Energy efficiency requirements for end-use equipment

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Overview

1. Energy efficiency history
2. Strategic commitments towards 2030
3. Energy efficiency requirements to networks

Energy efficiency history

| Years	Driving force	EE instruments
1970s	Rapid growing energy supply	LCP & DSM, regulation (standards and labelling) 1st e-mail 1971
1980s	Energy crises, security of supply, economy, technology	Taxation, support schemes, IRP, strategies, Internet
1990s	Environment, economy, climate change	Variety of individual policies and measures
2000s	Climate change, integrated approach	Strategies, ecodesign, start use of P&Ms, EE language accepted, COP15
2010s	Financial crisis, employment, IT future, COP21	P&Ms as part of green growth, efficiency requirements as input to COP21

Strategic commitments towards 2030

* Energy not direct element of Rio 1992 conventions
* Energy not part of EC treaty (Energy Union proposal)
* EU energy strategy created in 2005-2008
  * 202020 strategy in 2007
  * SET plan in 2008
* Member States & EU introduce many P&Ms
  * Energy Efficiency Directive
  * EPBD
  * Cogeneration (CHP)
  * Ecodesign
  * Energy Star
* Conclusion: slow development of language, definitions and actionsd

Energy efficiency status

* EU targets
    * 20% reduction of energy use by 2020 (18-19% to be achieved, 20% if member states comply)
    * 2030 Target 27% or more
    * National reductions 1,5 % annually
    * State buildings 3% renovation annually
    * NEEAPs
    * Smart meters 200 millions & 45 millions 2020
    * Energy audits every 4 year
    * Consumer information and benchmarks
    * Horizon 2020

Energy efficiency progress

* Energy efficiency directive
* Directive on EPB
* Cogeneration directive
* Energy efficienct products (ecodesign)
* Reinforcement of product requirement
  * Strengthening by 30% possible
  * Energy label simplified, no +++ categories
  * International database with EE information
  * Energy Star
* More Data with Less Energy
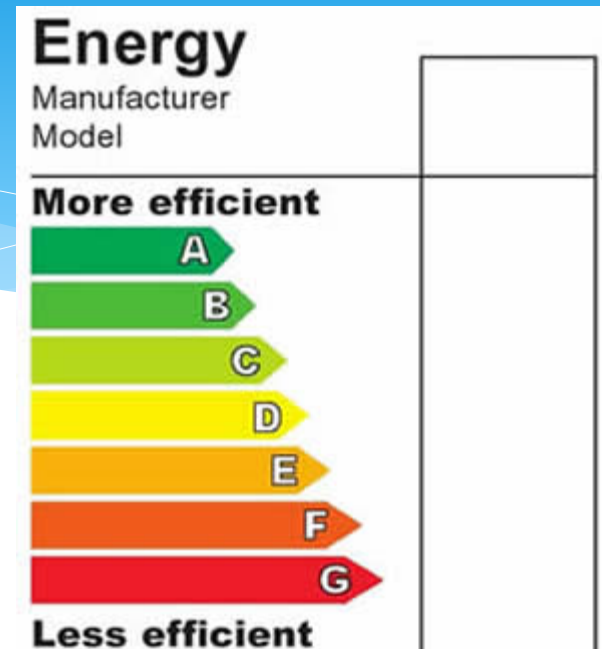
More Data, Less Energy
IEA action plan

* The electricity consumption of our digital society is growing at alarming rate
* In 2013 network devices numbered 14 billion was connected. They consumed 616 TWh (equal to Canada's total consumption)
* New technology could reduce demand by 65%
* In 2050, 500 billion devices could be connected
* Policy action needed
* IEAs 1 watt target for TVs reduced stand by from more than 4 watt down to under 1 watt…
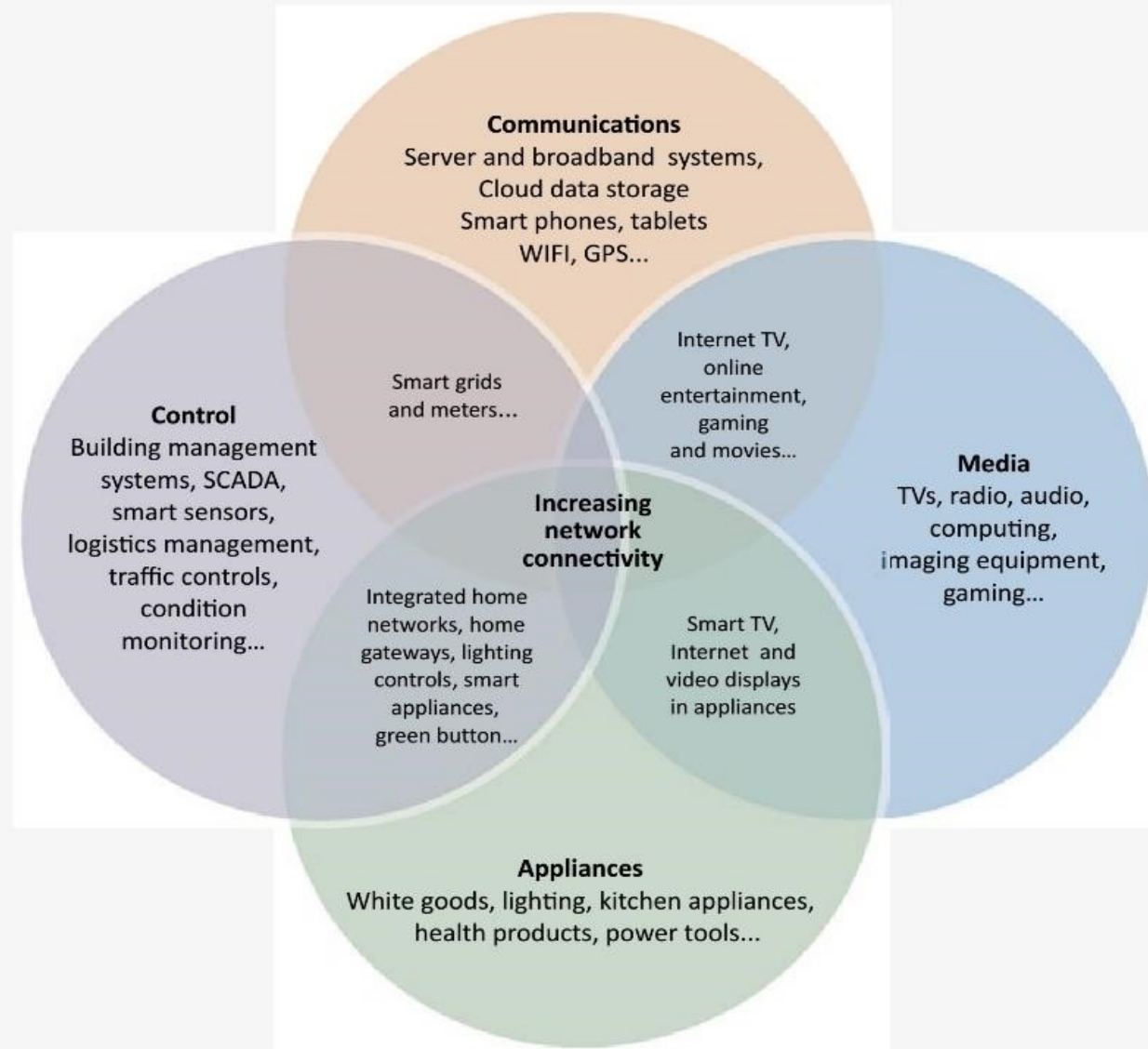
More Data, Less Energy
IEA action plan

* Started with 4E and IEA
* Need for global governance and strategic co-operation
* Top level endorsement
* Standards, library
* Data bases, test processes, etc.
* Coordination with new energy labelling and information arrangements
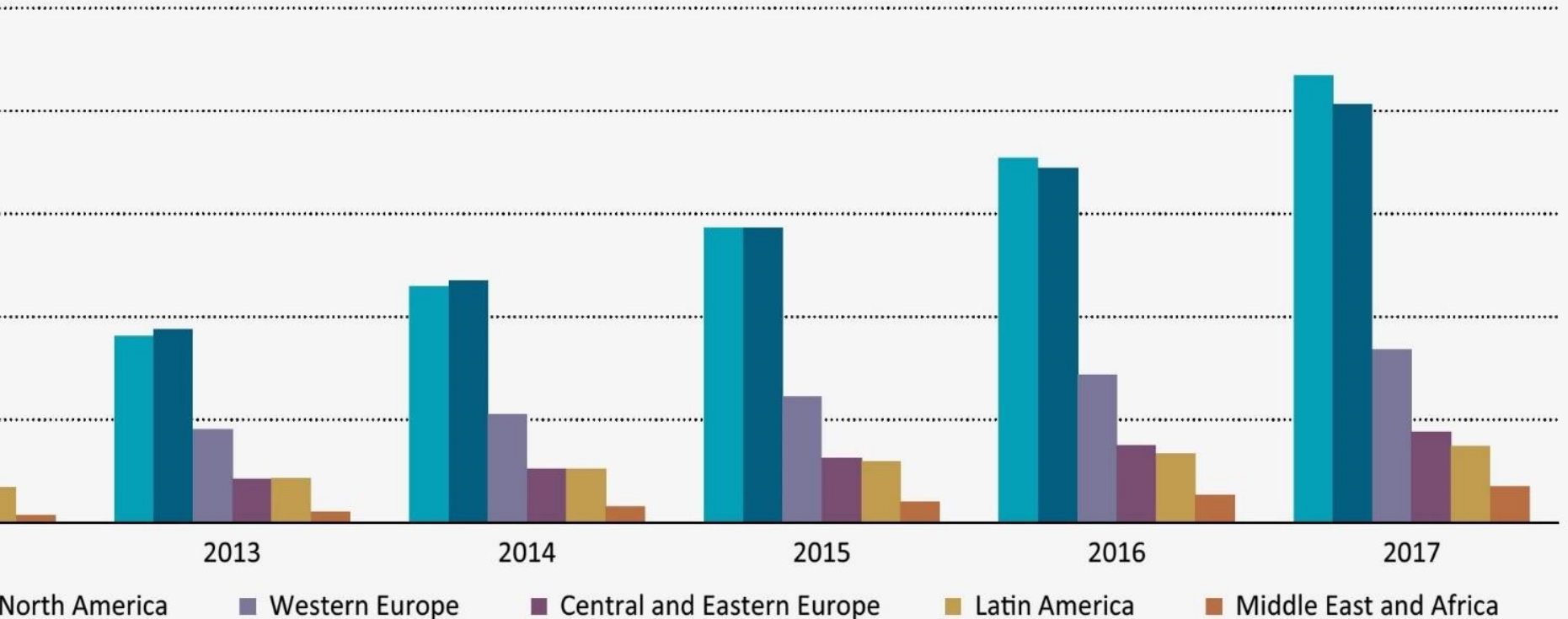* Involvement of industry, governments, stakeholders

Figure 1.1 The new age of information and communication technology

Communications
Server and broadband systems,
Cloud data storage
Smart phones, tablets
WIFI, GPS...

Smart grids
and meters...

Internet TV,
online
entertainment,
gaming
and movies...

Control
Building management
systems, SCADA,
smart sensors,
logistics management,
traffic controls,
condition
monitoring...

**Increasing
network
connectivity**

Media
TVs, radio, audio,
computing,
imaging equipment,
gaming...

Integrated home
networks, home
gateways, lighting
controls, smart
appliances,
green button...

Smart TV,
Internet and
video displays
in appliances

Appliances
White goods, lighting, kitchen appliances,
health products, power tools...

Notes: GPS = global positioning system; SCADA = supervisory control and data acquisition system. Data will be online.
Source: IEA (2013b), *Energy Efficiency Market Report 2013*, OECD/IEA, Paris, www.iea.org/w/bookshop/add.aspx?id=460.

Projected growth of global Internet Protocol traffic by region

	2013	2014	2015	2016	2017

Legend: North America, Western Europe, Central and Eastern Europe, Latin America, Middle East and Africa

Internet traffic volume in emerging markets is rapidly catching up with mature markets — and is expected to pull ahead by 2017. Traffic in the Middle East and Africa grew at a compound annual growth rate (CAGR) of 38% between 2012 and 2017.