



The market of electric motors, pumps & fans in the European Union and Switzerland

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Introduction



What is TOPMOTORS?

The information platform for efficient motor driven systems in Switzerland
www.Topmotors.ch

- Since 2007
- Supported by Swiss Federal Office of Energy
- Led by Impact Energy



TOPMOTORS IN SHORT

What is Topmotors?

- **Topmotors** is an implementation program for efficient motor driven systems in Switzerland.
- **Topmotors** has been supported by SwissEnergy (Swiss Federal Office of Energy) since 2007 and managed by Impact Energy, an independent energy consulting office.
- **Electric motor driven systems** represent around 70% of electric energy consumption in the industry and service sectors. With more efficient motors, integrated systems and their optimised operation, this consumption can be reduced by 20% to 30% - a significant untapped savings potential from which the economy and the environment can benefit. The Topmotors program targets this big energy efficiency potential and aims to reduce the electricity consumption of motor driven systems in industry, infrastructure facilities and large buildings with economic measures.
- **Main focus:** Topmotors offers professional support through fact sheets, continuing education courses, workshops, newsletters, webinars and organizes an annual Motor Summit. Topmotors has developed a 4-step audit method, the Motor-Systems-Check (incl. software tools), to analyze existing motor driven systems. Topmotors also provides information on the current standards and regulations in Switzerland and the European Union.
- **Thinking in terms of systems** is a central element of the Topmotors program. An electric motor is part of a motor driven system: frequency converter, motor, transmission and the driven application (pump, fan, compressor, transport system, industrial process equipment, etc.). Energy can be saved only if all the components of a system are optimally coordinated, the necessary output is delivered, efficient components are used and operated correctly.

Motor System

IE IMPACT ENERGY

SWISSENERGY

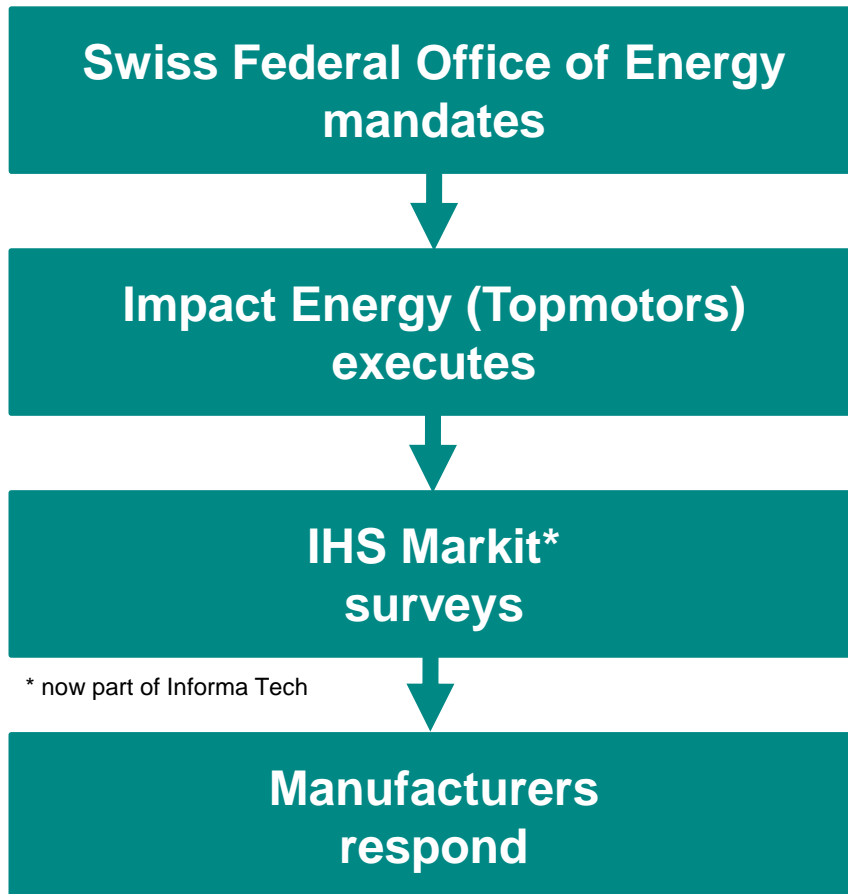
Topmotors in short - What is Topmotors? | November 2017 | www.topmotors.ch | info@topmotors.ch

Topmotors Market Report

- Commissioned by the Swiss Federal Office of Energy
 - Regulator establishing MEPS*
 - Responsible for market surveillance
- First published in 2018
 - Motors & Variable Frequency Drives (VFDs) in Switzerland
- Second published in 2019
 - Plus circulators, pumps & fans in Switzerland & EU
- Third to be published in 2020
 - Comparing Swiss to European data

*Minimum Energy Performance Standards

Methodology



- Data: anonymity
- Direct responses by 18 leading companies
- Survey covers 60% of Swiss market
- IHS extrapolates to 100%
- Topmotors analyses

Topmotors Market Report 2018

1. Motors Switzerland
2. Circulators Switzerland & EU
3. Water pumps Switzerland & EU
4. Fans Switzerland & EU

- Sales: 2017
- Average selling price: 2018
- Report published in 2019
in 4 languages: EN/DE/FR/IT



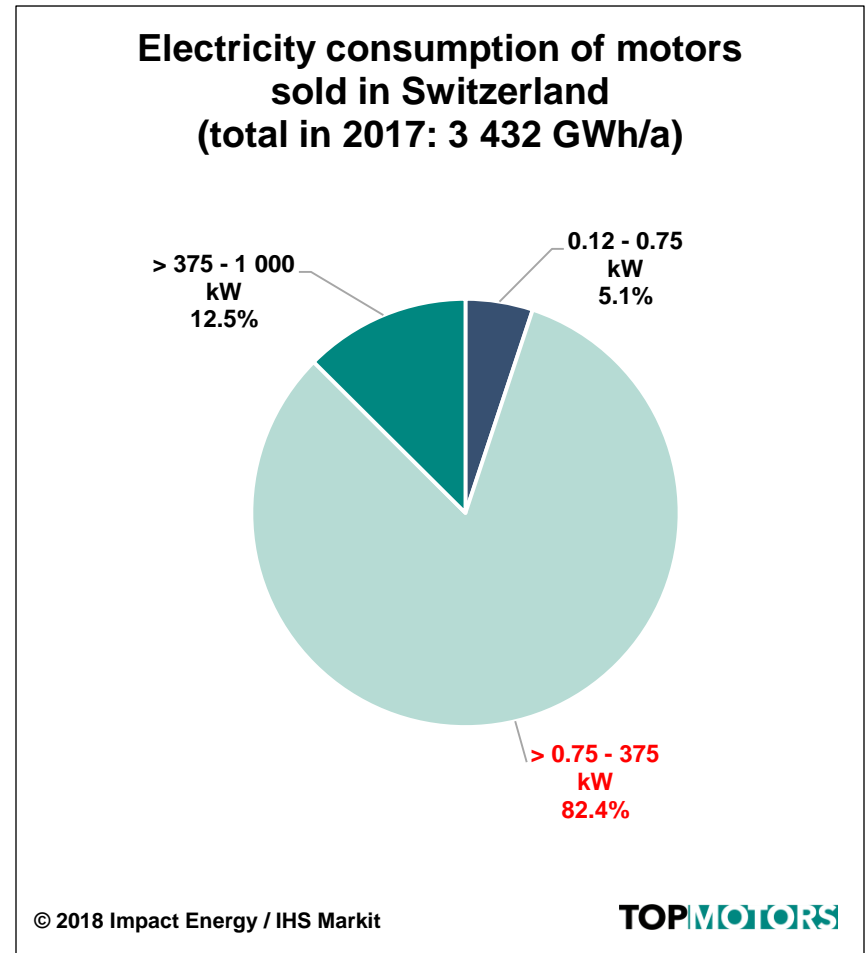
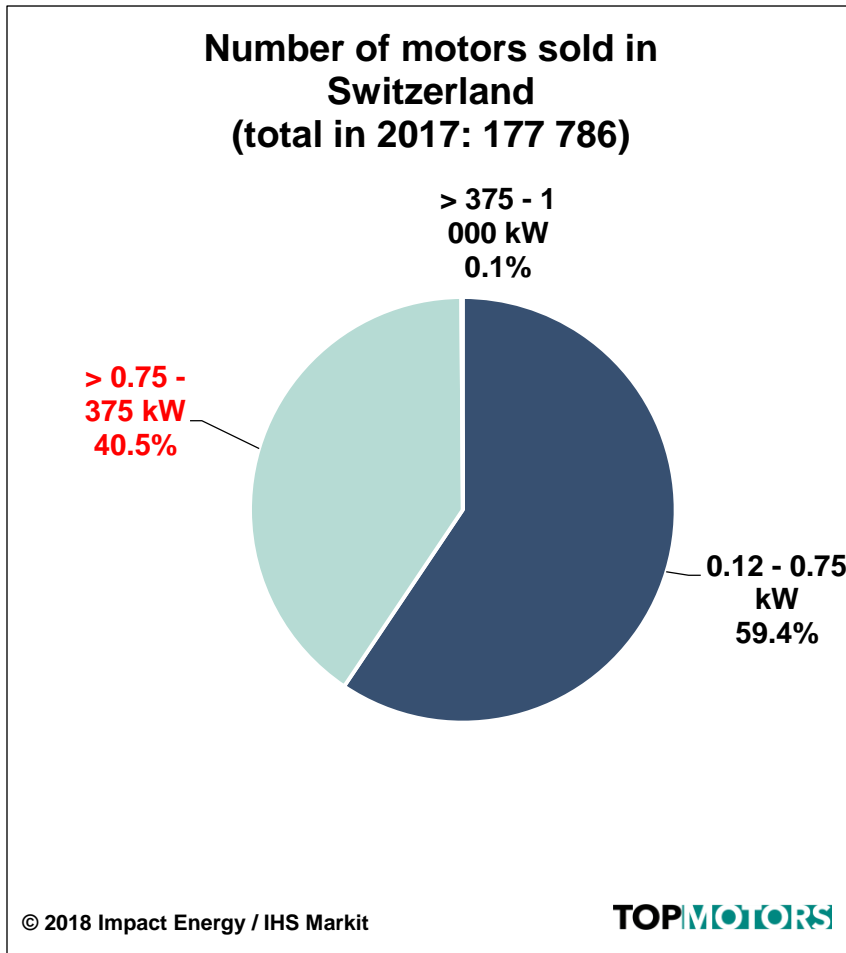
www.topmotors.ch/en/market

Topmotors Market Report 2018 - Motors



Switzerland

0.75 - 375 kW: 40.5% of motors



Assumptions: 4'500 h/a; load factor: 0.7, respective efficiency class

Switzerland

MEPS synchronized with EU

Product	European Union: Ecodesign directive, regulation no./year	Switzerland: Efficiency ordinance (EnEV), Annex no.
Motor	640/2009	2.7
Circulator	641/2009	2.8
Water pump	547/2012	2.9
Fan	327/2011	2.6

Motors in scope:

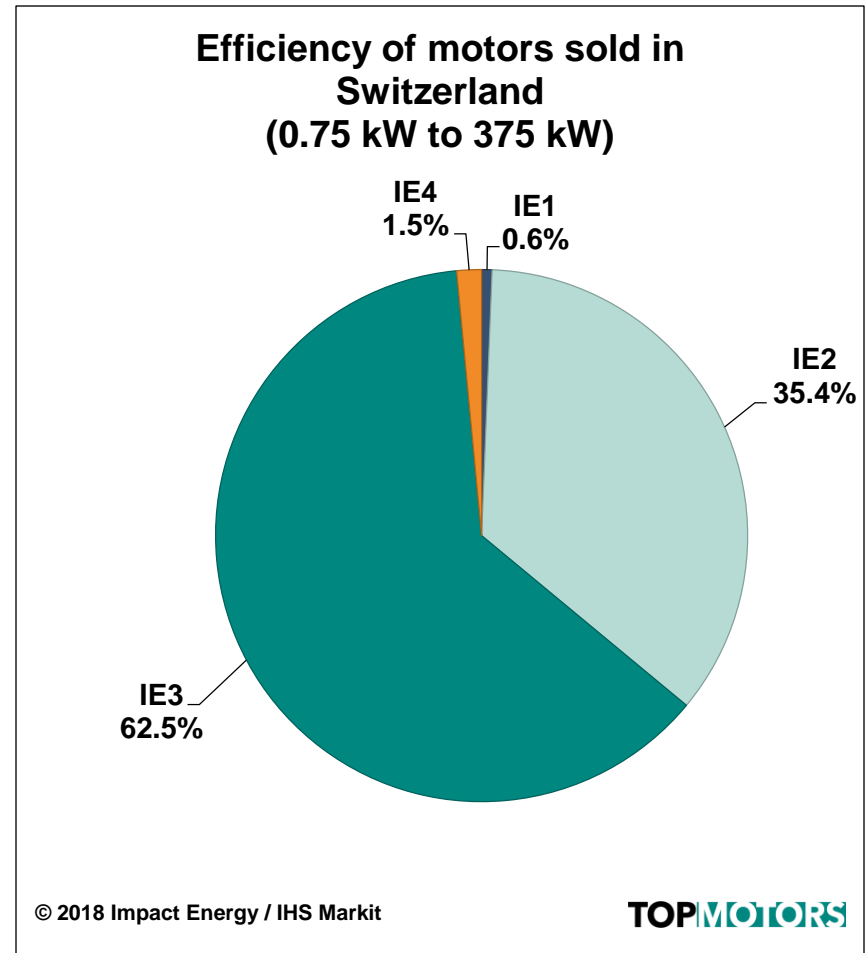
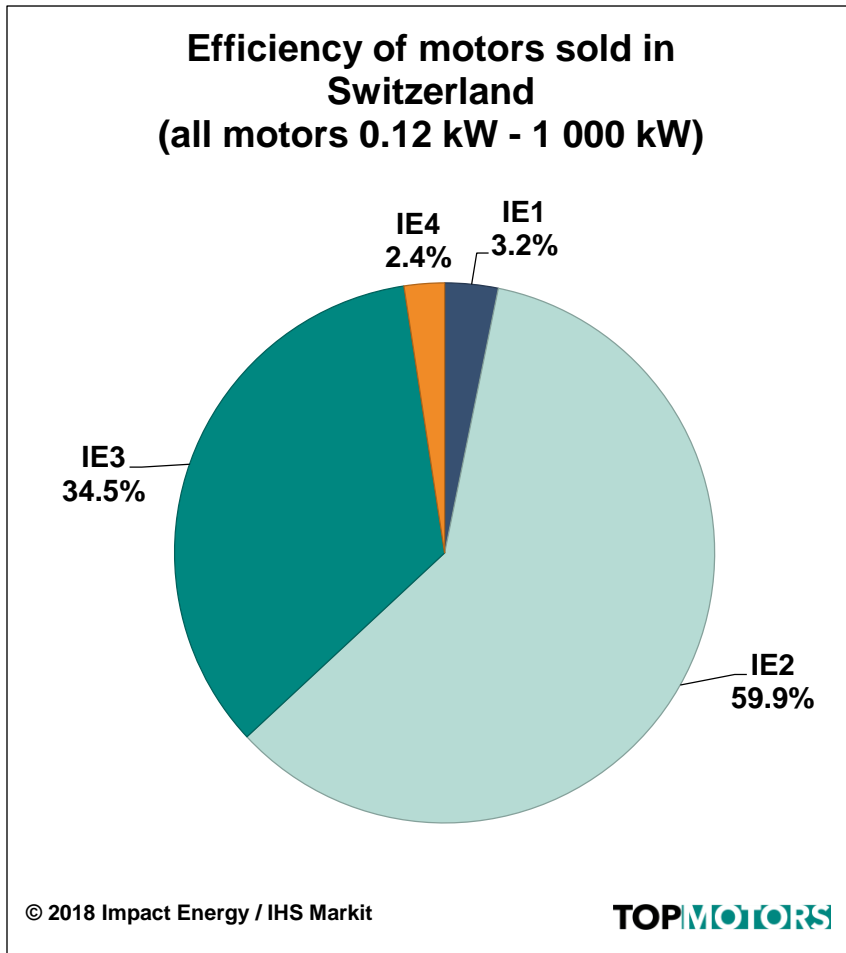
- 0.75 – 375 kW
- 2-, 4-, 6-poles
- Minimum requirement:
 - IE3 or
 - IE2 + VFD

Motors outside scope:

- Not capable of continuous operation
- Brake motors
- Designed to operate in potentially explosive atmospheres, etc.

Switzerland

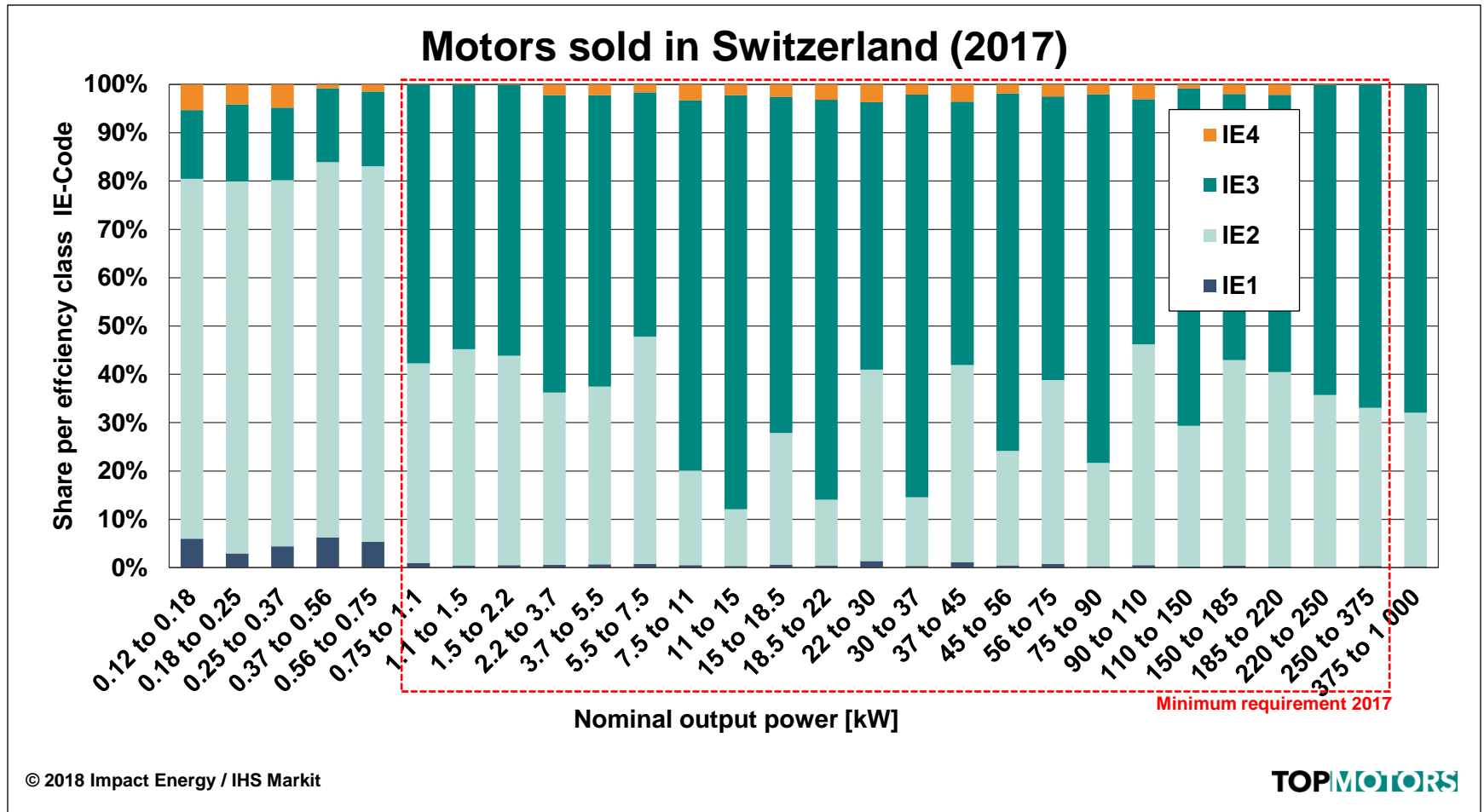
81.7% of motors compliant



IE2: 50% sold with VFD

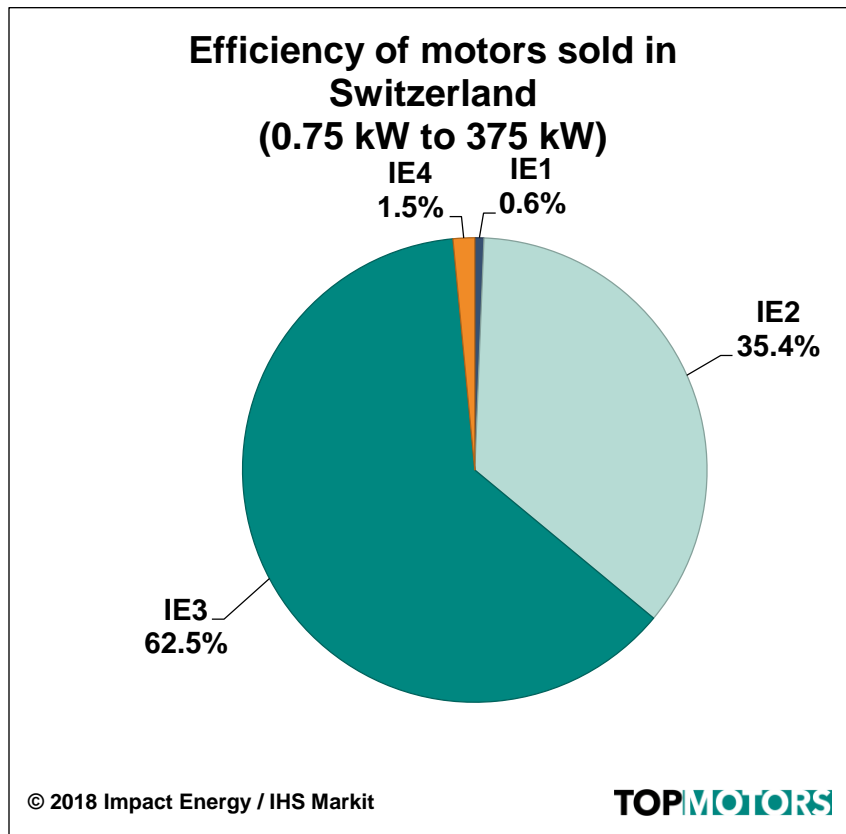
Switzerland

Small motors: more IE2

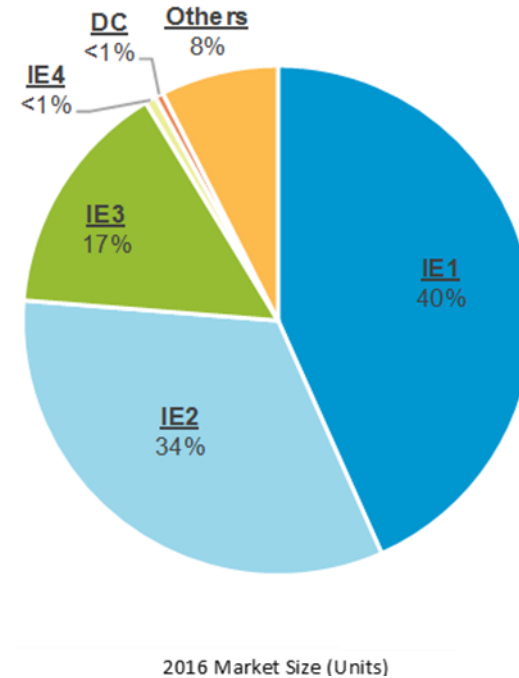


Switzerland vs. World

Switzerland (2017)



World (2016)



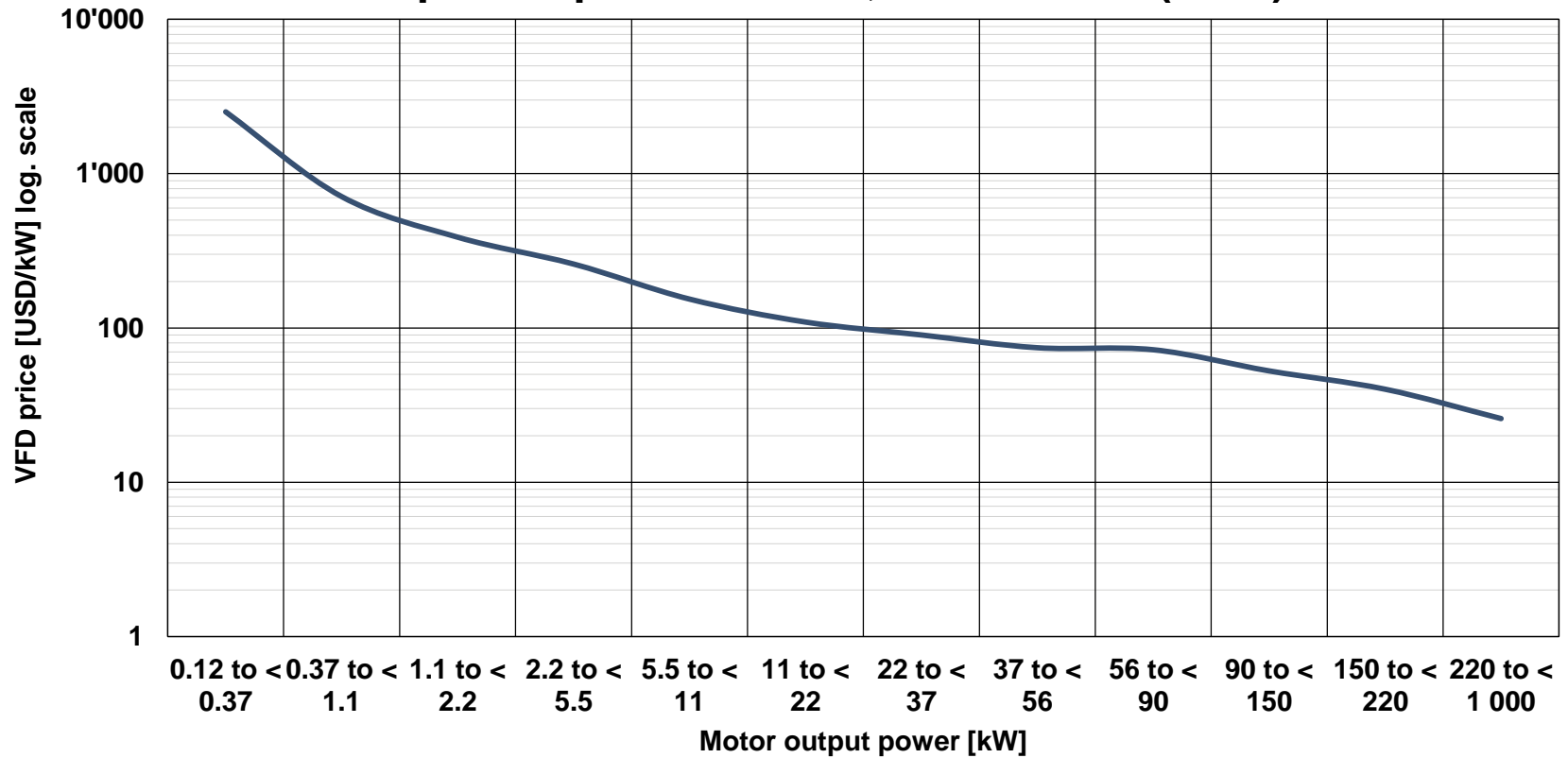
Source: IHS Markit Technology, now part of Informa Tech, 2019

Switzerland

Average VFD price increase 5%

Price of Variable Frequency Drives (USD/kW) average	
2017	356.6
2018	374.3
Additional price 2018/2017	+5.0%

Specific price of VFDs, Switzerland (2018)



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Topmotors Market Report 2018 - Pumps & fans



Circulators

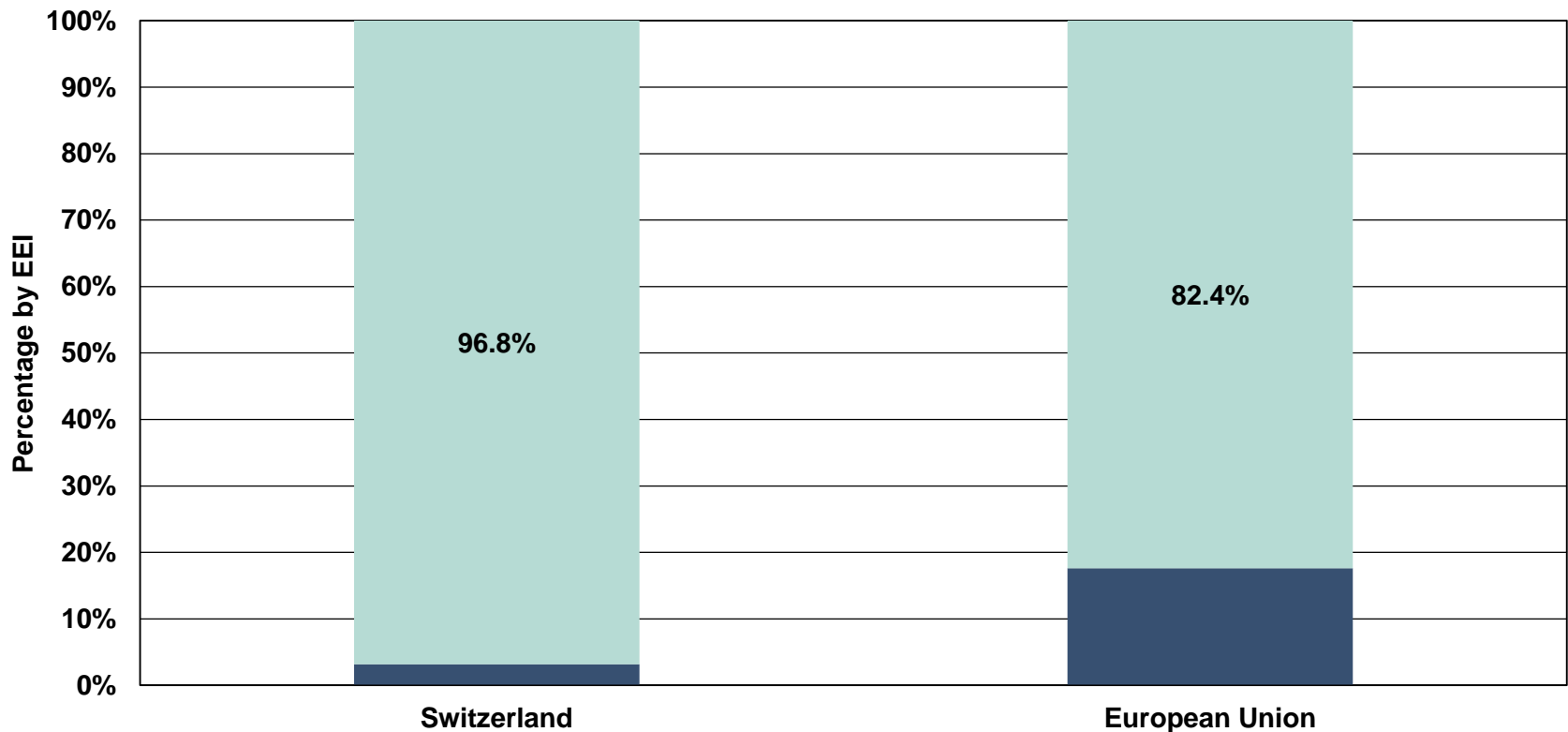
High compliance

CH – compliance: 96.8%

EU – compliance: 82.4%

Circulator	Switzerland		European Union	
	Number	Share	Number	Share
EEI > 0.23	5'984	3.2%	1'466'876	17.6%
EEI ≤ 0.23	181'020	96.8%	6'867'646	82.4%
Total	187'004	100.0%	8'334'522	100.0%
CH as share of EU	2.2%			

Circulators sold in 2017



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■ EEI > 0.23 ■ EEI ≤ 0.23

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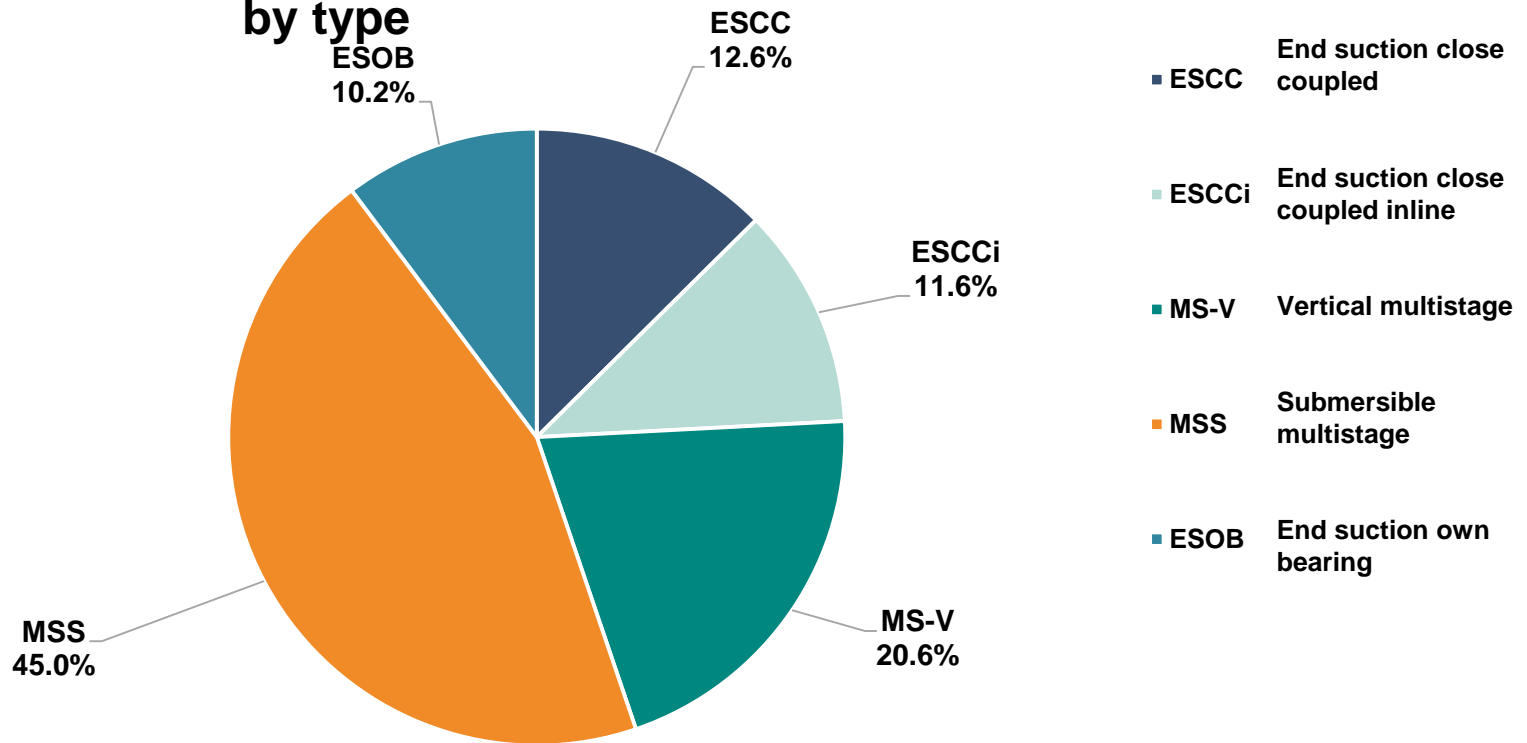
Water pumps

High share of MSS

Water pump	Switzerland		European Union	
	Number	Share	Number	Share
< 10 kW	46'934	91.0%	2'335'671	85.4%
> 10 kW	4'643	9.0%	400'717	14.6%
Total	51'577	100.0%	2'736'388	100.0%
CH share EU	1.9%			

Water pumps sold in the EU in 2017

by type

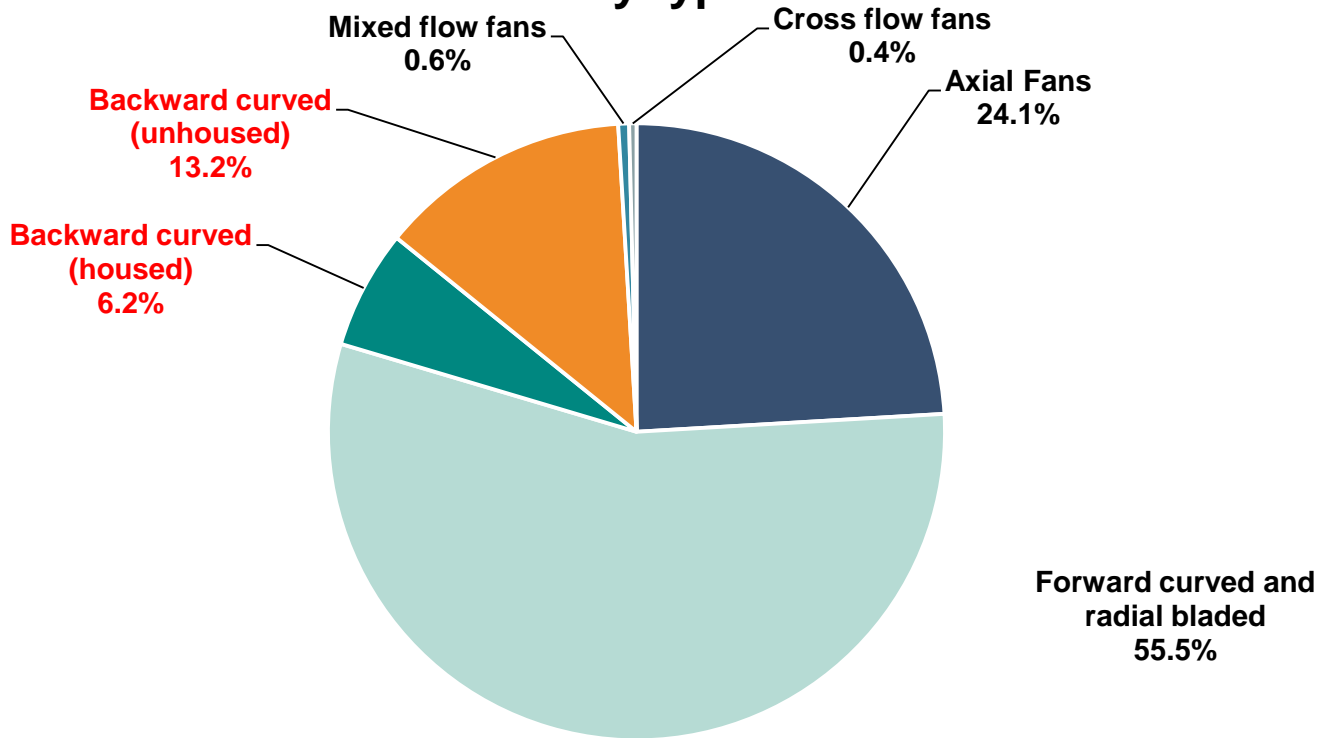


Fans

Many forward curved

Fan	Switzerland		European Union	
	Number	Share	Number	Share
< 10 kW	168'250	98.8%	23'832'354	98.9%
> 10 kW	2'009	1.2%	264'596	1.1%
Total	170'259	100%	24'096'950	100%
CH share EU	0.7%			

**Fans sold in the EU in 2017
by type**



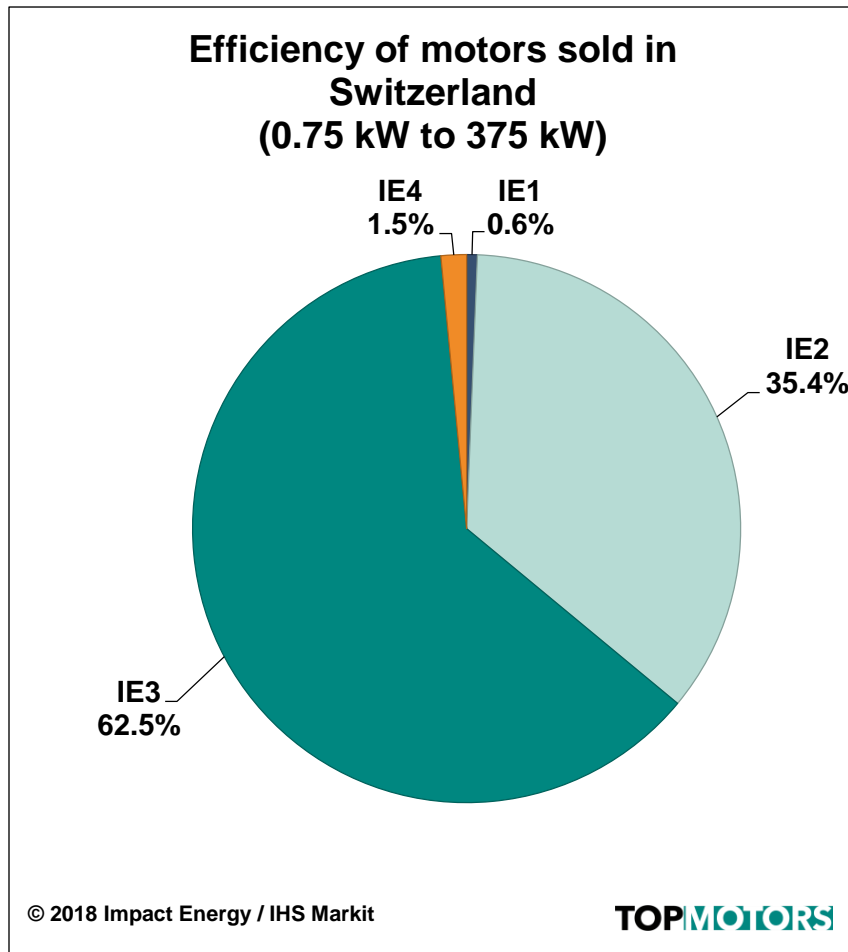
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TOP MOTORS

Conclusions



Conclusions



- Motors in Switzerland
 - 82% compliant
 - High share of IE3
- Circulators
 - Switzerland: 97% compliant
 - EU: 82% compliant
- Water pumps
 - EU: 45% multistage submersible pumps
- Fans
 - EU: 56% forward curved
 - EU: 19% backward curved

Thanks for your attention!

Questions?

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Supported by



**Topmotors Market Report 2019
will be published in 2020!**

Stay tuned: www.topmotors.ch/en/market