



# What Future Internet means for Smart Energy ?

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Valencia

# Smart Energy session agenda



11h30 – 11h45 : Session introduction : Pierre-Yves Danet (FT)

11h45 – 12h45: Smart energy panorama

- Energy Utility vision : **Asier Moltó Llovet** (REE)
- Smart grid vision : **Duncan Botting** (Smartgrids ETP)
- Open challenges enabled by Future Internet : **Mikhail Simonov** (ISMB)
- M2M standardisation activities : **David Boswarthick** (ETSI M2M)

12h45 – 13h00 : Socio economy analysis

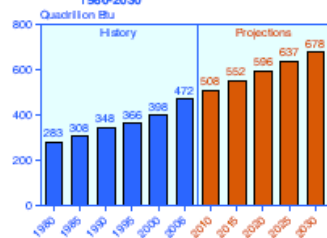
- **Gabriella Cattaneo** (IDC)

13h00 -13h20 : Panel session Q&A with speakers

- Moderator **Roger Torrenti** (Sigma-Orionis)

13h20 – 13h00 : Conclusion and next steps : PY Danet

Figure 10. World Marketed Energy Consumption, 1980-2030



Sources: History: Energy Information Administration (EIA), International Energy Annual 2008 (June-December 2008), web site [www.eia.doe.gov/ies](http://www.eia.doe.gov/ies). Projections: EIA, World Energy Projections Plus (2009).

# Context

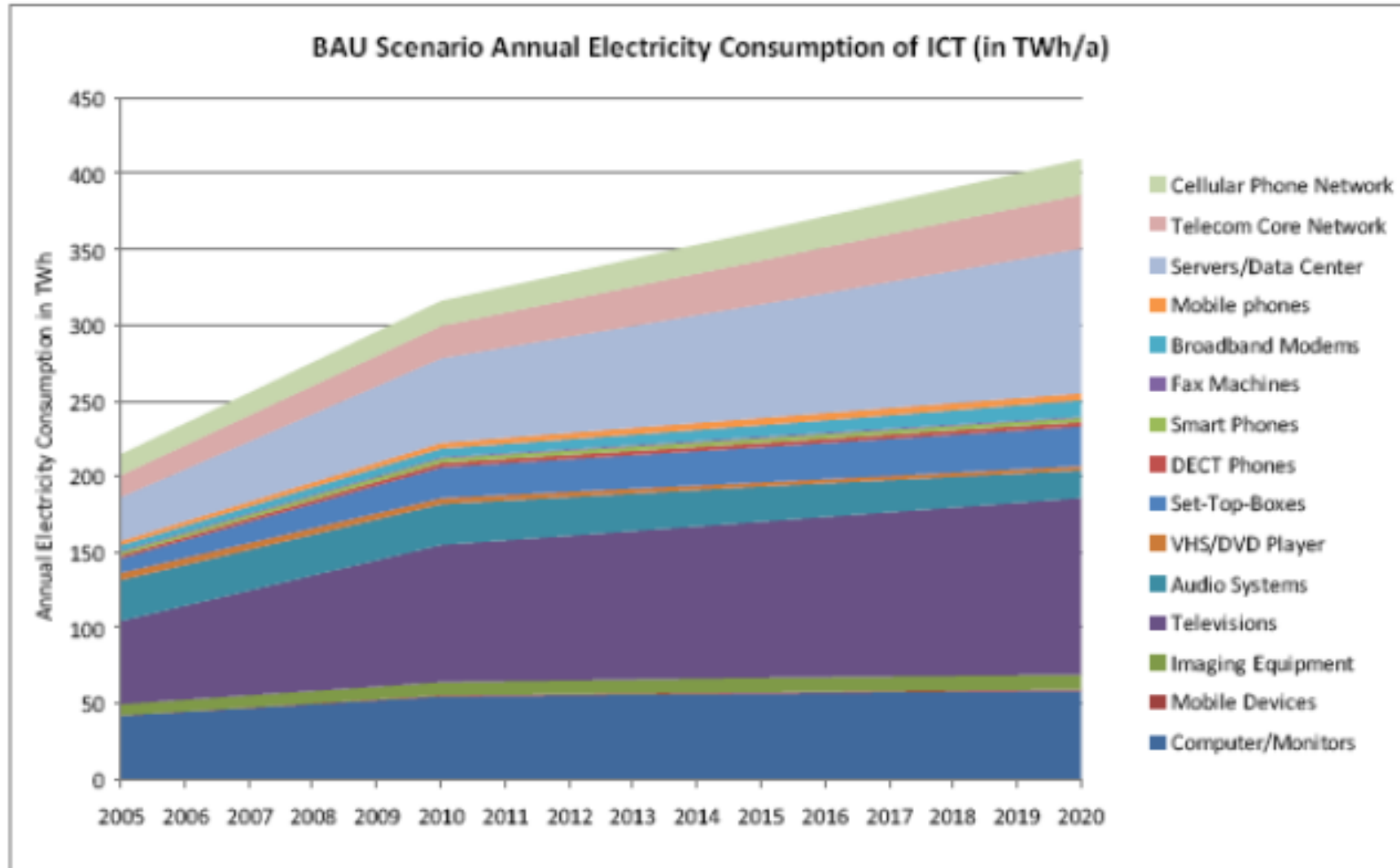
Scientists, economists and policy makers are calling for CO<sub>2</sub> emissions targets of at least 20% below 1990 levels in 2020.

ICT could bring its contribution reducing the global carbon footprint on three main aspects :

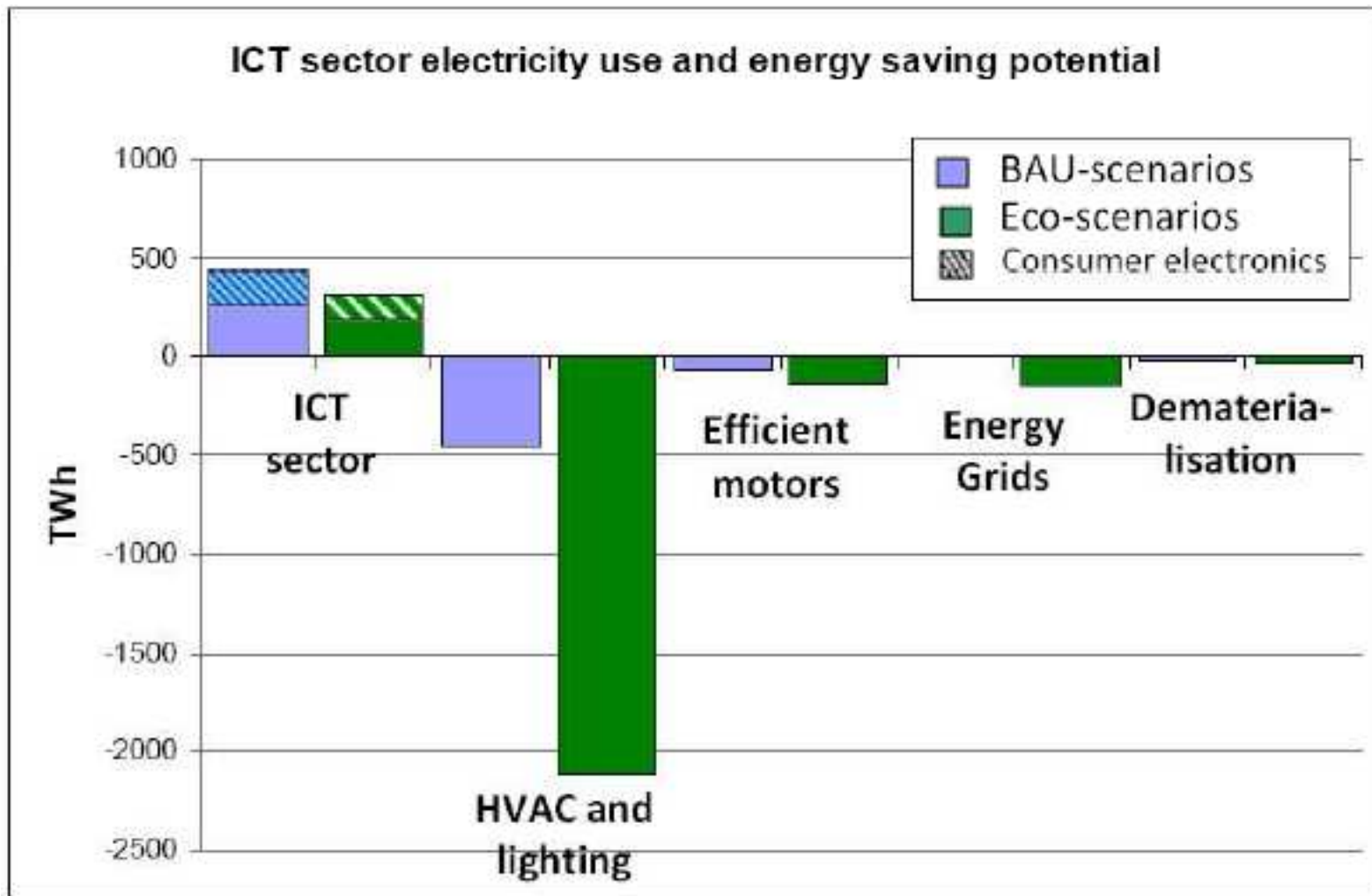
- by reducing non-ICT carbon-footprint through smart use of ICT
- by enabling green energy, i.e. the generation and distribution of energy without CO<sub>2</sub> emissions
- by reducing the carbon-footprint of ICT itself.

➔ In fact it has been estimated that ICT may help other sectors to reduce their CO<sub>2</sub> emission by 15% in 2020 which is a significant step towards reaching the 20% objective.

# Business as usual scenario - annual electricity consumption of ICT in Europe

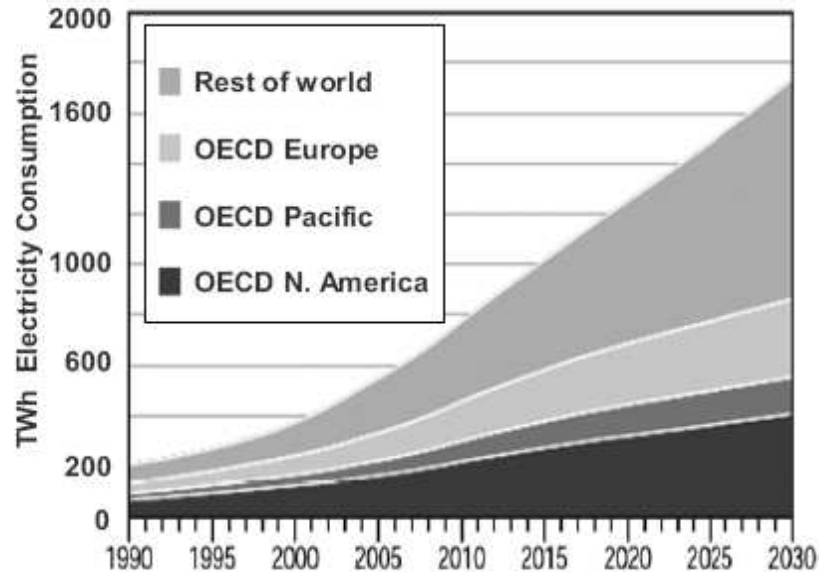


# ICT sector electricity use and energy saving potential

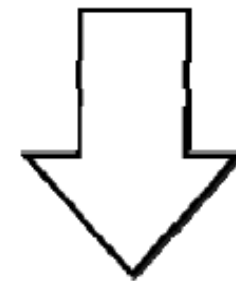


# The dilemma

Estimated electricity consumption by ICT in the residential sector: 1990-2030



## Pros and cons of broadband development



- Stimulate growth and jobs
- Enable energy efficiency in other sectors



Rebound effect of ICT  
(growing proportion of the  
global energy budget and  
greenhouse gas emission)



Question : How to balance ICT energy consumption and ICT energy savings services ?

# FIA Smart Energy session description



Scientists, economists and policy makers are calling for CO2 emissions targets of at least 20% below 1990 levels in 2020.

It has been estimated that ICT may help other sectors to reduce their CO2 emission by 15% in 2020 which is a significant step towards reaching the 20% objective.

ICT Energy efficiency addresses two main aspects :

- Network efficiency : How to reduce telecom infrastructure energy consumption ?
- Application efficiency : How to help people to reduce their energy consumption with innovative services ?

The Smart energy session has the objective to bring a wide vision of the situation today and to bring some ideas where savings could be done.

# Smart Energy FIA Session objectives



1. Get a common vision of where ICT and the Future Internet could help in energy savings (PPP, ETPs). 2 different areas :
  - How to reduce telecom infrastructure energy consumption : **Network savings/scavenge** (protocols, infrastructure, devices, ...)
  - How to help people to reduce their energy consumption with innovative services : **Application savings** (smart metering, home automation, eApplications, tele-transportation, ...)
2. Identify the research topics where ICT could bring features to decrease energy consumption
3. Identify those research topics which are already covered by existing research projects and see how they could contribute to the Future internet design.
4. Propose new projects ideas for the missing ones

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13h20 – 13h00 : Conclusion and next steps : PY Danet

# Energy utility vision

- **Asier Moltó** is Industrial Engineer from the Universidad Politécnica de Madrid. He has completed his formation in the École Nationale des Ponts et Chaussées in Paris and started his professional career in France as strategy consultant in the European energy markets.
- He joins the Demand Side Management Department within Red Eléctrica de España in 2008, where he works in the development of strategies to drive demand side management into the operation of the electrical system.



# Smart Grid vision

- **Duncan BOTTING** currently holds the posts of Executive Chairman and Interim CEO of the Scottish European Green Energy Centre and Managing Director Global Smart Transformation Limited, based in Scotland.
- His previous roles included Managing Director, ITI Energy (a research institute) and with ABB as Head of Technology & Business Development. He has over 30 years experience covering the complete spectrum of technical and commercial roles from apprentice to boardroom. He is a visiting professor at Imperial College London and the University of Strathclyde, Glasgow.
- He is an active member of the Institution of Engineering and Technology (IET, formerly the IEE) and is involved in many influential panels, advisory boards and committees both at a National and European level. As an active member of the IET Energy Sector Panel and as Vice-Chair of the European Technology Platform for “SmartGrids” he is helping to shape future thinking in the energy sector. He is also a founding member and shadow board member of the National Skills Academy for Power.



# Open challenges enabled by Future Internet

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- **Mikhail Dr. SIMONOV** (ISMB) Mikhail Simonov is graduated in 1987 from the Moscow State University. Specialized on Computer Science. Ph. D. research at Energy Dept. of Polytechnic University of Milan (on Near-Energy Ubiquitous Services: digital energy, cyber security, load management and forecast, and softcomputing).
- He attended a stage in management consultancy at Bain in Italy, worked in an Insurance company and Software House.
- Project leader and manager for more than 15 years. After a long experience in application projects and executive tasks, he performs EU R&D activities since 1999, some chairing and participation in Advisory Boards, several publications.
- Main areas of competence and experience include ICT, Knowledge and Internet Of Things technologies and their applications.



# Standardisation



- **David BOSWARTHICK** has been extensively involved for over 10 years in the standardization activities of mobile, fixed and convergent networks in both the European Telecommunications Standards Institute (ETSI) and the 3rd Generation Partnership Project (3GPP).

He is currently involved in the M2M standards group which is defining an end to end architecture and requirements for multiple M2M applications including Smart Metering, Smart Grid healthcare and enhanced home living.

David holds a Bachelor's Honours Degree in Telecommunications from the University of Plymouth, and a Master's Degree in Networks and Distributed systems from the University of Nice and Sophia Antipolis, France.



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# Socio economy analysis

- **Gabriella CATTANEO** is the director of the Expertise Centre on Competitiveness and Innovation of Government Insights, business unit of IDC EMEA, the global ICT market research and consulting company. She has 20 years experience in socioeconomic research on the development of the information society, ICT markets quali-quantitative analysis, monitoring and benchmarking of ICT services. She is currently involved in studies for the EC on the Future Internet socioeconomic impacts, the Enterprise 2.0, and Benchmarking indicators of egovernment. She is a graduate in Political Sciences Magna cum Laude from Milan State University with a prize-winner research Thesis and has worked ten years as a business journalist.



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# Panel – Q&A

- Moderator : **Roger TORRENTI** founded Sigma Orionis, a market and research company specialising in ICT, after having managed a research center on energy systems and renewable energies. Sigma Orionis is involved today in several ETPs and particularly in NEM and is a partner of the BeyWatch project coordinated by Telefonica which recently received from the European Commission the award of the best ICT for energy efficiency project. Sigma Orionis is also the coordinator of the PARADISO2 FP7 project launched on April 1, exploring the societal aspects of the Future Internet and the organizer of the annual ICT for sustainable homes cooperation forum.

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# Next steps



- Collect the names of people interested (end of the week)
- Setup a mailing list with interested people (end April)
- Launch a survey in order to collect ideas from participants (end May)
- Analyse/classify ideas (end June) -> setup an editing group
- Identify which one are already covered by existing projects (end August)
- Come back to PPP and ETPs with the non covered topics (if any) in order to help new project proposals to rise. (end September)
- Publish a white paper collecting all these information (November in preparation to the next FIA) in order to :
  - Facilitate existing research projects to participate to the Future Internet design.
  - Provide recommendation to any ICT project to help them to take into account this cross issue.

# Annex

# Existing collaborative activities



- FP7 projects : 9 projects presented at the last ICT for sustainable home conference
- X-ETP : Future Internet SRA
- NEM : Position paper
- EFII : Future Internet PPP work program
- **Other related programs :**
  - FP7 Energy call 2010-2 (03-03-2010) AREA ENERGY.7: SMART ENERGY NETWORKS
    - Large scale demonstration of smart distribution networks with distributed generation and active customer participation
  - ITEA2
  - CIP (Competitiveness and Innovation framework Program) IEE (Intelligent Energy Europe)
  - PPP FI (Future Internet)
  - PPP EeB (Energy Efficient Buildings)
    - possible follow-up on 2009 call under FP7-ICT “energy-efficient buildings and spaces of public use”
  - SET (Strategic Energy Technology), 6 EII (European Industrial Initiatives)
    - 1 sur smart grids
    - EIT KIC (Knowledge & Innovation Community) InnoEnergy,

# NEM research topics

- Smart metering
- Remote control of equipment
- NEM Technologies as drivers of end-user behaviour change
- Balanced energy supply and demand
- Monitoring of energy consumption, and control for zero-emission buildings
- Identification of major energy users and optimization
- Collaboration and Remote services (avoiding transports):
  - Videoconferencing, Teleimmersion,
  - Tele-working, decentralisation of work places,
  - E-learning,
  - E-commerce,
  - Sustainable M2M services,
  - E-Government,
- Energy saving devices,
- E2E Energy saving communication concepts
- Coaching services helping people to save energy

# Some energy efficiency related projects



- Application oriented projects
  - BeyWatch
  - IntUBE
  - REEB
  - eDiana
  - PREMIO
  - BeAware
  - SmartHouse/SmartGrid
  - AIM
  - HosPilot
- Network oriented projects
  - Reservoir

➔ A need to complete the list if any other relevant projects

# Wrap up session

- **Susana Bañares Hernández** is an industrial engineer from the Polytechnic University of Valencia and from the École Nationale Supérieure des Arts et Métiers (ENSAM) in Paris. She has developed her career entirely in the power sector participating and developing several projects related to national and international processes of liberalization of the electricity sector, electricity production markets and power system operation.
- In 2003 she joined the international area within Red Eléctrica de España, where she participates in international projects related to the operation of the production market. Currently she is the Head of the Demand Side Management Department which mission is to promote strategies of demand side management for power system operation in order to achieve a more efficient use of energy resources.

Thanks !