

Expo'98 infrastructures electricity – heating – cooling



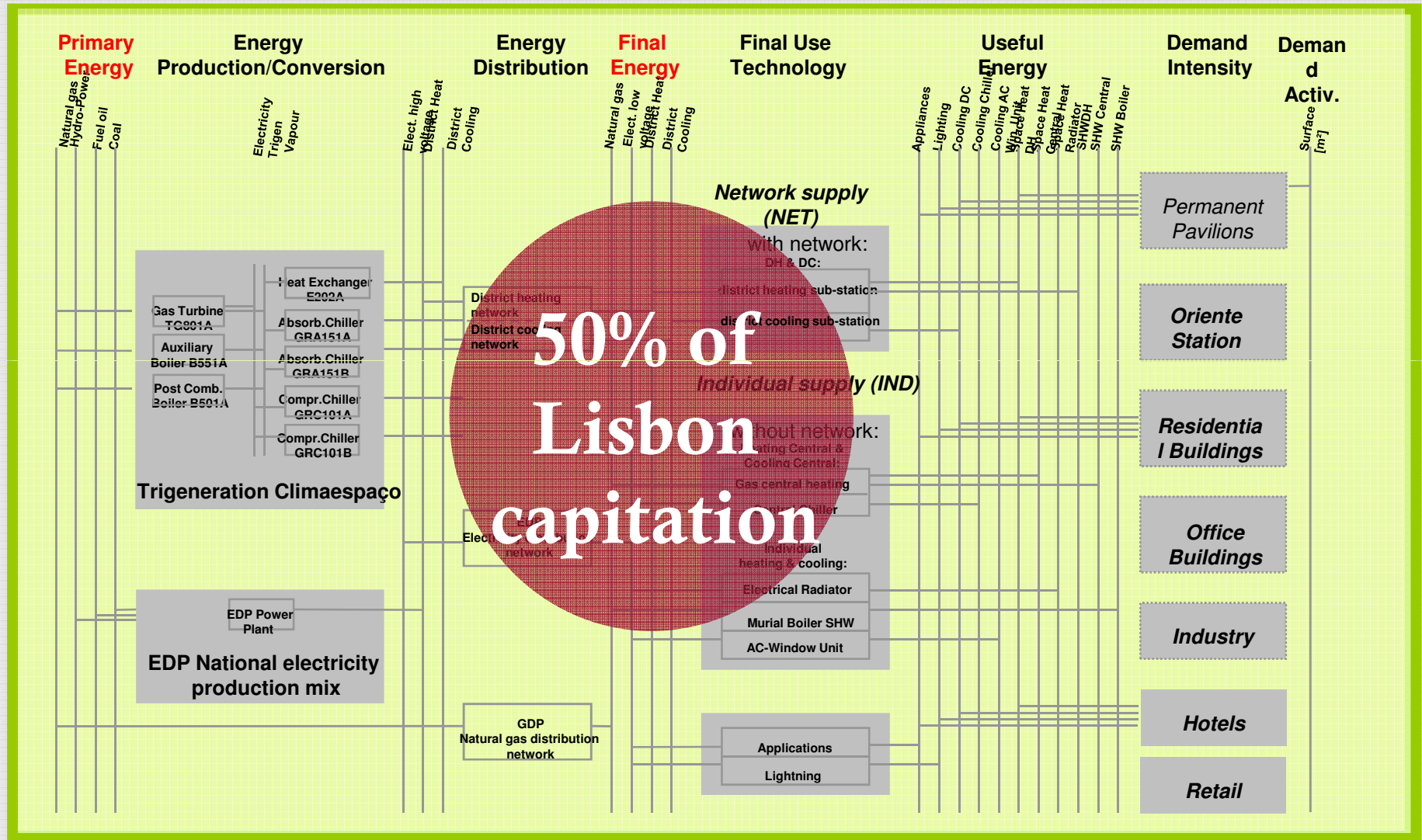
RIO TEJO

Source: EXPO'98/CCE/DGTREN1



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AGÊNCIA DE ENERGIA DO PORTO

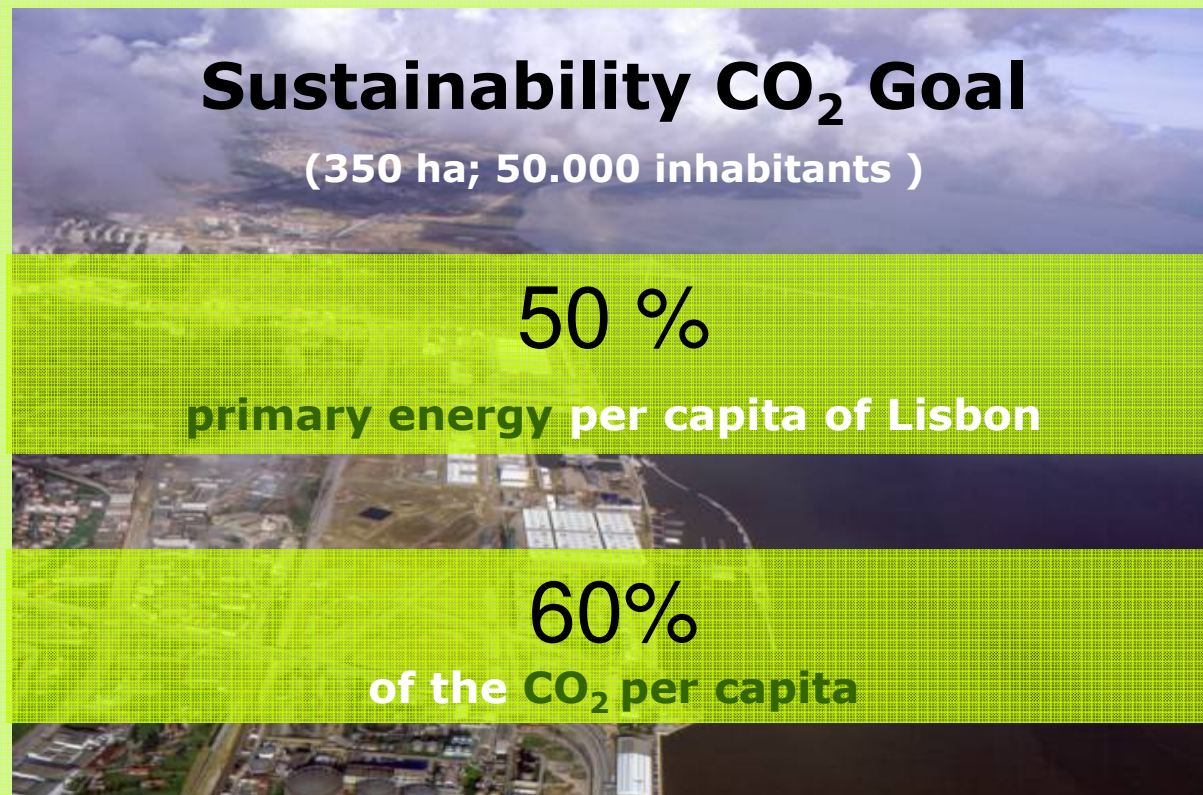
Expo'98: Urban energy system what performance?



Energy Management Agency

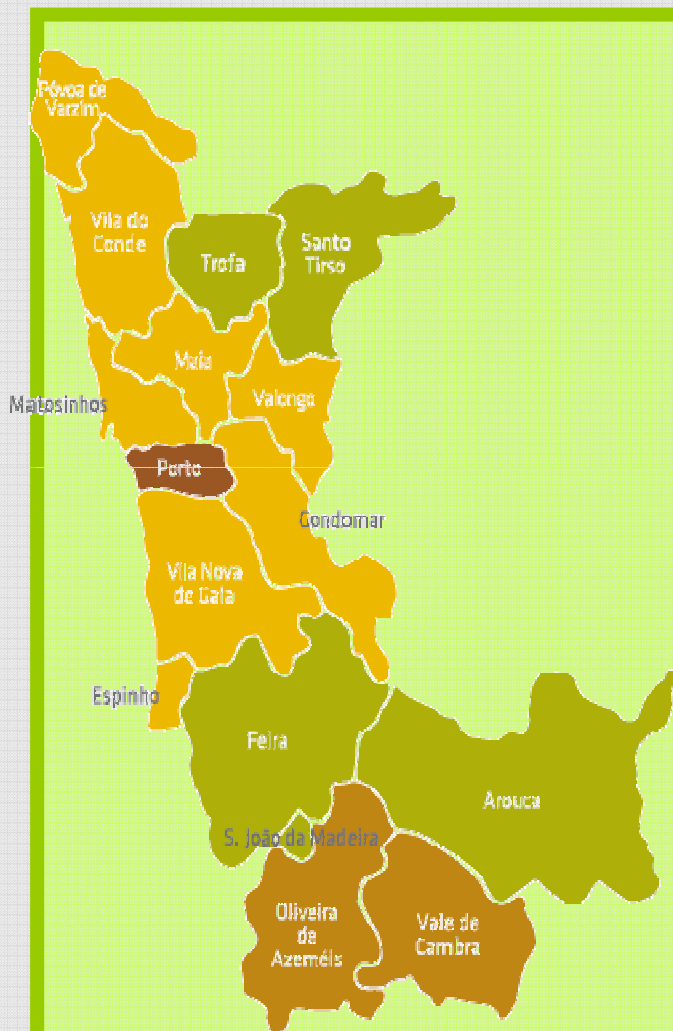
Intelligent Energy Europe

Parque das Nações – an (almost) exemplary case of urban sustainability **unknown** as such (!) by the Portuguese



1. Energy and Sustainability
2. Cities can not be sustainable
- 3. Cities as energy systems**
 - i. Case study of Parque Expo'98 – Lisboa
 - ii. Case study of Porto – 2007 - ...**
4. Conclusion

PORTO: An historic city



- \approx 265 000 inhabitants
- centre of a Metropolitan Area of 1,7 Mio people
- \approx 500 000 daily users
- 42 km² (compact city!)
- services town, little industry
- recent past history: a 100% electrical city



Matriz Energética do Porto



PORTO
Câmara Municipal

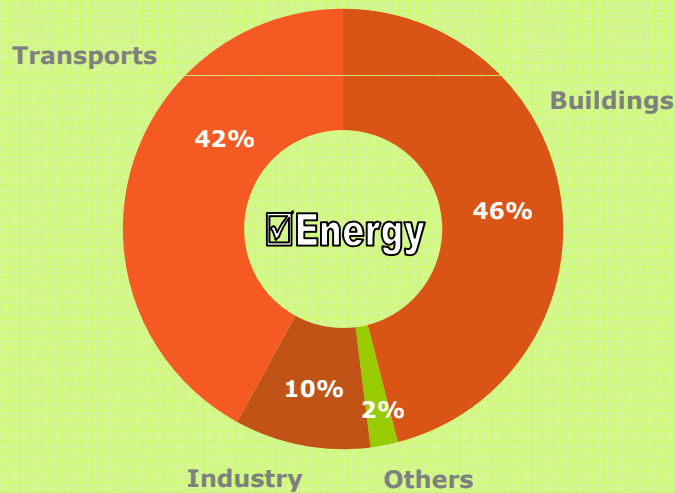
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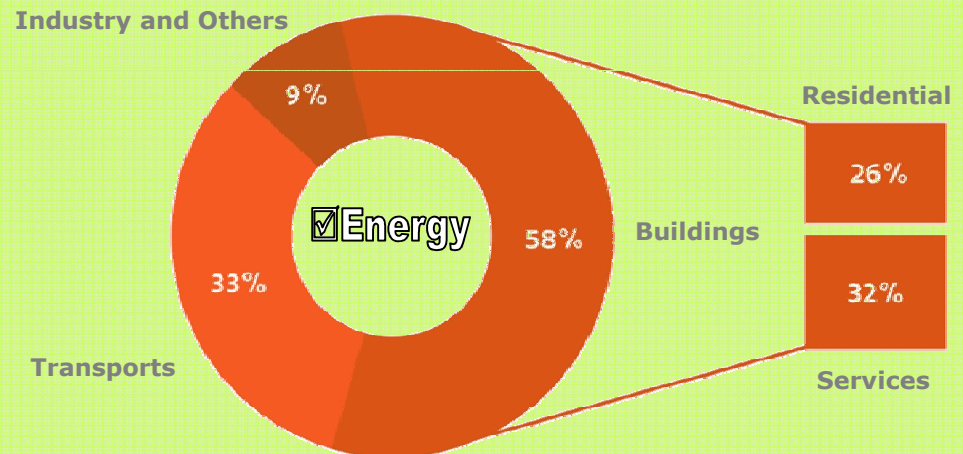
Major consumer sectors in primary energy terms

Lisboa: 14.782 GWh of primary energy

Porto: 5.661 GWh of primary energy



Source: Lisbon Energy Matrix, 2005

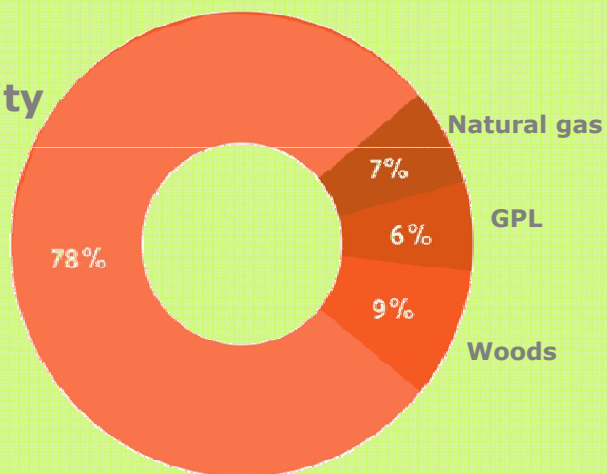


Source: Porto Energy Matrix, 2008

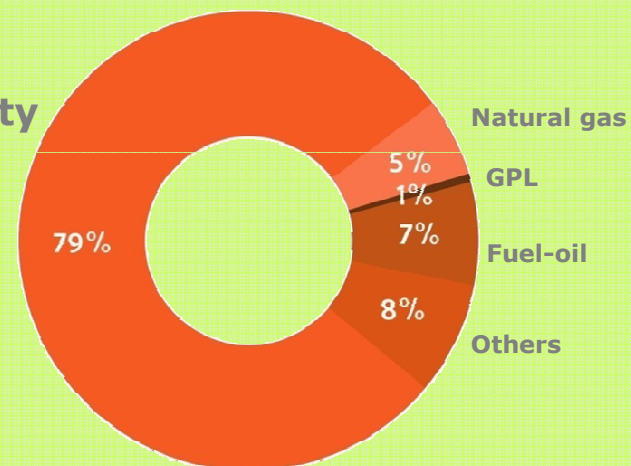
Residential:
1.473 GWh of primary energy (45% of the buildings)

Services:
1.817 GWh of primary energy (55% of the buildings)

Electricity



Electricity



Source: Porto Energy Matrix, 2008

Porto aims to reach **3,5 ton CO₂/capita.year** through the 3 complementary paths:

- Promotion of energy efficiency
- Reduction of the dependence of fossil fuels more intensive in CO₂ (primary energy): NG and solar vs electricity
- More penetration of renewable energies (heat, electricity)

- ☑ On the basis of the energy matrix
- ☑ Action included in the Sustainability Strategy
- ☑ Assumed by signing the EU Covenant of Mayors (10 Feb 09)



Porto signed, together with more than 400 European cities, representing about 60 million citizens, the

Covenant of Mayors

in Brussels on February 10, 2009

