

Efficient Household Devices - what can they contribute?

Energieeffiziente Haushaltsgeräte – Ergebnisse von IEA 4E

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- Product improvements
- Life Cycle Assessment
- Product Carbon Footprint
- Evaluation of business model & policies
- Strategy development
- Env. laws and regulations
- Standard development
- Trainings, Workshops

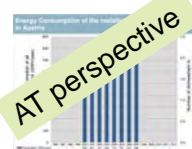
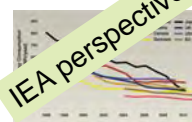
Content

- ➔ IEA – 4E Research Cooperation in Austria
- ➔ Overview of results for selected household products – 4E Mapping and Benchmarking
- ➔ Smart metering and the Electronic Devices and Networks Annex (EDNA)
- ➔ Summary

The 4E Mapping and Benchmarking

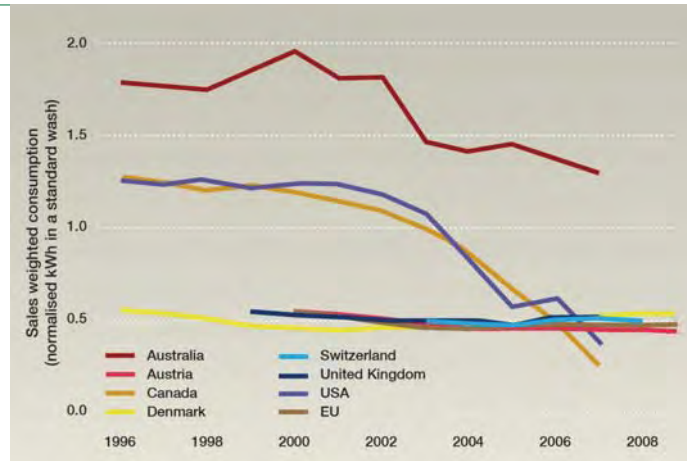
Product analysis and comparisons for participating countries: AU, AT, CAN, JP, KO, USA, GB, SE, CH, DK, NL, and additional countries/regions when available, e.g., EU, China.

- *Washing machines*
- *Laundry dryers*
- *Dishwashers*
- *Refrigerator/freezers*
- *Televisions*
- *Domestic lights*



kWh/y
%

Washing Machines



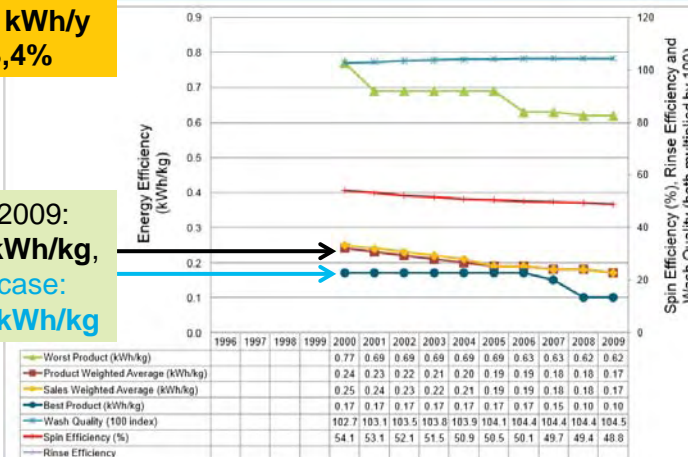
New Austrian products 2009:
0,47 kWh for a standard wash cycle

Energy Efficiency of New Washing Machines Austria

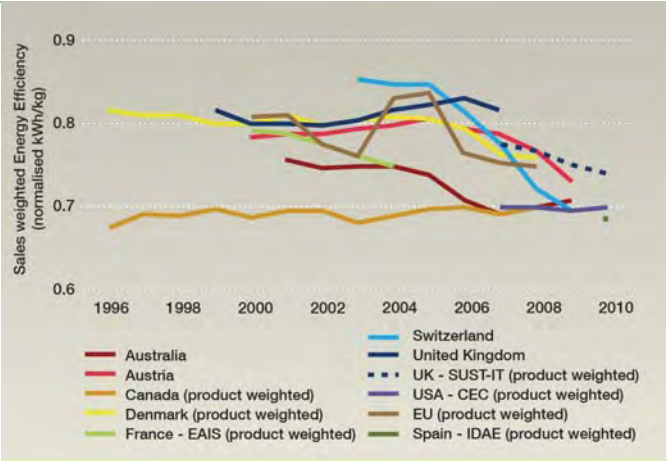


142 kWh/y
3,4%

Ave. 2009:
0,17kWh/kg,
Best case:
0,10 kWh/kg



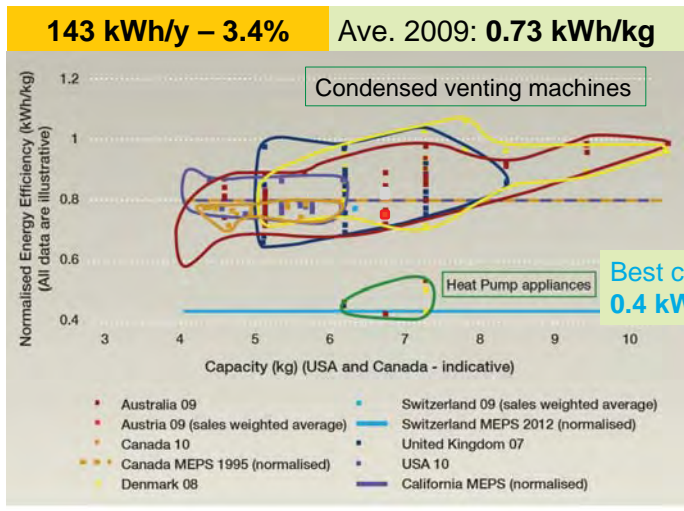
Laundry Dryers



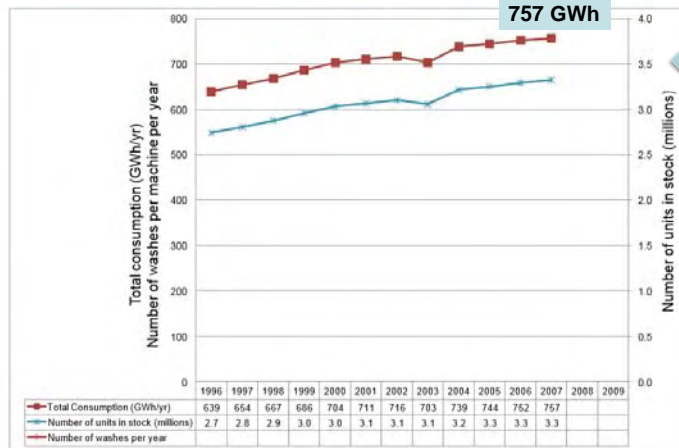
New AT products (ave., 2009): **0.73 kWh/kg**



Laundry Dryers - Energy efficiency

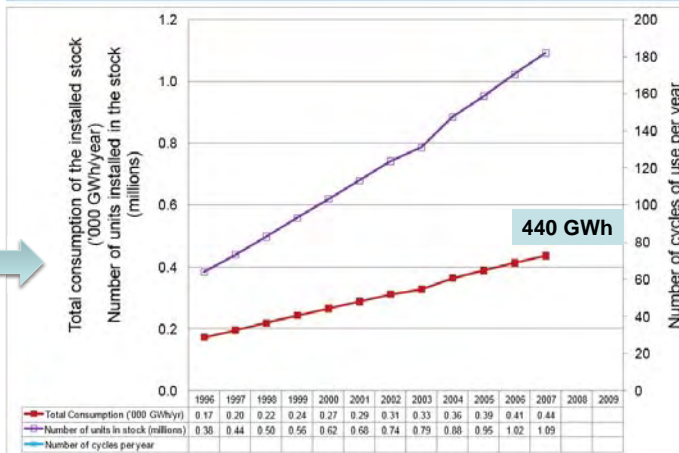


Energy Consumption of the total stock of Installed Washing Machines - Austria



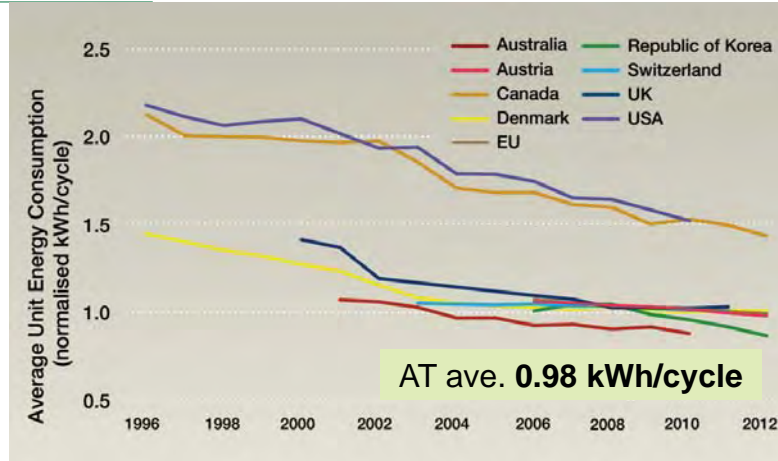
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Energy Consumption in the Installed Laundry Dryers Stock Austria

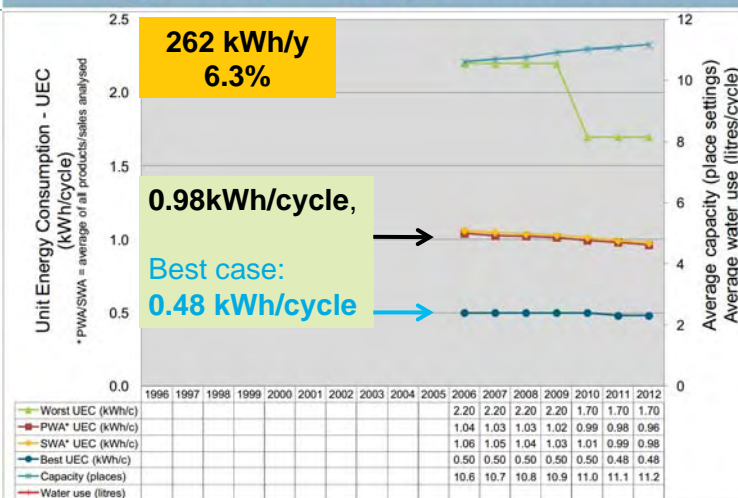


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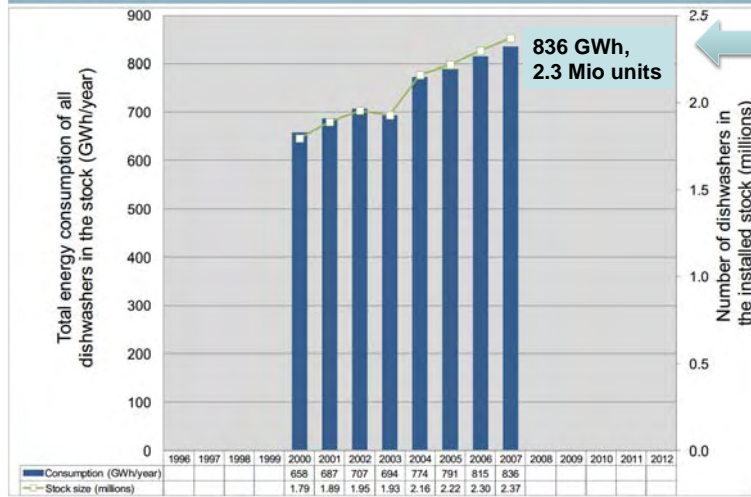
Dishwashers



Unit Energy Consumption (UEC) of dishwashers in Austria

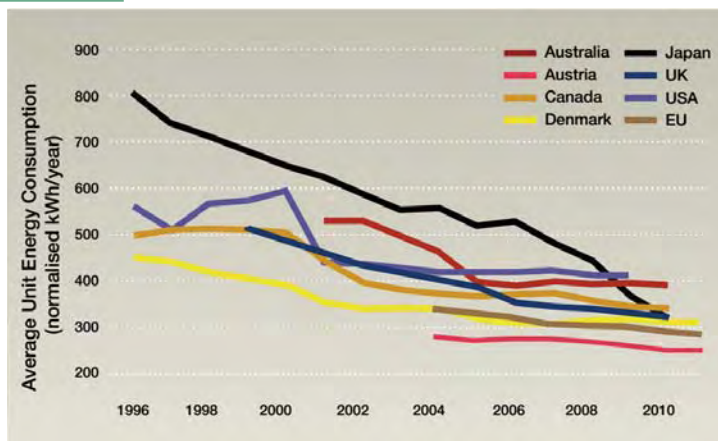


Energy Consumption of the installed stock of dishwashers in Austria



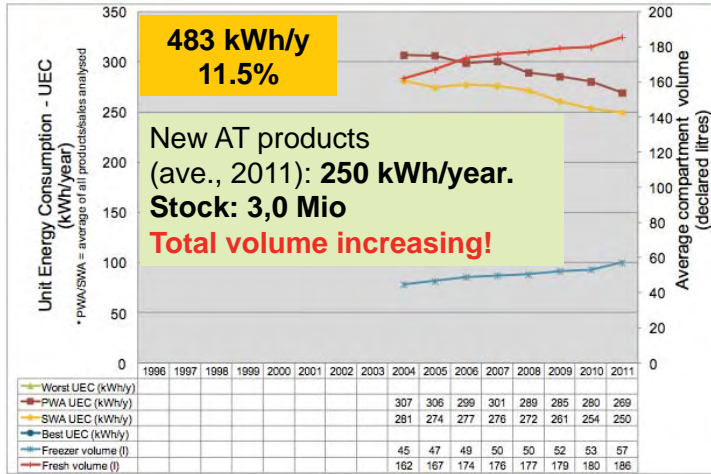
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Refrigerator/freezers



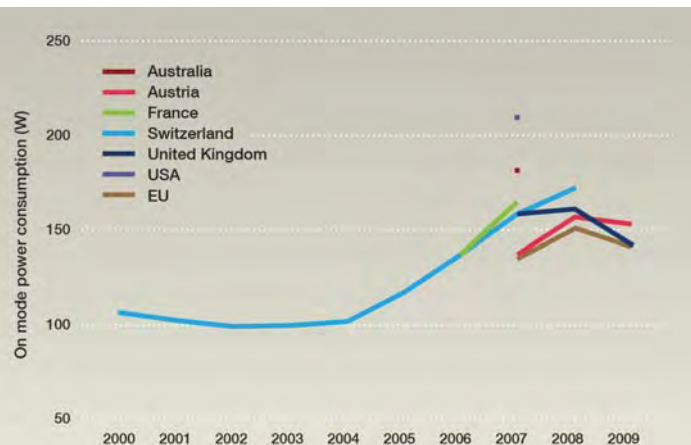
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Unit Energy Consumption of new refrigerator freezers in Austria



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Televisions



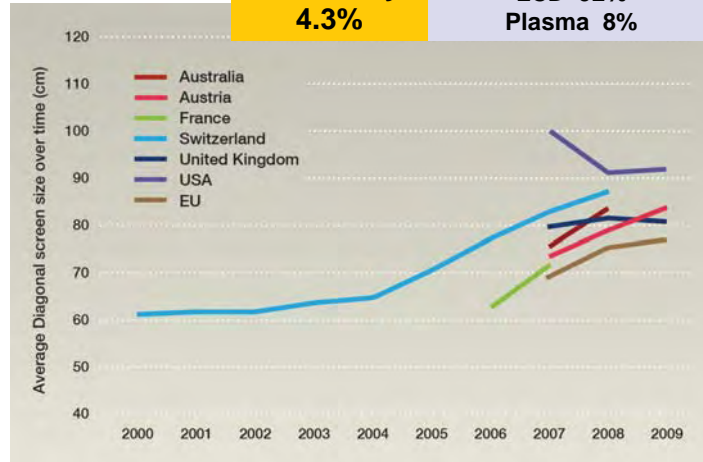
Derived consumption, new products: **226 kWh/year.**

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Television Screens

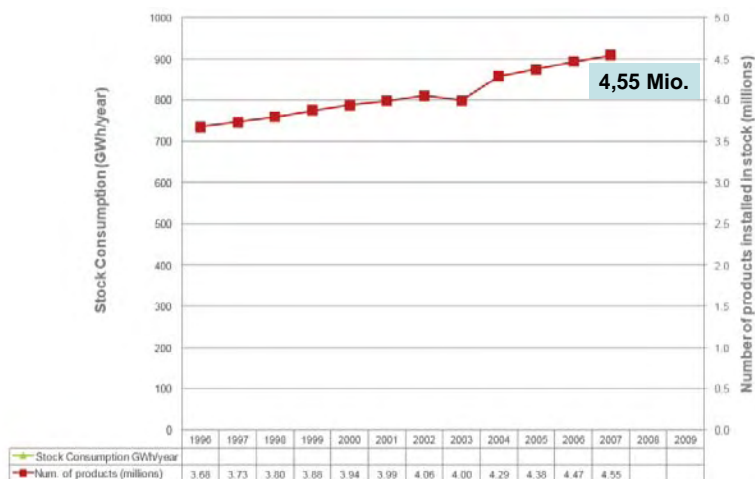
178 kWh/y
4.3%

New products AT, 2009:
LCD 92%
Plasma 8%



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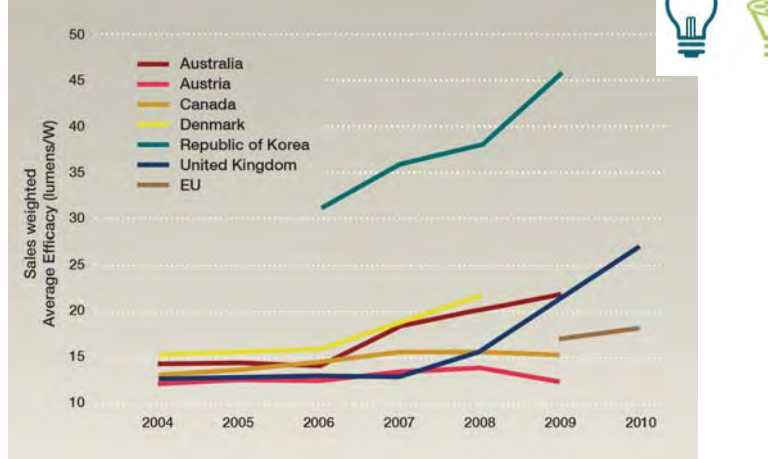
Televisions - Installed Stock AT



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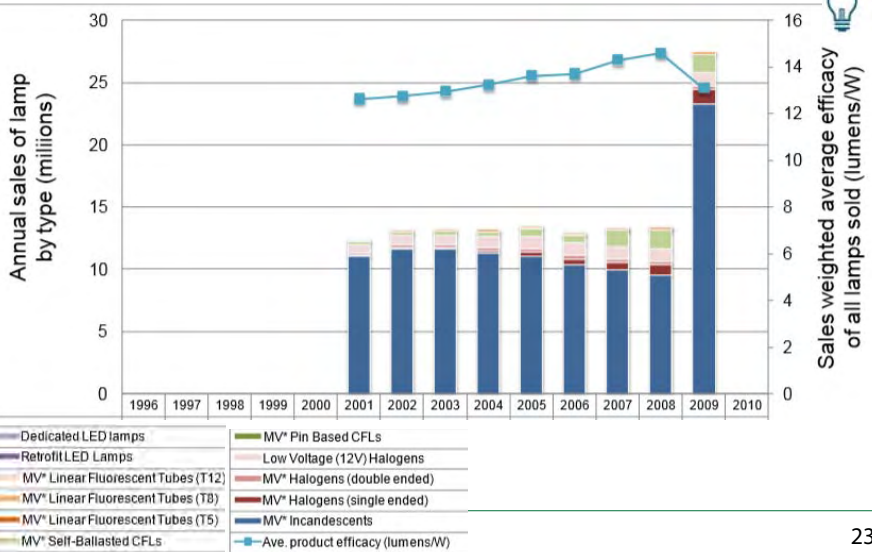
Domestic Lights

AT Efficacy 2009: 13,1 Lumen/W



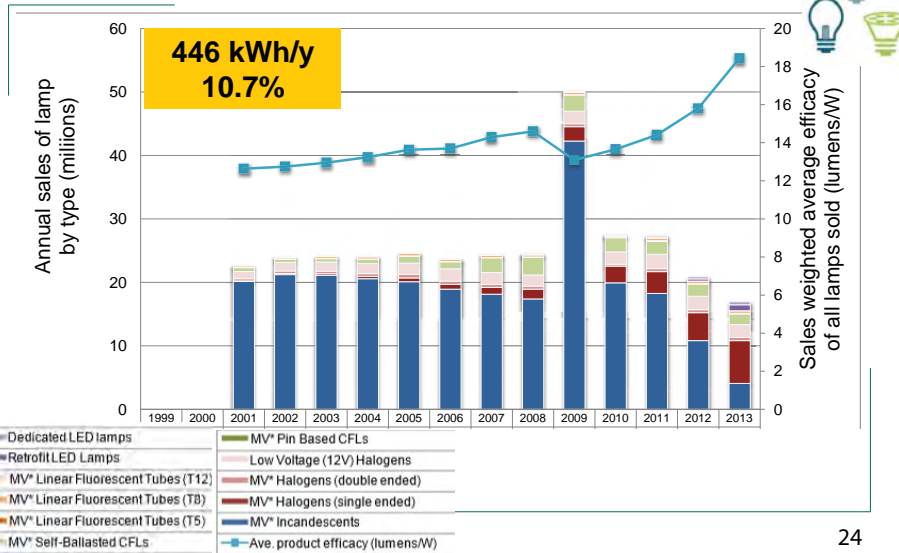
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Domestic Lights – Austrian Market



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Domestic Lights – Austrian Market



Summary

| | | | |
|------------------------|----------------------------|---|---|
| Domestic Lights | 446 kWh/y 10.7% | 18.1 compared to 45 Lumen/W | Replacement of installed /stored incandescent lamps |
| Dishwashers | 262 kWh/y 6.3% | 0.98 kWh compared to 0.48 kWh/ cycle | Still growing stock |
| Laundry Dryers | 143 kWh/y 3.4% | 0.73 compared to 0.4 kWh/kg | Low tenancy levels - growing stock. |
| Televisions | 178 kWh/y 4.3% | technology driven | Screen size growing, more TVs per home. |

Project:
SMART METERING
consumption
 AT – CH (2010 – 2012)

1. Reasons for consumption?

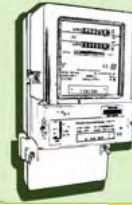
2. Best available technology?

Energy demand
 for operation of smart meters

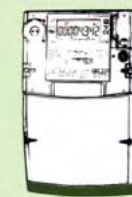
3. Average per household?

4. Overall in the region?

Status quo



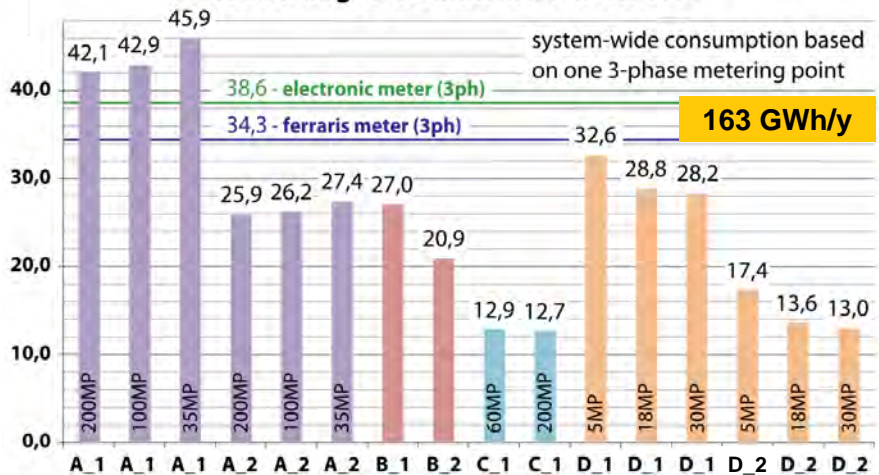
Smart Meter



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Smart Metering - System wide comparison

Annual Energy Consumption (kWh) per Metering Point
According to Technical Scenarios A-D



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Not considered...!

- ➔ This assessment **did not** include any **in-home display devices, nor home monitoring / home automation** and their associated (additional) energy consumption
- ➔ Various scenarios could also be evaluated:



These are only few examples (other combinations exist, Zigbee, etc...)

EDNA context

Policy advice for 4E; **Energy-Efficient End-use Equipment (4E)**.

IEA – 4E

- Mapping & Benchmarking
- Electric Motor Systems
- Solid State Lighting
- Electronic Devices & Networks Annex (EDNA)

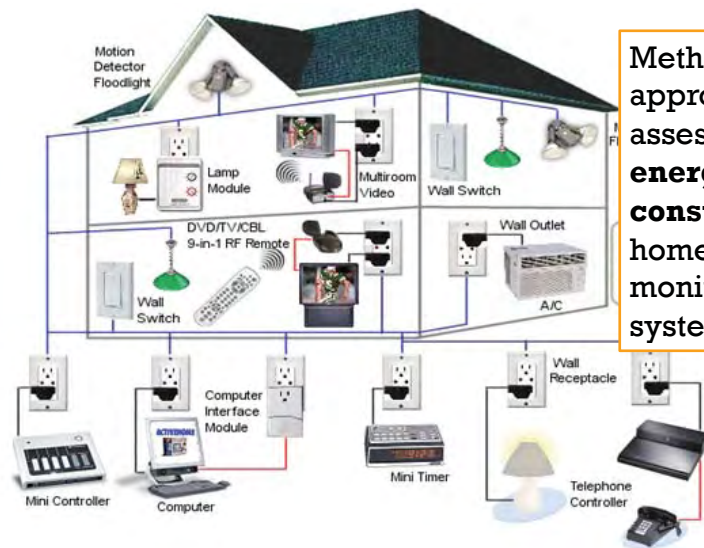
Follow-up to Standby Power Annex



Task 1: **Smart Metering Infrastructure & Energy Monitoring Systems**

- Task 1 SMI-EMS
- Task 2 Internet of Things

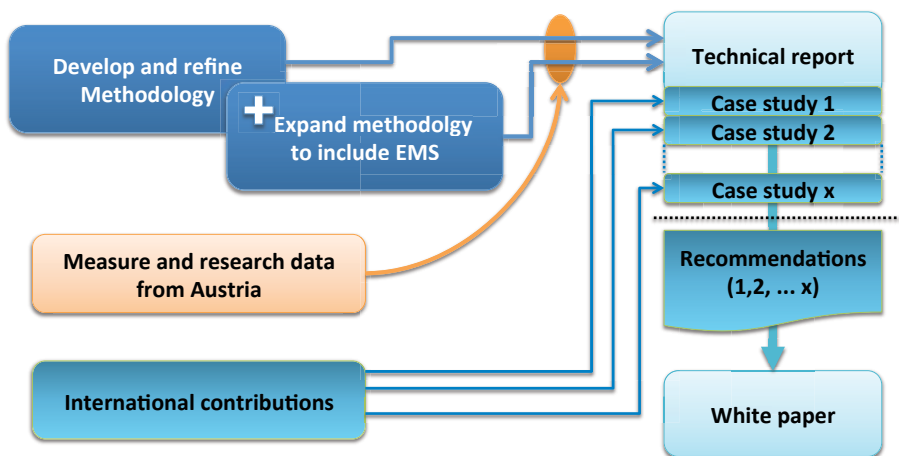
EDNA Annex: Energy monitoring systems



Methodological approach to assess the **own energy consumption** of home energy monitoring systems (EMS).



Project plan



**Thank you for your
attention!**

<http://www.iea-4e.org>

[http://
www.nachhaltigwirtschaften.at/iea/
results.html/id5263](http://www.nachhaltigwirtschaften.at/iea/results.html/id5263)

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