

Green IT

For a Sustainable Planet

January 2016

Green IT Special Interest Group
Swiss Informatics Society



Content

- 1 Introduction
- 2 Green by IT
- 3 Green in IT
- 4 Green IT SIG Services
- 5 Green IT for the Energy Transition

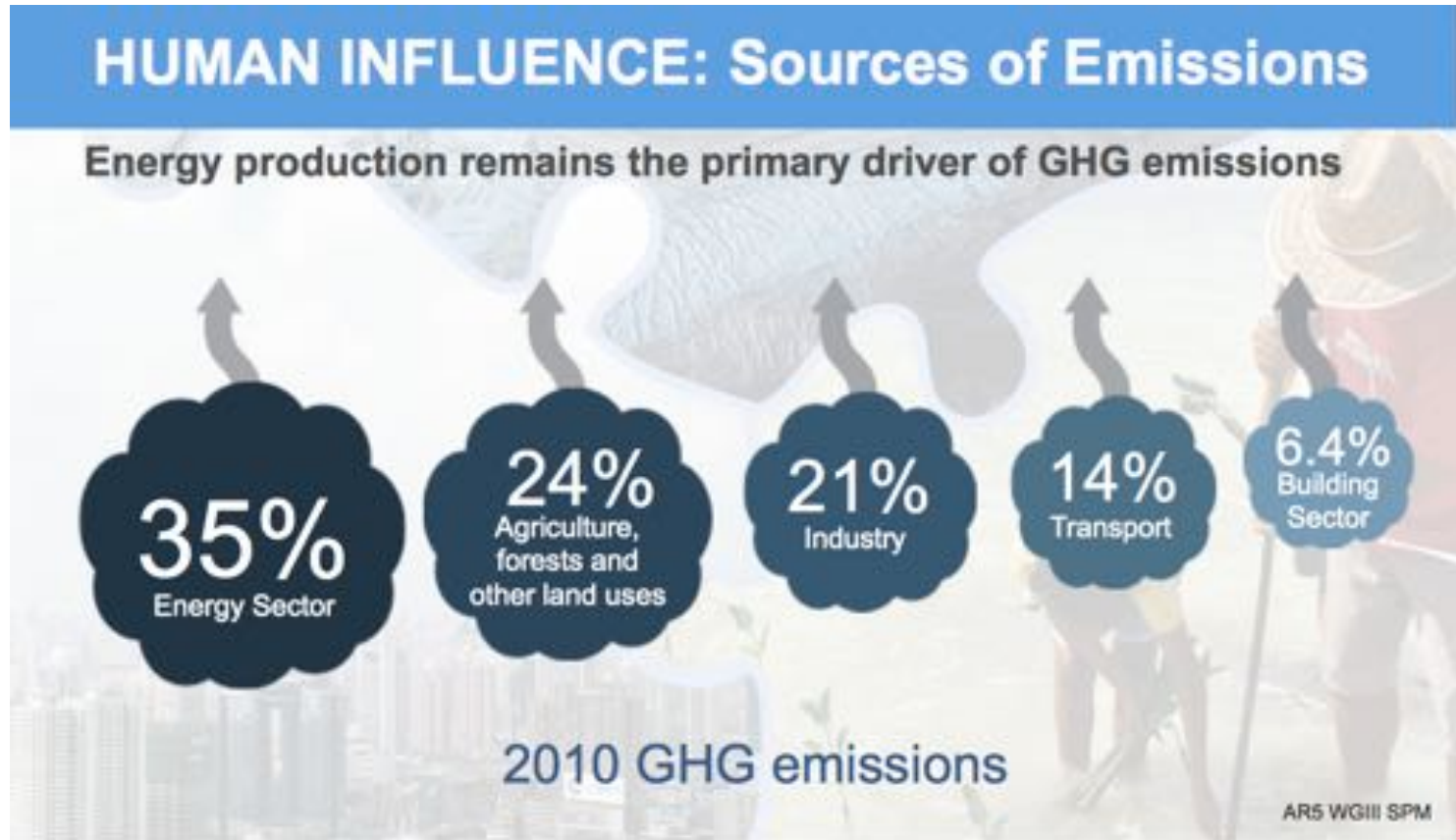


Top Ten Problems of Humanity for the Next 50 Years

Richard E. Smalley, Rice University, Nobel laureate (2003)

- | | | | |
|---|-------------|----|-------------------|
| 1 | Energy | 6 | Terrorism and war |
| 2 | Water | 7 | Disease |
| 3 | Food | 8 | Education |
| 4 | Environment | 9 | Democracy |
| 5 | Poverty | 10 | Population |

Data from the ipcc

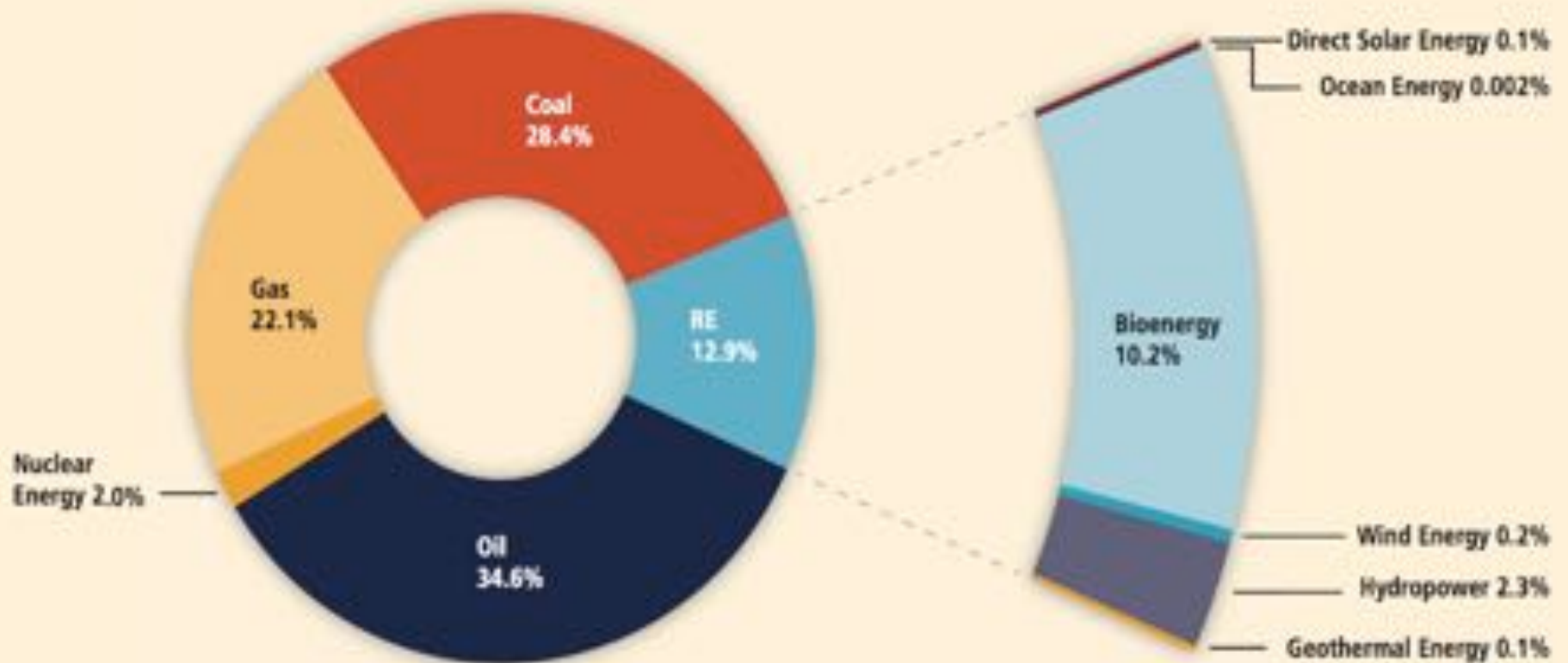


IPCC AR5 Synthesis Report

ipcc
INTERGOVERNMENTAL PANEL ON climate change



Only 13% of world-wide energy consumption based on Renewable Energy



© Intergovernmental Panel on Climate Change 2012, based on 2008 data

Our definition of Green IT

(or Sustainable ICT)

Application of Information and Communication Technologies (ICT) in a way which protects the environment and saves natural resources considering the whole product life cycle (production – usage – disposal)

Greening the planet with ICT

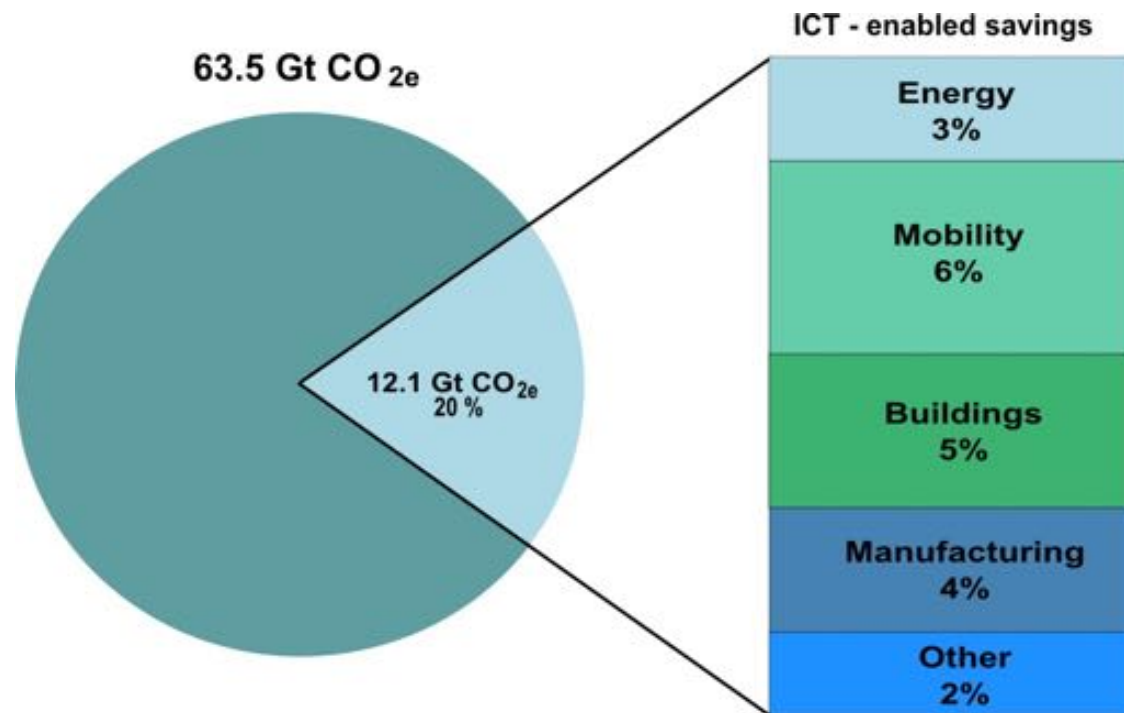
(Green by IT)



Green by IT Solutions reduce Green House Gases

(20% reduction of global green house gases by 2030)

Green IT SIG
presentation
based on GeSI
SMARTer 2030
study



Green by IT tasks

Low hanging fruits

- Build energy awareness
- Video conferencing
- Working from home
- **Measure, measure, measure**
- Install Energy Management S.
- Workflow streamlining
- Basic functions of Building Automation

Long term potential

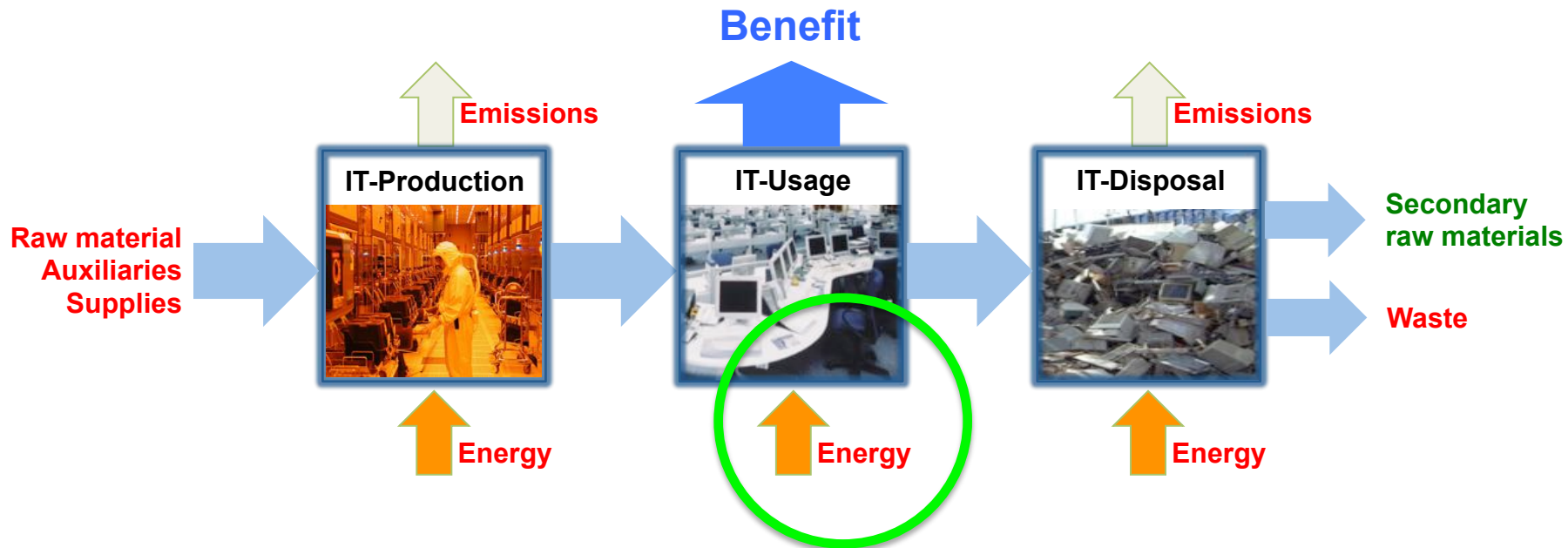
- Demand side Power management (Smart Grid)
- Intelligent House-Gateway
- Mobility management systems on Smart phones
- Local energy harvesting
- Adoption of a combination of RE, Batteries, Electrical Vehicles in an intelligent Energy network

Greening ICT

(Green in IT)



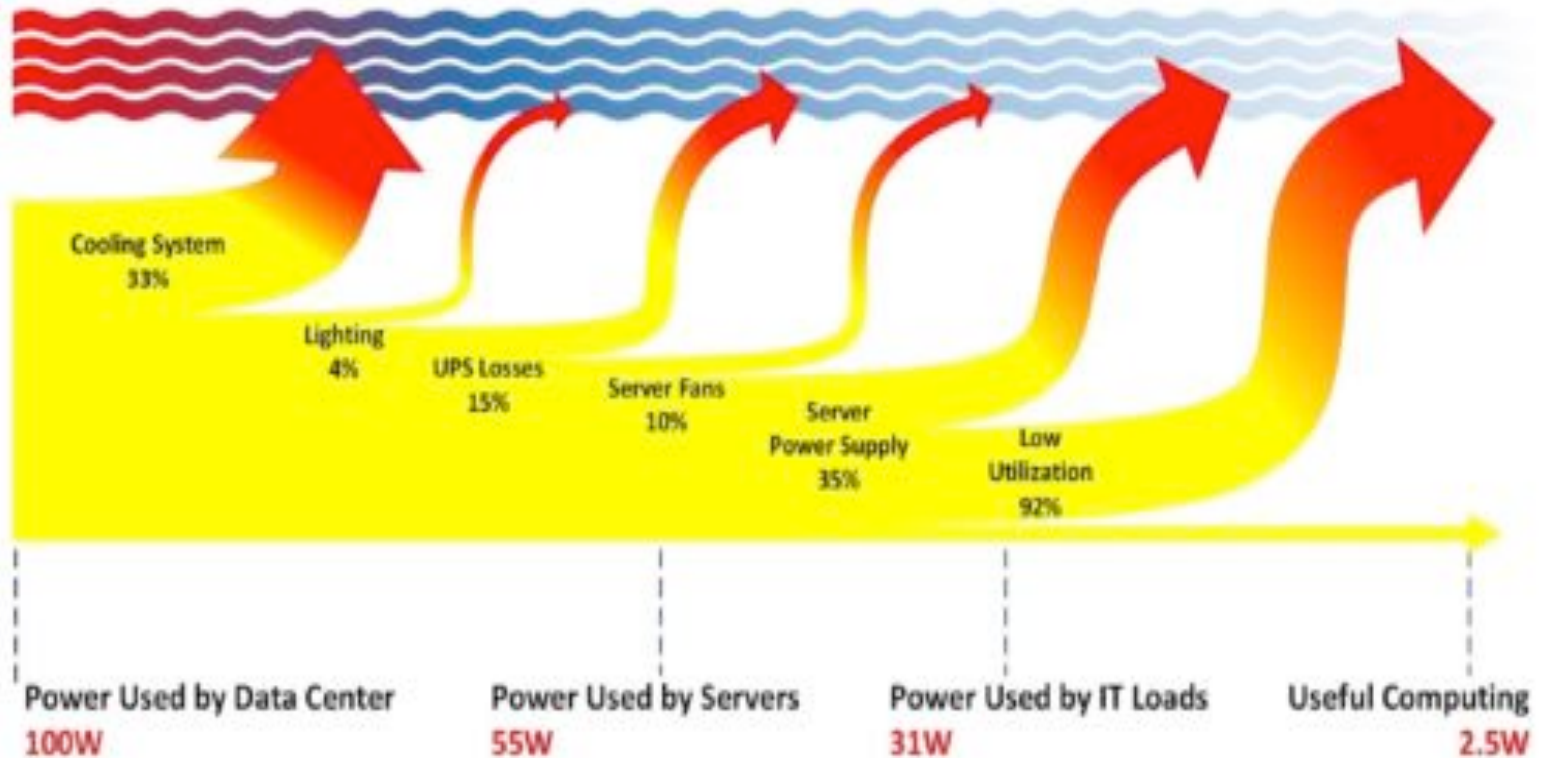
Impact on the Environment in the Life Cycle of IT-Hardware (**red**)



Translated from slide of Prof. Dr. Lorenz Hilty, Universität Zürich and Empa, 2013

The usage phase is often and wrongly considered the only action point for Green IT

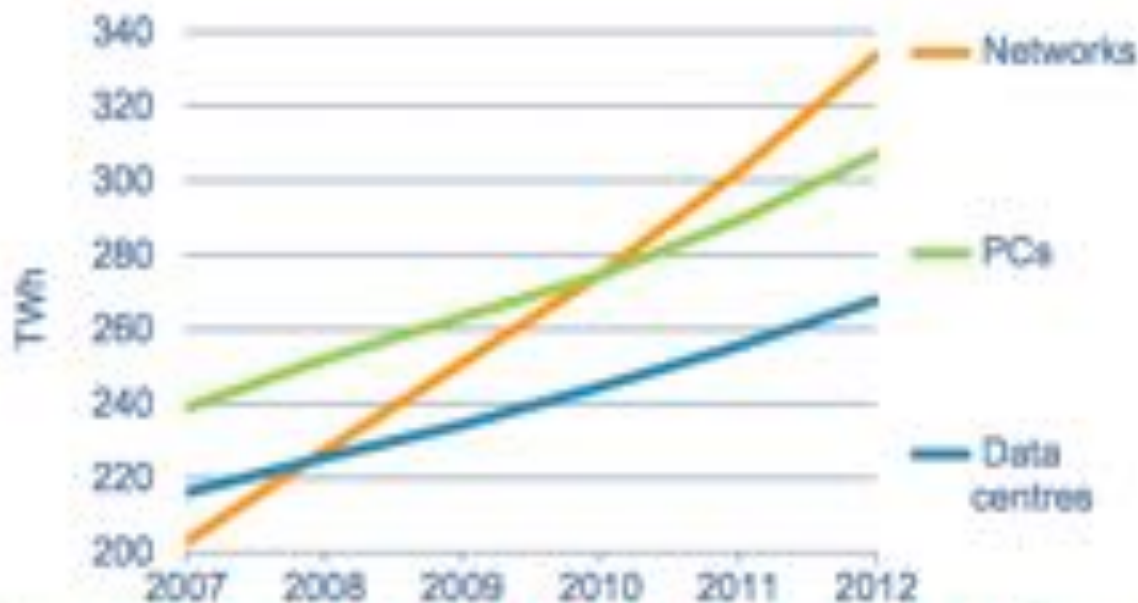
**ICT is with more than 10% one of the major electricity consumers.
But in our data centers only a small part is used for “useful computing”**



Source: Jeff Kanklyba and RMI

The global energy footprint of ICT is large and growing

Electricity demand of networks, PCs and data centres

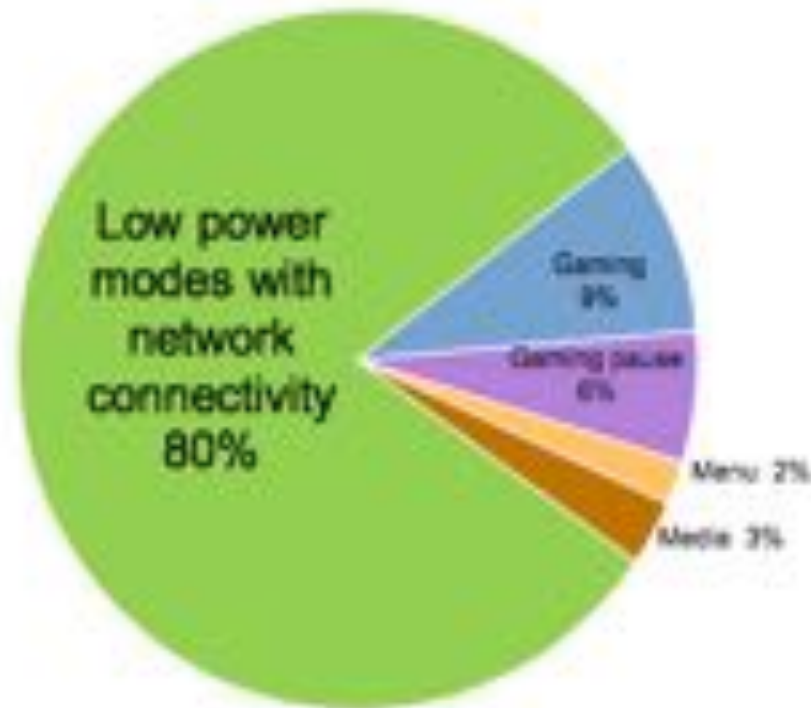


Total ICT energy demand reached 1560 TWh in 2013

Electricity demand of ICT is growing at a much faster rate than overall electricity demand

Where are the big savings opportunities?

Example of energy consumption of a game console model



Some devices use most of their electricity just to maintain connectivity

Energy consumption by ICT

(Usage phase)

- 8% of total Electricity globally and increasing (IEA 2014)
- 4% CO₂_{eq} EU (EU Commission 2013)
- 8-10% Electricity consumption EU (EU Commission 2013)
- 2.8% Electricity Consumption Data Centers in CH (Swiss Energy Dep. and Telecom Association ASUT, 2014)
- 50% of Electricity in Financial Services Companies (Green IT SIG members)

But....

- Only 1-2% of ICT cost including staff

Selected Green in IT tasks

greenit.s-i.ch

Data Center & Network

Utilization and cooling

- Consider outsourcing, cloud services
- Server Consolidation
- Measure server und DC utilization
- Measure energy consumption, PUE
- Free cooling, cold/warm aisles
- Increase room temperature
- Optimize network standby
- Water cooling
- Selling of heat
- DCIM with energy optimizing

Other ICT

Assure place in the ICT strategies and plans

- **Green IT Champion**
- Awareness of environmental issues
- Measure, measure, measure
- Procurement with consideration of the whole life cycle of products
- Thin clients / virtualization
- Printer centralization
- Multifunction printing
- Recycling management
- BYOD

Green IT SIG Services





schweizer informatik gesellschaft
société suisse d'informatique
società svizzera per l'informatica
swiss informatics society

The Swiss Informatics Society (SI) is the
experience exchange platform for the
ICT professional
www.s-i.ch

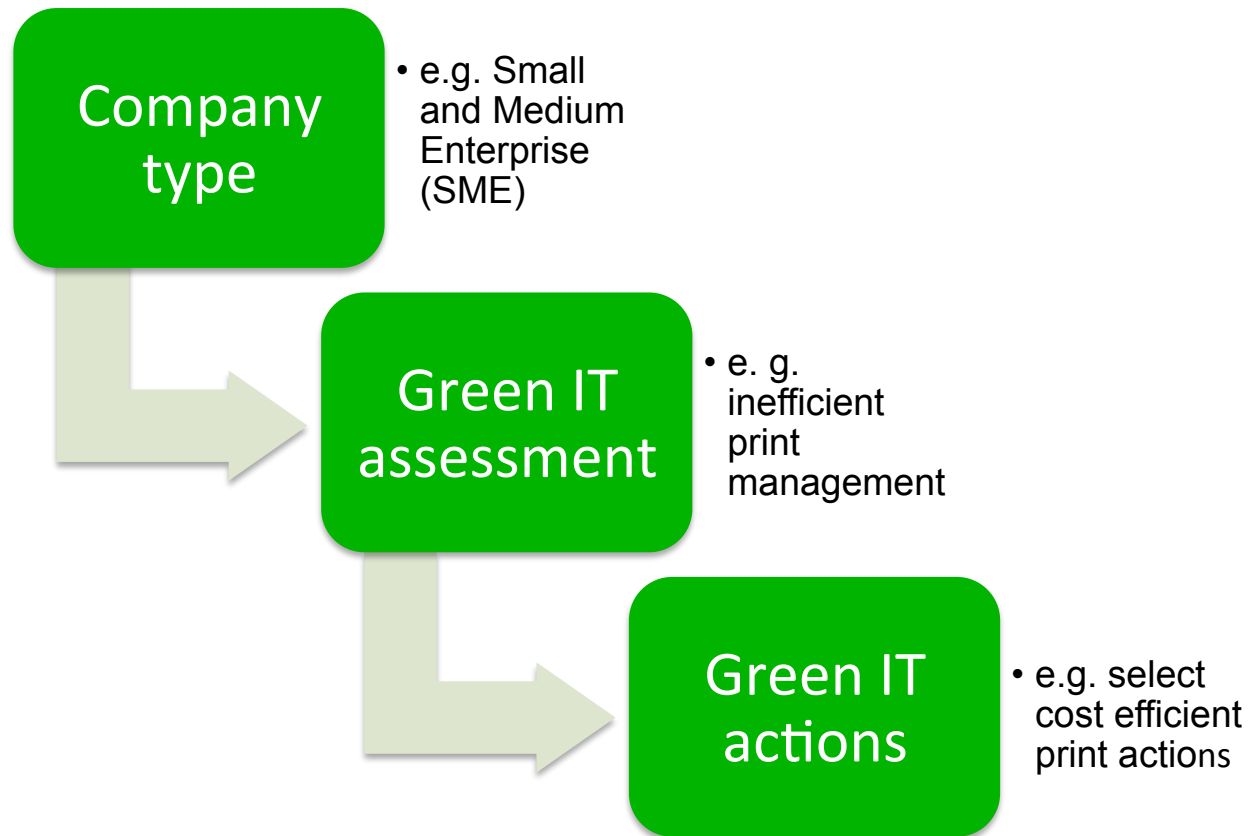


Green IT SIG

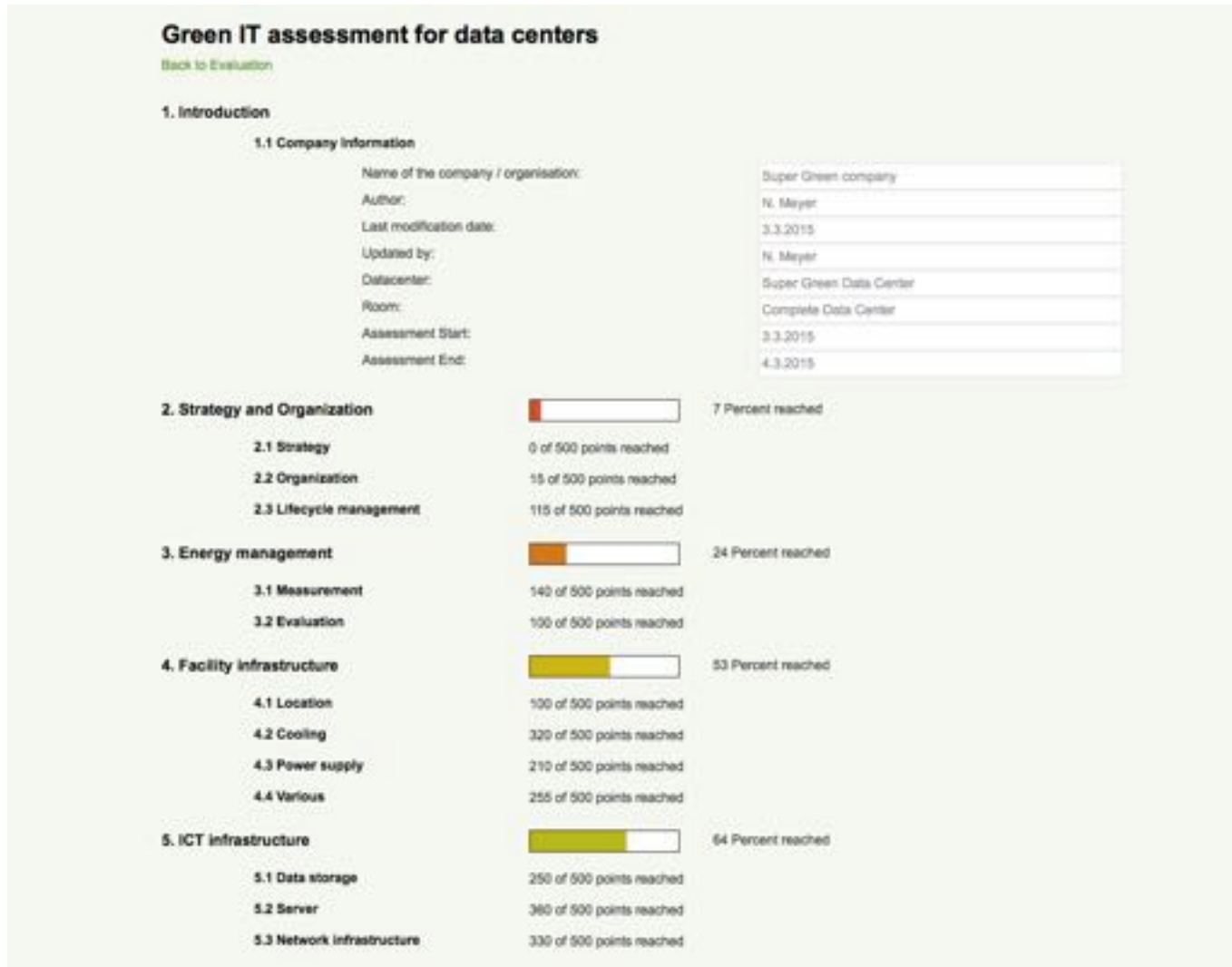
Green IT Special Interest Group

- Green ICT platform for ICT professionals & users
- Green ICT assessments, guidelines & certifications
- Contributions to politics, education & business
- Coordination with domestic and international Green IT organizations
- Preparation energy transition

The process of greening ICT with greenit.s-i.ch



Example of Green DC Assessment



Questions to company and ICT management

1. How can the ICT operation be changed into a totally energy-efficient organization?
2. How can the ICT supported business processes for sustainability be identified and implemented?
3. Which capabilities and consulting services are needed in the ICT departments?



www.greenit.s-i.ch

CAS Green IT University of Lucerne

Green IT Events 2016

- Annual Meeting Feb 19, 2016
- Green IT SIG tools and processes at CEBIT (March 14-18, 2016)
- Team Meetings in February, May, June, and October
- Launching of Data Center energy reduction campaign in second half of year (lead ministry of energy)
- Numerous meetings of specialty teams throughout the year
- Presentations at Events about Sustainability developments in Switzerland and abroad

Join **Green IT SIG**

To join the Green IT SIG, register online at s-i.ch or send an email to:

Niklaus Meyer, President Green IT SIG, Swiss Informatics Society
niklaus.meyer@acm.org

