



CAPIEL*

European coordinating committee of manufacturers
of electrical switchgear and controlgear

We represent

9 national associations

Comprising more than **550** manufacturers

Employing **120.000** people in Europe

With a combined turnover of

€18.25 billion

Our mission

At CAPIEL, we advocate legislation which will achieve better energy efficiency, notably for start and control solutions for induction motors. We work to spread a correct understanding of legislation by designers and users of electrical products, systems, and solutions.

Ecodesign for Electric Motor Control Solutions: Towards a System Approach

Greater efficiency = CO2 reduction

By 2030, the EU's reduction target for greenhouse gases is set to rise from 40% to at least 50%. This will require a significant reduction in energy consumption in the face of the present, growing demand for electricity.

The EU's Ecodesign Directive is an effective legislative tool which seeks to minimise the environmental impact of a wide range of products; in order to pass on a greener planet to the next generation.

However, for motor driven systems, selecting the correct control solution can have a much greater impact on the energy reduction than simply considering the energy-performance of the individual components.

In particular, it should be reviewed if the application really needs speed control. Unused variable control solutions result in energy waste.



Total consumption by motor-driven applications:

850 TWh/year




Fixed speed
applications
= **80%**
market share
(estimate)



Variable speed
applications
= **20%**
market share
(estimate)

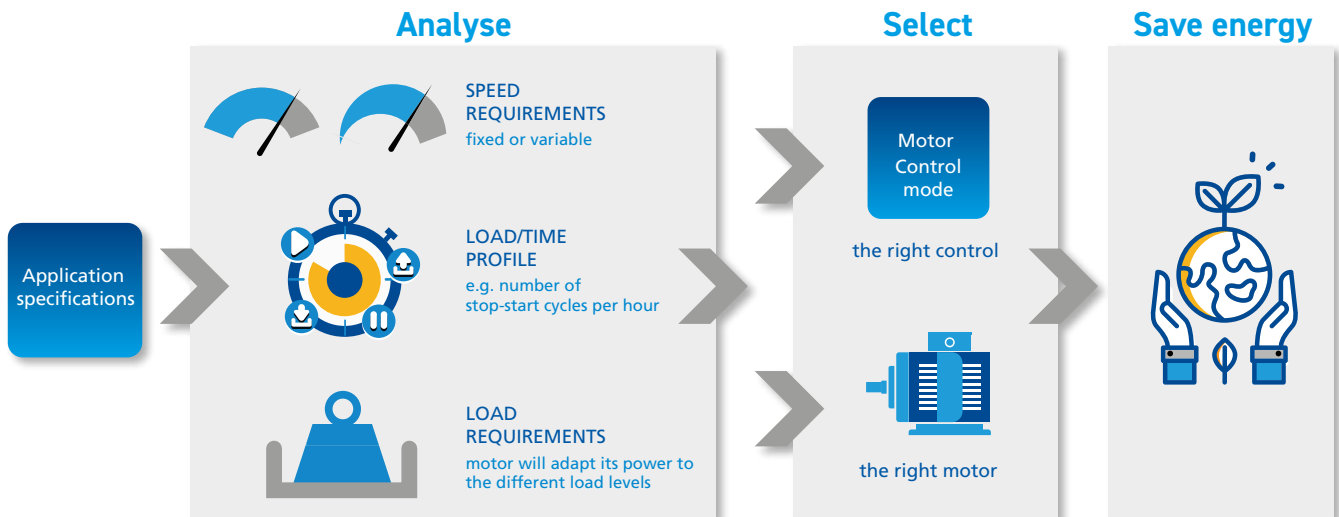
If all motor starters are replaced by VSD (2% to 5% additional losses)

+16 to +34 TWh/year

=  **x 1 to 1.5**
Nuclear plant energy production = 23 TWh/year (average)

A system approach for better energy efficiency

The way to achieve optimum energy savings for motor control solutions is through a system approach. One size does not fit all. Users and installers must select the motor and its control solution to match the requirements of the driven load in order to prevent substantial energy losses.



Approximately 80% of motor applications are fixed speed, in which varying load levels are automatically balanced by the motor. Motor starters are the most efficient solution for these applications.

For the remaining, roughly 20% of applications where speed control is necessary, Variable Speed Drives (VSDs) are the most energy efficient solution.

The energy efficiency potential of motor starters

Motor starters offer many advantages for the vast majority of applications with a fixed speed and a variable load.

- ▶ negligible energy losses;
- ▶ economical (low initial cost plus straightforward installation, operation & maintenance);
- ▶ simple implementation (no requirement for additional cooling, filter or power supply);
- ▶ optimal control cabinet design (reduced footprint, minimal heat generation);
- ▶ robust and durable (minimal EMC implications, high level of safety & reliability).

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