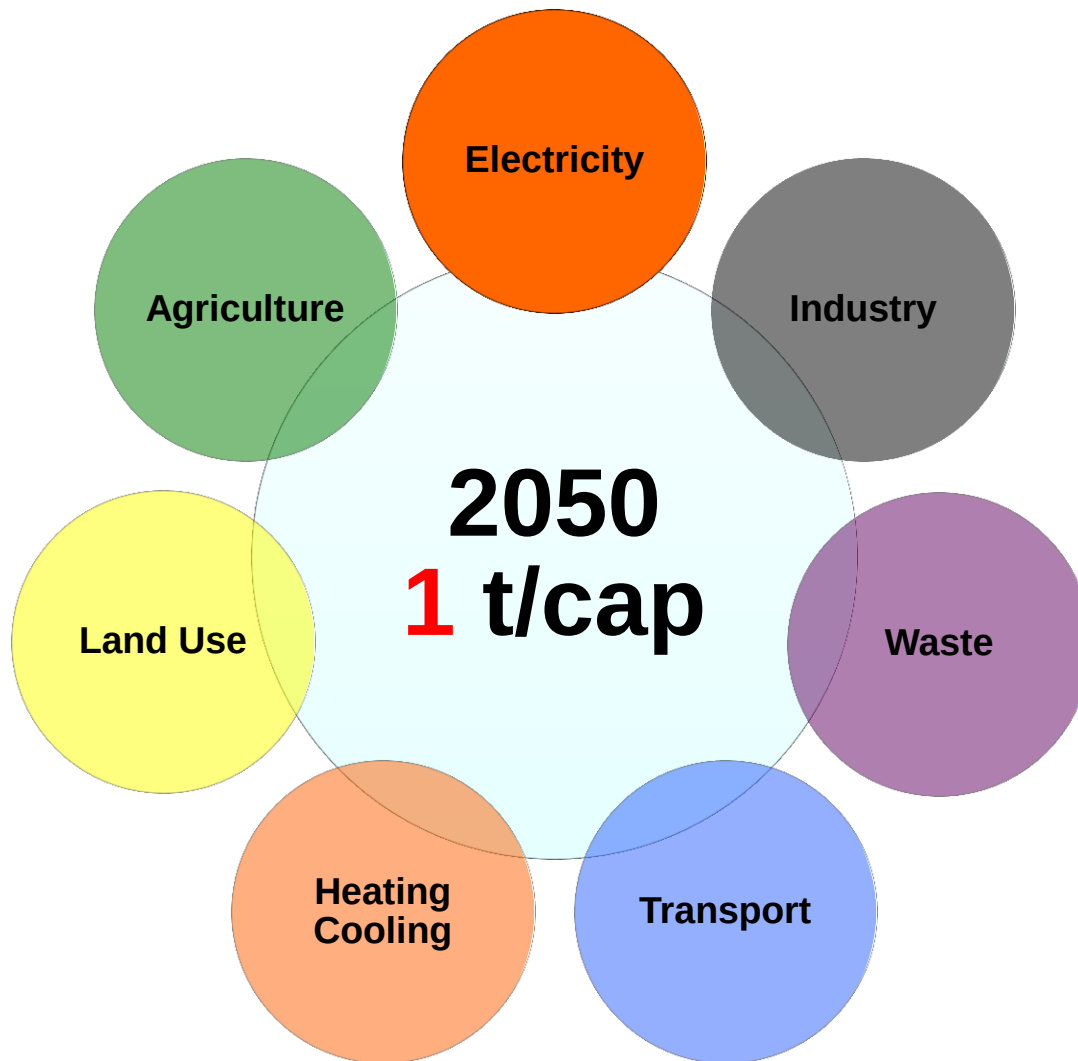
„Lokale Autarkie“
(2013)



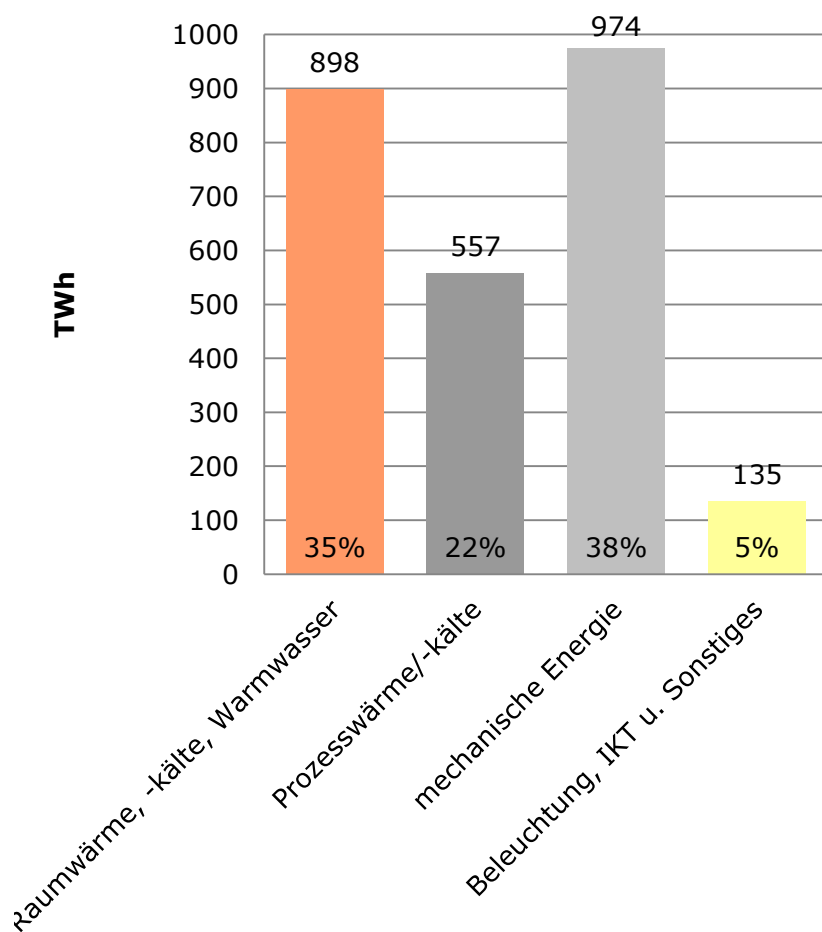
„Internationale Großtechnik“
(2014)

Quelle: J. Lillestam, PIK

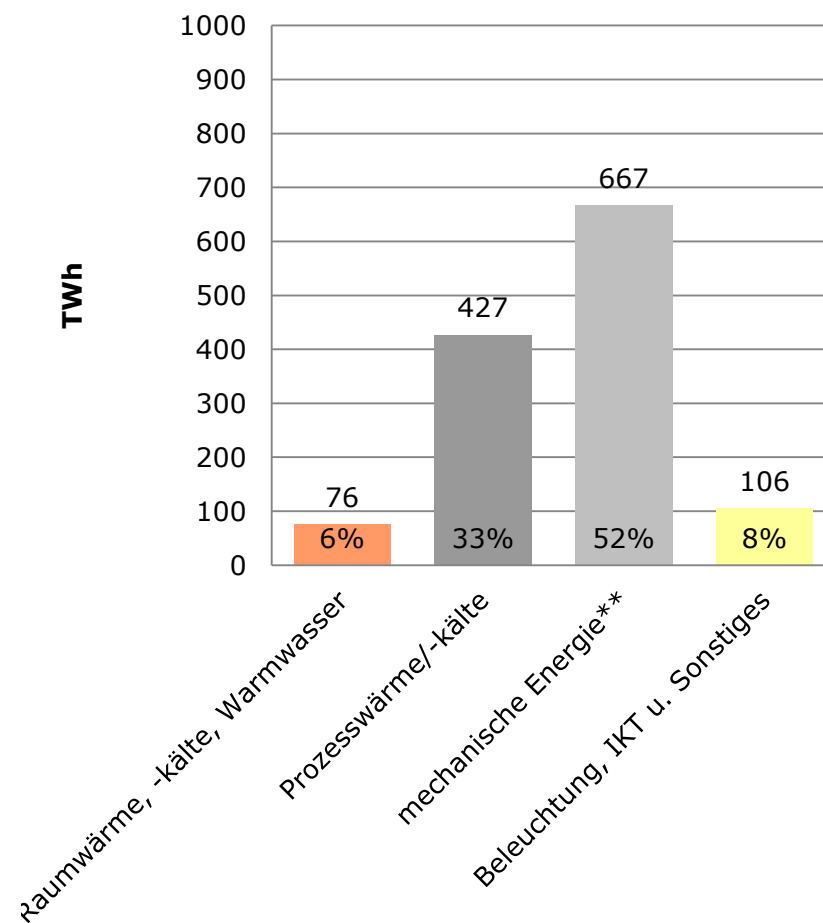
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Energie Effizienz

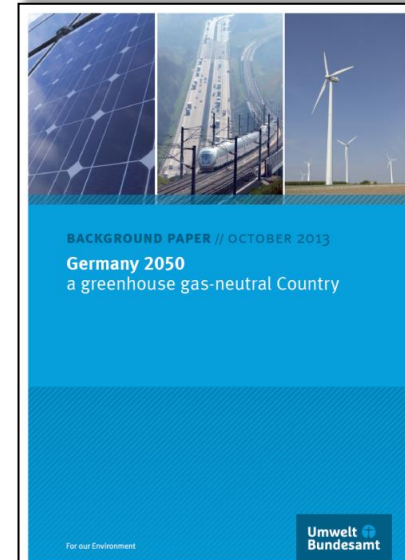
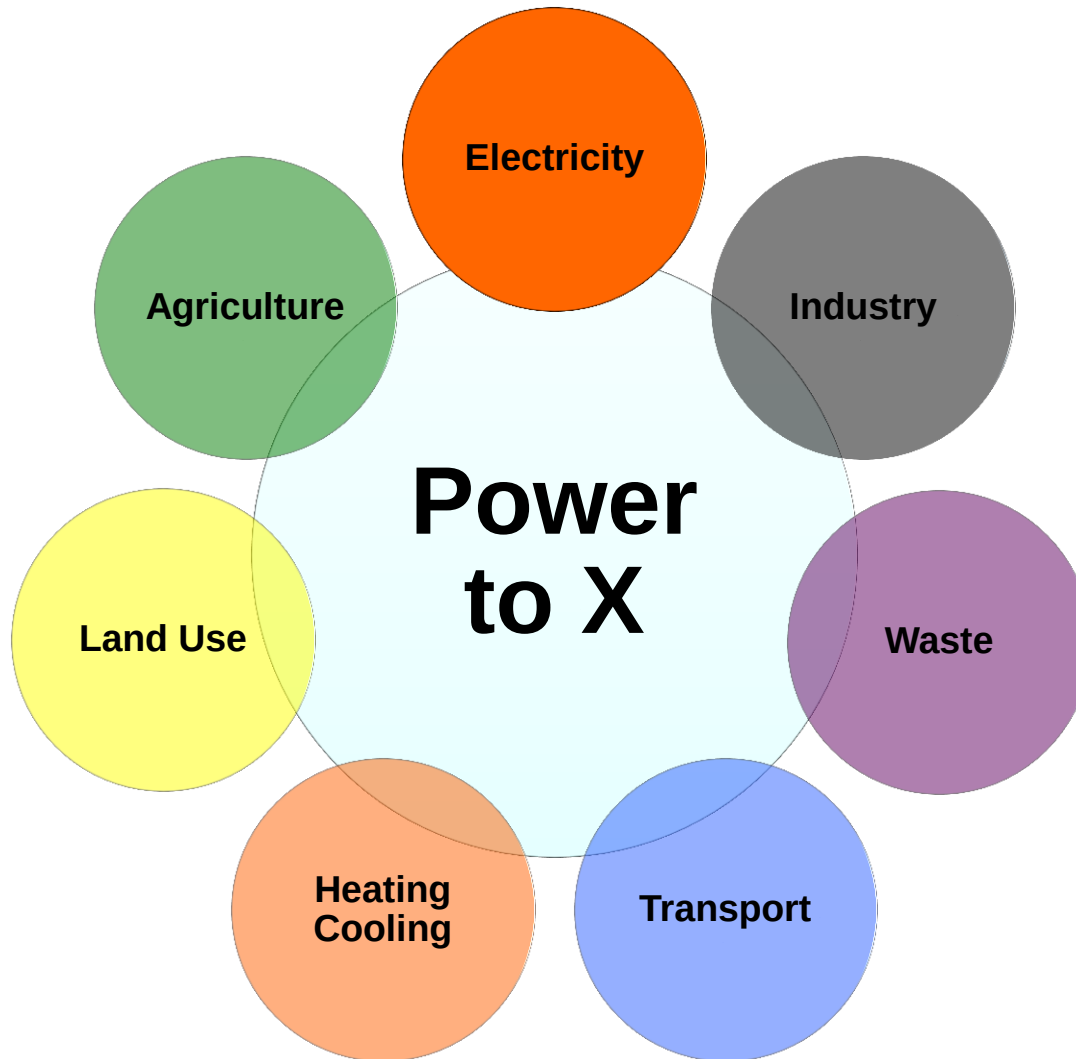


2008

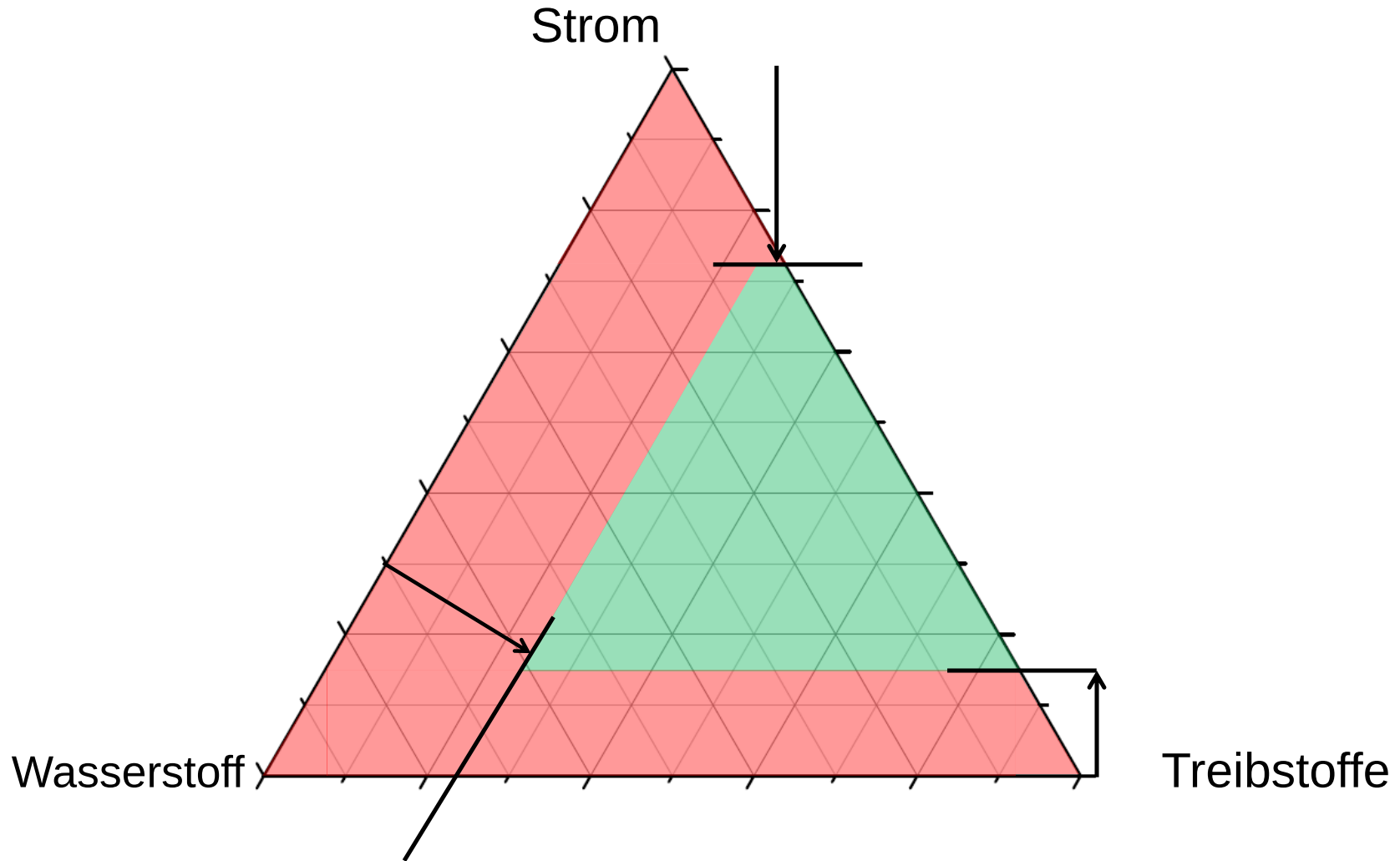


2050

Treibhausgas Neutrales Deutschland

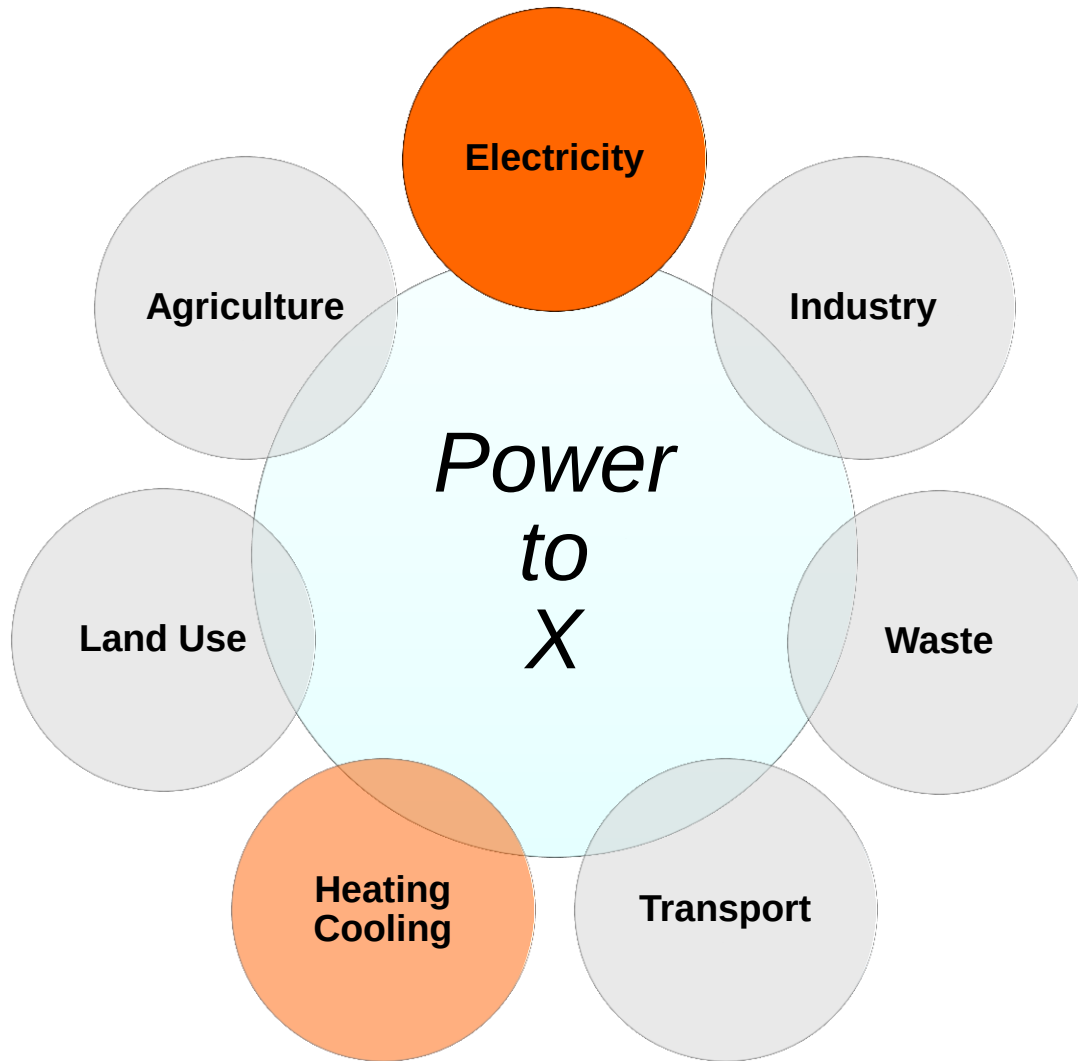


Lösungsraum für ein Treibhausgas Neutrales Deutschland



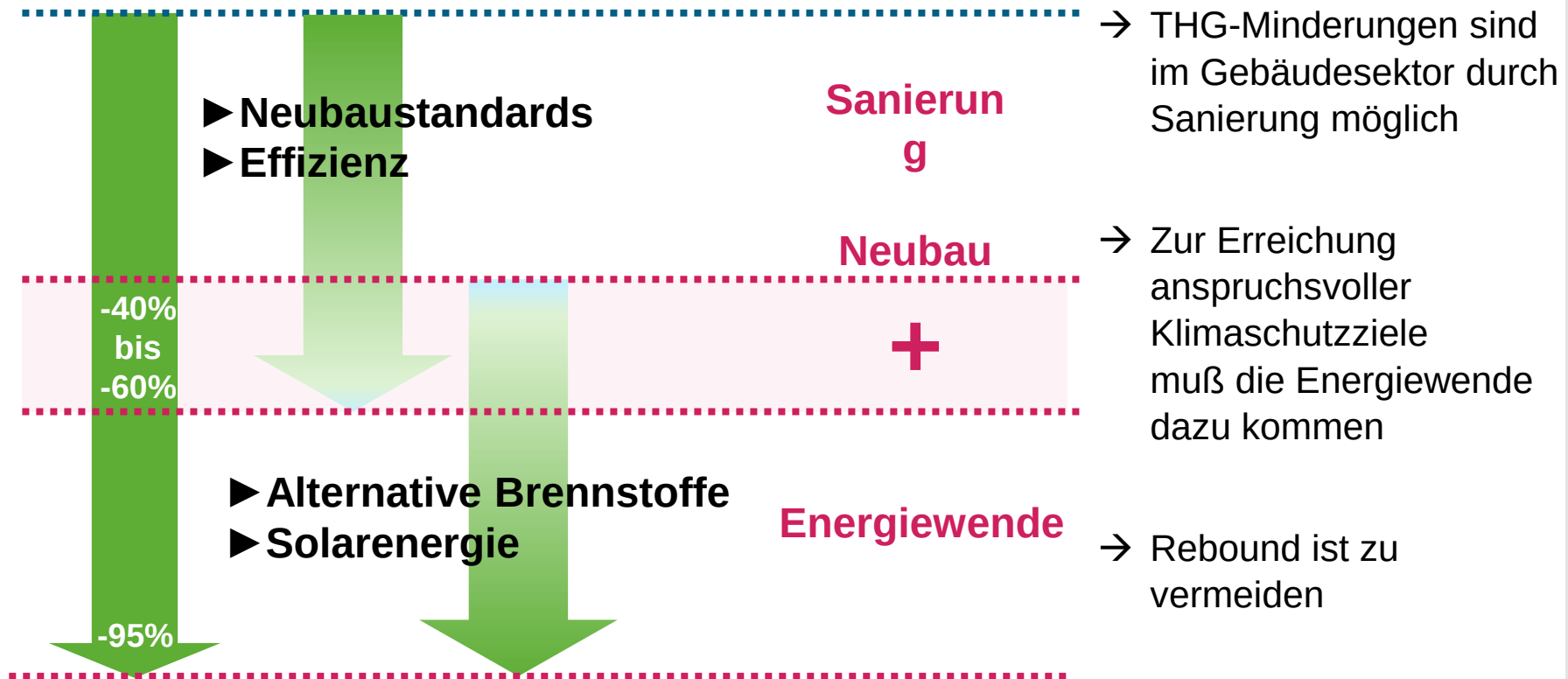
Source UBA

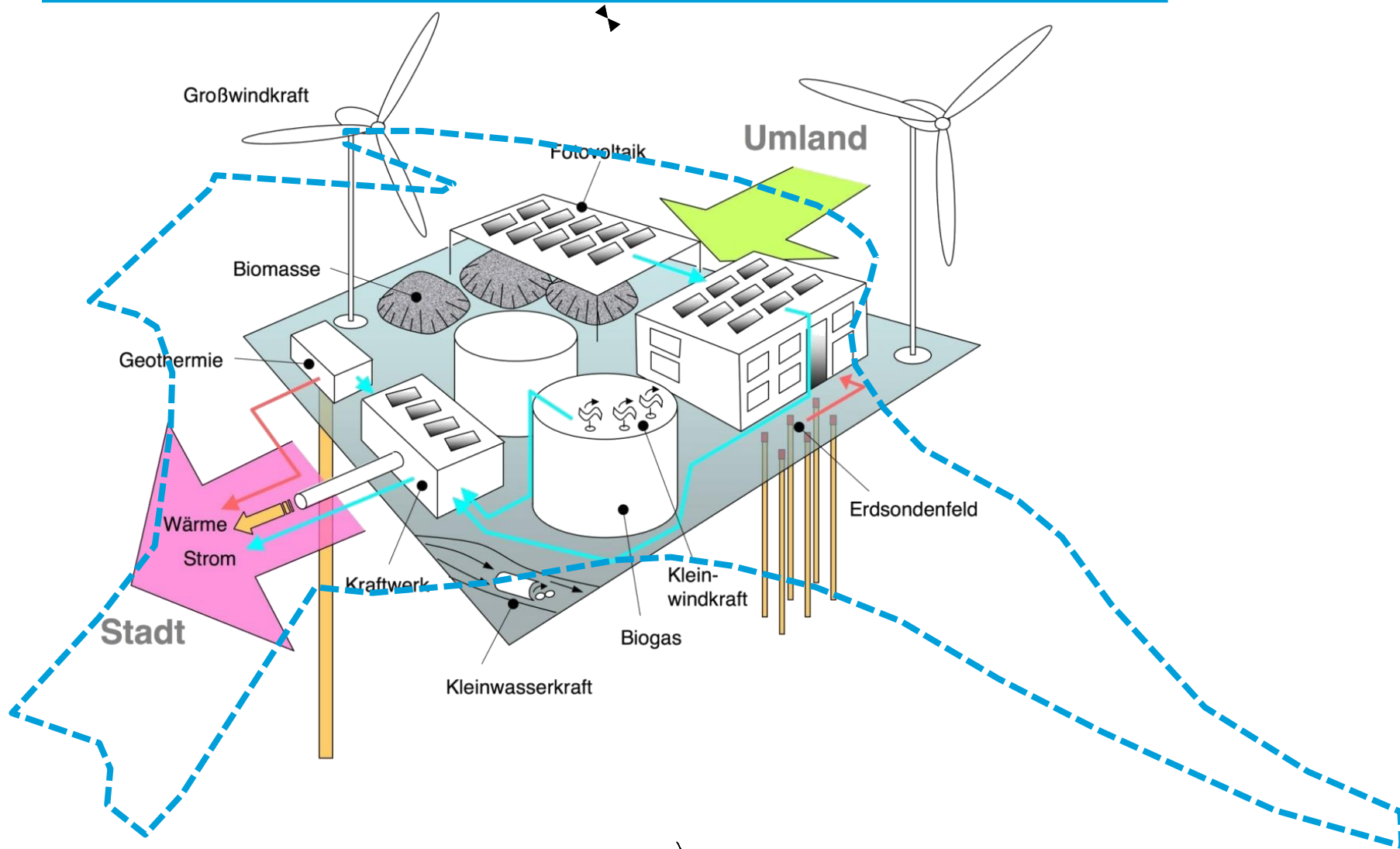
Treibhausgas Neutrales Deutschland



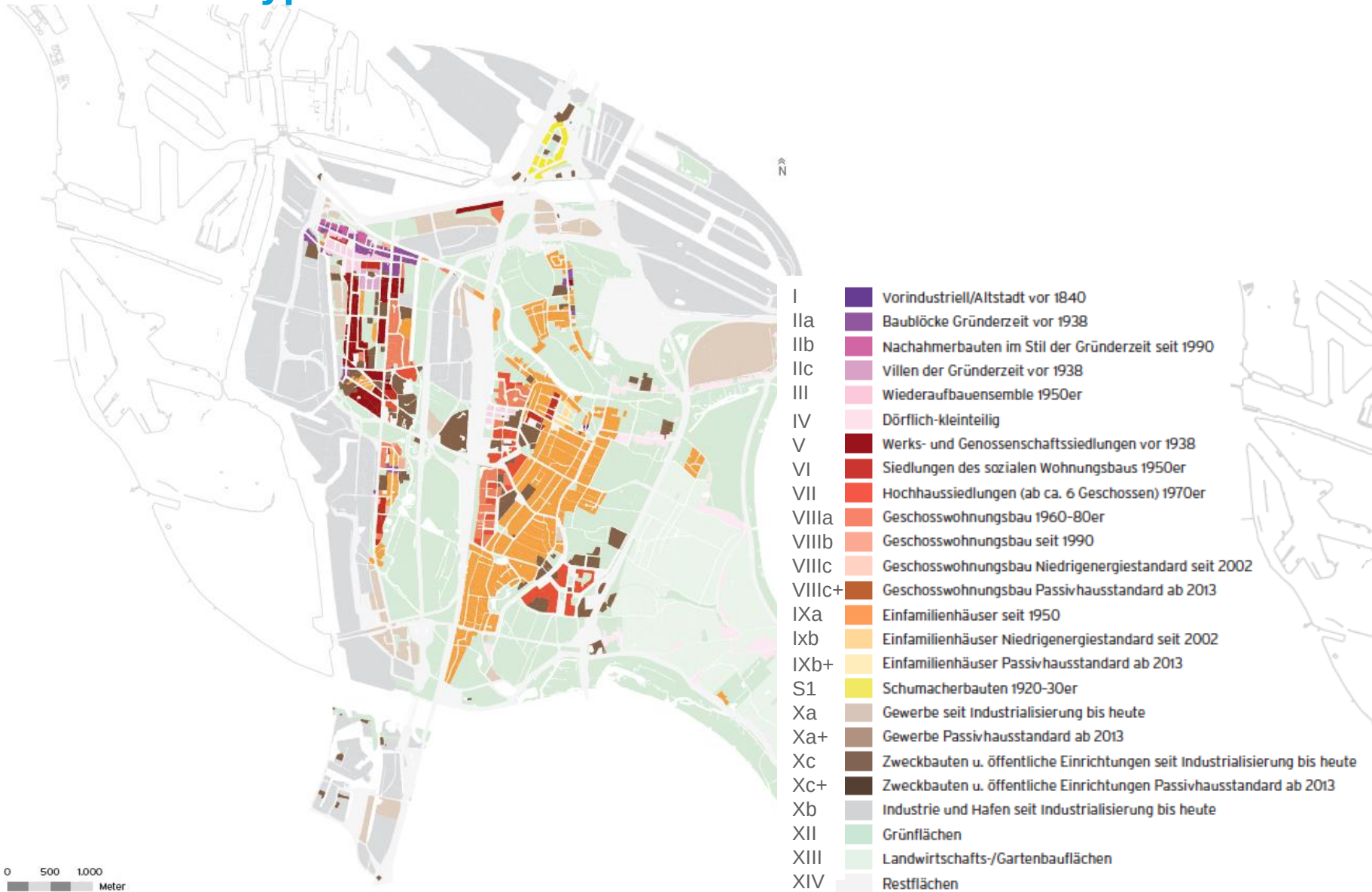
Anspruchsvolle Klimaschutzziele im Gebäudesektor brauchen: Sanierung UND Energiewende UND Lebensstil

Minderung
THG-Emissionen
(Basis 1990)

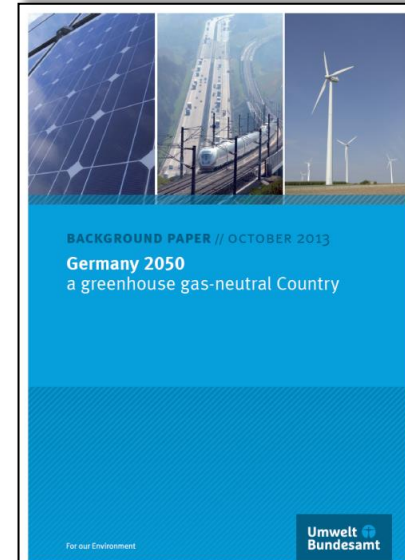
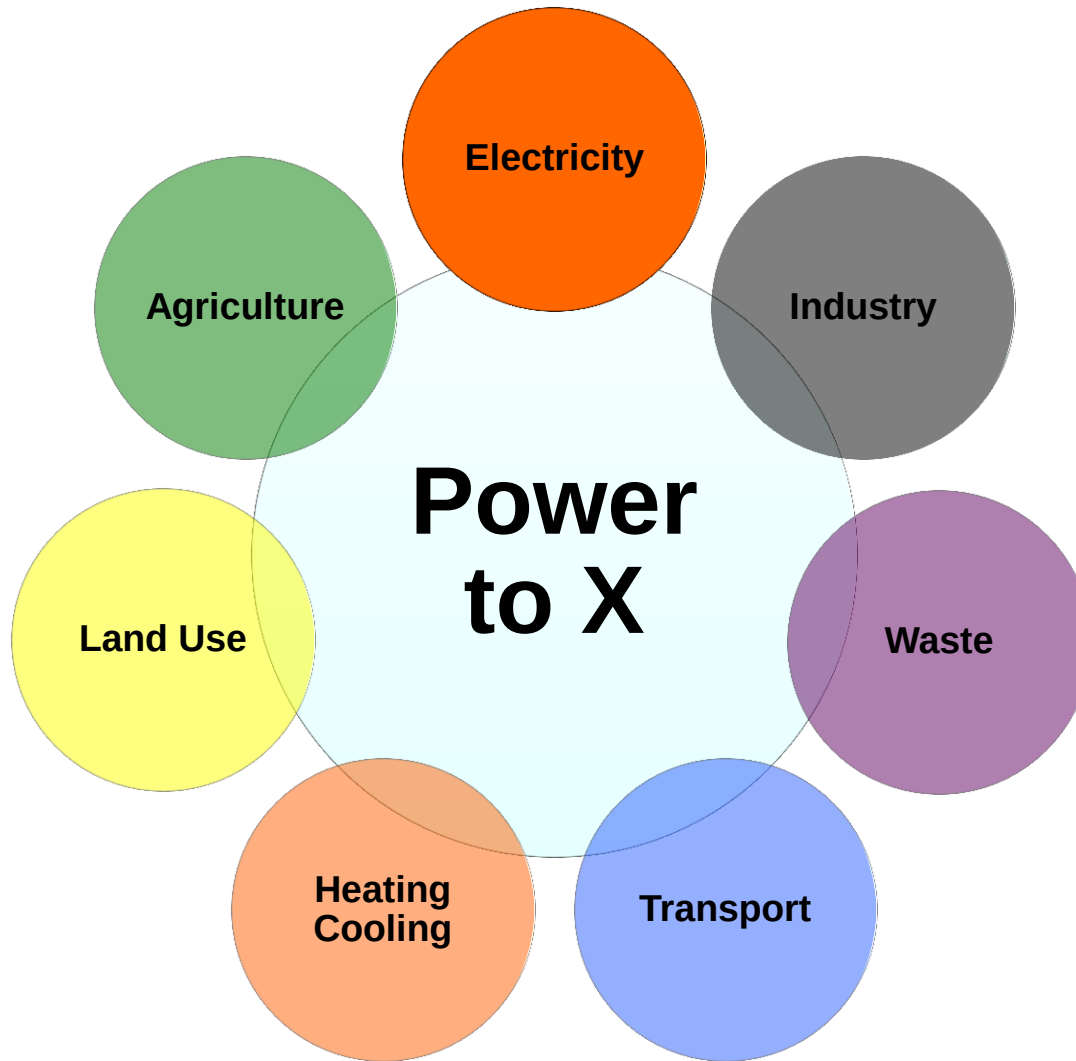




Stadtraumtypen SRT



Treibhausgas Neutrales Deutschland



Power to Mobility - direct use of electricity and PTL

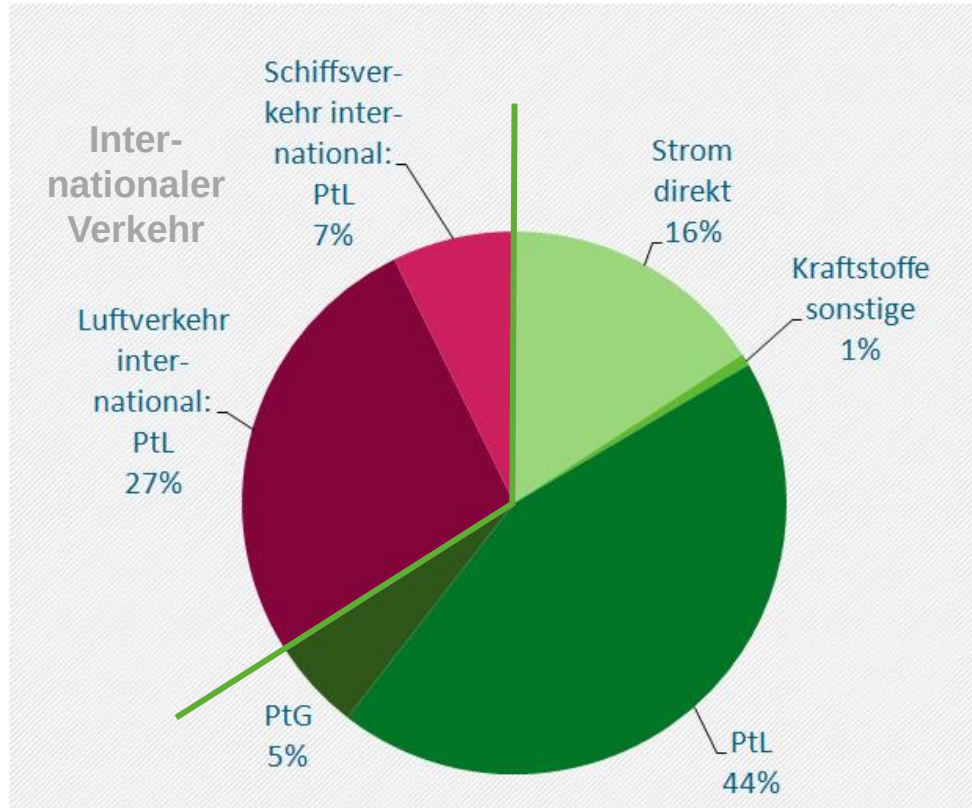
Electricity (incl. Plug-in-Hybrid)

- Passenger car
- Trucks short haul
- possibly Trucks long haul as overhead wire
- Urban buses
- Rail traffic



PTL: methanol, kerosene, gasoline, diesel,

Power to Mobility – Scenario 2050 + (1.600 PJ)



Quelle: IFEU/INFRAS/LBST 2016.



Quelle: siemens.com



Quelle: Deutsche Handwerkszeitung.de



Quelle: spiegel

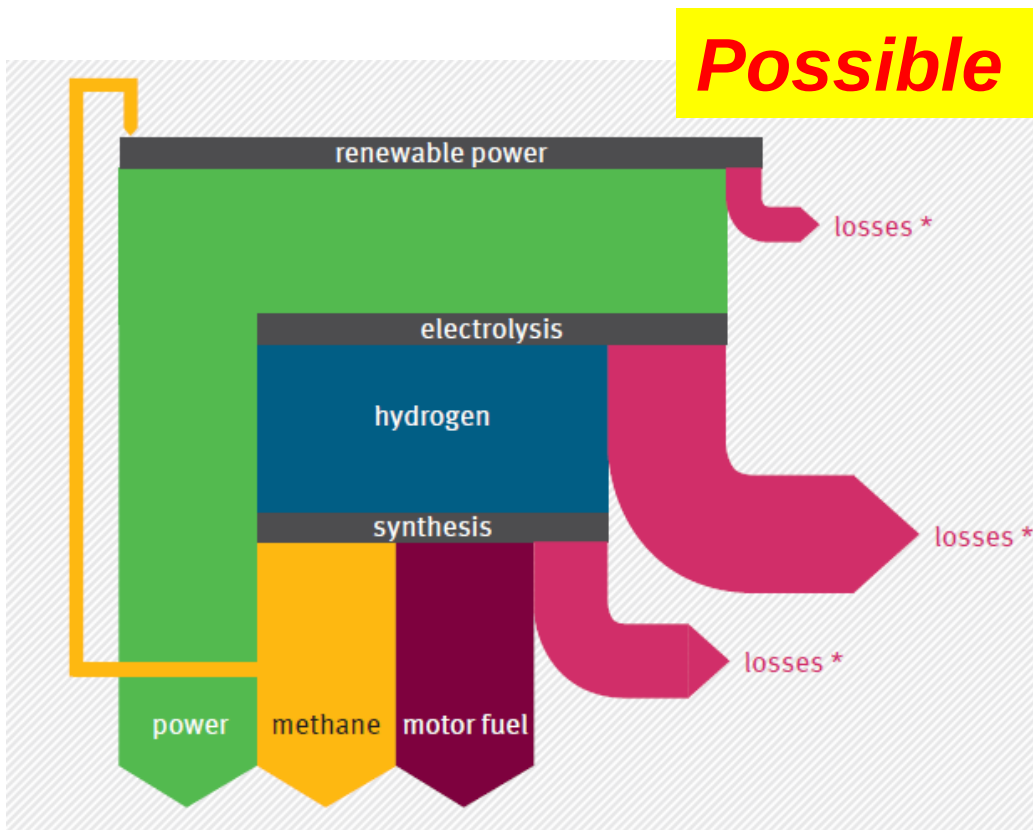


Quelle: urlaubsgur

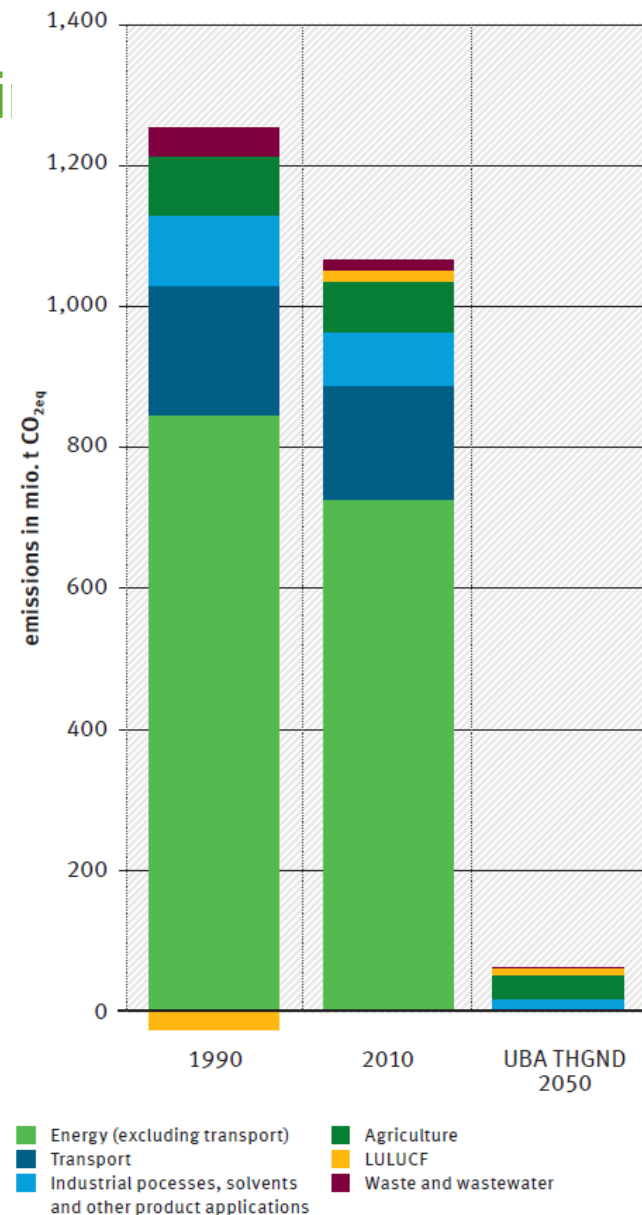


Quelle: badischeZeitung.de

UBA-Study: GHG-neutral Germany in 2040

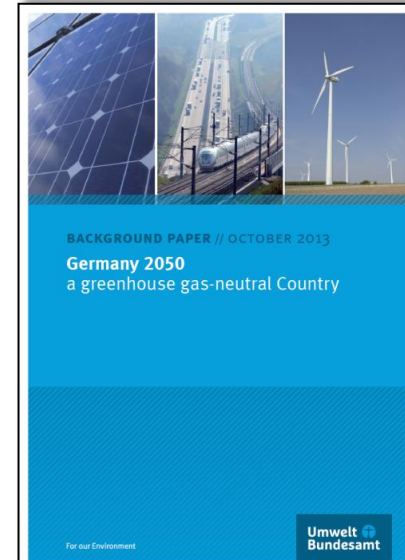
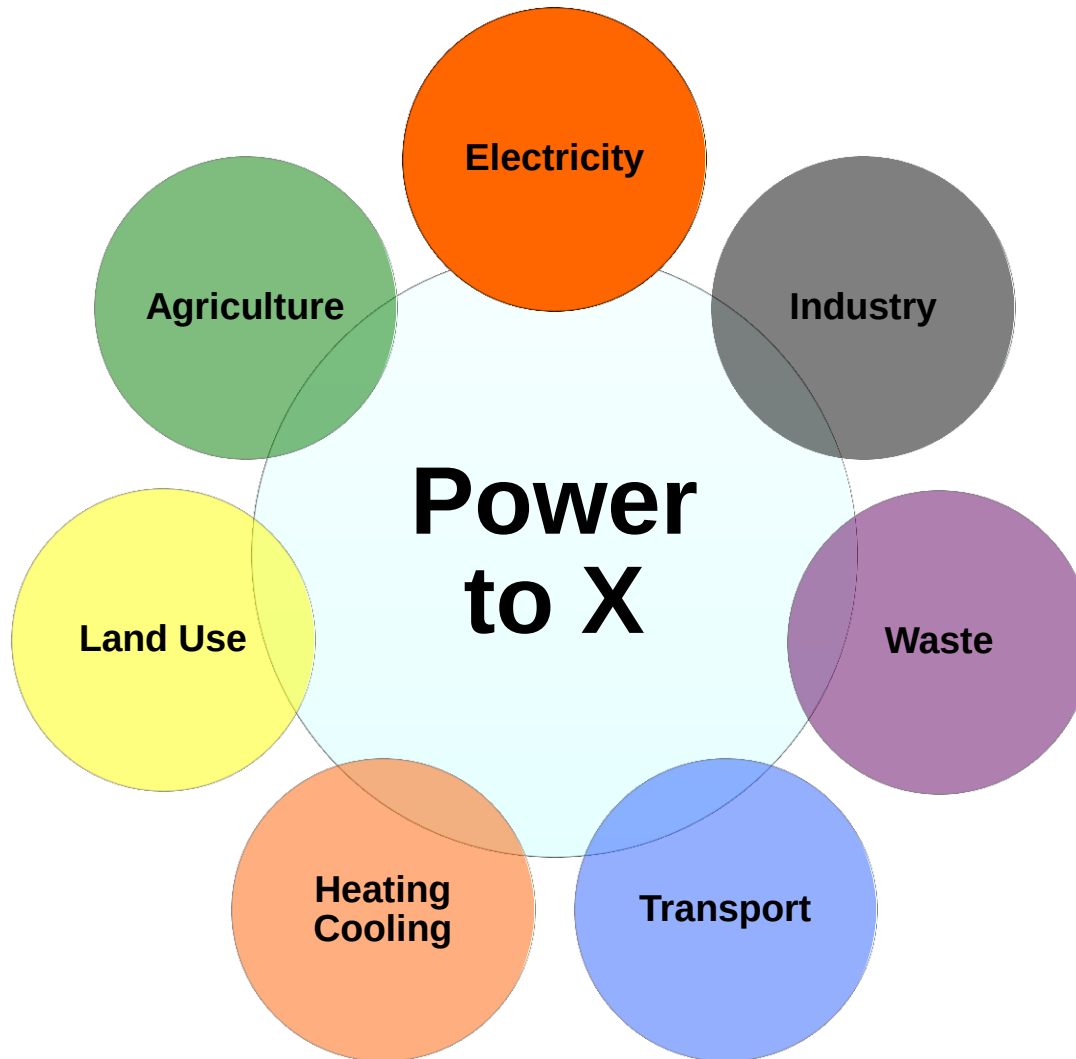


Qualitative representation of the energy flow in the UBA THGND 2050 Scenario

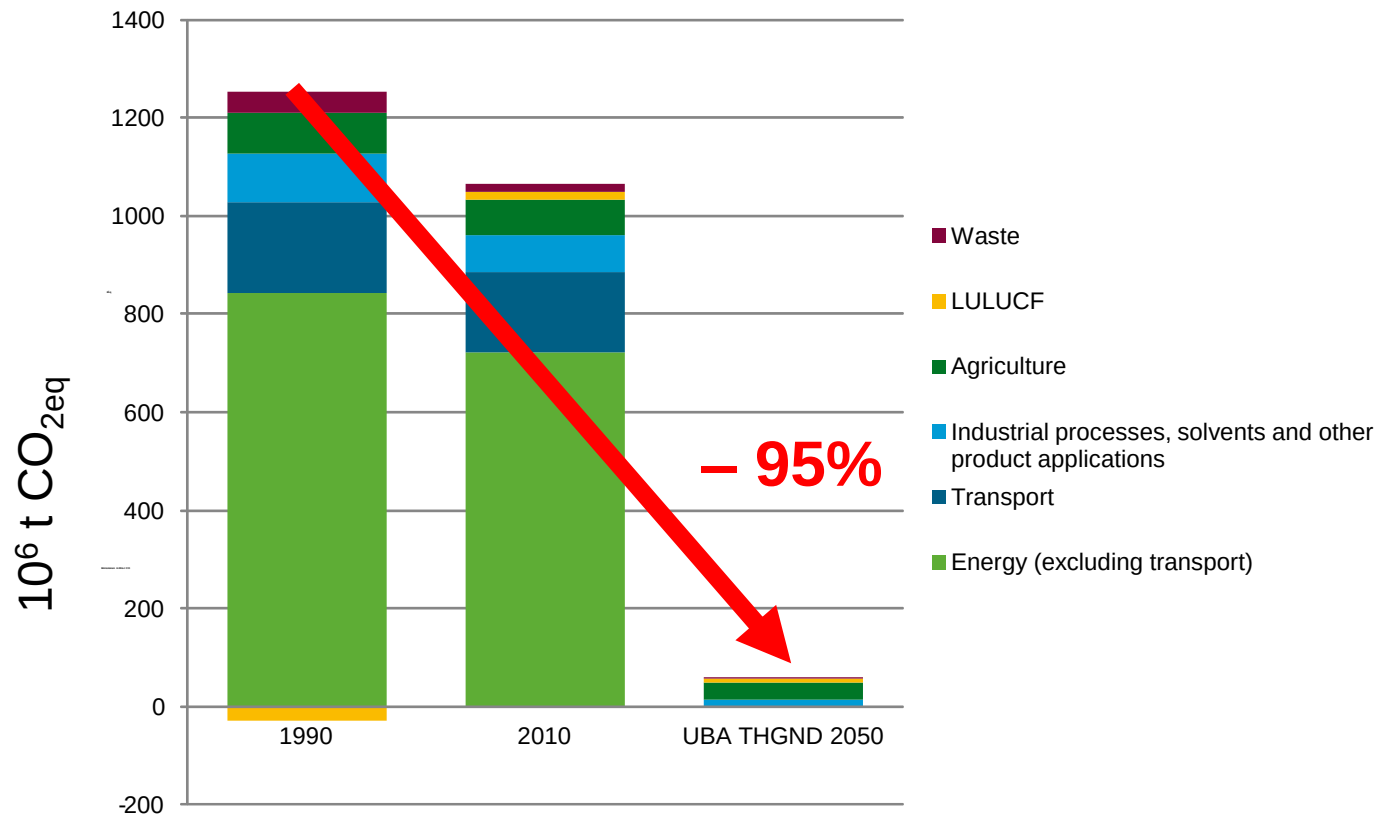


Source: UBA

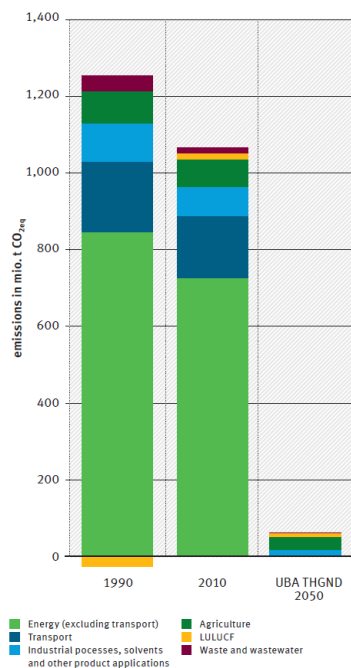
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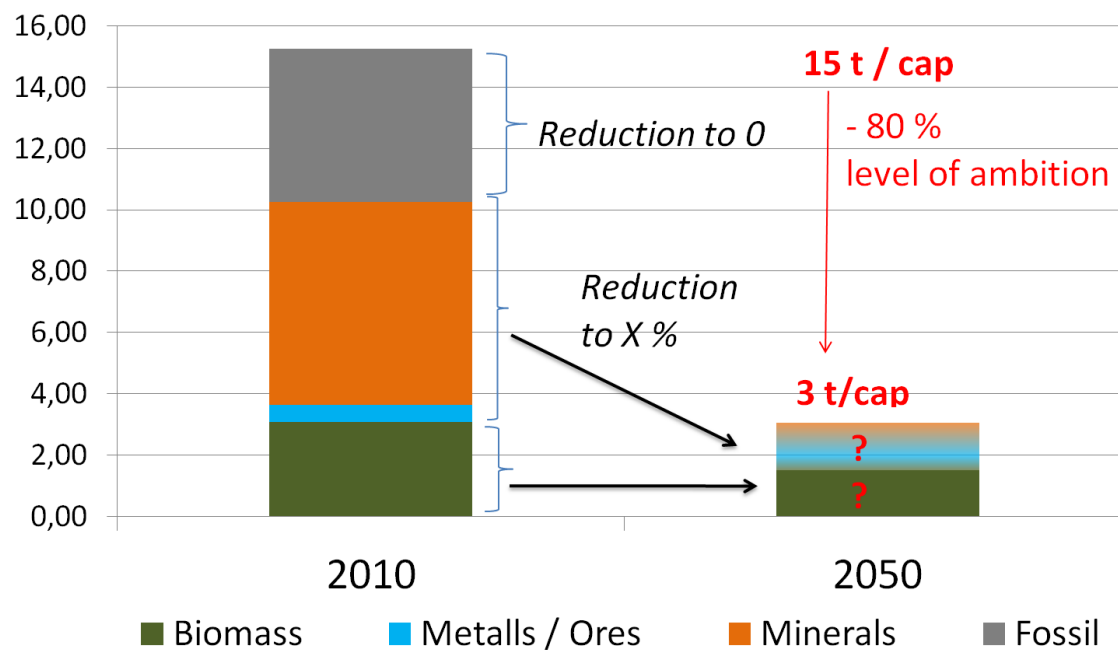
Treibhausgas Neutrales Deutschland



Ressourcenschonung auch möglich ?



Tons per capita



Danke!

Umwelt 
Bundesamt

8.11.2016 – Berlin – Workshop Decarbonisation + Resource Eff.

Dr. Harry Lehmann (harry.lehmann@uba.de)

<http://www.umweltbundesamt.de/en>

- Germany 2050 - A Greenhouse Gas-Neutral Country
<https://www.umweltbundesamt.de/publikationen/germany-2050-a-greenhouse-gas-neutral-country>
- Integration of Power to Gas/ Power to Liquids into the ongoing transformation process
<https://www.umweltbundesamt.de/publikationen/integration-of-power-to-gas-power-to-liquids-into>
- Proceedings of the Workshop „Decarbonisation – 100 % Renewable Energy and more“ from November 2015
<https://www.umweltbundesamt.de/en/publikationen/proceedings-of-the-workshop-decarbonisation-100>