ERGO - Energy reduction by Condition Based Maintenance

Develop energy waste reduction features, based on system-level modelling and asset load monitoring over time.

Project number	I40-20-05	Partners	Semiotic Labs, ISPT, TPA Adviseurs, Nouryon, Vitens, KraftHeinz, Huntsman, Vopak, University Utrecht	
Project leader(s)	Simon Jagers			
E-mail	simon@semioticlabs.com	Budget	2200 k€	
		Duration	q3 2019 - q1 2023	

Incentive

Accelerate the usage of Predective Maintenance can to release energy usage reductions and improve uptime

Objective

• Develop models that detect inefficiencies in processes with the aim to reduce energy waste. Semiotic Labs' data across 375 assets suggest that this could result in 2-5% energy reduction across the monitored assets.

• Develop dashboards that calculate the energy waste reduction potential of rightsizing and controlling motors offering long-term energy consumption reductions by an additional 10-35%.
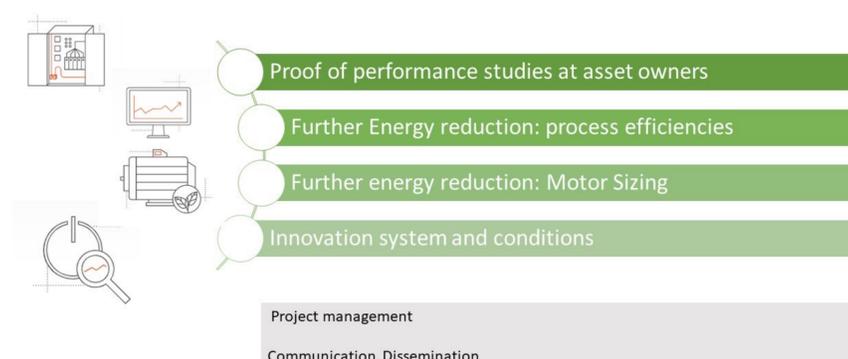
• Deliver a proof of performance study for these energy reduction claims.

• Generate new insights of the Proof of Concepts in a largescale field test, deploying SAM4 on a site-level at several corporate partners.

• Provide a technical and economical overview with essential

Approach

Results

• Install more than 1000 units for data collection on 2 – 5 end users sites.
• Investigate, implement, and validate energy efficiency models with the new generated data.
• Develop, implement, and validate energy reduction potential dashboards (rightsizing) also with the new generated data.
• Investigation report whether energy consumption of monitored assets reaches the projected reduction of 10-20%.
• Achieve a substantial improvement of the unplanned downtime incidents prediction by at least 85%, by using the developed models.
• Validate the results in a report through a specialist.
• Provide integration guidelines.
• Provide an innovation system analysis.
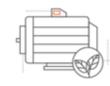• Identify roadblocks to technology diffusion.

Condition monitoring
Reduces energy consumption by 10-15%

System-level monitoring
Reduces energy consumption by 2-5%

Right-sizing motors
Reduces energy consumption by 10-35%

ERGO WORKPACKAGES

Proof of performance studies at asset owners

Further Energy reduction: process efficiencies

Further energy reduction: Motor Sizing

Innovation system and conditions

Project management

Communication, Dissemination

SAM4 as-is

1 SAM4 measures electrical waveforms from inside the Motor Control Cabinet.

2 The gateway processes data locally and communicates with the SAM4 platform via 4G.

3 Classification and Anomaly detection algorithms detect upcoming failures up to months in advance.

4 You will receive an alert as soon as failures are detected.

5 Additional health, performance and energy consumption metrics are presented an the online dashboard.

6 SAM4 detects process-inefficiencies and signals potential energy savings

7 SAM4 provides insights into the energy savings potential of rightsizing motors

ERGO software development

Institute for Sustainable Process Technology

TKI ENERGIE EN INDUSTRIE
Topsector Energie