Green Telecommunications

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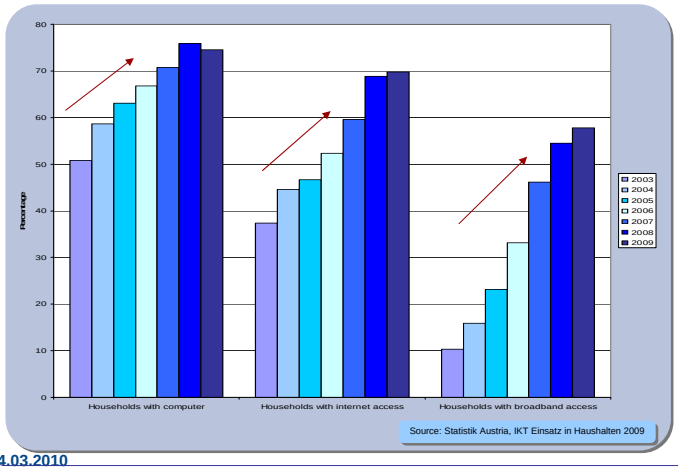
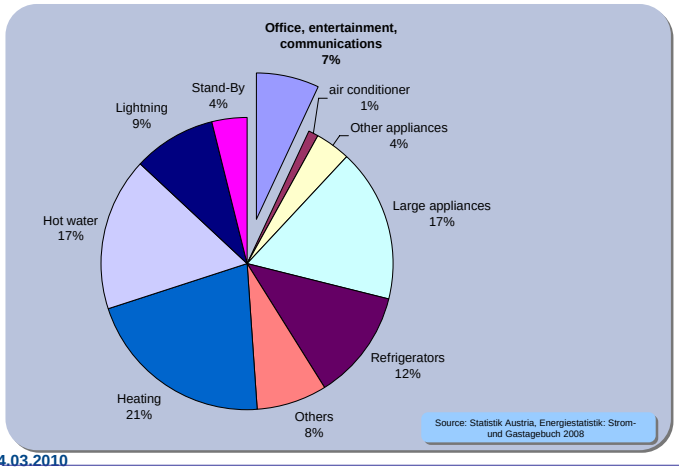
Private IT usage in Austria has shown steady growth



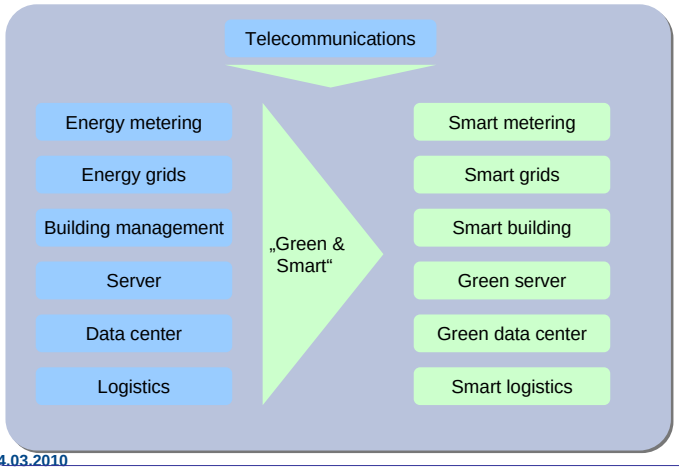
- In Austria, the number of households with network connections and ICT equipment has increased steadily
- More than 70% of the Austrian households have access to at least a computer and to the internet
- Due to decreasing prices households with broadband access have increased over the last years
- A growing energy demand for ICT equipment is expected in the next years

Office, entertainment and communications equipment consume 7% of an Austrian household's electricity demand



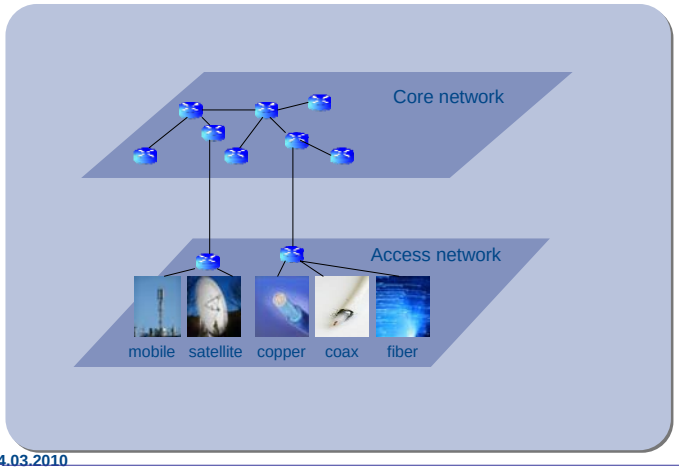
- Heating, hot water and appliances account for the majority of electricity consumption of an Austrian household
- Computers, notebooks, printers, TV-sets and other entertainment equipment consume about 7% of the a household's electricity spending
- With increasing number of entertainment equipments electricity demand has grown over the last years.

Telecoms is an enabler for a transformation towards green ICT



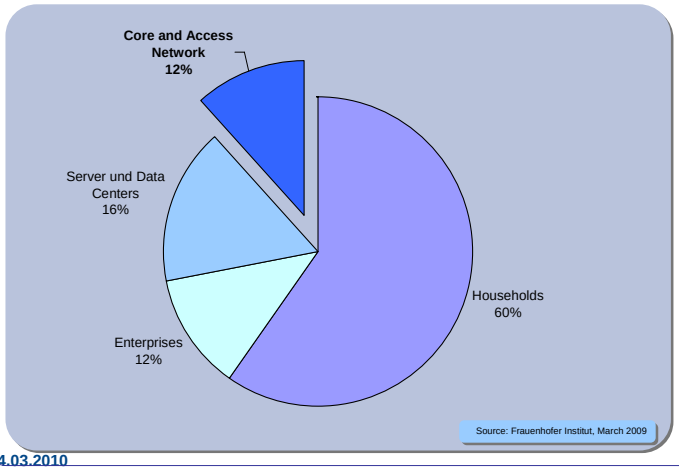
- Telecommunication supports other ICT fields to become "green and smart"
- Due to improved communications and information exchange energy spending could be better adapted to changing situations
- Measures taken to reduce energy spending in one field should also consider the potential of savings in other fields (like smart grids and telecommunications)

The potential of energy savings in telecommunications networks depend on the used technologies



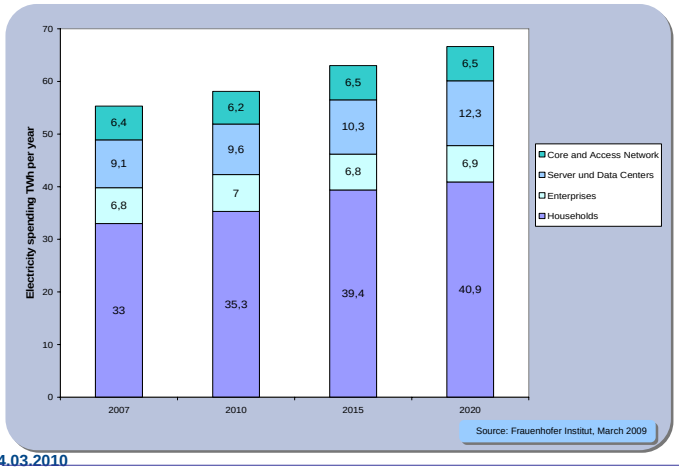
- In the core network the transition from electronic to optical elements will reduce the energy spending per bit
- There are also encouraging results from R&D to reduce the energy spending of routers and processors
- Smart cooling of the network elements improves the ecological footprint
- In the access network the energy saving potential depends significantly on technologies implemented

12% of electricity spending in the ICT-sector is consumed by the core and access network (data applicable for Germany)



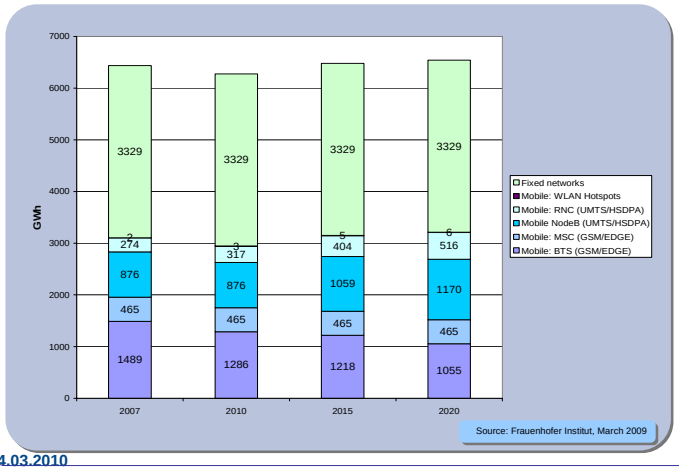
- According to a study conducted by the Frauenhofer Institut, the whole ICT sector in Germany consumed 55,4 TWh of electricity in 2007
- 60% of the spending was caused by the households.
- Although the fraction of network spending is small, the study identified promising potential for energy savings

Electricity consumption of the ICT sector is expected to grow in Germany



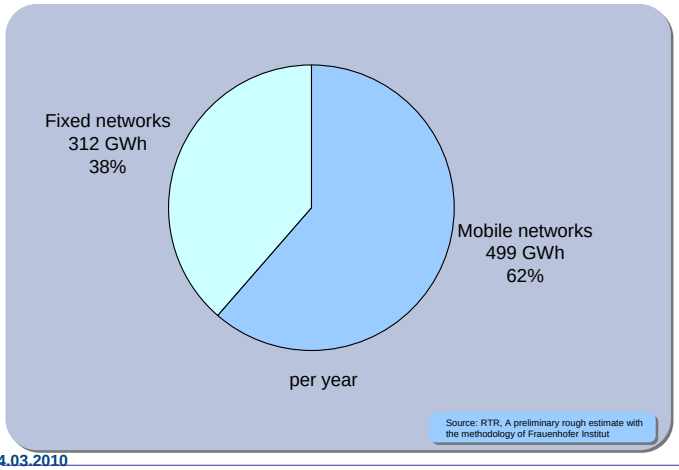
- Due to the study the German electricity spending of the ICT sector will sum up to more than 65 TWh in 2020 (+20%)
- It estimates the largest growth in energy spending for households and servers/data centers without appropriate measurements taken
- With the transition to new technologies the energy consumption will probably decrease in networks in 2010, but with steady increasing demand a higher spending is expected

Fixed and mobile network operations in Germany require 6,4 TWh per year, equally distributed between them.



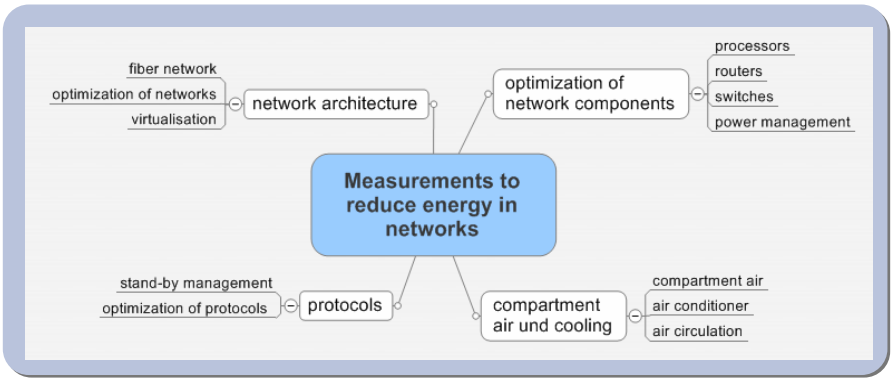
- In detail, the energy spending is equally distributed between mobile and fixed networks
- The estimation of spending in fixed network is based on number of households. It is expected that the energy consumption will remain the same (two effects: more bandwidth, NGA)
- In mobile network different technologies (GSM and UMTS) applied lead to a higher energy demand.
- The spending for UMTS will increase, the one for GSM will decrease.

Austria‘s networks operations require 811 GWh per year



- In a preliminary rough estimate the total Austrian spending of electricity for networks sums up to 811 GWh in 2010
- One third of the spending is caused by the fixed networks
- In mobile networks the higher spending could be explained with the different technologies (GSM and UMTS) on the one hand
- On the other hand four operators with four own physical networks lead also to higher electricity spending

How to reduce energy demand in telecoms networks



Further Information

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