

# Greenhouse Gas Effect of ICT

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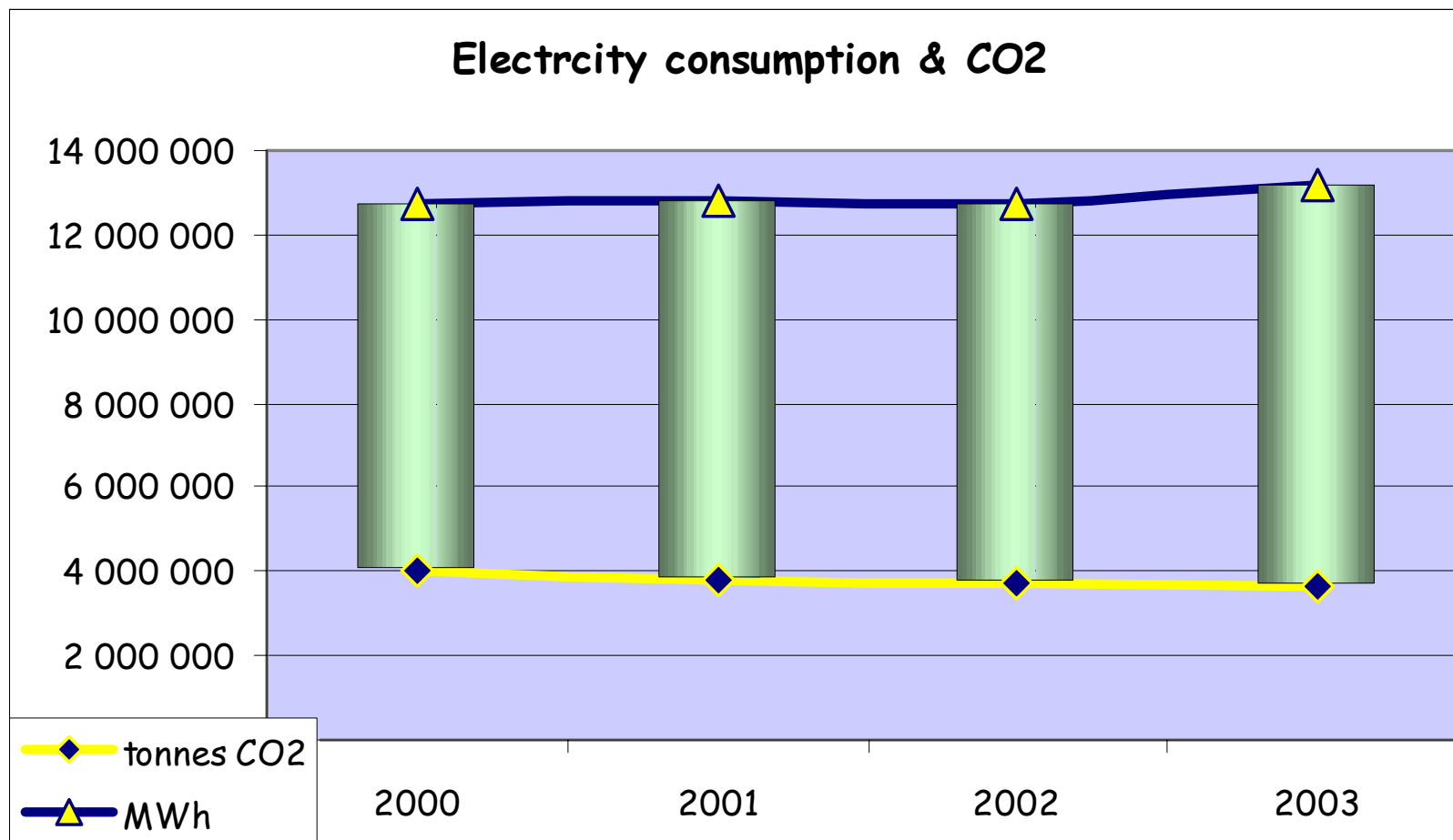
# Introduction

- **Companies providing information:**
  - BT, Cesky Telecom, CYTA, DT, France Telecom, KPN, Matáv, Portugal Telecom, ST, Swisscom, TDC, Telecom Italia, Telefonica, Telekom Austria, Telenor, TeliaSonera
  - 53% of European telecommunication market
- **Project-members:**  
**BT, DT, Matáv, Telecom Italia**
- **Main focuses:**
  - Energy consumption of companies
  - Environmental benefits of ICT

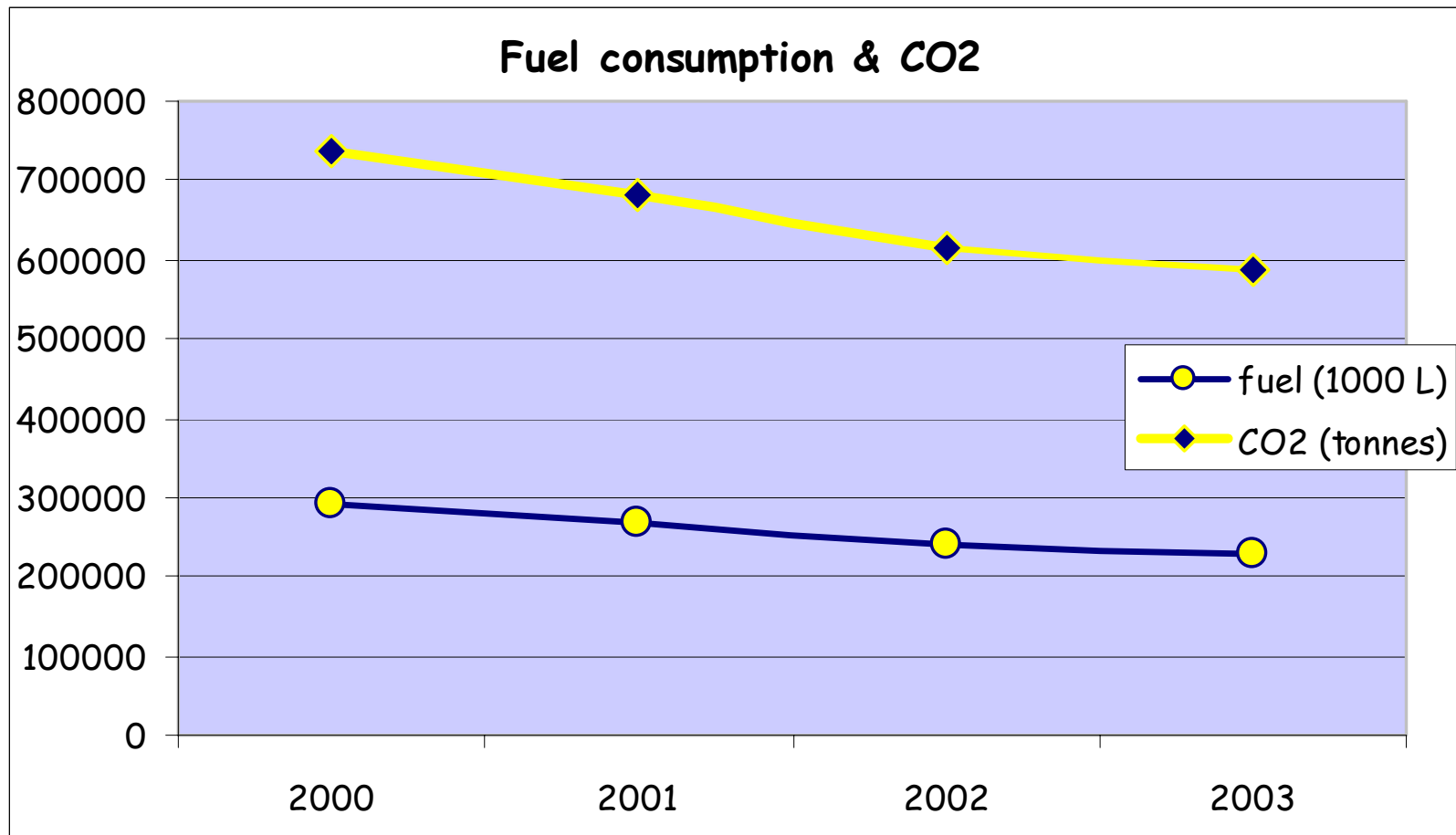
# 1. Energy consumption

- **Consumption**
  - Electricity
  - Fuel consumption
  - Heating fuel
  - Renewable resources
- **Best practices**
  - Procurement guidelines
  - Energy rationalisation practices regarding network
  - Practices in offices
  - Application and purchase of renewable resources
  - Future awareness - NGN

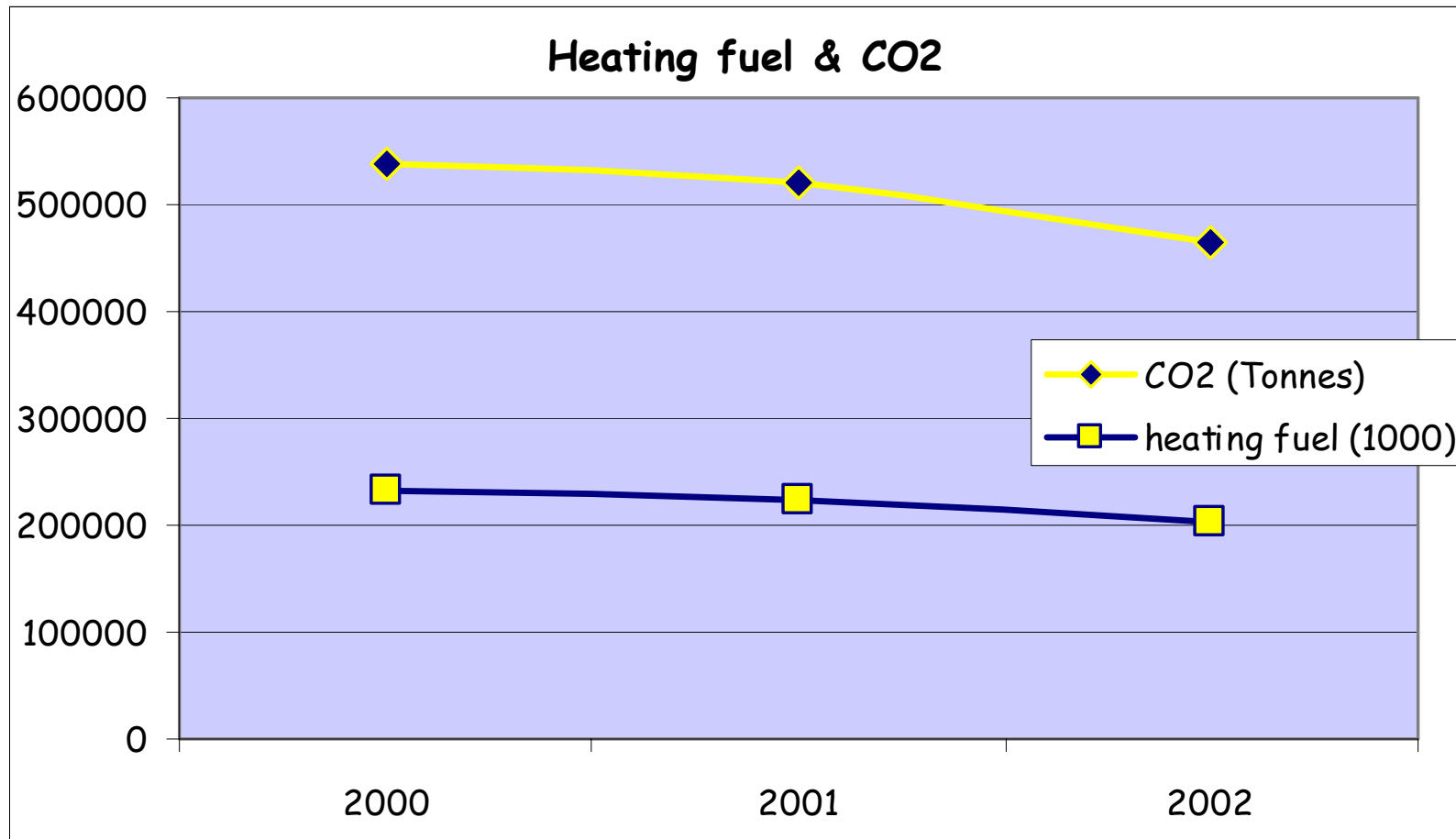
# Electricity consumption



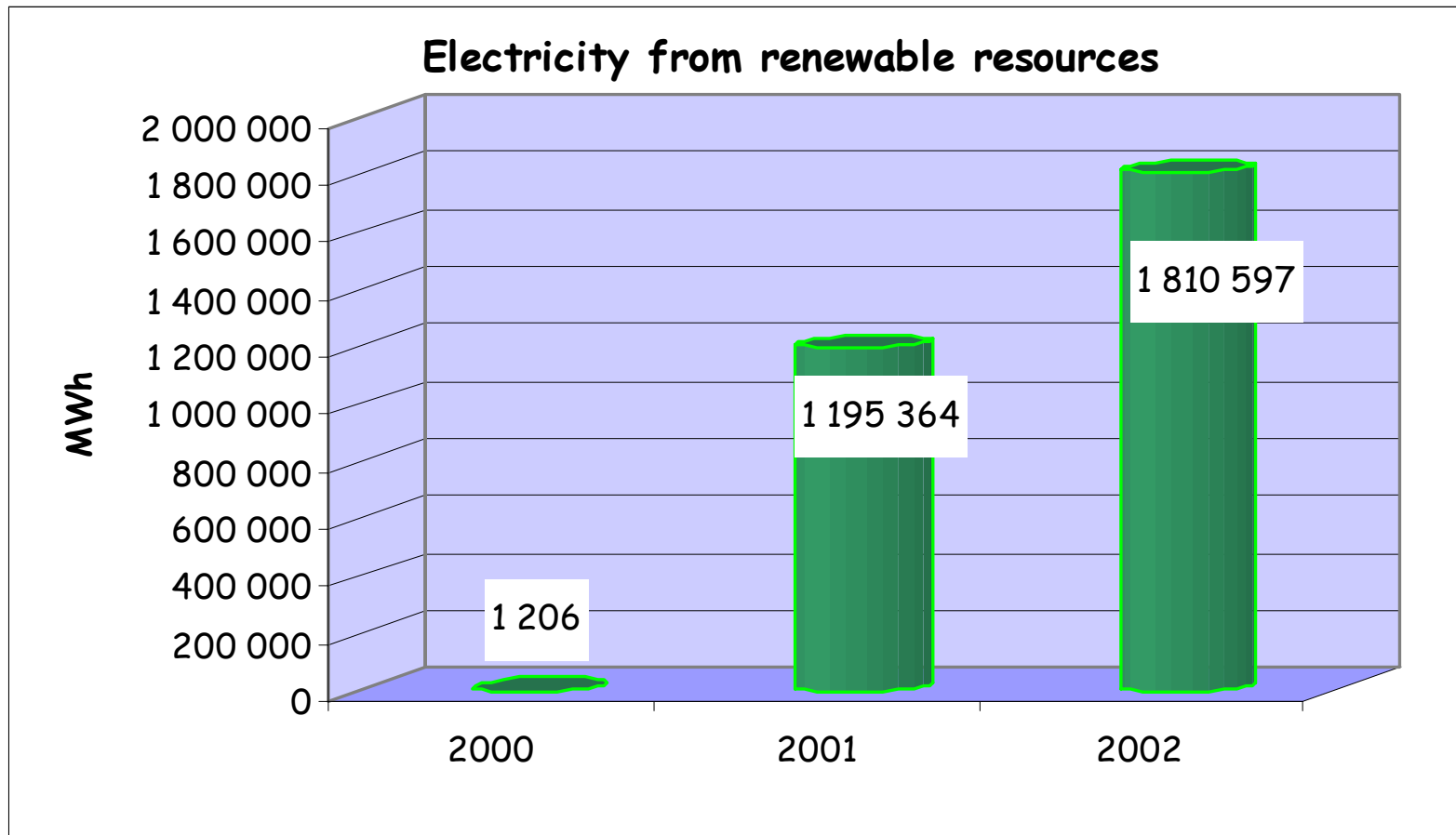
# Fuel Consumption of Vehicles



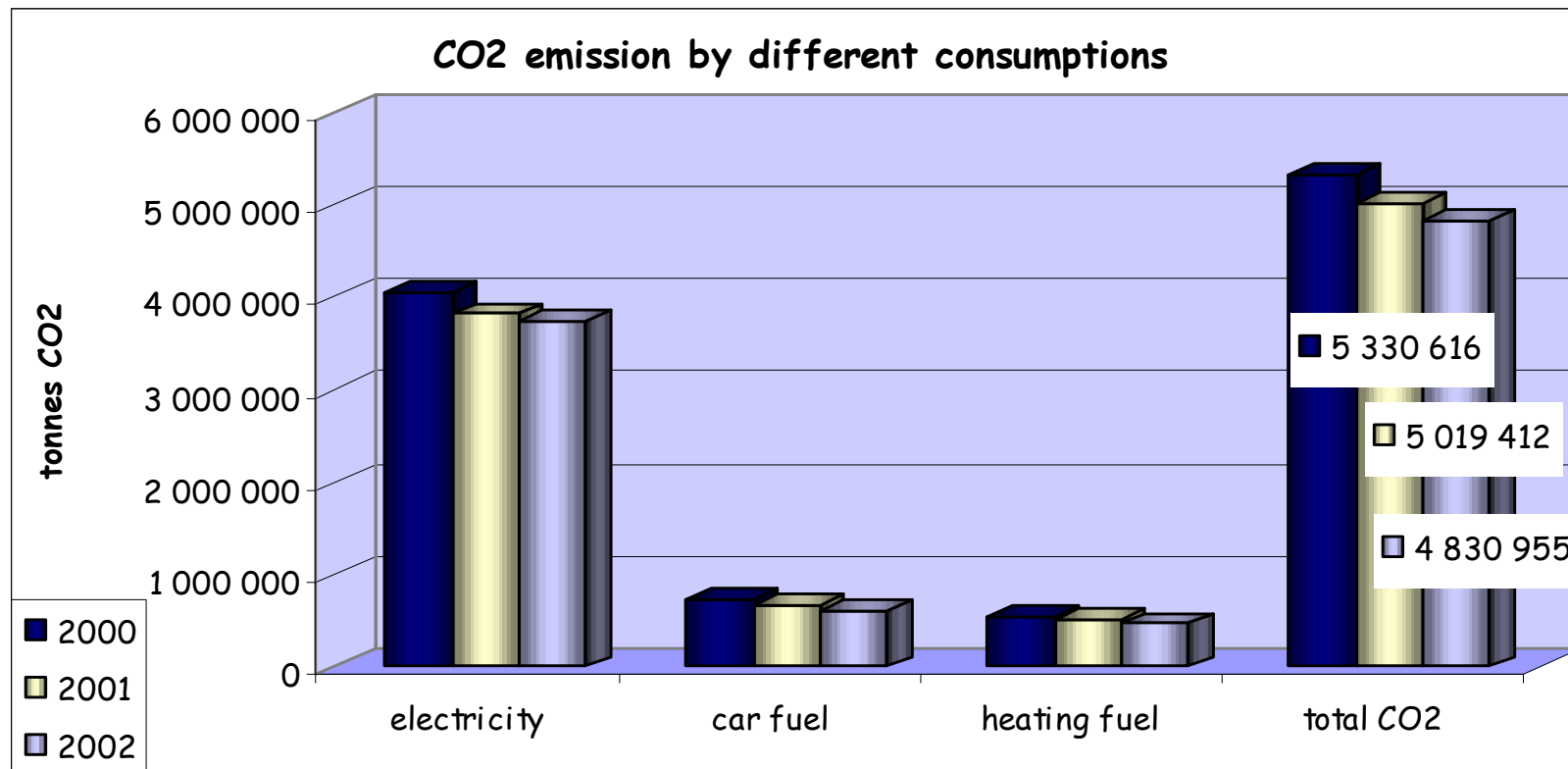
# Heating Fuel Consumption



# Renewable Resources



# GHG Effect of Consumption





# Procurement Guidelines

- **Deutsche Telekom**
  - Green Book
  - TAU
- **British Telecom - GS19**
  - Current and proposed legislation
  - Take back
  - Materials content
  - Environmental characteristics
  - Energy requirements
    - primary and secondary energy source
    - power requirement (in standby / in power down / in use)
  - Life span

# Energy Rationalization Practices regarding Network

- **Energy Optimisation in Digital Exchanges (DT)**
  - Energy saving: 21.8 GWh / year
  - CO<sub>2</sub> emission saving: 6,836 tonnes / year
- **Frequency Converters (DT)**
  - Energy saving: 529,805 kWh / year
  - CO<sub>2</sub> emission saving: 166 tonnes / year
- **Fan Replacement (BT)**
  - Energy saving: 69.4 kWh / year
  - CO<sub>2</sub> emission saving: 29.8 tonnes / year
- **Fresh Air Cooling in Exchanges (BT)**
  - Energy saving: 968,837 kWh / year
  - CO<sub>2</sub> emission saving: 417 tonnes / year
- **Highly Efficient Electrically Commutated Fans (BT)**
  - Energy saving: 3,685 MWh / year
  - CO<sub>2</sub> emission saving: 1,586 tonnes / year

# Practices in Offices



- **Switchable Connectors (DT)**
  - Energy saving: 898 MWh / year
  - CO<sub>2</sub> emission saving: 282 tonnes / year
- **Liquid Pressure Amplification (BT)**
  - Energy saving: 9,571 MWh / year
  - CO<sub>2</sub> emission saving: 4,116 tonnes / year

# Renewable Resources

- **Installation of combined wind generator & solar panel (Matáv)**
  - Maximum capacity of solar panel: 24V / 10A
  - Maximum capacity of wind generator: 24V / 1500A
  - Power consumption of the exchange: 24V / 1.6 A
  - Subscribers connected to the RSU: 260
- **Purchase of 'naturemade star' eco-energy (Swisscom)**
  - Swisscom Fixnet: 6,000,000 kWh / year
  - Swisscom IT Services: 600,000 kWh / year
- **Purchase of green energy (BT)**
  - Combined Heat and Power (CHP) energy (75% of need)
  - Green energy
  - CO<sub>2</sub> emission saving: 286,000 tonnes / year

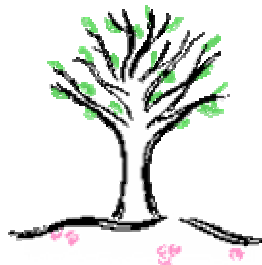
# Future Awareness - NGN

- Parallel operation of two networks
- Procurement of energy efficient equipment
- Increase to the power infrastructure
- Convergence
- Managing our energy wisely



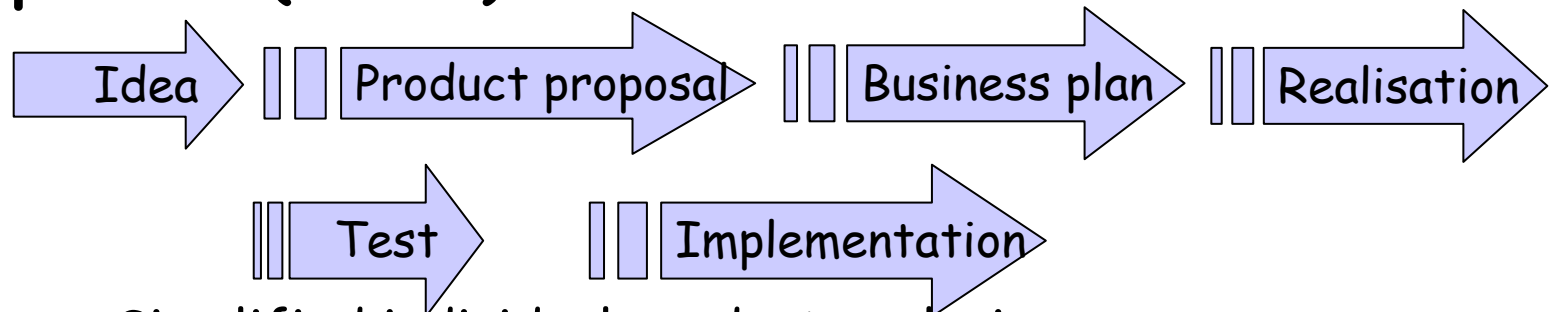
## 2. Environmental Benefits of ICT

- Procurement and Product Development Guidelines
- Case Studies about ICT effect on CO<sub>2</sub> replacement
- Opportunities of ICT Products and Services in Europe



# Procurement and Product Development Guidelines

- Greenbook and TAU (DT)
- GS19 (BT)
- Environmental analysis in product development process (Matáv)



- Simplified individual product analysis
- Product comparison analysis
- Analysis to assess a product's environmental impact replacement potential
- Analysis to assess the positive effects on the environment by moving from product to service

# Case Studies about ICT Effect on CO<sub>2</sub> Replacement

- **Telework at BT**
  - 5,128 registered teleworkers
  - CO<sub>2</sub> replacement: 147 tonnes
- **Audio-conference at BT**
  - each call saves min. 22.05 Kg CO<sub>2</sub>
  - Saved 20,060 tonnes CO<sub>2</sub>
- **Video-conference at DT**
  - 5% business travels in Germany (2015): 1.3 million tonnes CO<sub>2</sub>
- **Online billing at DT**
  - 2.8 million customers: 575 tonnes paper (2,392 tonnes CO<sub>2</sub> - no waste)

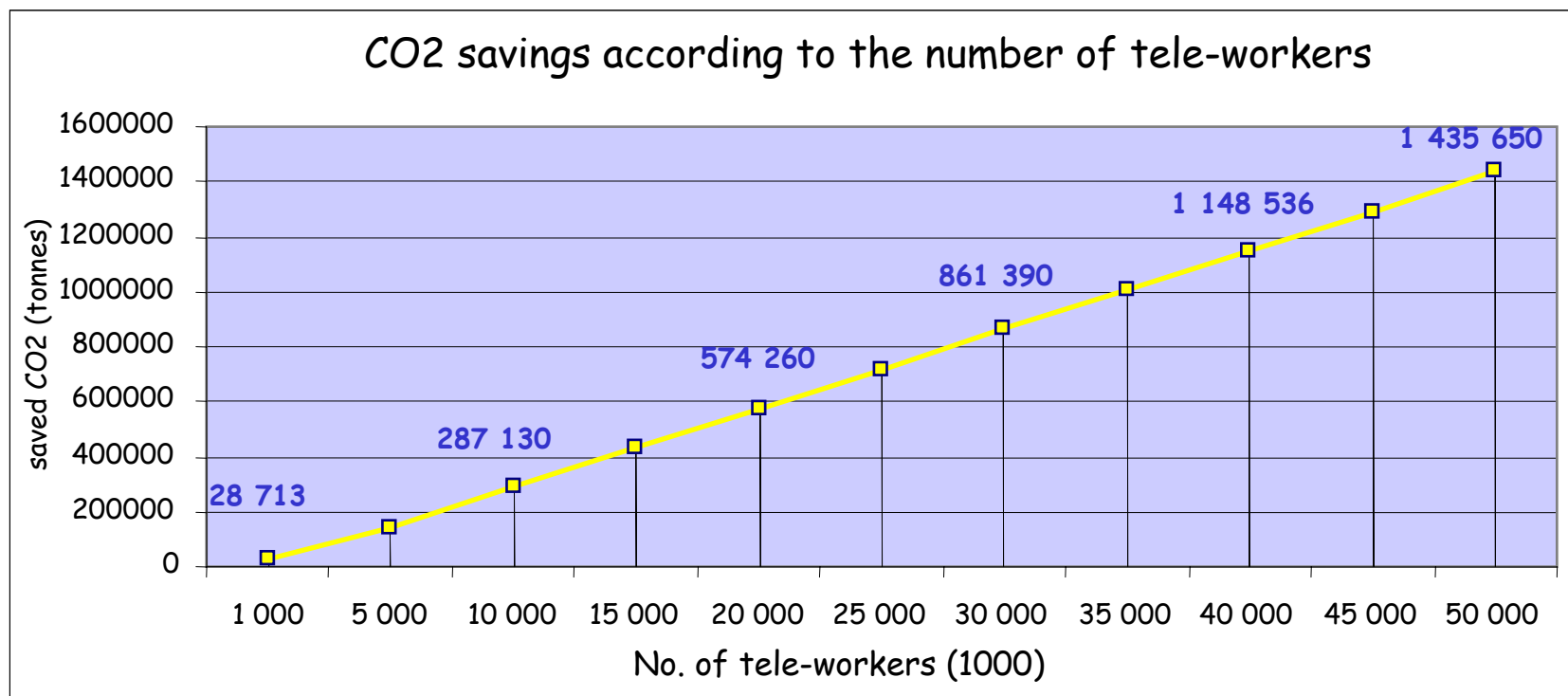


# Case Studies about ICT Effect on CO<sub>2</sub> Replacement

- **T-Net Box at DT**
  - 5 million customers
  - CO<sub>2</sub> replacement: 160,000 tonnes
- **Web-tax at Matáv**
  - Each tax document on web saves: 1,014 g equiv. CO<sub>2</sub>
  - Saved 20,060 tonnes CO<sub>2</sub>
- **Video-conference at Matáv**
  - 35 times
  - 800 km by aeroplane
  - 3 hours meetings
  - CO<sub>2</sub> replacement: 112,000 tonnes

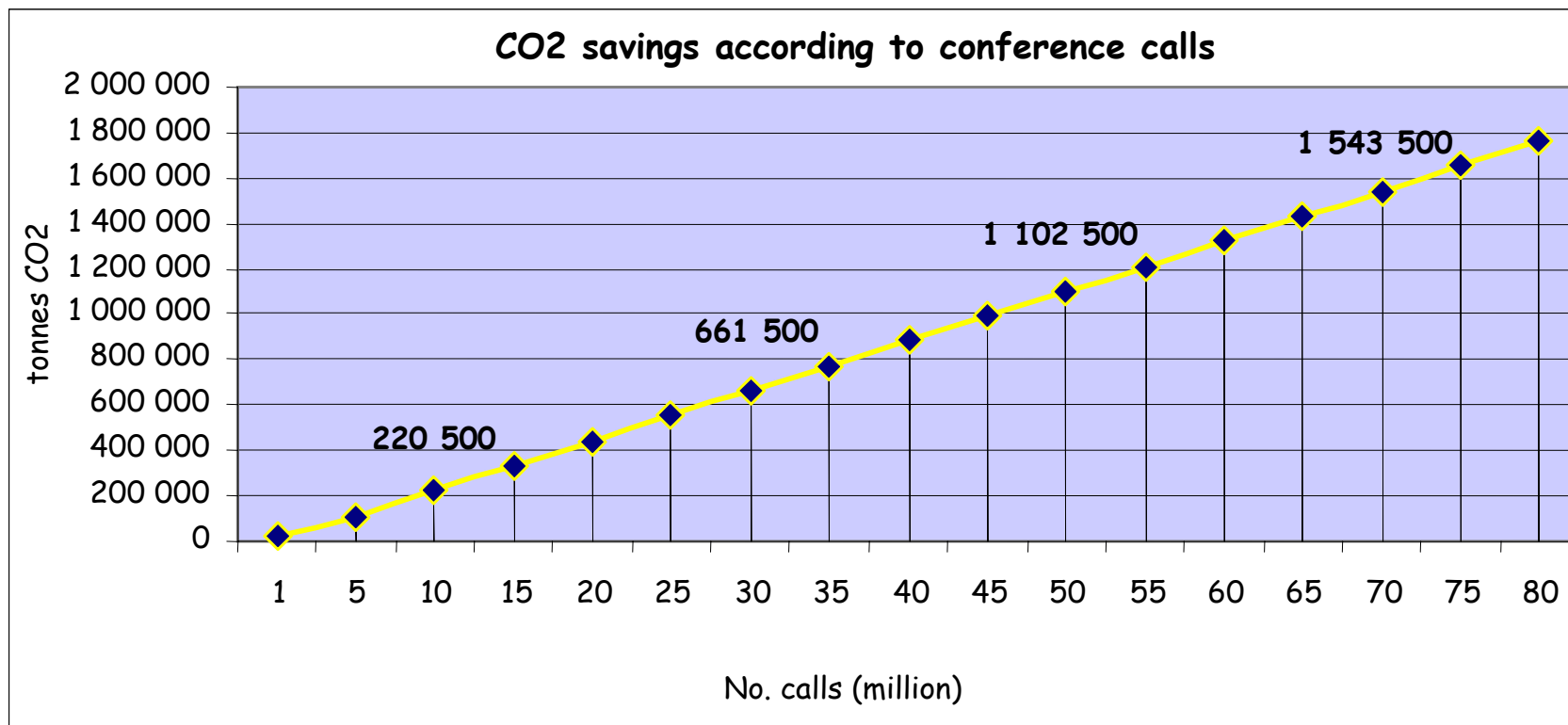
# Opportunities of ICT Products and Services in Europe

## — Use of Telework



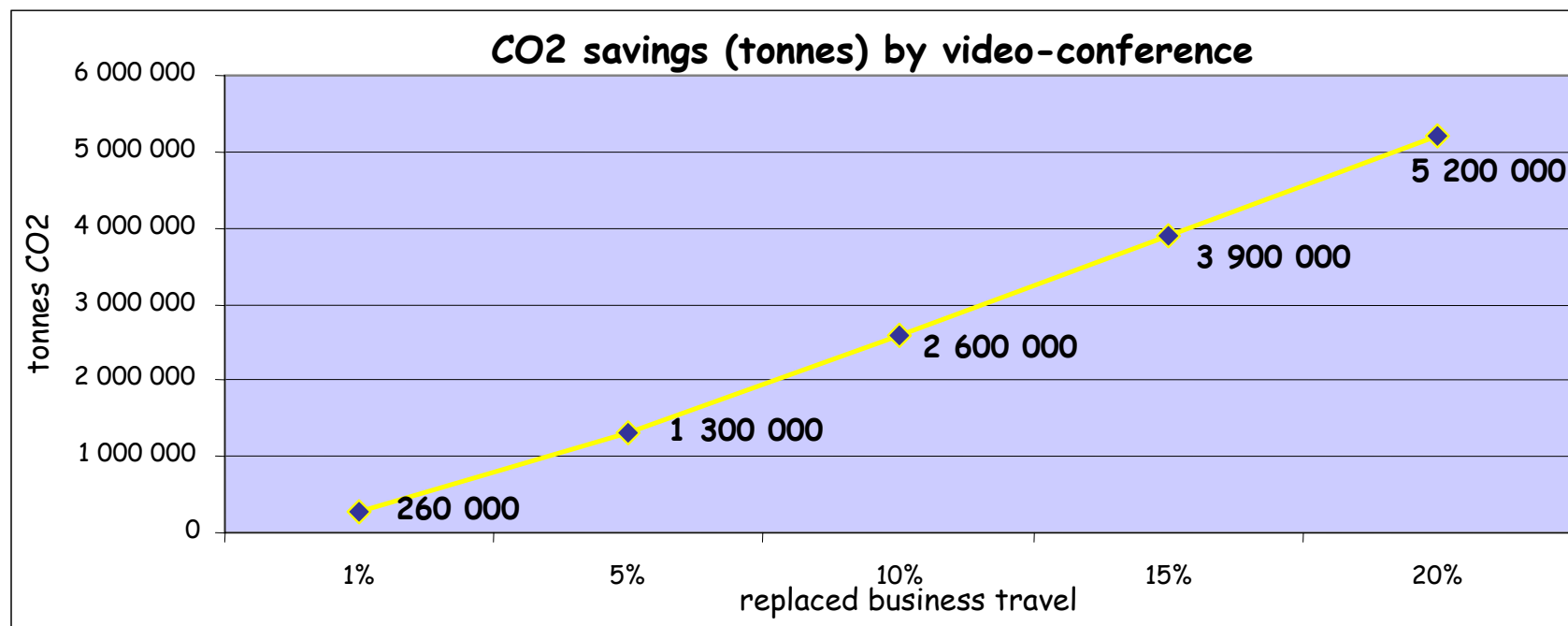
# Opportunities of ICT Products and Services in Europe

## — Use of audio-conference



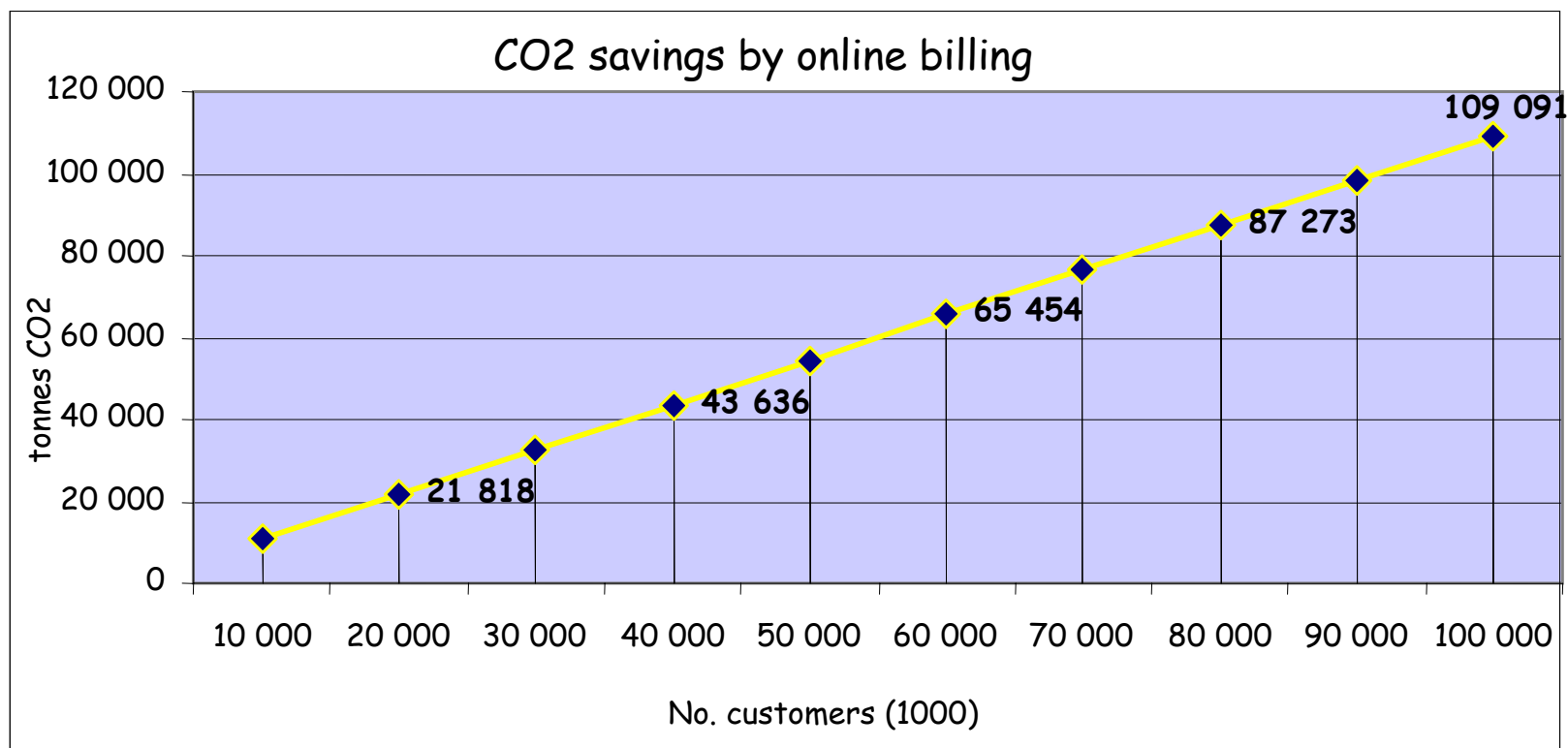
# Opportunities of ICT Products and Services in Europe

## — Use of video-conference



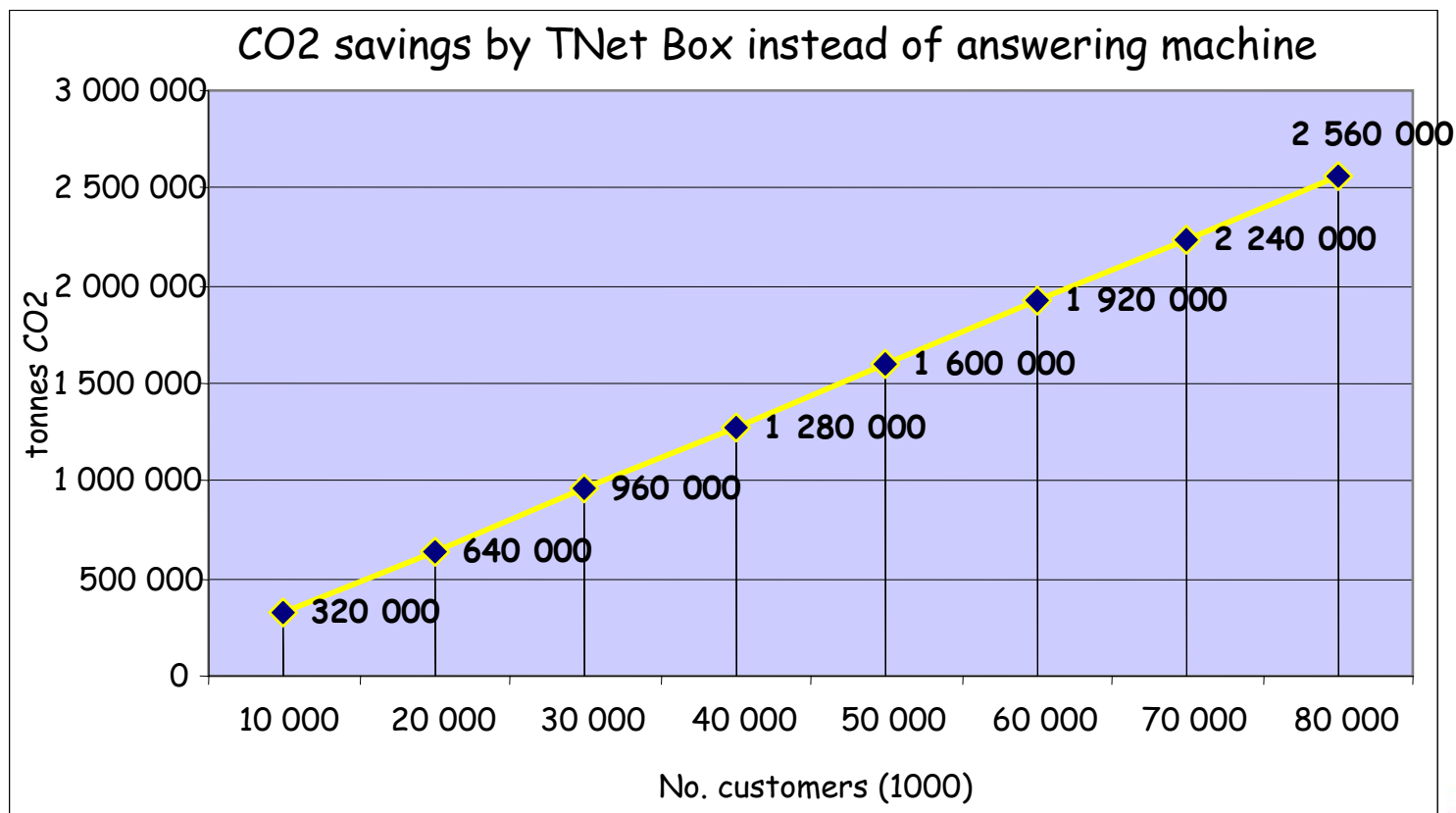
# Opportunities of ICT Products and Services in Europe

## — Use of online-billing



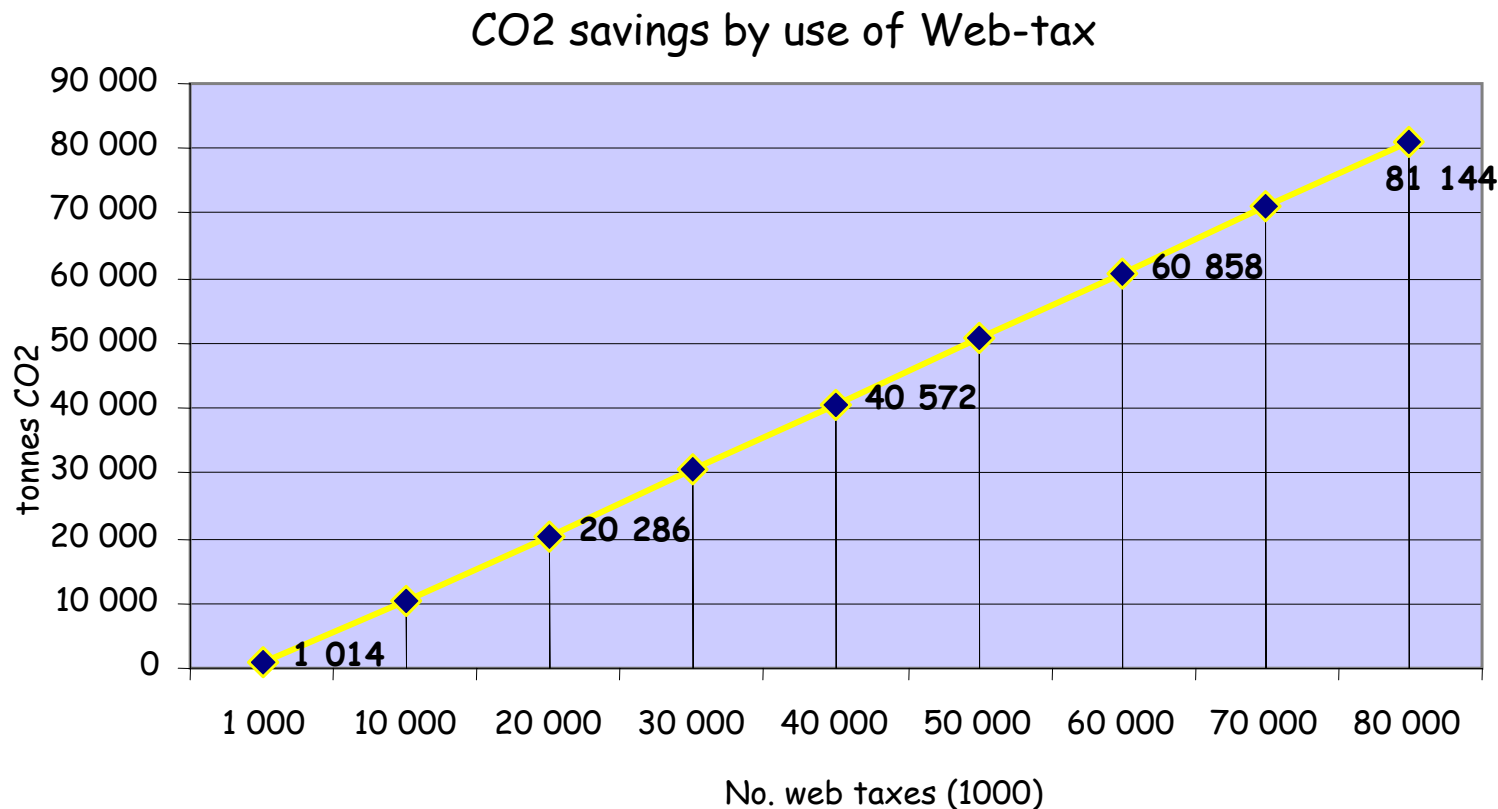
# Opportunities of ICT Products and Services in Europe

- Use of virtual answering machine (T-Net Box)



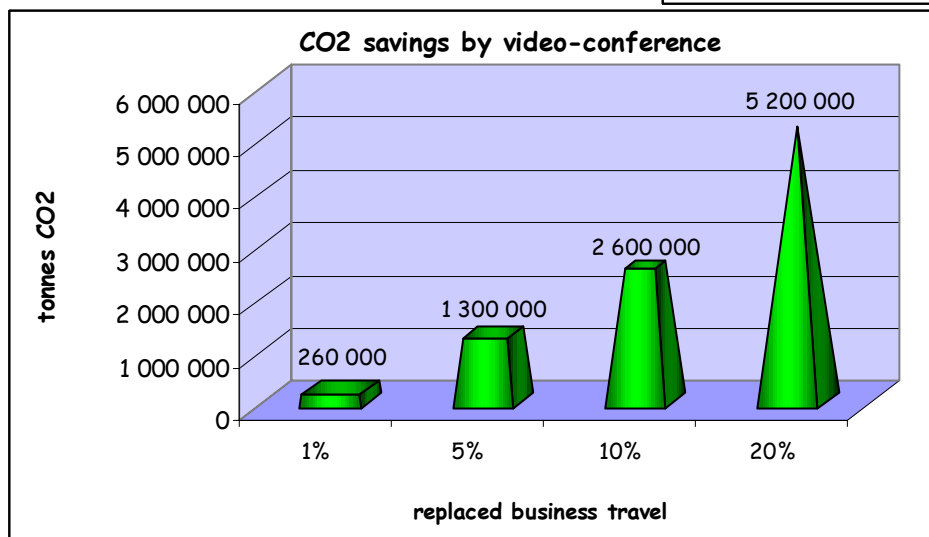
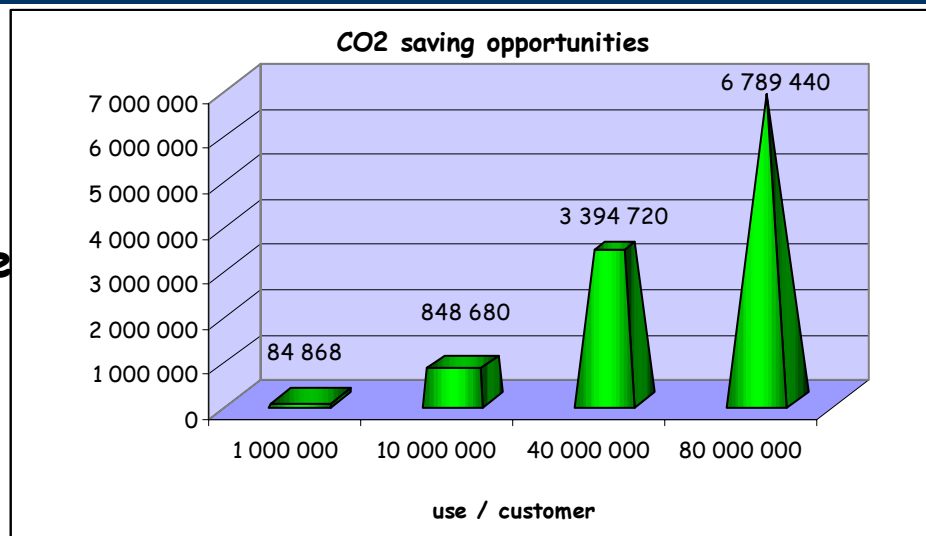
# Opportunities of ICT Products and Services in Europe

## — Use of Web-tax



# Summary of Opportunities

- Telework
- Audio-conference
- Online billing
- Virtual answering machine
- Web-tax





# Do you think there is opportunity?

