

eccee 2021 Summer Study on energy efficiency

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# Energy efficiency labels for residential and commercial coffee makers



# Topics

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- About Topten
- Energy consumption of coffee makers
- Residential coffee makers & the Swiss Energy Efficiency Label
- Commercial coffee makers: are they different?
- Focus on energy losses
- Conclusions

# Topten.ch – the energy efficiency platform

- Online platform for best products: energy efficiency, environment, performance
- 70 product lists, 8'000 products
- 520'000 sessions, 1.9 million pageviews per year
- Basis for rebate programmes
- Founded in 2000 in Zurich, online in 19 countries worldwide
- European platform: [www.topten.eu](http://www.topten.eu)

The screenshot displays the topten.ch website interface. At the top, there's a navigation bar with 'PRIVATE' and 'BUSINESS' tabs, and a search bar. Below this is a category menu with options like 'Haushalt', 'Haus', 'Beleuchtung', 'Büro / TV', 'Mobilität', 'Freizeit', and 'Ökoenergie'. The main heading is 'Energieeffiziente Kühlschränke'. A sidebar on the right shows 'Zürich: Förderbeiträge'. The main content area features filters for 'Marke', 'Gerätetyp', and 'Bauform', along with sorting options. A table lists three refrigerator models: Miele KF 7712 B, V-ZUG Comb Cooler V4000, and SIEMENS KG36EA/CA. Each entry includes energy efficiency data, dimensions, and price. Below the table, a 'Shoplinks' section provides a comparison of where to buy the selected product, listing retailers like Conforama, nettoSHOP.ch, m electronics, and Interdiscount with their respective prices and availability.

Marke & Modell	Energie	Typ	Kosten (CHF)	Preisvergleich
Miele KF 7712 B Kühlschrank	Energie (kWh/Jahr): 116 Effizienz-Index (%): 51.0	Kühl-Gefrier-Kombi Einbau EURO Höhe (cm): 177	Strom in 15 J.: CHF 348	CHF 2'749
V-ZUG Comb Cooler V4000 Kühlschrank	Energie (kWh/Jahr): 146 Effizienz-Index (%): 63.5	Kühl-Gefrier-Kombi Einbau SMS Höhe (cm): 178	Strom in 15 J.: CHF 438	CHF 2'040
SIEMENS KG36EA/CA Kühlschrank Varianten: KG36EAWCA	Energie (kWh/Jahr): 149 Effizienz-Index (%): 63.8	Kühl-Gefrier-Kombi Freistehend Höhe (cm): 186	Strom in 15 J.: CHF 447	CHF 749.00

Erhältlich bei	Auf Lager?	Lieferung inbegriffen?	Preis	Shoplink
Conforama	ja	nein	CHF 749.00	» zum Shop
nettoSHOP.ch	ja	ja	CHF 769.00	» zum Shop
m electronics	ja	ja	CHF 868.00	» zum Shop
Interdiscount	ja	ja	CHF 1'079.15	» zum Shop

## Energy consumption of making coffee

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The stock of **residential** coffee makers in the EU is estimated 100 Mio units, consuming 17 TWh per year. Estimates of annual sales are roughly 30 Mio units by 2025.

The stock of **commercial** coffee makers in the EU is estimated at 5.9 Mio units, consuming 13.6 TWh per year. Estimates of annual sales are roughly 700,000 by 2025.

# **The Swiss approach**

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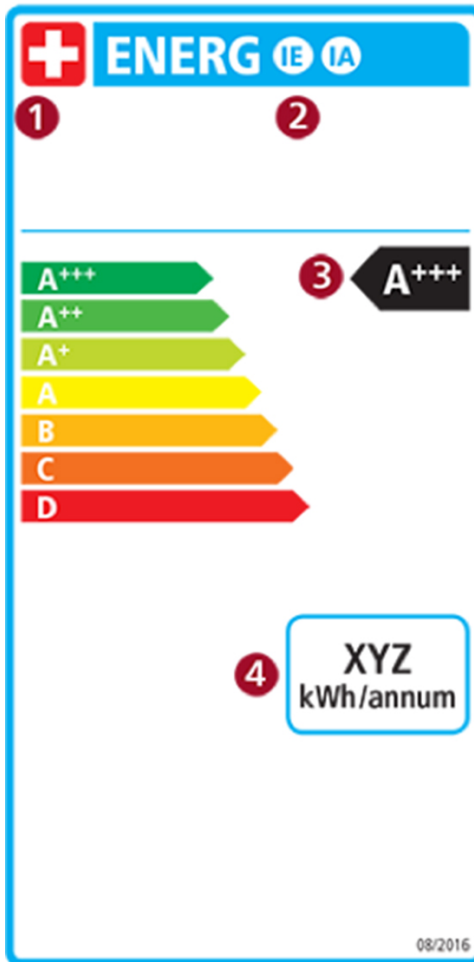
2009: introduction of a voluntary energy label

2010-2014: development of new testing method by manufacturers (CECED, FEA)

2015: Introduction of mandatory label with new testing method (FEA)

2016: Revision of label, based on international testing method EN60661:2014, as well as the European Regulation on Standby → auto-shut off of 30min as a factory setting.

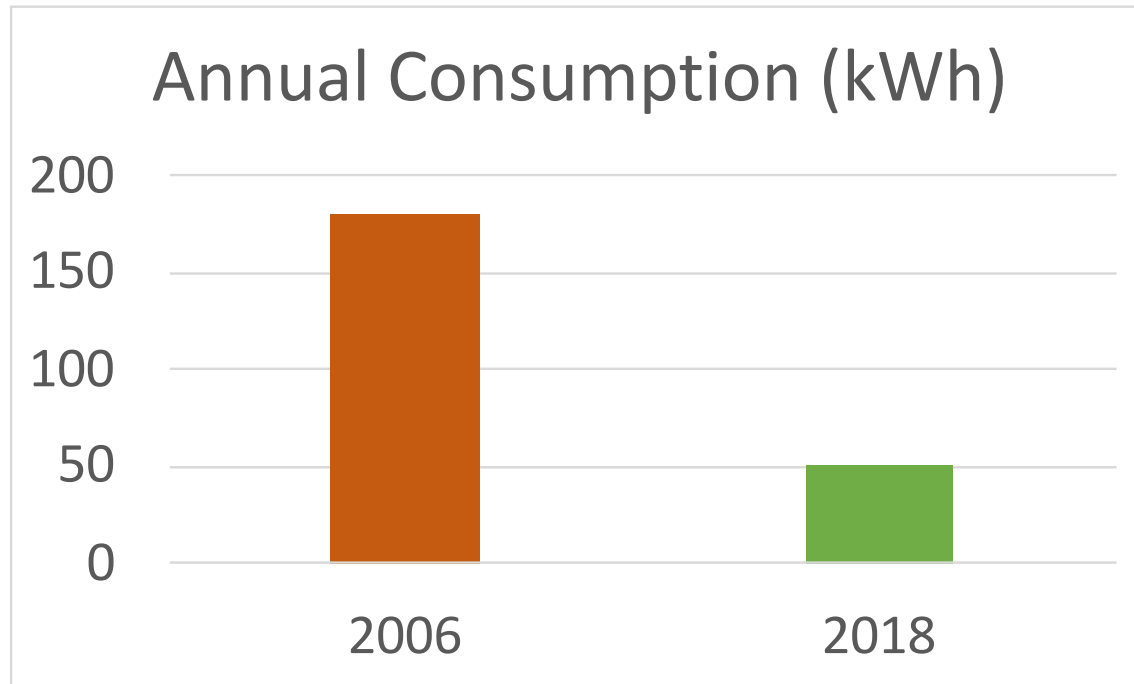
# Swiss Energy Label for Residential Coffee Makers



- Energy consumption is shown by measuring each function on its own:
- e.g., production of coffee, espresso, steam for milk foam, etc)
- Unproductive functions such as cup-warmer, reheating, rinsing, etc.
- Values are added and multiplied for the annual consumption.

# Resulting Market Development in Switzerland

The annual consumption of coffee makers dropped from an average of 180 kWh (2006) to below 50 kWh for efficient models (2018).



# Commercial Coffee makers

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2014: Preliminary study for Ecodesign WP 3

2016: Commercial Coffee makers were dropped from WP 3

2021: Preliminary study for Ecodesign WP 4 → Saving potential 2.4 TWh/a

→ Currently not in the scope of WP4, but proposition to include them in “professional cooking appliances”

Ongoing: Development of new testing standard CLC/TC 59X/WG 21 by CENELEC



## Differences of residential and commercial

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- Product variety (coffee varieties, tea, hot milk)
- Speed of production (higher capacity of cups / hour)
- Simultaneous production (steam, coffee, teawater)
- Higher automation in places with no staff
- Use of fresh milk: needs to be refrigerated → causes higher energy consumption than keeping it in the fridge (residential)

## **Topten approach: Focus on Energy loss**

**DIN 18873-2:2016** defines the energy losses as the energy that is needed despite not producing a single coffee (heating up, keep warm, rinsing).

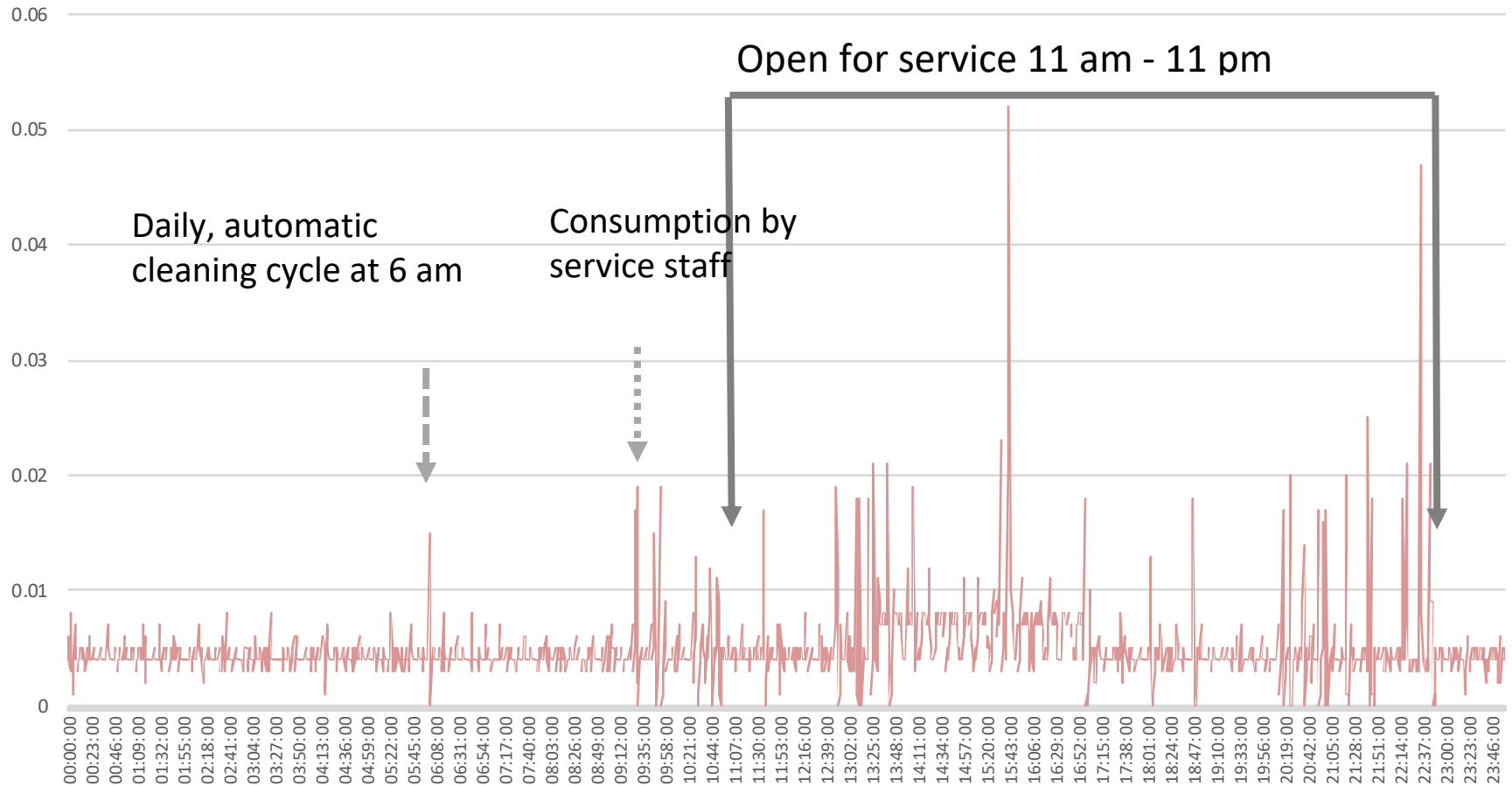
Note: Refrigeration of fresh milk is not included (measured separately).

Assumption: the production of the actual beverage is not that different between models and manufacturers. Daily number of cups produced depends a lot on the location (unlike households which are rather similar)

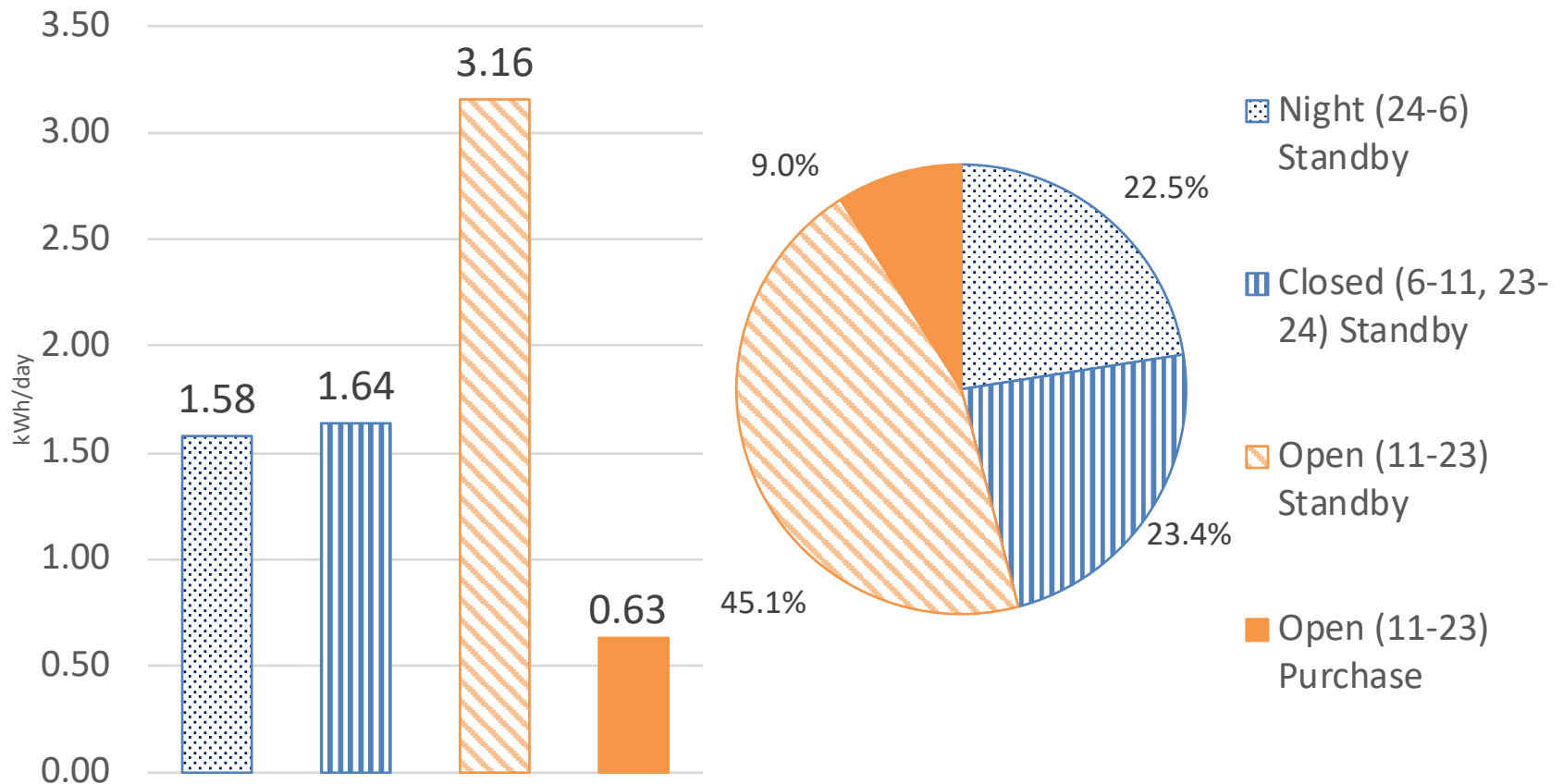
Find the current product list here:

[www.topten.eu/commercial-coffee-makers](http://www.topten.eu/commercial-coffee-makers)

# Energy consumption over the day (restaurant)



## Portafilter espresso machine, Energy consumption (kWh/day)



# Conclusions residential coffee makers

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- Introduction of European Energy Label for residential coffee makers, based on EN60661:2014
- Can easily be adopted from the Swiss Energy Label, no new testing required
- Many machines are already tested and labelled for the Swiss market.

# Conclusions commercial coffee makers

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- MEPS for commercial coffee makers
  - Standby: Adoption of Commission Regulation 1275/2008 and 801/2013
  - Mandatory timetables for on/off settings automatic Shut-off after cleaning cycle
  - Promotion of Eco-mode (reduction of keep-warm-temperature after 15min of inactivity)
- Label for commercial coffee makers
  - Adapted from the Swiss label for residential coffee makers and in the future, using the new testing standard CLC/TC 59X/WG 21 by CENELEC

Or

- Based on energy losses (DIN 18873-2:2016)

## Next steps

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More data is needed to test the applicability to commercial coffee makers of the testing norms EN60661:2014 and DIN 18873-2:2016

Energy efficiency of coffee makers needs to stay on the agenda of policy makers, manufacturers and users.

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**Thank you for your attention!**