



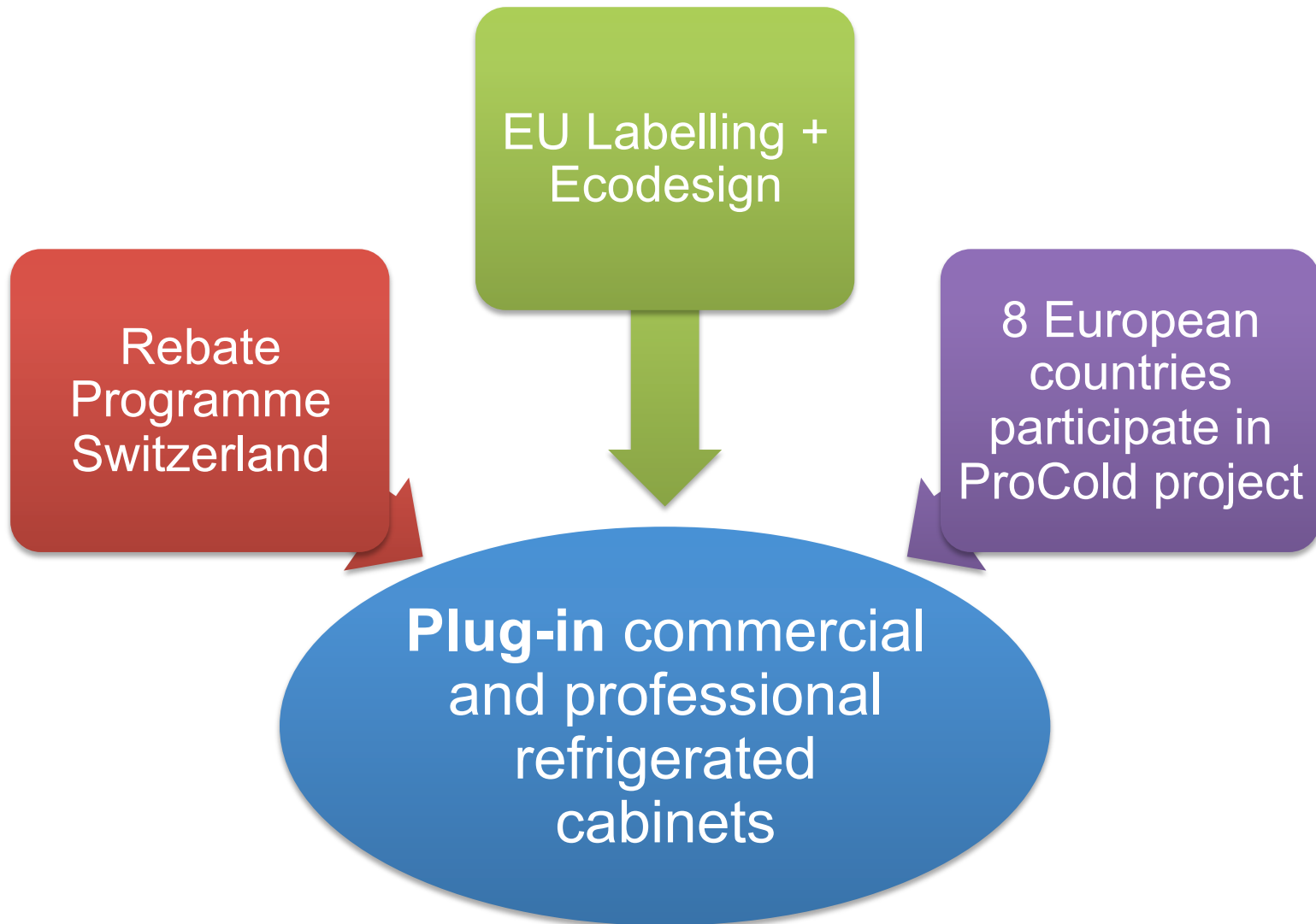
Commercial and Professional Refrigeration Products: *Promoting Energy Efficiency with Legislation, Empowered Stakeholders and Rebates*

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8th International Conference on Energy Efficiency in Domestic Appliances and Lighting –
EEDAL' 15
26 – 28 August, Lucerne, Switzerland



Content



EU Labelling + Ecodesign Regulations

Label 2015/1094:

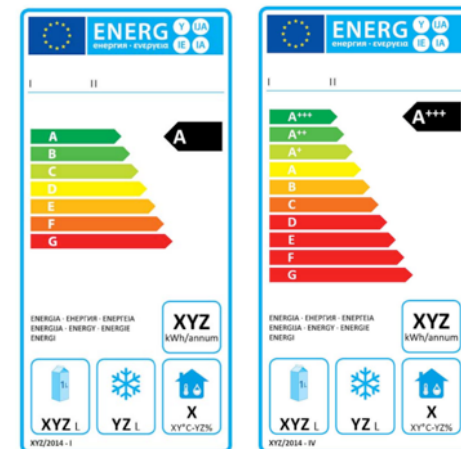
- ① professional refrigerated storage cabinets

Ecodesign 2015/1095:

- ① professional refrigerated storage cabinets
- ② blast cabinets
- ③ condensing units
- ④ process chillers

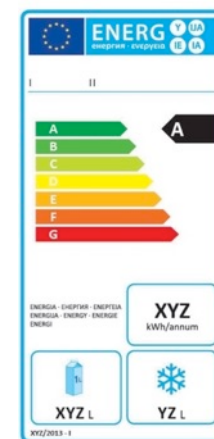
Label + Ecodesign planned for Lot 12:

- ① supermarket segment refrigerated display cabinets
- ② beverage coolers
- ③ small ice-cream freezers
- ④ soft scoop ice-cream cabinets
- ⑤ refrigerated vending machines



1 July 2016

1 July 2019



1 Jan 2017 (?)

Rebate programme in Switzerland since Sep 2013

Eligibility:

- ① Plug-in
- ② Green Refrigerant
- ③ Energy consumption according to standard
- ④ Limit for energy efficiency index
- ⑤ Used at address in 9 regions

Info:

www.topten.eu/rebates



Rebates

Category	25% of the purchase price up to the following amount :
Beverage Coolers	570 EUR
Ice Cream Freezers	380 EUR
Display Chest Freezers	1150 EUR
Display Chest Refrigerators	950 EUR
Vertical Chilled Display Cabinets	2400 EUR
Storage Counter Refrigerators	380 EUR
Storage Refrigerators 1-door	760 EUR
Storage Refrigerators 2-doors	950 EUR
Storage Counter Freezers	190 EUR
Storage Freezers 1-door	1150 EUR
Storage Freezers 2-doors	1340 EUR
Storage Refrigerator-Freezers	1430 EUR
Minibars	280 EUR



9 regions of the rebate programme

2 cantons and 7 cities:



Lists of eligible models on www.topten.ch/gewerbe

	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
								
Marque	Gamko	Gamko	Gamko	Liebherr	Klimasan	Liebherr	Liebherr	
Modèle	E3/2222GMU84	E3/222GMU84	E3/22GMU84	FKUv 1610	ECOfrio 372	BCDv 4313	FKvsl 4113	
Autres modèles	E3/2222GMU82, E3/2222GMUCS82, E3/2222GMUCS84, E3/2222MU82, E3/2222MU84, E3/2222MUCS82, E3/2222MUCS84	E3/222GMU82, E3/222GMUCS82, E3/222GMUCS84, E3/222MU82, E3/222MU84, E3/222MUCS82, E3/222MUCS84	E3/22GMU82, E3/22GMUCS82, E3/22GMUCS84, E3/22MU82, E3/22MU84, E3/22MUCS82, E3/22MUCS84	FKUv 1660				
Prix d'achat (fr.)	3'949	3'365	2'906	1'712.95	530	1'750	2'120.35	1'175
Frais d'électricité (fr. en 8 ans)	1642	1542	1098	576	1005	1560	1510	4264
Capacité utile (litres)	665	495	325	130	254.7	364	346	500
Plage de température (°C)	+2...+18	+2...+18	+2...+18	+1...+15	0...+13	+2...+12	0...+15	0...+15
Classe de températures	M1	M1	M1		M2	M2	M1	M1
Indice d'efficacité énergétique	29.1	35.5	36	36.6	39.9	46.6	47	97.3
Energie (kWh/an)	1'026	964	686	360	628	975	944	2'665
Fluide frigorigène	R600a	R600a	R600a	R600a	R600a	R600a	R600a	R134a
Ventilée	✓	✓	✓	✓	✓	✓	✓	✓
Emplacement (°C)	+16...+32	+16...+32	+16...+32	+10...+43	+16...+32	+10...+32	+16...+38	+16...+38
Dimension hors tout L/P/H (mm)	2540 x 492 x 840	1988 x 492 x 840	1435 x 492 x 840	602 x 611 x 830	595 x 640 x 1985	600 x 644 x 1990	600 x 610 x 1800	750 x 700 x 1700

09/08/2015



Two main obstacles for rebate programme

- a) Energy consumption according to standard is hardly available → many models cannot be evaluated for eligibility
- b) New refrigerants = more materials and costs for refrigeration professionals:
 - transportation of additional gear for maintenance (gas containers, manometer, specific tools)
 - investment in an expensive precision balance (R290 and R600a must be filled precisely to the gram)



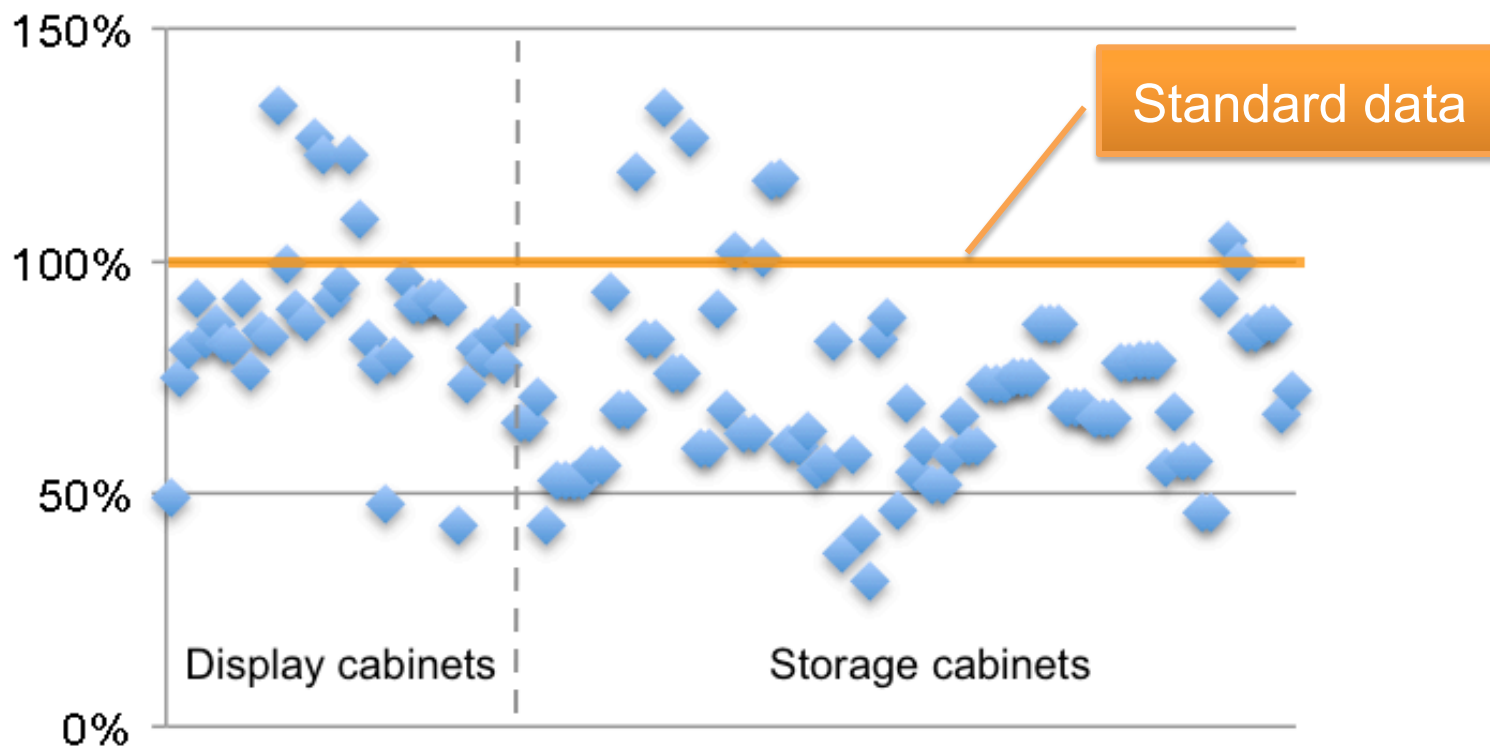
Switch to green refrigerants is coming: f-gas regulation

Refrigerant	Global warming potential (GWP) compared to 1 kg of CO2	
R134a	1'430	very high GWP = climate-damaging
R404A	3'990	
R290 (propane)	3	climate-friendly, green
R600a (isobutane)	3	
R600 (butane)	4	
R717 (ammonia)	0	
R744 (CO2)	1	

10. Domestic refrigerators and freezers that contain HFCs with GWP of 150 or more		1 January 2015
11. Refrigerators and freezers for commercial use (hermetically sealed equipment)	that contain HFCs with GWP of 2 500 or more	1 January 2020
	that contain HFCs with GWP of 150 or more	1 January 2022



Energy consumption catalogue vs. standard data



- Catalogue data is typically lower
 - No incentive to publish standard data
- **Mandatory product information (Ecodesign) is essential**

Filling gaps in scope & product information

„Household“ and „Lot 12“ are currently being revised / drafted
= chance to align the scopes of all three regulations

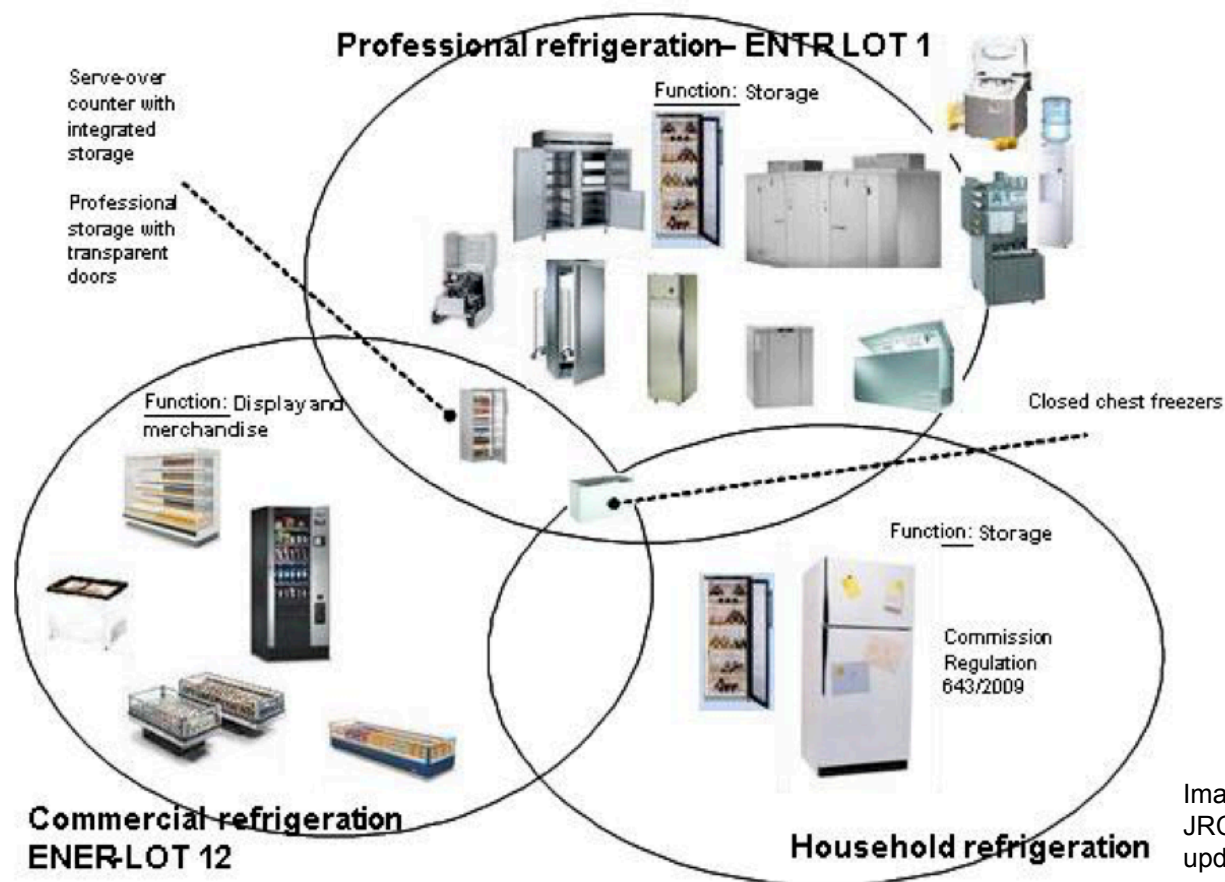


Image from
JRC prepstudy
update Lot 12

Filling gaps in scope & product information

Scope for „Lot 1“ (2015/1095):

- ✓ *Storage refrigerator-freezers and blast cabinets:*
kWh/day, and kWh/kg respectively, must be declared even though they are otherwise exempt from Label + Ecodesign
→ this will provide a basis for voluntary programmes and the next revision of the legislation
- The exclusion of *storage chest freezers and storage static-air cabinets* will lead to an awkward gap in product information, unless they will be included in the “Household” scope. Otherwise it is at the discretion of suppliers to market a product for domestic or professional purposes, and to provide product data or not.

Proposed scope for “Lot 12”:

- The exclusion of *display vertical static-air cabinets, commercial wine storage appliances and commercial minibars* poses the same problem as described above



Chest freezers: household vs. professional storage

vergleichen						
Marke	Bauknecht	Siemens	Liebherr	Liebherr		UDD 600 BK
Modell	GT 2760	GC33MAW40	GTP 3656	GTP 4656		1340
Kaufpreis (Fr.)	1'390	1'900	2'190	2'390	1'560	6132
Stromkosten (Fr. in 15 J.)	408	408	456	525	633	646
Nutzzinhalt (Liter)	274	274	331	419	292	
Höhe (cm)	91.6	91.6	91.9	91.7	86.8	
Breite (cm)	140.5	140.5	137.3	164.7	132.5	
Tiefe (cm)	69.8	74.3	80.8	80.8	66.5	
Standort (°C)	10-43	10-43	10-43	10-43	10-43	
Effizienzklasse	A+++	A+++	A+++	A+++	A++	G
Effizienz-Index	21.9%	21.9%	22.0%	22.0%	32.9%	166.2%
Energie (kWh/Jahr)	136	136	152	175	211	2044

- Professional chest freezer: 6000 Euros electricity costs in 15 years
- EEI of 166 compared to 42 which is min. required for household

ProCold: empowers buyers and suppliers in Europe

1000 stakeholders with leverage on the market will be **personally contacted** and provided with tools to stimulate both the supply and demand side for best available technology (BAT) products.

Project Partners



The «ProCold» project has received funding from the [European Union's Horizon 2020 research and innovation programme](#) under grant agreement No 649293.



Lists of BAT products for 8 national markets



[Austria](#)



[Italy](#)



[Czech Rep.](#)



[Portugal](#)



[France](#)



[Sweden](#)



[Germany](#)



[Switzerland](#)

top10ten.it Chi siamo

Apparecchi per la casa Ufficio ed elettronica Illuminazione Automobili Refrigeratori professionali

Vi trovate qui: [Italiano](#) » [Refrigeratori professionali](#) » [Congelatori per la ristorazione](#) » [Doppia porta](#) [Stampa pagina](#) [PDF](#)

Consigli Refrigeratori professionali **Criteri di scelta** Frigoriferi e congelatori per la ristorazione [XLS Download](#)

comparare						
Marca	Liebherr	Electrolux Professional	Liebherr	Gram	Gram	Modello inefficiente
Modello	GGPv 1490	Ecostore Premium 727323 (ESP142FFC)	GGPv 1470	PLUS F 1400 RSG	PLUS F 1270 RSG	
Altri modelli				PLUS F 1400 CXG	PLUS F 1270 CXG	
Costi elettricità (€ in 8 anni)	5045	5177	5428	4931	4841	7088
Volume netto (litri)	1138	1161	1115	950	847	900
Temperatura di conservazione (°C)	-26...-10	-22...-15	-26...-10	-25...-5	-25...-5	-25...-5
Classe energetica provvisoria	D	D	D	D	D	G
Indice energetico provvisorio	59,4	60	63,9	66,8	71,4	100
Energia (kWh/anno)	4204	4314	4523	4109	4034	5907
Refrigerante	R290	R290	R290	R290	R290	R404A
Raffreddamento	Circ. Forzata	Circ. Forzata	Circ. Forzata	Circ. Forzata	Circ. Forzata	Circ. Forzata

Ultimo aggiornamento: 29.6.2015

Finanziato da: European Commission Horizon 2020 European Union funding for Research & Innovation

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ProCold brochures (draft example)

Large energy savings

Refrigerated display cabinets, beverage coolers and ice cream freezers consume a great deal of energy and contain climate-damaging refrigerants. Be sure to choose most energy efficient models with climate-friendly refrigerants.

Beverages do not need to be refrigerated at night

Integrated energy management systems automatically switch beverage coolers into sleep-mode after opening hours. Energy saving potential: 15 % to 45 %.

Tuck ice cream freezers in with a blanket at night

Night covers help to additionally reduce energy costs of ice cream freezers. Ideal night covers are integrated in the cabinet.

Doors and lids are number one priority

They comprise the largest energy savings of all improvement options. Closed cabinets use three times less energy than open cabinets. Open cabinets can be retrofitted with doors and lids to achieve energy savings of 40 %. To increase sales with closed cabinets it is important to create optimal LED lighting situations for the merchandise goods. Another advantage of closed cabinets is the easy control of shopping climate.

Choose climate-friendly refrigerants

Refrigerants like R290, R600a or CO₂ (R744) have minimal global warming potential (GWP). Their GWP is below 4. Using climate-friendly refrigerants is future-oriented: the EU will ban climate-damaging refrigerants like R404A from 2020 and R134a from 2022. GWP of those refrigerants is around 4'000 and 1'400 respectively.

Topten models lead the way

Find the most energy efficient plug-in refrigerated cabinets with one click on Topten. All listed cabinets use climate-friendly refrigerants. Technical criteria are updated regularly to reflect the latest market developments. Product information is harmonized for comparison between all models and brands. Topten is independent and neutral.

The best products available in Switzerland

topten.ch

The best products on the European market

topten.eu

Topten award to be won

The best models in various product categories will be recognized by Topten.

- ❖ Deadline for product submission: ((will be known in August))
- ❖ Award ceremony: Spring 2017
- ❖ More information: topten.eu/pro-cold

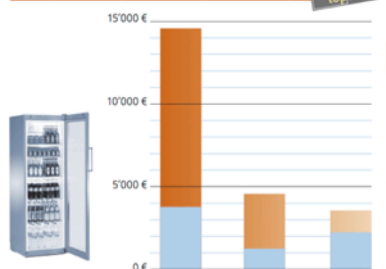
Green procurement

Ask for:

- ❖ Refrigerated cabinets with doors and lids
- ❖ Plug-in refrigerated cabinets that meet Topten technical criteria
- ❖ Beverage coolers equipped with energy management systems
- ❖ Ice cream freezers with integrated night covers
- ❖ Cabinets with climate-friendly refrigerants.

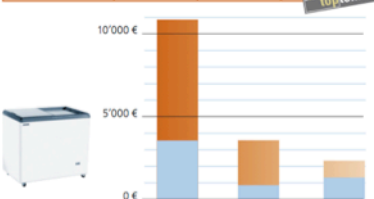
Procurement guidelines for each product category can be found under topten.eu/pro-cold. There you will also find Topten-Icons to showcase Topten models.

Example of beverage cooler



Volume	324 litres	350 litres	346 litres
Energy	6'753 kWh/a	2'168 kWh/a	944 kWh/a
Electricity costs*	10'800 €	3'470 €	1'510 €
Purchase price	3'760 €	1'170 €	2'120 €
Total costs	14'560 €	4'640 €	3'630 €

Example of ice cream freezers



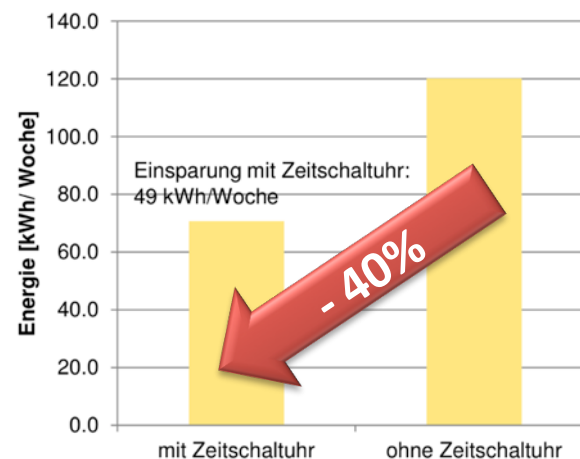
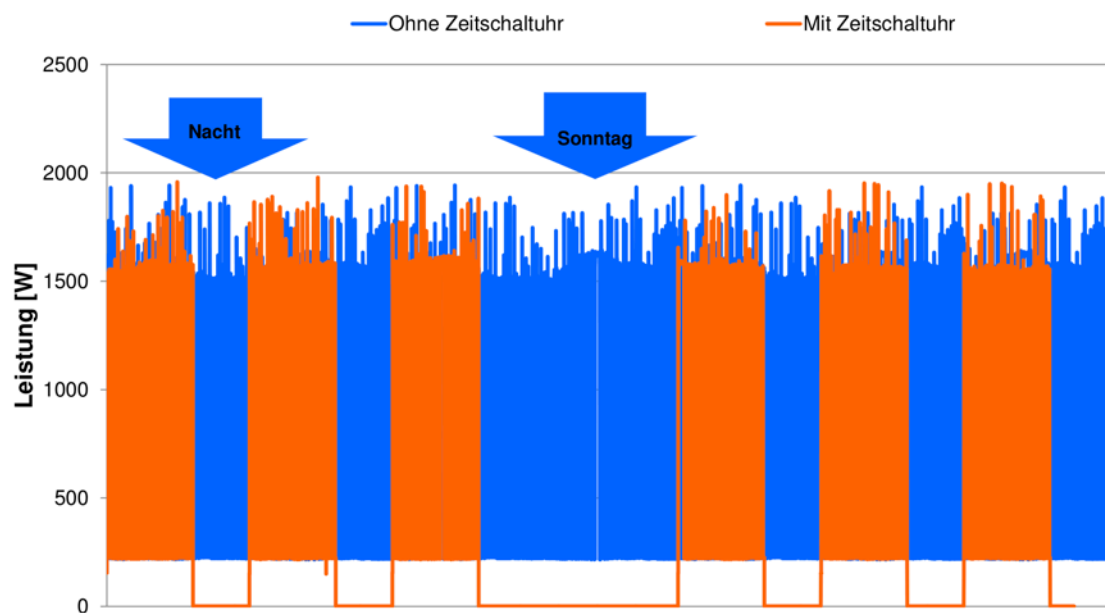
Volume	151 litres	183 litres	190 litres
Energy	4'636 kWh/a	1'313 kWh/a	584 kWh/a
Electricity costs*	7'420 €	2'570 €	930 €
Purchase price	3'570 €	980 €	1'290 €
Total costs	10'990 €	3'550 €	2'220 €



ProCold factsheets, example about EMD

Energy management systems or devices (EMS or EMD) put beverage coolers and vending machines into sleep-mode during off-hours

→ Reduced energy costs by 15-45%



ProCold: empowers buyers and suppliers in Europe

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Tools and services of the project include:

- Lists of BAT products for eight national markets
- Logos to distinguish BAT models in catalogues / on the cabinet
- Procurement guidelines and text to copy-paste in calls for tender
- Calculation tools for comparing costs between products and reporting energy and CO2 savings from green procurement
- PDF and printed brochures
- In spring of 2017 the best model in various product categories will be publicly awarded

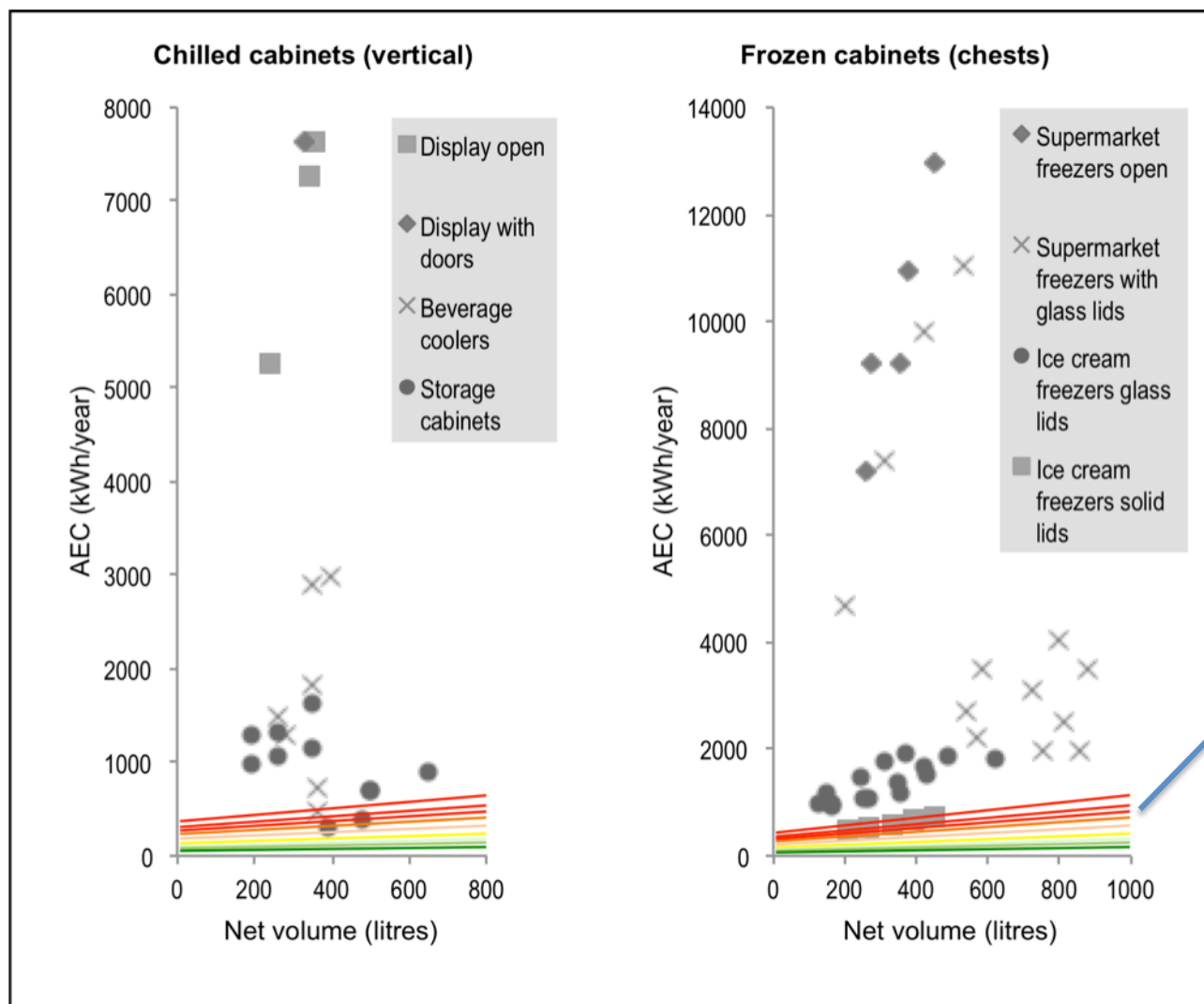
Info: www.topten.eu/pro-cold





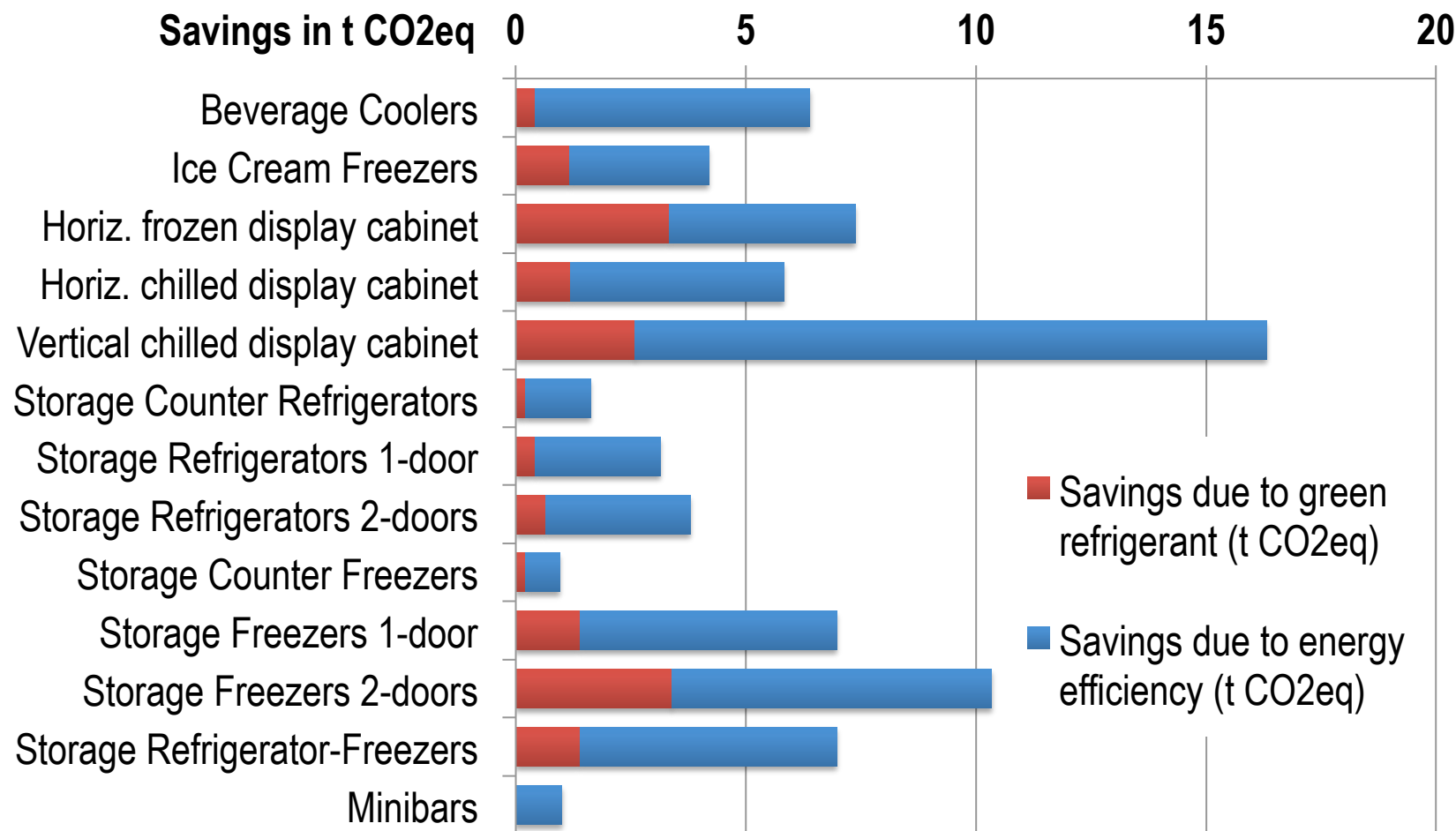
Product Category	Stock EU (million units)	Total Annual Energy Consumption EU (TWh)
Plug-in refrigerated display cabinets	1.3	6.5
Beverage coolers	7.3	16.3
Ice cream freezers	3.1	4.5
Refrigerated vending machines	1.3	3.0
Refrigerated storage cabinets	3.2	6.9
Plug-in blast cabinets	1.7	5.8
Minibars	3.4	unknown
Wine storage appliances	1.7	unknown
Static refrigerated cabinets for commercial/professional use	unknown	unknown
Ice machines	1.3	unknown
Cold water dispensers	unknown	unknown
Beverage tapping machines	0.6	unknown
Other products	unknown	unknown
Total plug-in commercial/ professional products	>25	>43
Total household refrigerators and freezers	304	84

Energy consumption data from two catalogues



Compared to the label classes of household refrigerating appliances

Greenhouse gas emission savings



Thank you for your attention

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