Matáv 7th Environmental Round-Table Discussion

Budapest / Hungary, March 30, 2004

Environmental Protection and Nature Conservation at Deutsche Telekom

Deutsche Telekom AG
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Deutsche Telekom

Sustainability Strategy and International Activities

1 Sustainability Strategy

- Develop the company group “Sustainabilty Strategy”, monitor, support, co-ordinate and report about the implementation of the strategy

2 International Co-Operations

Active membership/participation at

- **Bitkom**´s strategy group: International Environmental Policy and Sustainability”.
- the “**Sustainability Working Group**” of the European Telecommunication Networks Operators´Association (**ETNO**)
- the **Global e-Sustainabilty Initiative** (GeSI) under the umbrellaship of the United Nations Environment Prgram (UNEP)
- The United Nations “**Global Compact**”

Our VISION

- Deutsche Telekom would like to become a sustainable company within a sustainable society

  is not promotion or advertising

- It is an internal requirement which we have to meet

Environmental Targets of the Deutsche Telekom Group for the Period 2001-2005

- **All relevant products and services to be systematically analyzed of their effects on the environment**
- Quantities of waste materials for disposal are to be reduced by 3% per annum
- **Overall energy consumption for all the units is to be reduced by 3% per annum**
- **The proportion of paper-based customer invoices is to be reduced by 20% through the use of electronic invoicing**
- We are participating intensively the dialogue with the society in order to identify suitable methods to achieve sustainability and to develop a concept for realizing this principle of sustainability

All relevant products and services to be systematically analyzed of their effects on the environment

PRODUCT-MATERIALS

- Replacement-Program of halogenated materials which may cause Dioxins, such as PVC and halogenated flame retardants
- Start an investigation on lead free soldering
- Increase the amount of recyling materials
- Create fixed net telephone cases by recycling ABS
- Create pre-paid phone cards by recycling ABS
- As a consequence on investigations on recycling friendly materials, Deutsche Telekom has established
  - Technical requirements on Environmental Purchasing (Fixed-Net:TAU)
  - Greenbook on Sustainability Purchasing (Mobile)

Overall energy consumption for all the units is to be reduced by 3% per annum

ENERGY-SAVINGS

- Investigation on energy-optimizing at the digital switching stations
  - costs: 1.9 Mio Euros
  - energy savings: 13.8 GWh / year // 5560 t CO_2/year
  - implementation: 2-3 years
  - cost savings: 4.1 Mio Euros

- Decoupling the energy consumption from turnover and economical increase
- Increase the share of renewable energy within energy contracts
- Increase the share of renewable energy by wind generators and solar panels
- Pilot project on fuel cells in Munich

Pilot project: Fuel cell in Munich

Manufacturer: MTU, Friedrichshafen / Munich

Type: High temperature fuel cell
HM 300 (HotModule)

Fuel: Natural gas

Max. electrical power: 250 kW

Max. thermal power: 180 kW

Max. efficiency: about 90%

Electric current is used for UMTS.

Thermal energy is used for heating in winter and for cooling in summer.

Faultless operation since September 2002.

Project Gas-Cars

- T-Com is leading a project to increase the use of gas-vehicles:

  - actual aprx. 100

  - plan: additional 300 within the next 18 month

Overall energy consumption for all the units is to be reduced by 3% per annum

ENERGY-SAVINGS
by use of Information- und Communication Technologie (ICT)

There was an early understanding, that

- the internal energy savings will limited one day and will only be pieceparts of the possible savings related to the intelligent use of ICT
- More relevant than energy consumption are CO_2 emissions
- We need to demonstrate this by data and facts and not only by “saying” this
- We need to start to investigate our own Network
- We need to provide answers relating our impact on climate change

Climate Protection through Use of ICT

ICT's role in reducing negative climate impacts and in severing the links between economic growth and energy consumption

- ICT's great promise with regard to climate protection lies in its ability to eliminate the need for a broad range of transports, thereby conserving large amounts of resources and energy and significantly reducing CO_2 emissions.

- In the interest of obtaining a meaningful basis for comparison, Deutsche Telekom has determined the overall energy consumption of its entire fixed network in Germany, including production of its various network facilities and cable manufacturing. Deutsche Telekom is the world's first telecommunication company to undertake such an effort.

➢ Based on the company's cumulative total energy consumption, operation of Deutsche Telekom's network generates about

1 ton of CO_2 per kilometer and year.

Climate Protection through Use of ICT

Comparison of different Networks:

Road Network	**Railway Network**	**D-Telekom-Fixed-Network**
ca. 7.000 – 9.000	ca. 8.400	**250** GJ / km

- In light of these figures, can future economic growth be permitted to take place solely through growth in traditional types of traffic?

- Our life at present is based on the reality that economic growth and prosperity are not possible without traffic. Numerous studies have shown this to be true.

- And yet traffic is resources-intensive and pollutes the environment. The traffic sector is one of the largest sources of CO2 emissions. At the same time, the traffic sector's burden on the environment does not stop with vehicle emissions – it also includes consumption of land and soil for roads and rail lines. It thus produces both local and global burdens on the environment.

Climate Protection through Use of ICT

Potential: Teleworking

- The following sample figures from Germany highlight the alternatives offered by information and telecommunications:

- A study by the "Öko-Institut" in Freiburg (Germany) found that a significant reduction in CO_2 emissions can be achieved via an annual individual commuting reduction of 4,400km.
- In Germany, about 25 million people commute to work daily, covering an average total daily distance of 50 km. Some 2/3 of all commuters use their own cars for commuting. The remaining third use public transportation.
  Car commuters cover a total distance of 800 million km per day and emit some 31 million t CO_2 per year, or about 1/3 of all annual CO2 emissions produced by all passenger transports in Germany.

Source:a) Joao Julio Vitral Amaro: Städtischer Bodenmarkt und Urbanisierung in Belo Horizonte

Climate Protection through Use of ICT

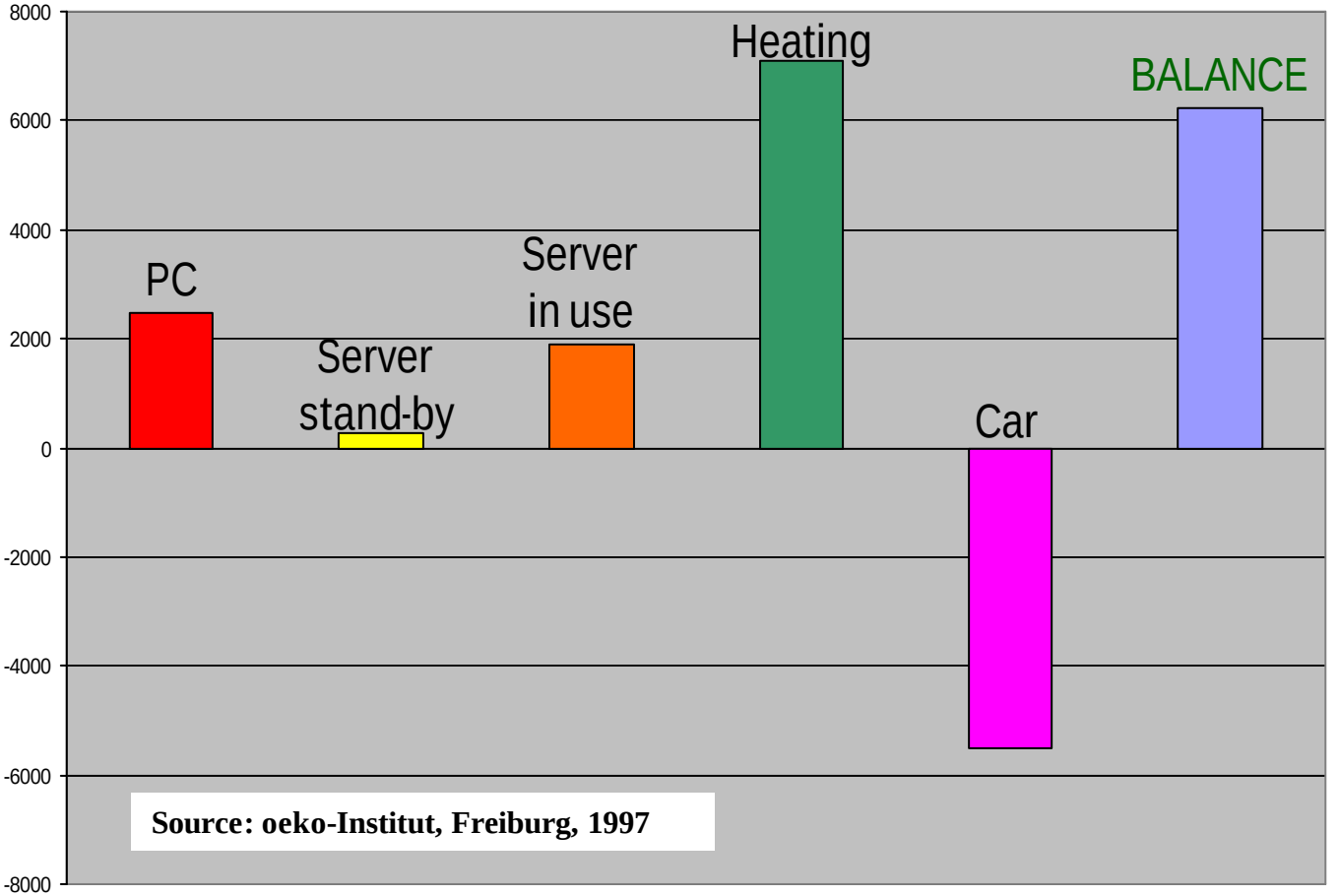
The above-mentioned study examined two different scenarios:

Telecommuting, Szenario 1

- Both the office and the telecommuting station have one PC.
- Technical implementation of a telecommuting terminal requires use of a data server.
- Each data server serves 10 telecommuting terminals.
- The telecommuting terminal is located in separate room with an area of 10 m².
  - ➢ The total annual travel reduction amounts to 1,700 kilometers.

Climate Protection through Use of ICT in Mega-Cities

Telearbeit, Szenario 1:

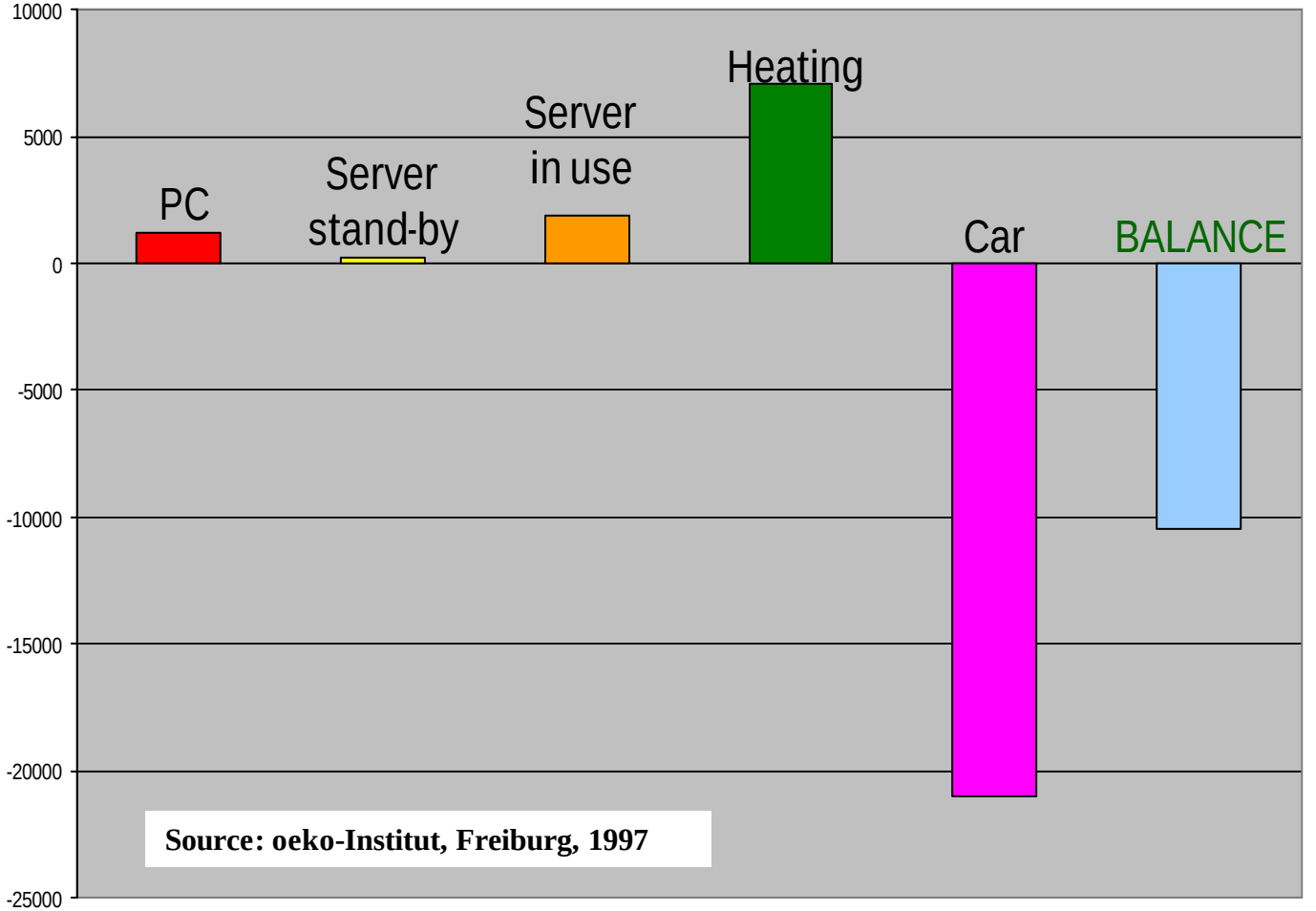


Climate Protection through Use of ICT in Mega-Cities

- **Telecommuting, Szenario 2**
  - This scenario contains the following changes in comparison to Scenario 1:
    - A second person in the household uses the telecommuting PC also privately.
    - There is an annual reduction of 4,400 kilometers of car travel.

Climate Protection through Use of ICT in Mega-Cities

Telework, Szenario 2:



Climate Protection through Use of ICT

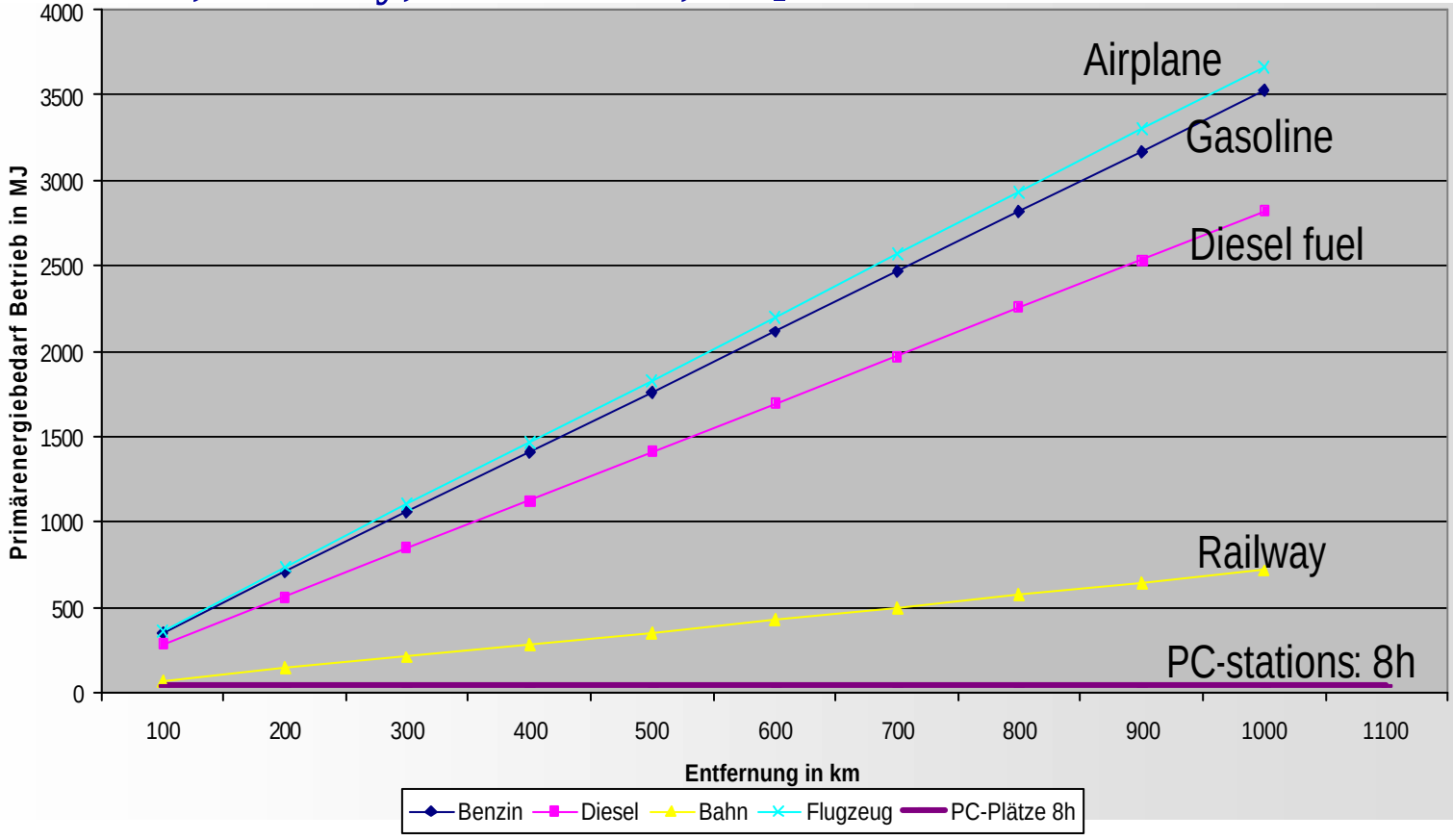
The potential benefits of videoconferencing

- In a study of its own, Deutsche Telekom found that videoconferences can provide significant reductions in CO2 emissions, compared to all other forms of transport, with travel-distance reductions of just a few km.
- And many meetings can be carried out in the form of audioconferences. Since the technical overhead for **audioconferences** is lower still than that for videoconferences, their energy requirements – and thus their CO_2 emissions – are also considerably lower.

Climate Protection through Use of ICT

Potential: Videokonferences

[Total primary energy requirements in MJ; Distance in km; Gasoline; Diesel fuel; Railway; PC stations, 8 h]



Climate Protection through Use of ICT

Promise of e-Commerce, illustrated with the example of the book market

Promise of eCommerce, illustrated with the example of the book market

- **Scenario I: Book purchase, standard style:**
- **- Energy consumption in transport, including a range of transport chains between publisher and bookseller**
- **- Energy consumption in the customer's travel to the bookstore (using any of various means and routes)**

- **Scenario II: Book purchase, via the Internet:**
- **- Energy consumption in transport, including a range of transport chains between publisher and end customer**
- **- Energy consumption by the customer's personal computer (PC), for finding the book and ordering it via the Internet**

Climate Protection through Use of ICT

Results: Online Book-Purchase

- Comparison on Use of Primary energy under consideration of different types of transport chains between publisher and end customer:

  - **Online Purchase** ..... **Ø 1.9 MJ/kg Book**
  - **Traditionial Purchase** ..... by **Bus**: **Ø 1.8 MJ/kg Book**
    ..... by private **CAR:** **Ø 3.6 MJ/kg Book**

- The above mentioned results can be transfered analogous to most of the goods.

- It is up to the user how and in which volume she or he will contribute to ressource effiency, or –in worst case- not !

Climate Protection through Use of ICT

Example: virtual answering machine (T-Net-Box)

- A study conducted jointly by Deutsche Telekom and the Oeko-Institut in Freiburg (Germany) compared use of conventional answering machines with use of a virtual answering machine (T-Net-Box) located in Deutsche Telekom's network. ISDN subscribers are able to use such a virtual answering machine free of charge.

- The comparison took account of both the use itself and the required manufacture of relevant numbers of electronic components (circuit boards, microchips, etc.). Capacity use of the "T-Net-Box" virtual answering machine was assumed to be only 20%.

  ➢ **Result:**

  ✓ **The "T-Net-Box" uses about 27 x less energy**

  ✓ **The "T-Net-Box" generates about 66 x less waste**

Climate Protection through Use of ICT

Conclusion:

- Telecommunications can contribute significantly to sustainable development. It **cannot do so automatically**, however.
- If it is used **intelligently and sensibly**, it can help **society reach sustainable development**, can help **reduce environmental problems** and can help **protect the earth's climate**.
- Deutsche Telekom is working to make **its own contribution** to these aims.
- We want to be a leader in movement toward sustainable development, and we want to share our knowledge and experience in this area with others.
- We also want to learn from others wherever possible.
- We want to be part of the solution – not part of the problem.

Climate Protection through Use of ICT

In closing, I would like to present a diagram that illustrates the potential of ICT services to reduce CO_2 emissions:

Potential: traffic substitution via telecommunications services:

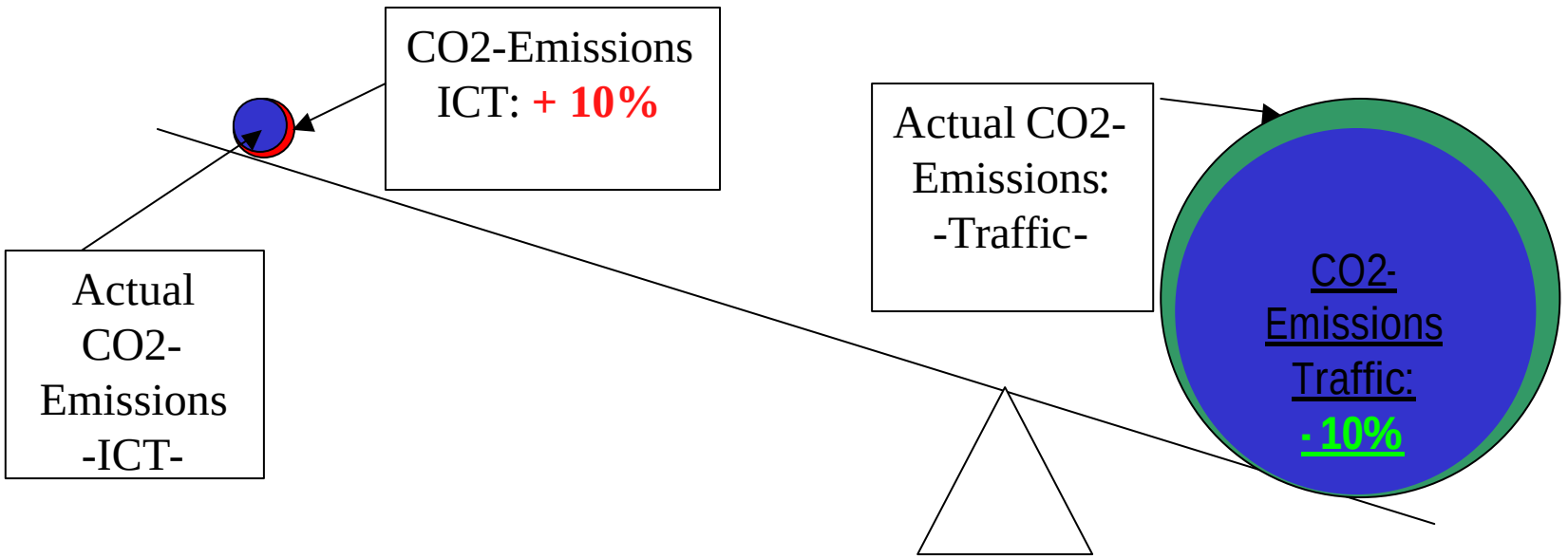
- **In Germany, the ratio of traffic emissions to the telecommunications industry's energy-consumption emissions is very close to 100 : 1 (180 million tons of CO_2 <traffic> to 1.8 million tons CO_2 <ICT> !!)**

- **A similar ratio can be found in many other countries.**
- **A telecommunications-related increase in energy consumption – of 10%, for example – could thus "leverage" climate protection and significantly reduce overall emissions.**

  - **Total consumption in Germany: an increase of about 2 million t CO_2 via ICT, but a reduction of <u>18 million</u> tons in traffic-related emissions, to 162 million tons, would be possible !!!**

Climate Protection through Use of ICT

The green area represents the potential reduction in traffic-related CO_2 emissions that could be achieved via a 10% increase in ICT-related CO_2 emissions – the red area – assuming relevant substitution.
This figure illustrates ICT's great potential – still largely untapped – to leverage reductions in traffic-related CO_2 emissions.



Nature Conservation

Examples:

- On local level: co-operation with e.g. B.A.U.M.
  e.g. ad hoc activities, e.g. the Natural Park at the coast of the Baltic Sea, re-afforest actions after thunderstorms, etc.
- T-Mobile: Co-operation with “Deutsche Umwelthilfe”
  additional: 5 € per mobile phone taken back for recycling
- T-Com: co-operation with B.A.U.M.
  additional: 1€ for each customer replacing online- instead paper invoicing; example Berlin: save paper and plant trees
- Headquarters: Co-operation with the “Potsdam Institute of Climate Impact Research”
- Co-operation with WWF (via GeSI)
- Co-Operation with Flora and Fauna (via GeSI)

Next Steps

- Environment is only 1 of the three pillars of sustainability.
- In co-operation with its four Divisions,
  Deutsche Telekom has developed a
  “Sustainability Strategy” for the whole company group
- It will be discussed with the relevant companies, how to implement this strategy under local-, regional-, country-specific conditions, that each company may find its own way to become a sustainable company within the Deutsche Telekom Group

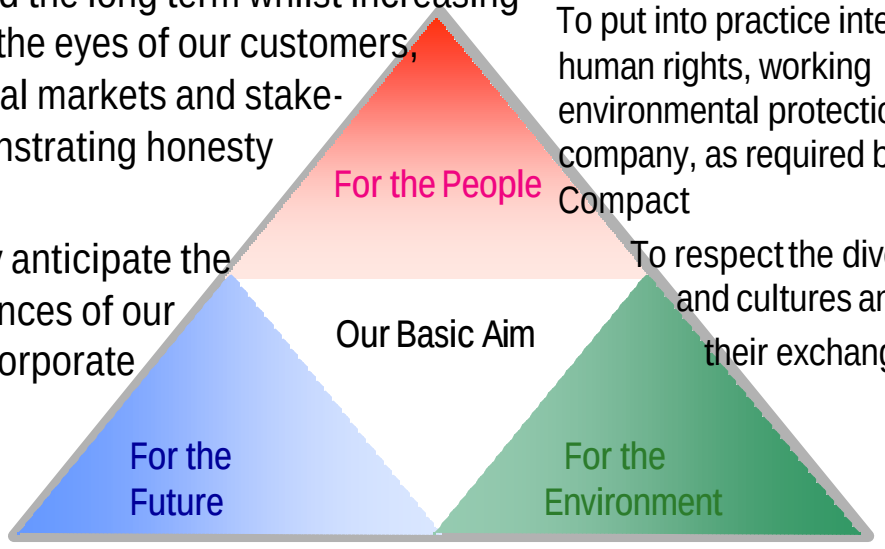
Content of the Sustainability Strategy

The Strategic Guidelines

Our Basic Aim

To do business successfully and efficiently both in the short term and the long term whilst increasing our credibility in the eyes of our customers, investors, financial markets and stake-holders by demonstrating honesty and integrity

To systematically anticipate the social consequences of our activities and incorporate these into our decision-making.



For the People

To put into practice internationally recognized human rights, working standards and environmental protection throughout the company, as required by the U.N.'s Global Compact

To respect the diversity of people and cultures and to actively encourage their exchange.

For the Future

To increase the development of sustainable services and set an example through our application

To actively help shape the continued development of the working world and a society of knowledge both internally and externally whilst contributing to the overcoming of the digital divide

For the Environment

To increase the efficiency of the ecological resources within society and contribute to the protection of the global climate

To systematically reduce our own environmental impacts

Implementation concept

Action areas of the superordinate Group units

Strategic guidelines	T-Com	T-System	T-Mobil	T-Online	Group HQ
To be financially successful and to enhance trust through honesty and transparency	X	X	X	X	X
To assess the social consequences of our actions	X	X	X		X
To implement the requirements of the Global Compact					X
To respect the differences between peoples and cultures		X	X		X
To promote ecological resource efficiency and climate protection	X	X	X		X
To reduce environmental impacts	X		X		
To develop sustainable services and practise the implementation thereof	X	X	X	X	
To further develop the work environment and the knowledge society, and to overcome the Digital Divide	X			X	X

Environmental Protection and Nature Conservation at Deutsche Telekom

Thank you for your kind attention

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