

EU-MORE



EUropean MOtor
REnovation initiative
a LIFE project

What is the problem?

MOTORS = MASSIVE NUMBERS

Electric motors = 50% of EU electricity consumption (1)
A total of **8 billion motors** in EU (1)
EU-MORE addresses **stand-alone motors in industry (0.75 kW-375 kW)** representing a large share of the total consumption

Swiss survey: 50% of the concerned motors are > 20y old (2)
Figures for EU are lacking, but situation is expected to be similar

MOTORS IN INDUSTRY ARE OLD

The large majority of these old motors have poor to very poor energy efficiency (IE1 or IE0)

OLD MOTORS = HIGH ENERGY LOSSES

What is the opportunity?

A SAVINGS POTENTIAL OF **100 TWh/y**

BAU
A high number of old motors with poor efficiency remain in service for years beyond their "expected life-time"

GOAL
Accelerated motor replacement: Replacing old IE 0/1/2 motors by new IE3/4 motors + Motor system optimisation

Accelerating motor renovation with motor system optimisation has an estimated energy savings potential of approximately **100 TWh/y** (3)
= **55** average gas fired power plants (4)
= close to the electricity consumption of the **Netherlands** (2021) (5)
= **30%** of natural gas import from Russia (08/2022) (6)
= **25 Mton CO_{2e}** (7)

= 55 GAS FIRED POWER PLANTS

What are the underlying issues?

PRACTICAL BARRIERS IN INDUSTRY



- A need for quick availability when a motor fails, and many sites have old motors in stock
- Lack of awareness about the co-benefits of energy efficient motors
- Motors are replaced without looking at the system, missing out on the full benefits

ECONOMIC BARRIERS IN INDUSTRY



- Decisions made based on purchase cost instead of life cycle cost, because of split incentives
- Pay-back times of motor replacement are favourable, but not perceived as such because of ignorance or extreme expectations
- Focus on low hanging fruit only following EE audits in industry
- Lack of awareness on how to receive funding

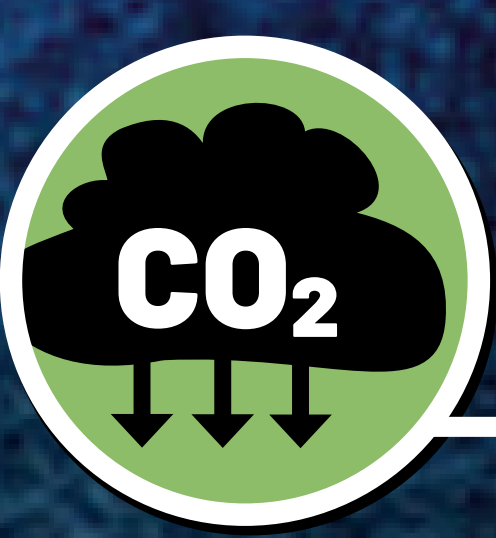
BARRIERS AT POLICY LEVEL



- Mandatory EE policies only target new motors and lack a leverage for motor replacement
- A lack of data about motor ages in the EU
- A lack of insight in which policies work for accelerating motor renovation in industry
- False perception that life-times should be extended as long as possible in a circular economy, ignoring the full environmental balance.

What needs to be done?

GATHER INSIGHT



WHAT ...

EU-MORE OBJECTIVE

Gather data and develop a model. Use this for analysing different scenarios of policy implementations and their outcomes in terms of energy savings and GHG emission abatement.

DEVELOP STRATEGIES FOR ACCELERATING THE MOTOR RENOVATION RATE

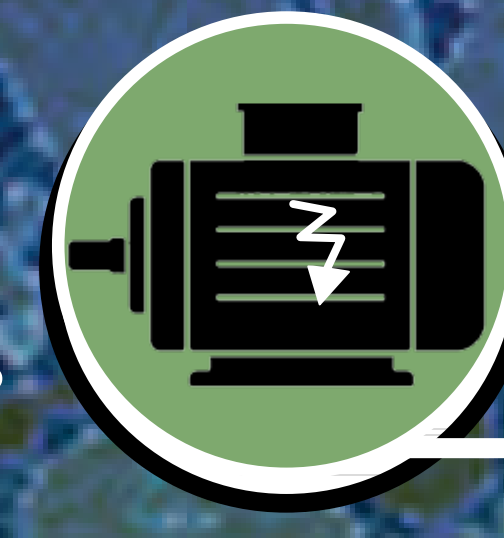


BRINGS ...

EU-MORE OBJECTIVE

Promote knowledge exchange. Propose appropriate policies aimed at improving the uptake of EE motors, coupled with motor system optimisation. These can assist Member States in achieving their EE targets.

MAXIMIZE THE ENERGY EFFICIENCY BENEFIT OF MOTOR RENOVATION



EU-MORE?

EU-MORE OBJECTIVE

Propose policies that stimulate system efficiency: proper motor sizing, variable speed drives, digital technology ...

MAXIMIZE THE CIRCULARITY OF MOTORS



EU-MORE OBJECTIVE

Promote the use of recyclable, high value materials in motor manufacturing, and recover those materials after EoL, ensuring that motor renovation programs developed will contribute to EU circular economy goals.

6 project partners:



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(1) Ecodesign Impact Accounting / Annual Report 2020 / Overview and Status Report, May 2021. // (2) Swiss motor efficiency program EASY: results 2010 - 2014. (3) de Almeida, A.T.; Ferreira, F.J.T.E.; Fong, J., 'Perspectives on Electric Motor Market Transformation for a Net Zero Carbon Economy', Energies 2023, 16, 1248. https://doi.org/10.3390/en16031248 // (4) Calculated with the average 400 MW gas fired power plants with an availability of 50%. (5) Counted with the average greenhouse gas emission intensity of electricity generation in Europe in 2019. // (6) European Council, 'Infographic - Where does the EU's gas come from?' // (7) Counted with the average greenhouse gas emission intensity of electricity generation in Europe in 2019

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