EURAC research

Concrete actions towards a CO2 neutral city – Case Bolzano

Bolzano, 3rd April 2009

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Or – How can this be applied on a city?

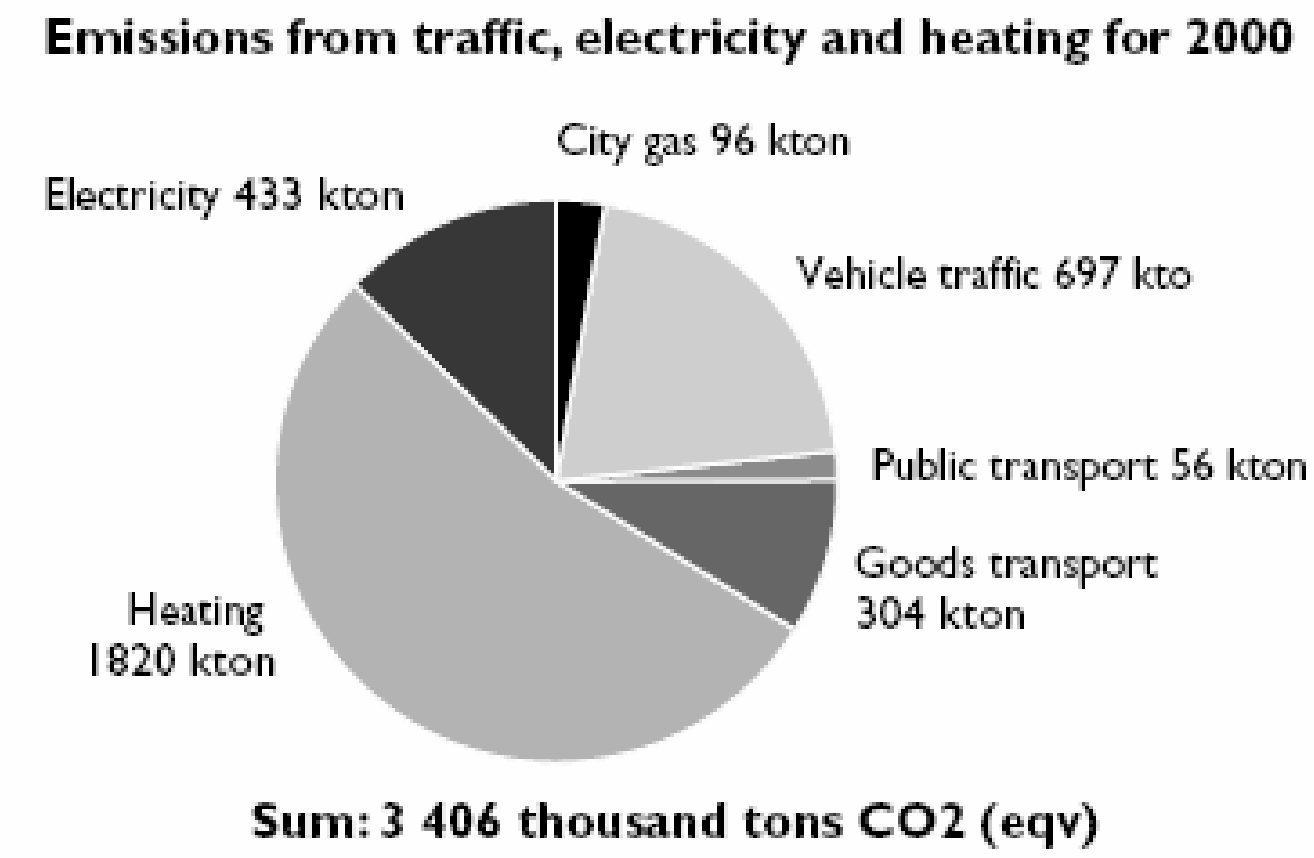
Agenda

- Energy consumption / CO2 emission
- Trends – distribution
- Example Bolzano
- Statements and discussion

- Where do the emissions come from?

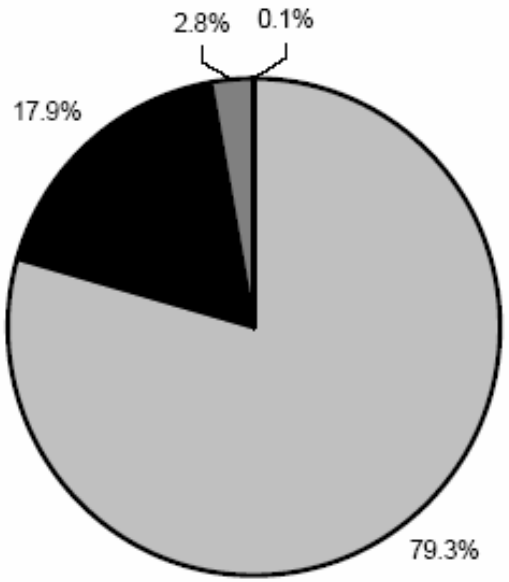
- Examples of energy consumption in European regions

Example Stockholm



Source: Action Plan against GHG Emissions

Example Davos



Wärmeerzeugung

Verkehr

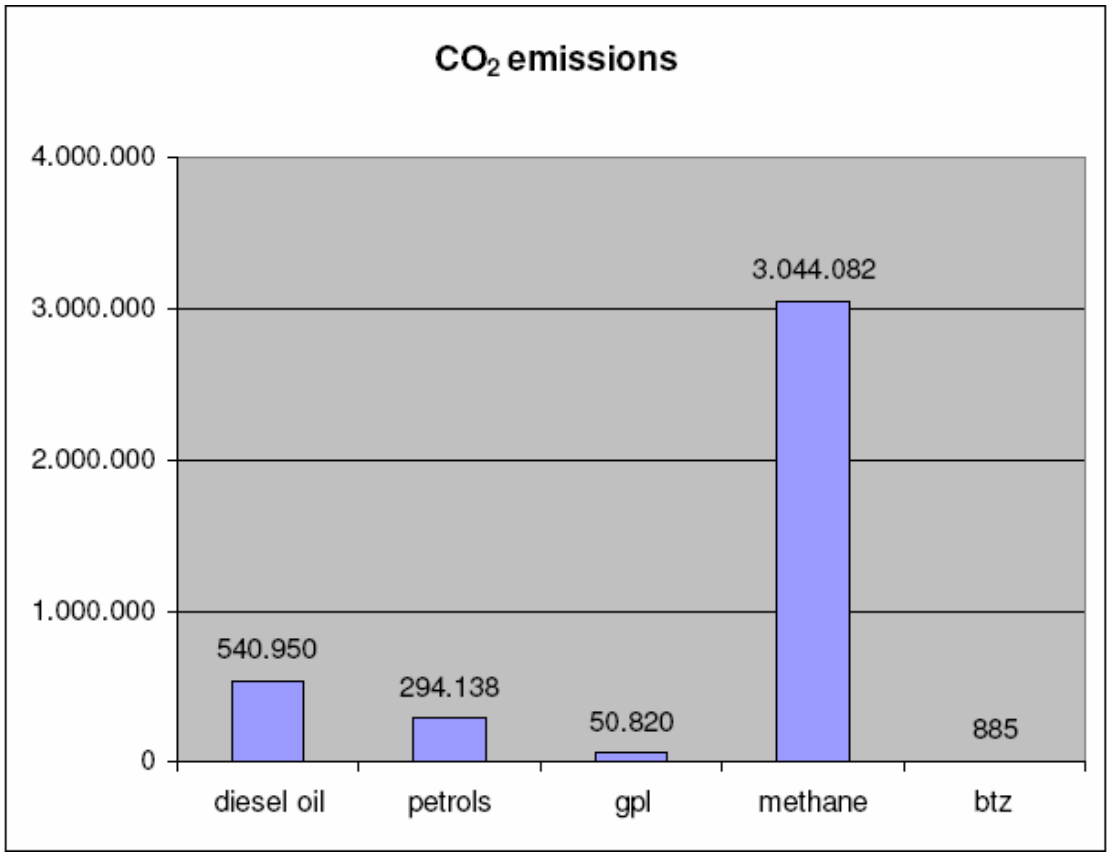
Licht, Maschinen und Geräte

Nicht energetisch-bedingte Aktivitäten

Gesamt: 95'459 t CO_2

Source: CO2-Emissionen in der Landschaft Davos, 2005

Example Province Ferrara



Source: Report on the Mitigation Scan Province of Ferrara, 2005

European Energy consumption

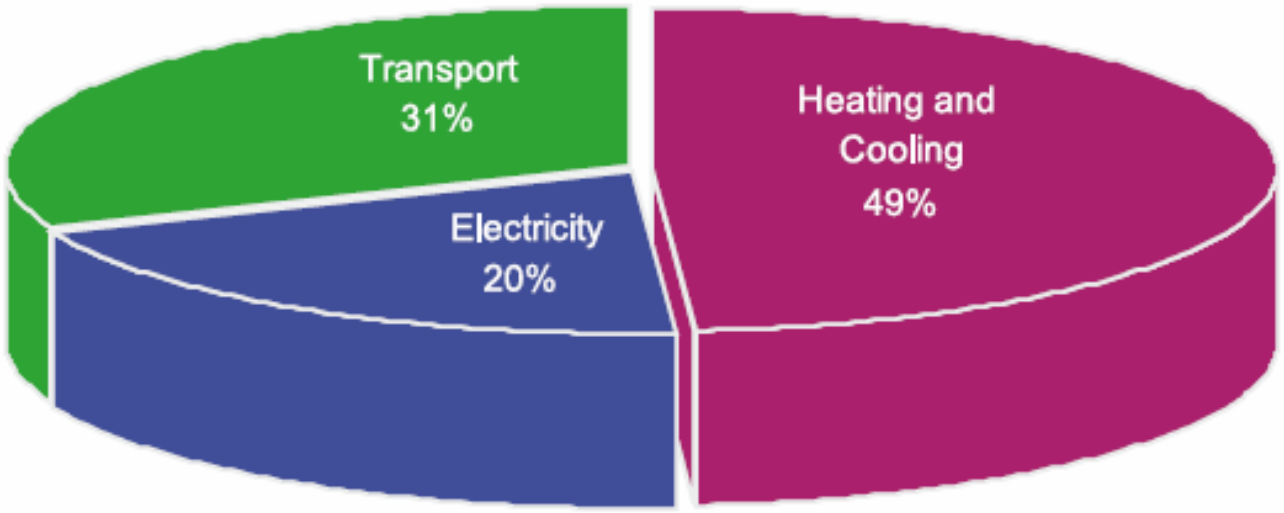


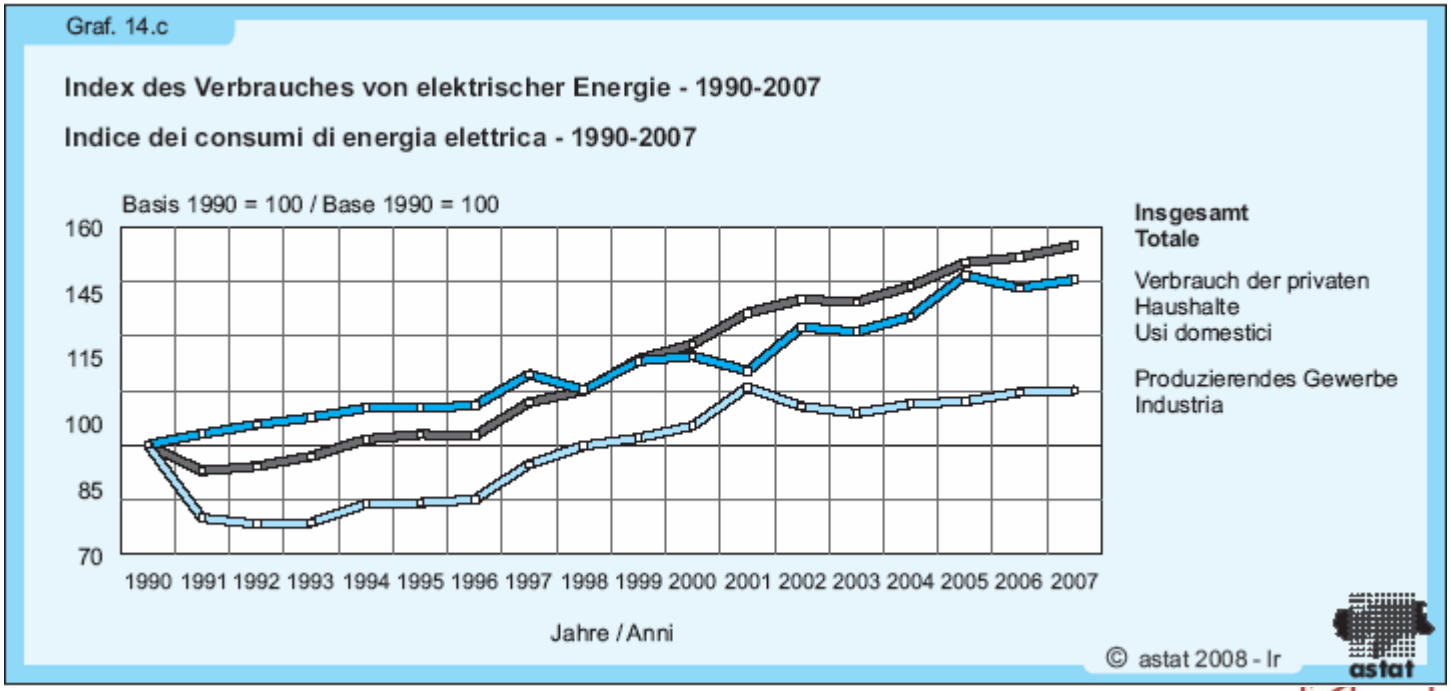
Figure 7: Final Energy demand in the European Union. (Source: EREC, 2006)

Source: EREC 2006 / ESTTP SRA

- Development of energy consumption / emissions

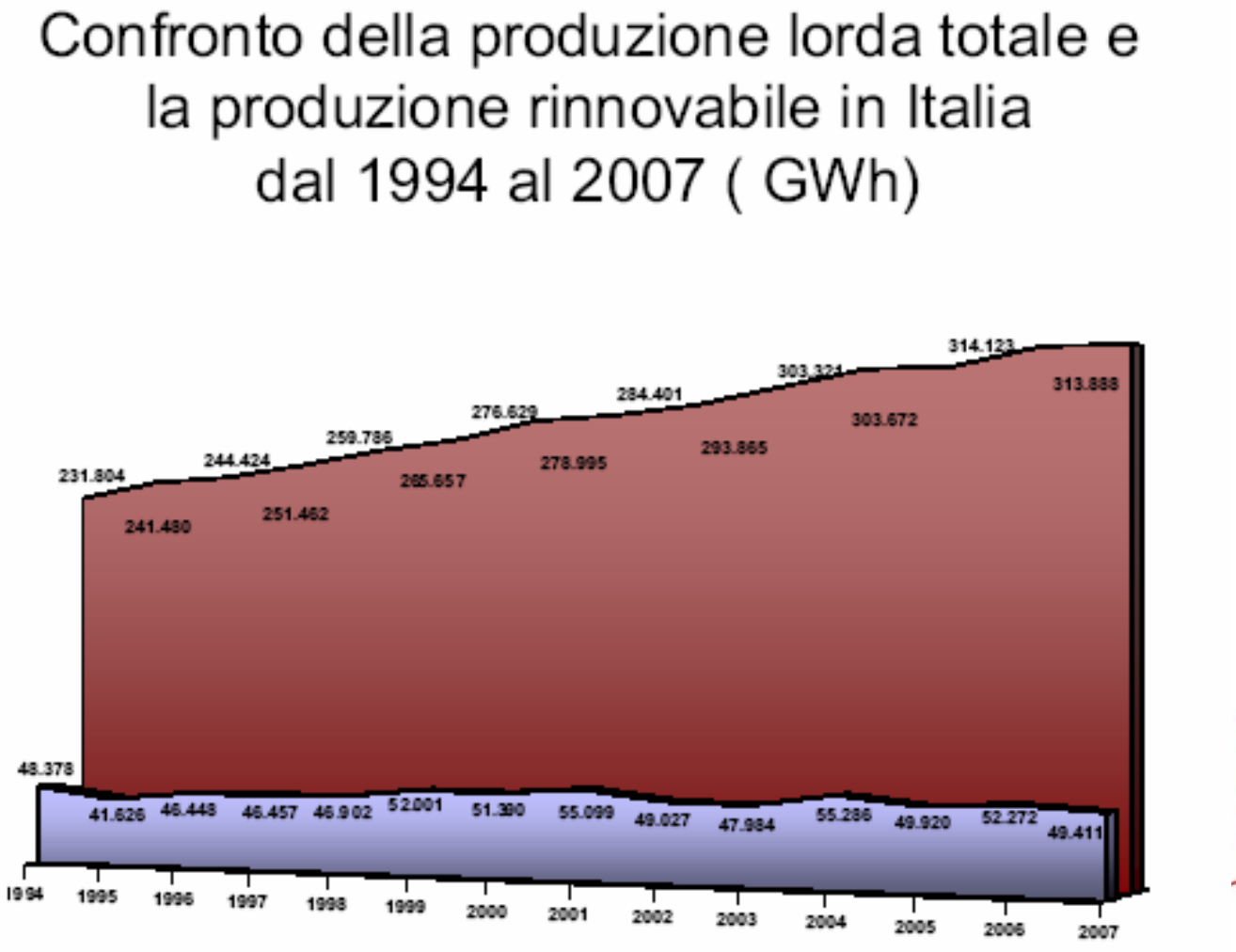
- Energy demand distribution

Electricity consumption South Tyrol



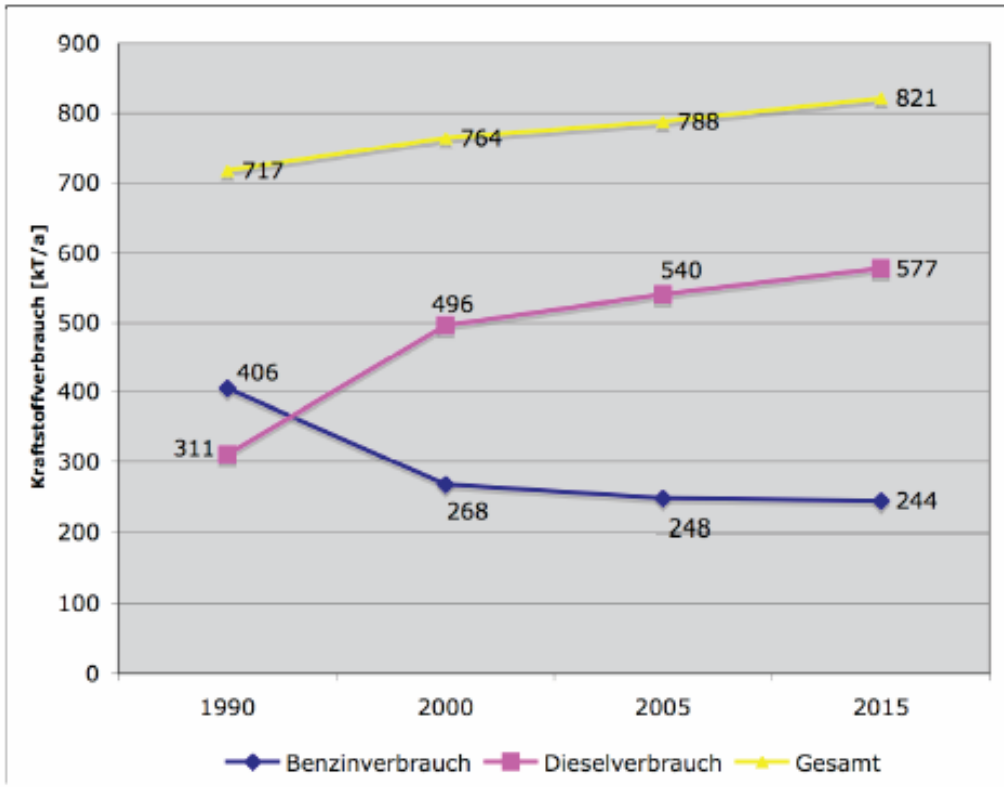
Source: Astat 2008,

Electricity production in Italy



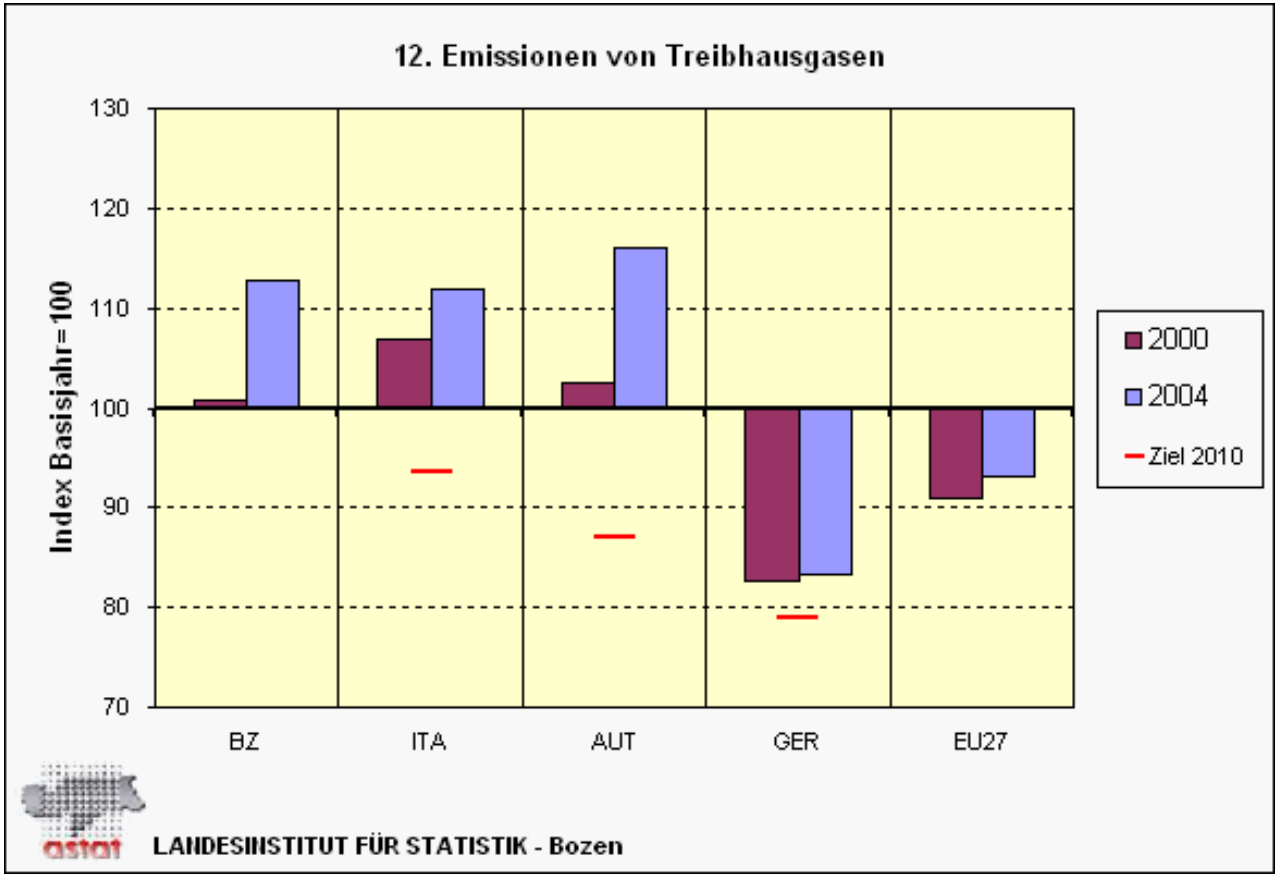
Source: GSE

Fossil fuels consumption for mobility – Example Styria



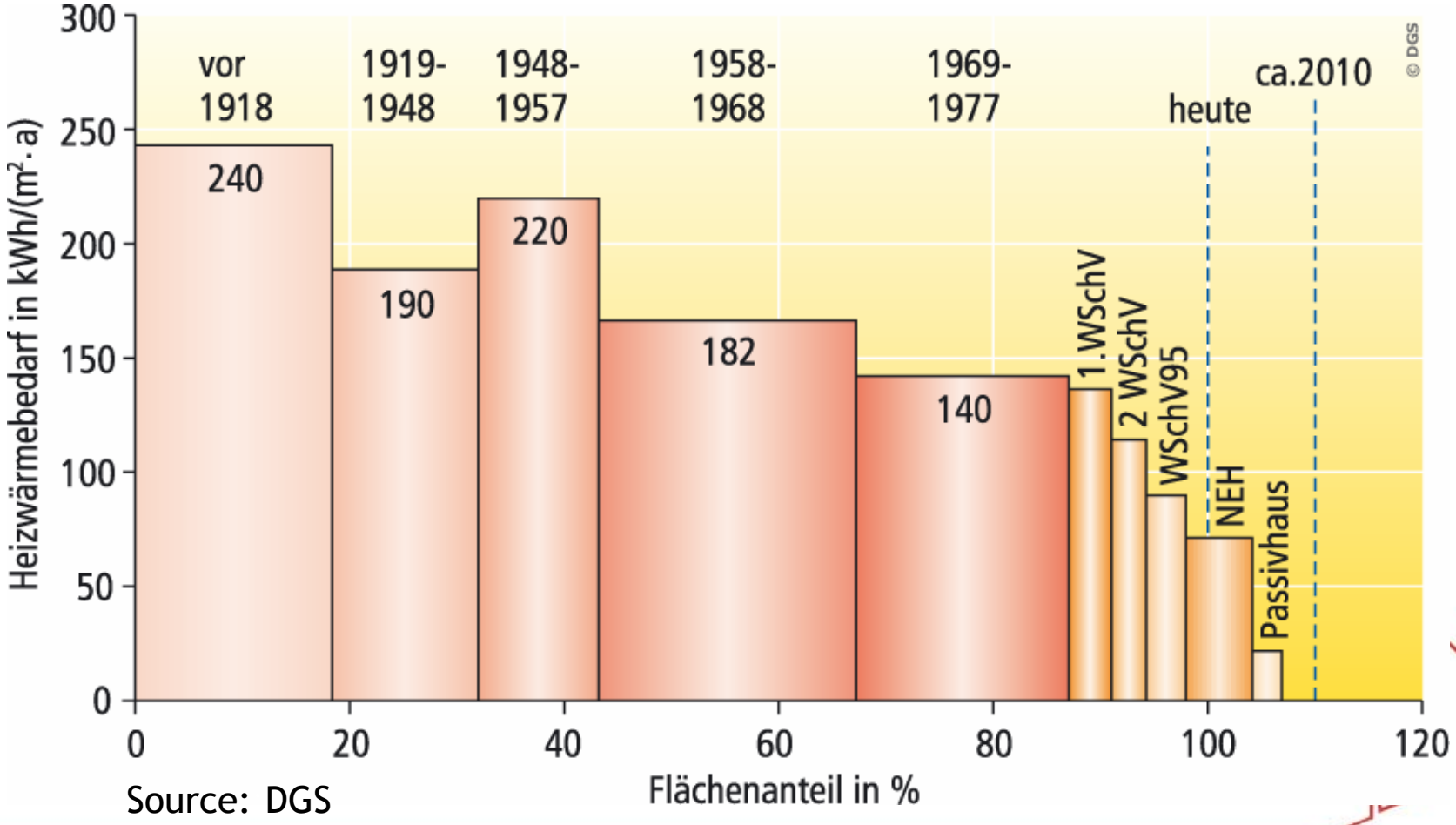
Share private transport: 54%
Source: Energieplan 2005-2015 Landes Steiermark

GHG emissions in South Tyrol



Source: Astat 2008,

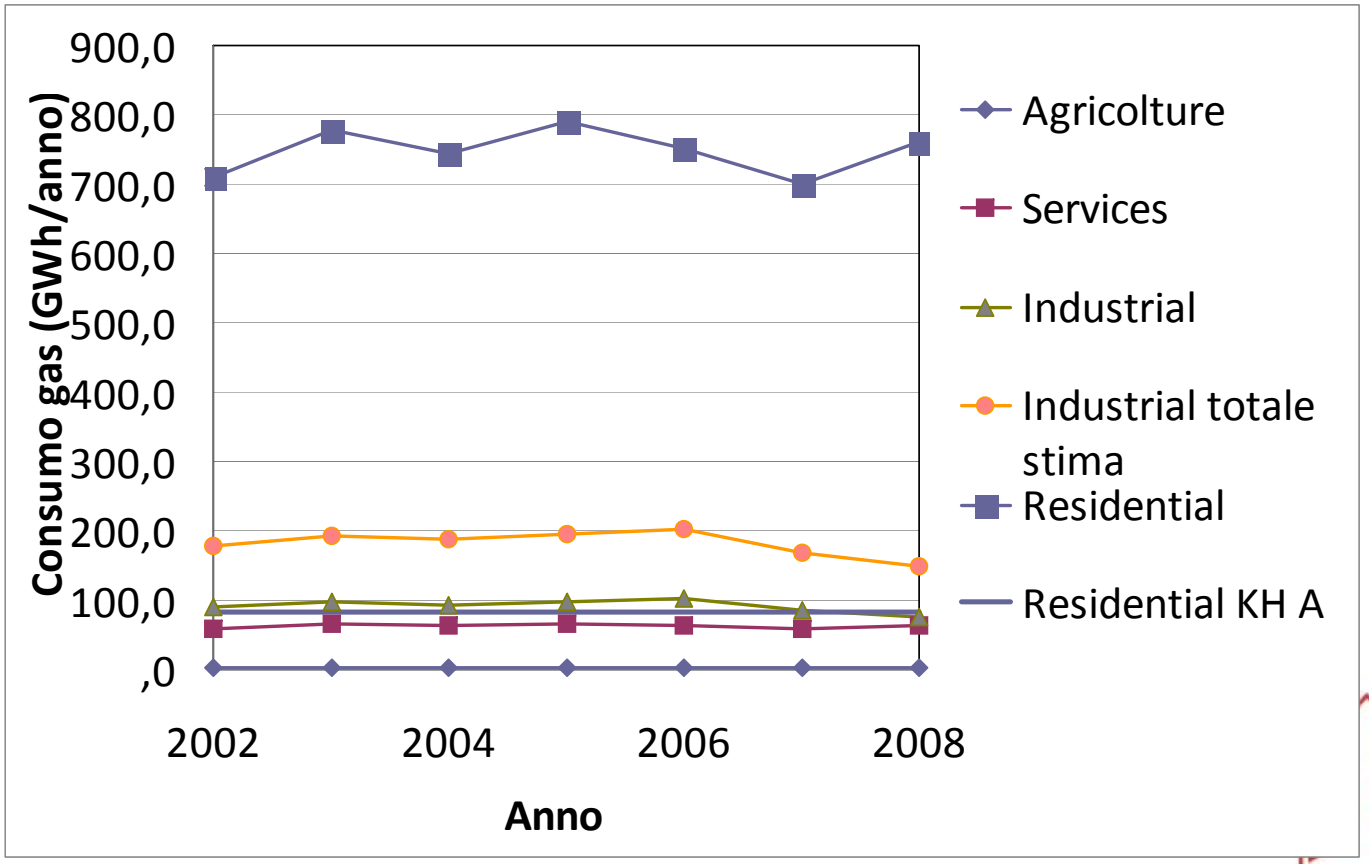
Heating energy demand - Germany



Source: DGS

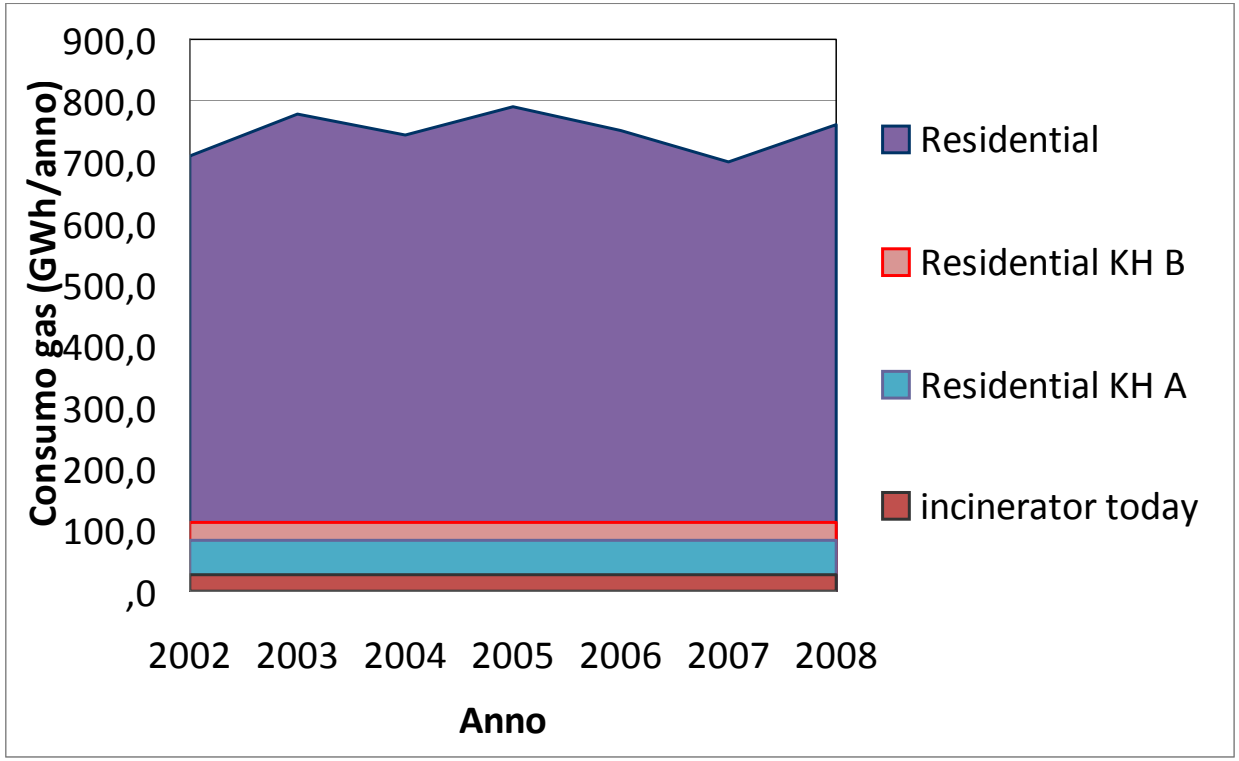
- Some actual data from Bolzano …

Natural gas consumption - Bolzano



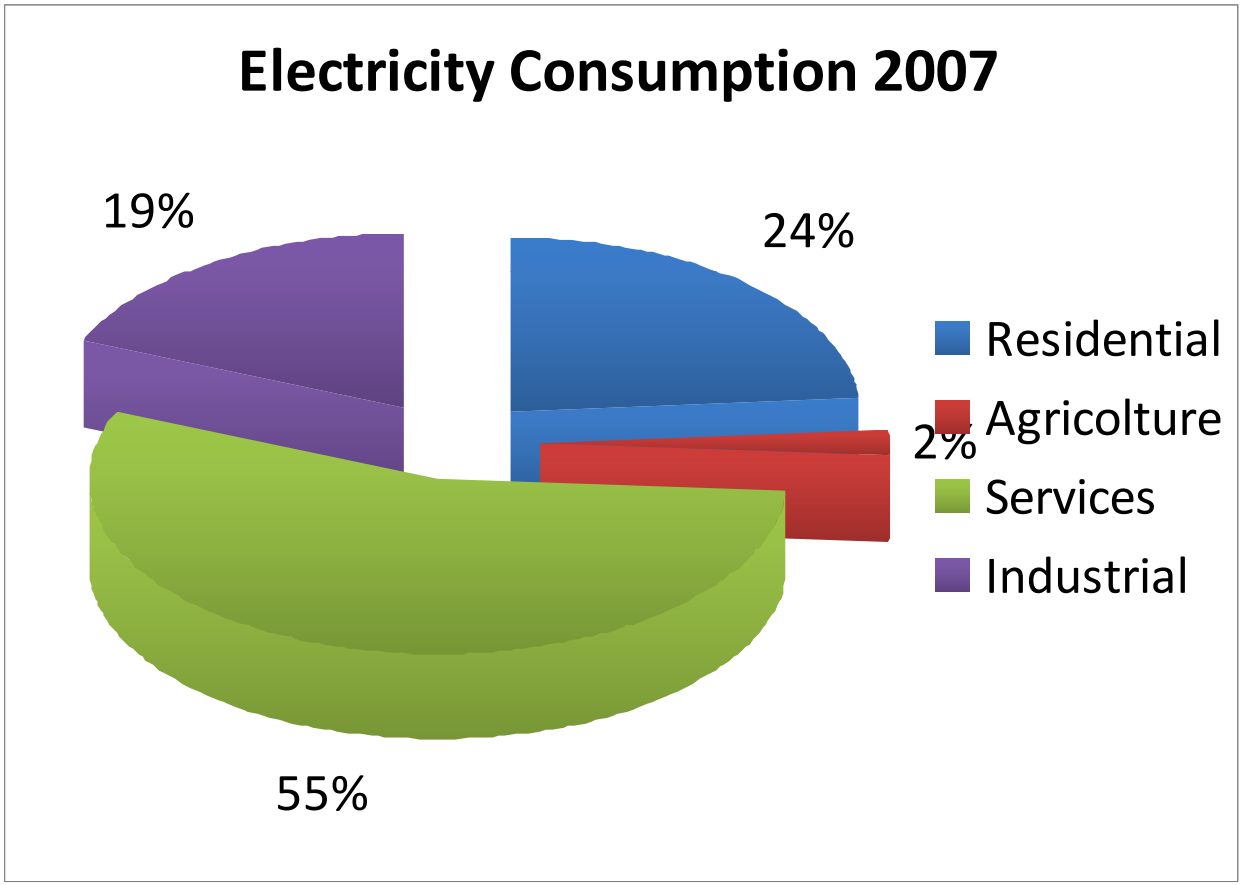
Source: Azienda Energetica

Estimation of impact of the energetical renovation of all residential buildings



Assumptions: 40.000 flats, 70m² avarage size per flat
Source: Azienda Energetica, EcoCentre

Electricity consumption - Bolzano



Source: Azienda Energetica

Statement - Heating

- In the considered cases the heating demand is the dominant energy consumer
- With today available and proofed technologies the heating demand can be reduced drastically
- The (remaining) heating demand can in many cases be substituted for a large share through the use of biomass, biogas, waste and solar thermal (or for new buildings with electrical driven geothermal heat pumps)

Statement - Electricity

- In many European cities and regions the electricity consumption rose constantly in the last years
- Reduction of energy consumption can be implemented through energy efficiency altough the potential savings are not as easy accessible as in the heating case
- Renewable energy can contribute to a substantial way to the overall energy production as well on communal level (Biomass, biogas, hydro, wind, solar, geothermal)

Statement - Transport

- In many European cities and regions the energy consumption in the transport sector rose constantly in the last years
- Energy consumption can strongly be reduced through the mitigation from individual transport to mass transport system
- Energy consumption can be reduced through higher efficient individual transport (new technologies); CO2 emissions can further be reduced through renewable sources (biofuels, renewable electricity)

Discussion

Heating:

- Technology is there, knwoledge is there – so just do it? How can the actual renovation level of <2% be overcome?

Electricity:

- How can the implementation of efficient technologies and distributed renewable energy generation be massively enhanced

Transport:

- Will the electric / hydrogen car be the solution? Or is there a strong change in behaviour necessary?

Finance:

- Can we afford to think about CO2 in times of economic crisis? Or can we afford not to think on energy in times of economic crisis?

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Thank you for your attention …

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