



Efficient electric motor systems in Dutch Industry – a three way approach

Eceee Industrial Summer Study 2012
Papendal, Arnhem, the Netherlands

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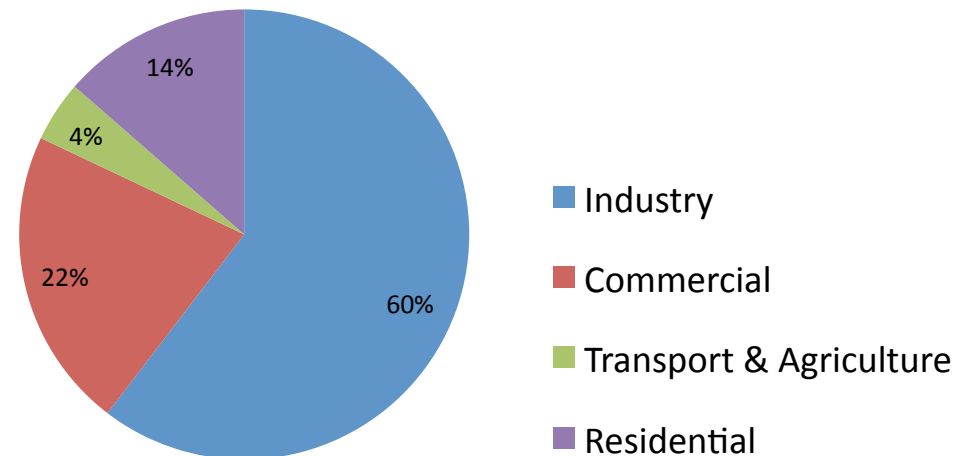
13 September 2012

Content

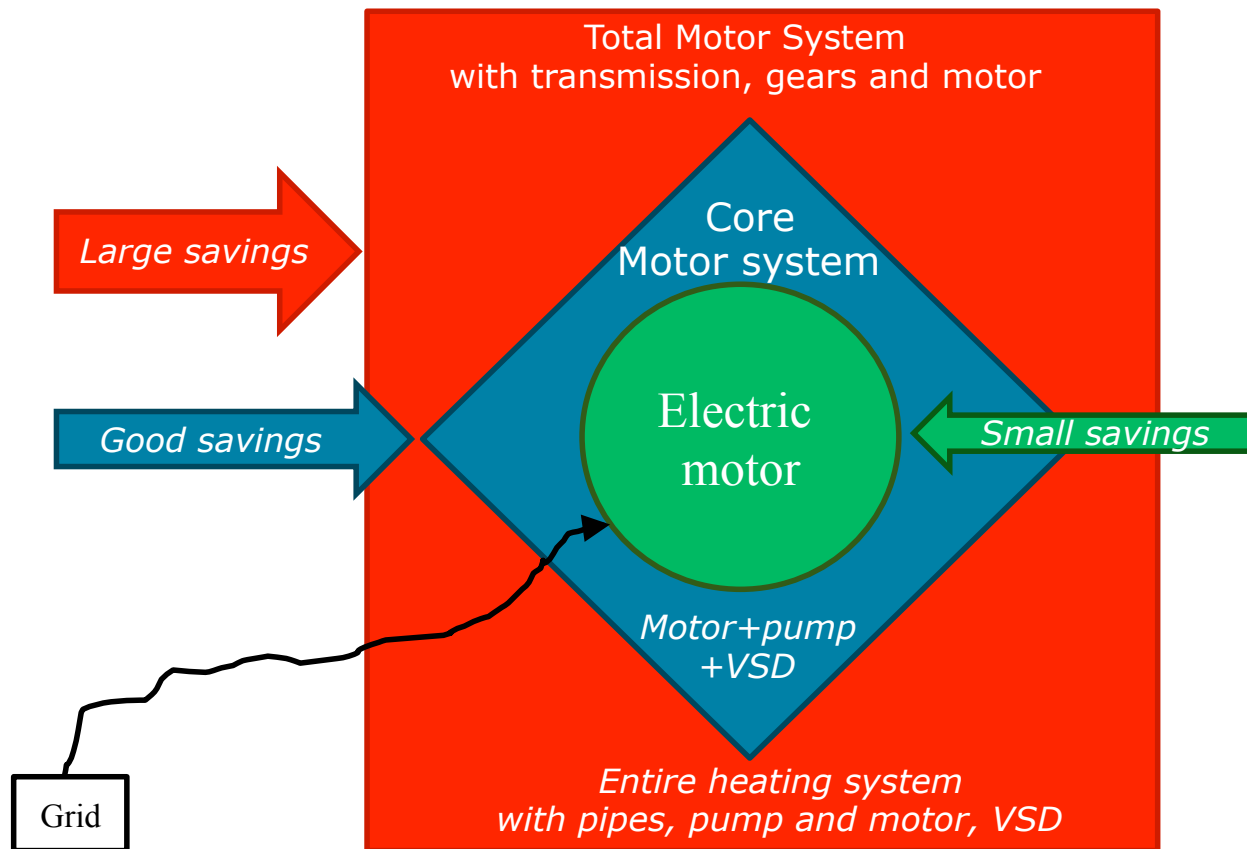
1. Introduction, electric motor systems in industry
2. LTA – long term agreements (on energy efficiency)
3. Dutch Knowledge Network Efficient Motor Systems
4. EMSA - international participation

1. Electricity use in NL, in industry, in EMS

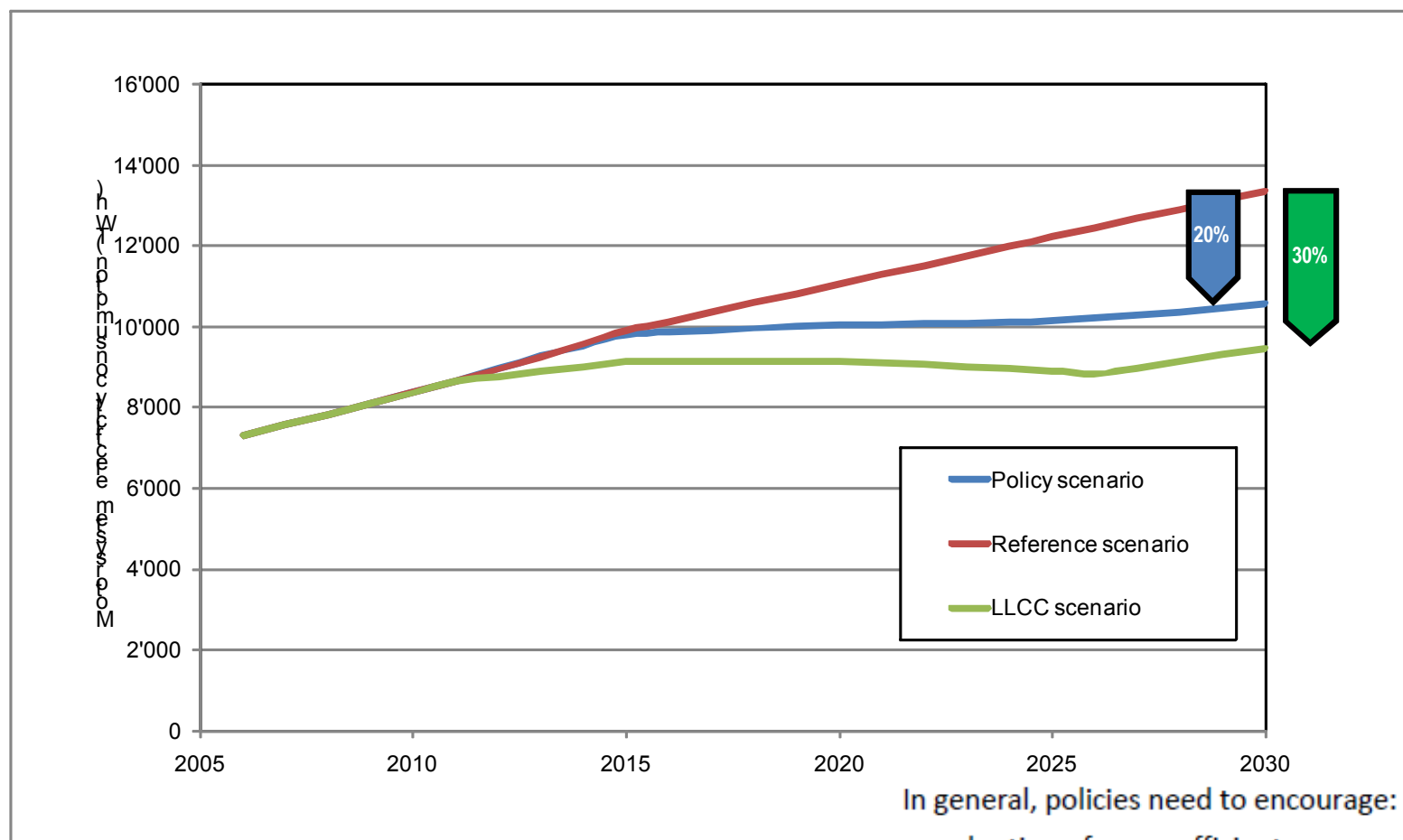
Sectors NL	Electricity use by sector	Elektricity use motor systems	Elektricity use motor systems	Electricity use EMS as part of E-use sector
	(PJ)	(PJ)	(%)	(%)
Industry	264	182	60%	69%
Commercial	176	67	22%	38%
Transp. & Agric.	31	12	4%	39%
Residential	193	43	14%	22%
NL	660	304	100%	46%



Definition Electric Motor System (EMS)



Savings with electric motor systems



Source: IEA 2011, Paper by P. Waide, C. Brunner

In general, policies need to encourage:

- adoption of more-efficient components within EMDS
- better sizing to task of EMDS
- optimisation of the ensemble of components within EMDS
- use of VFDs for variable-load applications
- better in-field management of EMDS

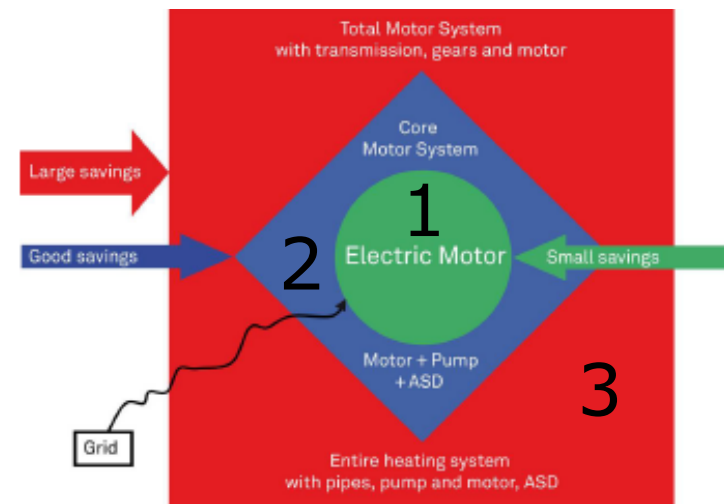
Savings with electric motor systems

1. Electric Motor (1)
2. Motor + Drive + Apparatus (2)
3. Driven System, like
Pipes, ducts, heating system, etc.

Ad 3. Mostly not part of analyses because of complexity. The challenge is to do so:

% savings

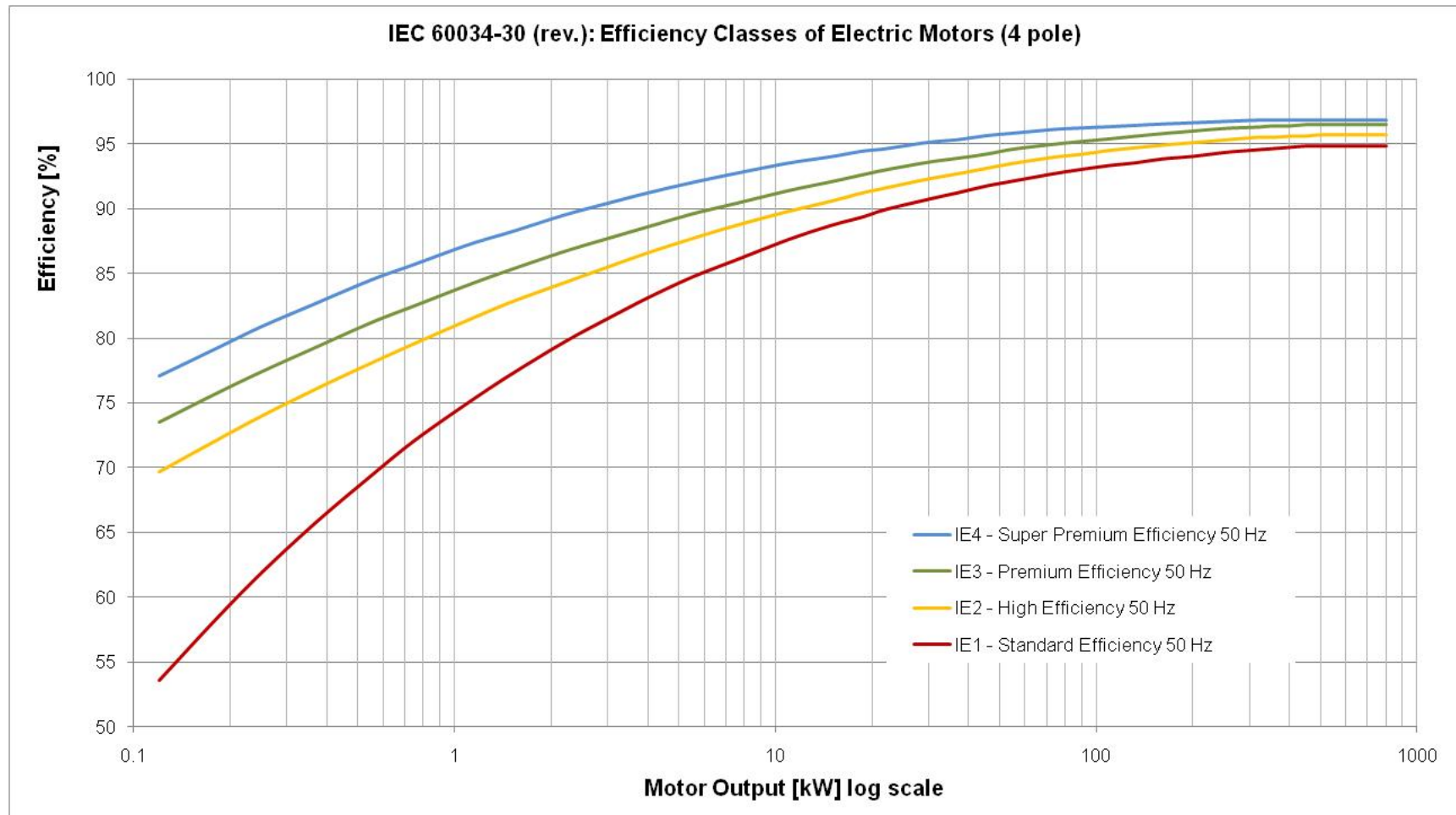
1. 0,1% - 10%
2. 5% - 25%
3. 5% - 25%



Source: A+B International, 2008.

On average 20-30% economical savings are viable on the energy use of these systems

Motor Efficiency Classes: Update



Content

1. Introduction, Electric motor systems in industry
- 2. LTA – long term agreements (on energy efficiency)*
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2. LTA - long term agreements on energy efficiency

- LTA = Long Term Agreement on energy efficiency
- Voluntary binding agreement with industry and government (ministry EA)
- Started in 1992
 - LTA1 (92-98)
 - LTA2 (99-08)
 - LTA3 (08-20/30): process, chain, sust.energy: 'intensification'
- Reducing the energy per unit product or service by 2% per year
- 40 participating sectors, 1000 companies, 80% of industrial energy use

Friday Panel 1:

Roadmap Dutch chemical industry 2030: How to
reduce GHG-emission by 50 %

R. W. A. GERRITS

**Roadmaps: a new guide to energy efficiency
opportunities** – experiences from the Dutch

metallurgical and glass industry

Léon WIJSHOFF, Ronald VERMEEREN

2. LTA - long term agreements on energy efficiency

- LTA = Long Term Agreement on energy efficiency
- Voluntary binding agreement with industry and government (ministry EA)
- Started in 1992;
- Reducing the energy per unit product or service by 2% per year



Enforcement of national env. regulation
Mix of enforcement and encouragement
Systems of planning, monitoring & accountability
National climate/CO2 policy goals



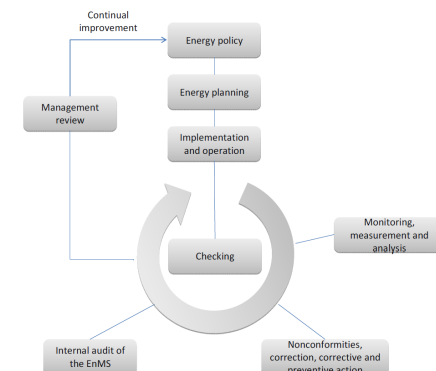
Assistance in achieving EE results
More freedom in planning
Access to knowledge and assistance

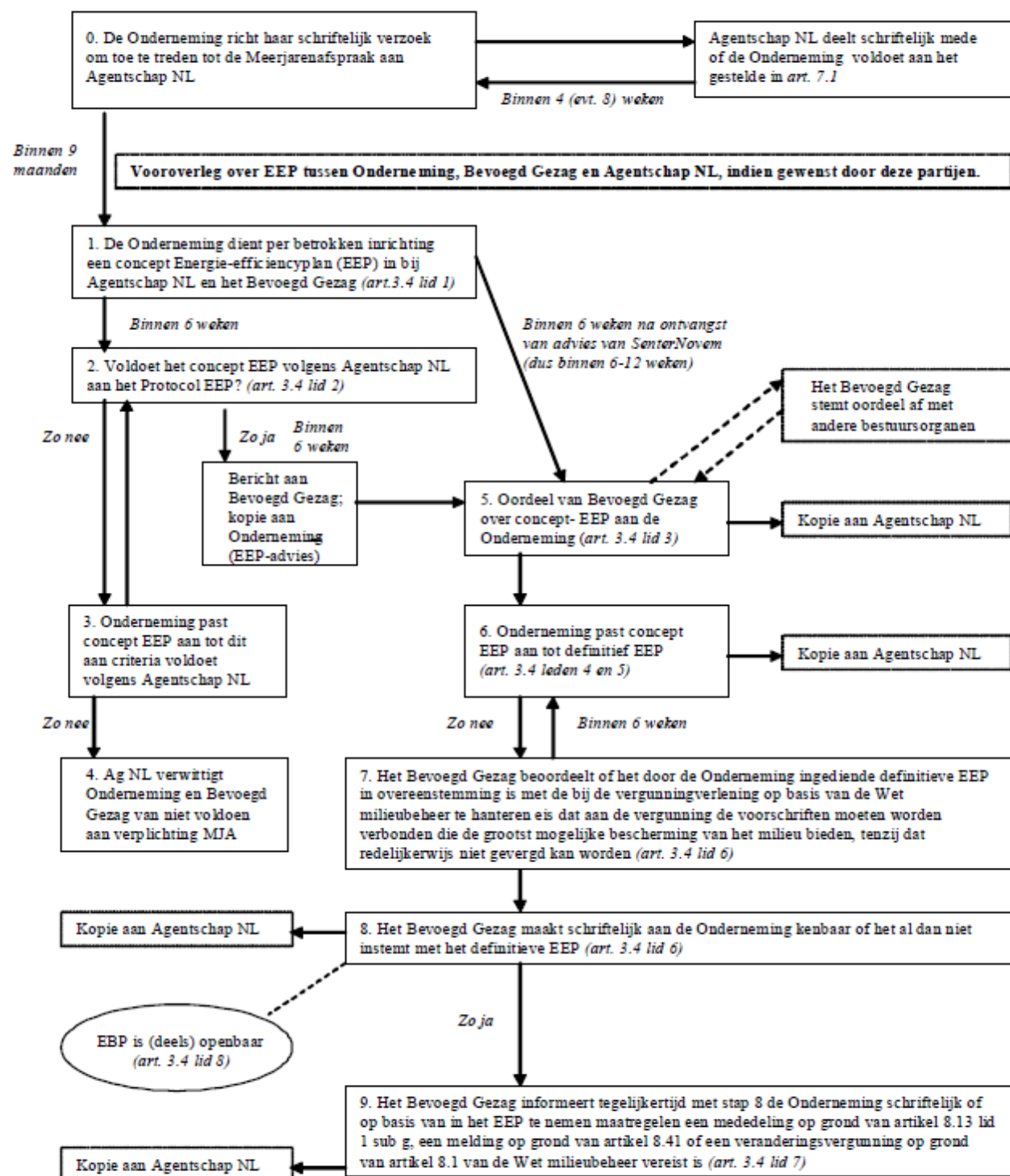
2. LTA system

Participants in LTA3/LEE sign for:

- Make every effort to implement 30% energy efficiency improvement in the period 2005-2020
- Draw an energy efficiency plan (EEP) every four year
- To implement so called 'certain' saving measures (payback time < 5 year)
- To implement a system of energy management ('energiezorg')
- Make every effort to implement energy efficiency by means of developing chain efficiency and sustainable energy
- Reporting every year on the progress of the execution of the covenant

Formal agreements, procedures and methods





2. LTA's – where does EMS fit in?

- Measure lists per sector (process, chain, roadmaps)
 - From 40 up to 100+ measures per sector
- In competition with other measures
- Comes to knowledge, experience and economics by the selection of measures

NL Agency facilitates the LTA program, by e.g.

- User groups (steam, isolation, process integration, MCP)
- Scans, workshops
- Research
- Promotion
- Other schemes like EIA

Experiences with EMS-usergroup in NL

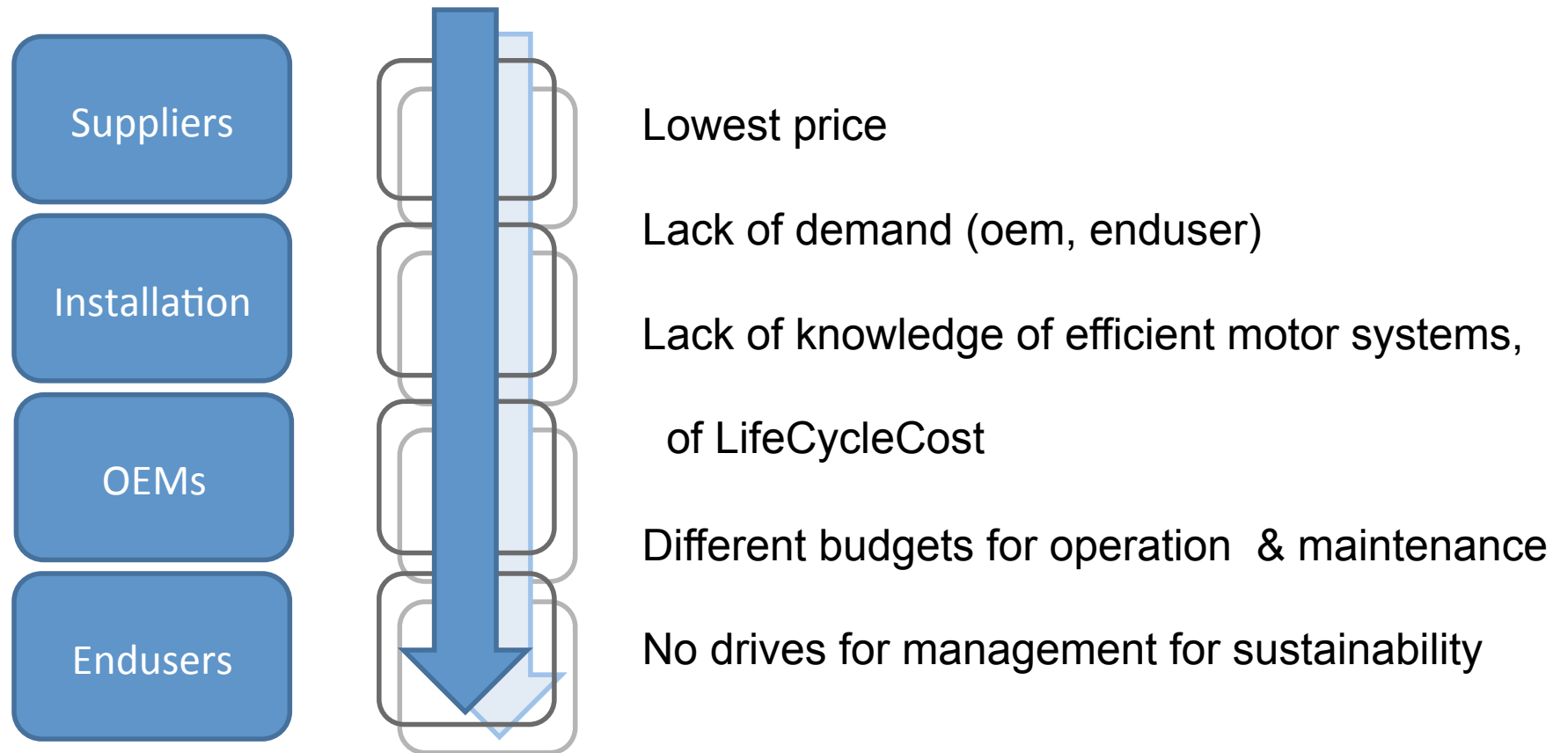
Some findings

- Lack of capacity a/o lack of knowledge for drawing these plans
- EMS is a divers and easy to dislike subject (its everywhere, no one resp.)
- The number of active participants is too small in relation to savings potential and costs (per participant)

Conclusions

- A different approach is necessary in order to cash in on the huge potential
- Reach for the large number of industrial endusers (1000+)
- Include actual developments and regulations
- With participation of market parties

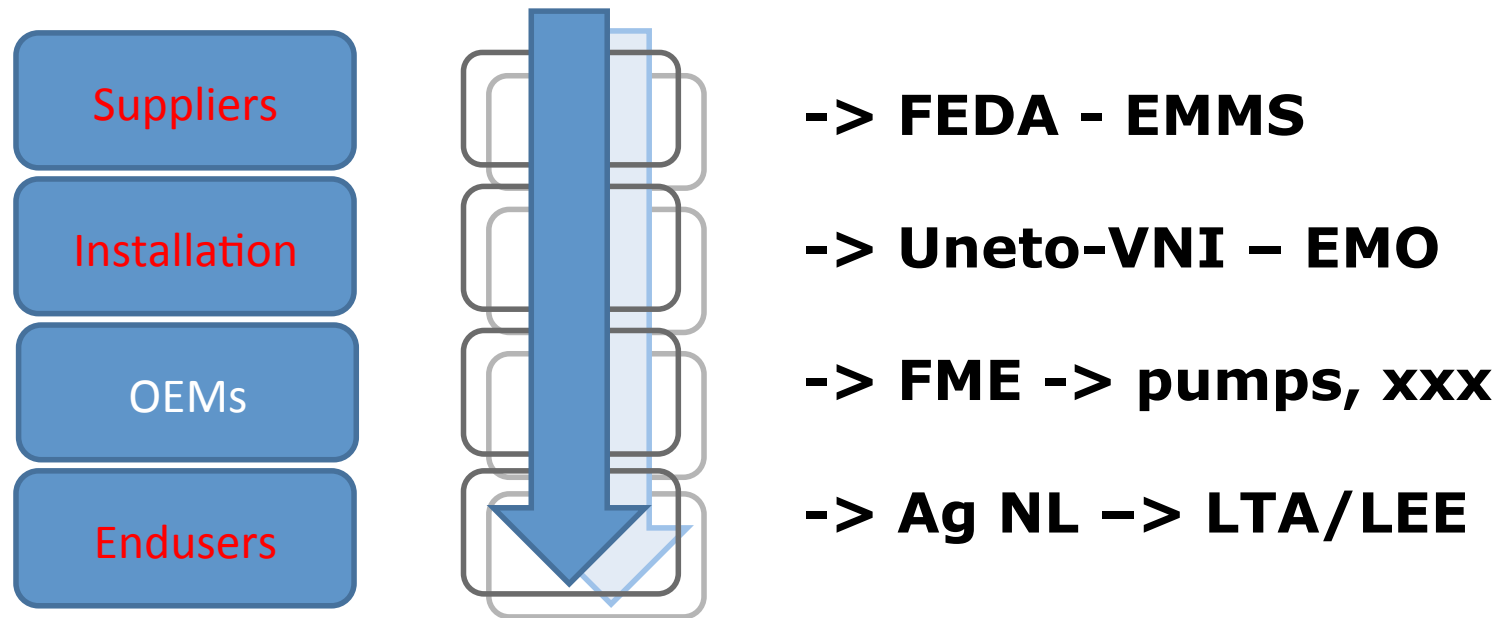
Barriers for implementation of EMS



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3. Knowledge Network EMS: started in 2011



Aim: facilitating a faster and broader application of Efficient Electric Motor Systems in industry.

How: making available the knowledge of (applying) Efficient Electric Motor Systems and stimulating the demand for efficient EMS with industrial end users.

KN-EMS

- Information, publications
- Tools, factsheets
- Knowledge transfer

uitnodiging

Te gast bij duurzame ondernemers

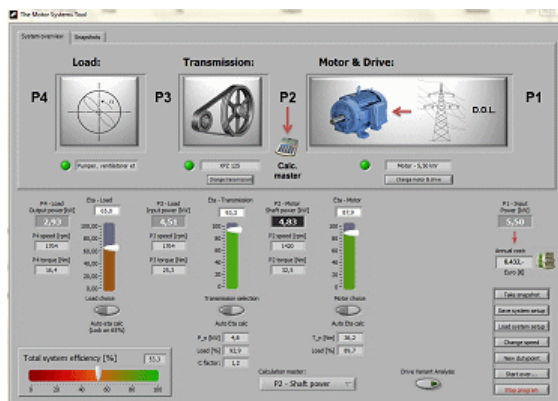
'Optimalisatie van elektromotorsystemen'

'Uw motor naar een duurzame toekomst'

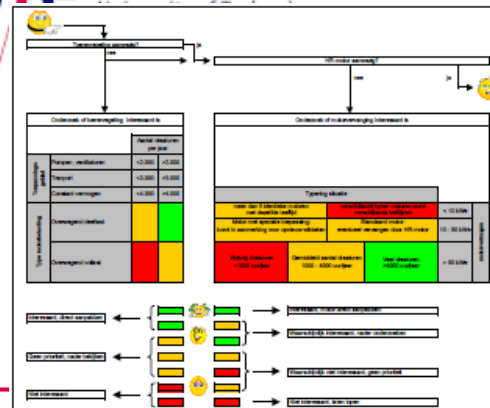
Maakt u gebruik van elektromotoren voor het aandrijven van apparaten als pompen, compressoren, ventilatoren, productiemachines of voor intern transport? En wilt u concrete handvatten over hoe u het energieverbruik met wel 40% kunt verminderen? Kom dan naar één van de drie regionale themabijeenkomsten 'Optimalisatie van elektromotorsystemen'.

Locatie en tijdstip

Donderdag 14 juni 2012 Tijdstip: 13.00 u.	Donderdag 21 juni 2012 Tijdstip: 13.00 u.	Woensdag 27 juni 2012 Tijdstip: 13.00 u.
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TU/e Technische Universiteit Eindhoven



Mogelijke energiebesparing bij verbetering van de arbeidsfactor

Agentschap NL
Ministerie van Economische Zaken,
Landbouw en Innovatie

Als het gaat om duurzaamheid, innovatie en internationaal

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Kennisnetwerken

- > Nieuws
- > Agenda
- > Bio-based Business
- > Computer Aided Process Engineering
- > C2C-polymerennetwerk
- > Duurzame ProductKetens
- > Duurzaam Lijmen
- > Duurzaam Verpakken
- > **Efficiënte Elektrische Aandrijfsystemen**

Kennisnetwerk Efficiënte Elektrische Aandrijfsystemen

Bijeenkomsten Optimalisatie van elektrische motorsystemen - Presentaties
Op 14, 21 en 27 juni 2012 zijn er regionale themabijeenkomsten 'Optimalisatie van elektromotorsystemen' gehouden.

Het kennisnetwerk Efficiënte Elektrische Aandrijfsystemen (EKEA) is gestart met vertegenwoordigers van FEDA en UNETO-VNI. Dit zijn de brancheorganisaties van producenten van elektromotorsystemen en installateurs en onderhoudsbedrijven. En vertegenwoordigers van de vakgroepen voor elektromotorsystemen EMO en EMMS.

Bekijk de film 'Efficiëntere Elektrische Aandrijfsystemen'

Agentschap NL
Ministerie van Economische Zaken,
Landbouw en Innovatie

Efficiëntere Elektrische Aandrijfsystemen volgens nieuwe richtlijnen

It provides opportunities to improve the efficiency of business processes and realize financial savings.

0:08 / 5:50

KN-EMS

- Short movie: see www.motorsystems.org
- Regional Theme meetings: 75 companies in 3 sessions: to be cont.
- Start of 'Green Deal EEMS': starting by October 2012;
 - aiming at developing 35 projects / business cases EEMS
 - participating 25 suppliers & installers and Ministry EL&I

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4. International participation

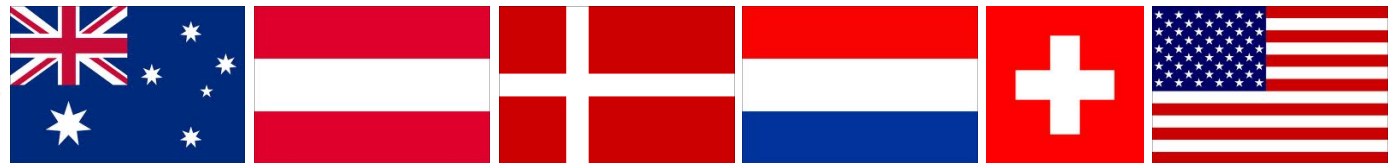


4E Implementing Agreement



NL participates in EMSA
via NL Agency

New program 2012-2014



EMSA goal: market transformation



For this, we need...



...global standards

...MEPS & compliance

...energy management

...tools & guidance

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News

New... 2012
... is a new shape now.

... 2012 - 8 November 2011
... Motor Summit will be held between 5 - 6 December 2012 in
..., Switzerland. Program and registration will be available early next
... under www.motorsummit.ch.

National Motor Policies



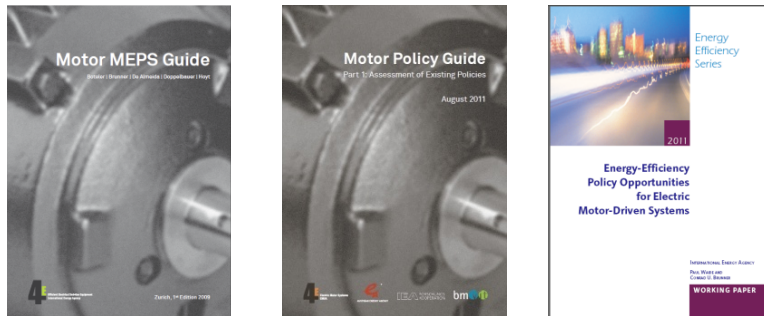
Video



[Watch video](#)

EMSA 2008 - 2011

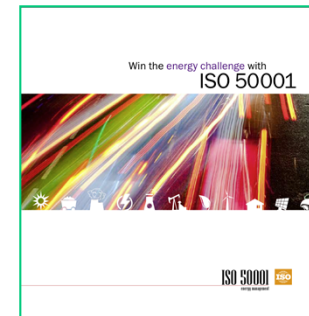
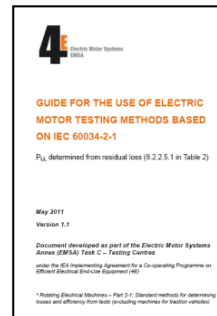
Publications



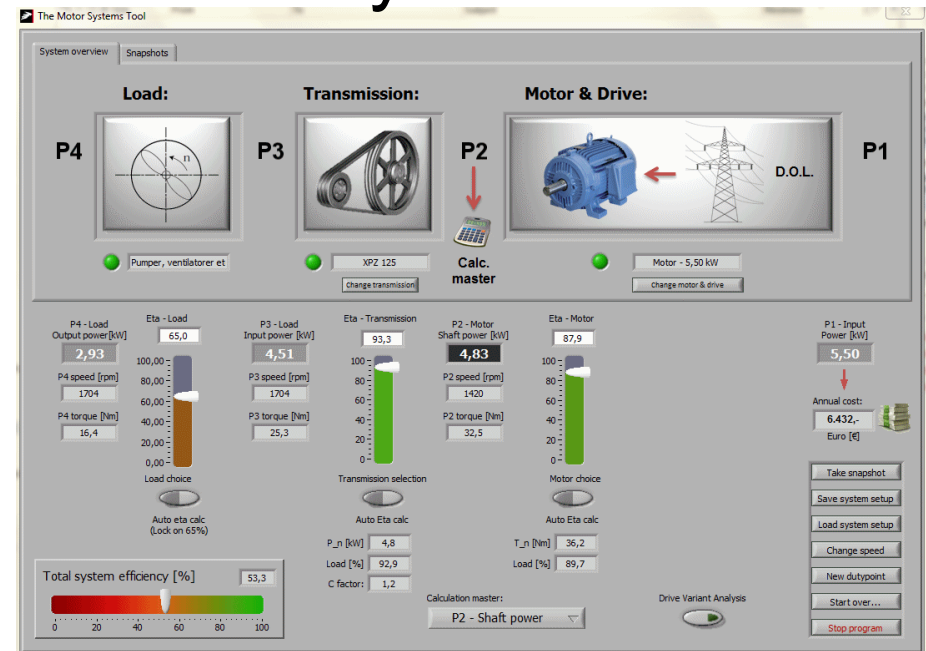
Events



Standards

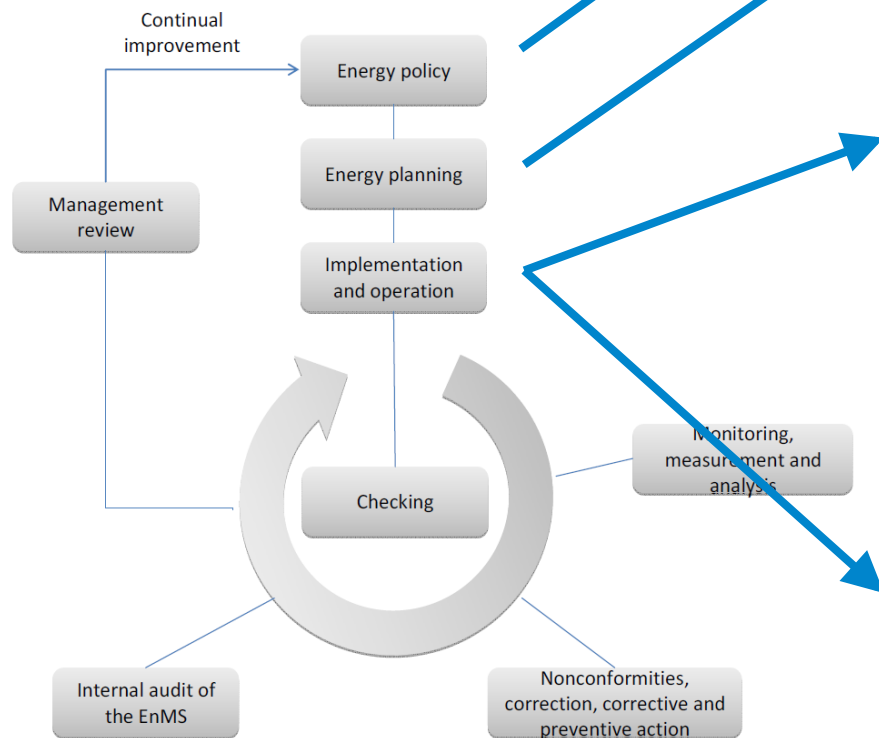


Motor Systems Tool



Identifying EMS in EnMS- ISO50001 -

Energy management



Management commitment [KPI]

Drawing/executing **EEP**, with EMS as 'group' of measures -> **step 1-5** /actionplan [EIA]

Production: operation, maintenance, planning -> **information & implementation; investmentplan**

Procurement: applying/approving **TCO-principles** [minimum IE3]

Engineering: designrules, minimum IE3, VSD's, planning improvement of components

Maintenance: replacement of motors, minimum IE3, 75% kWe when replacing, **planning** VSD

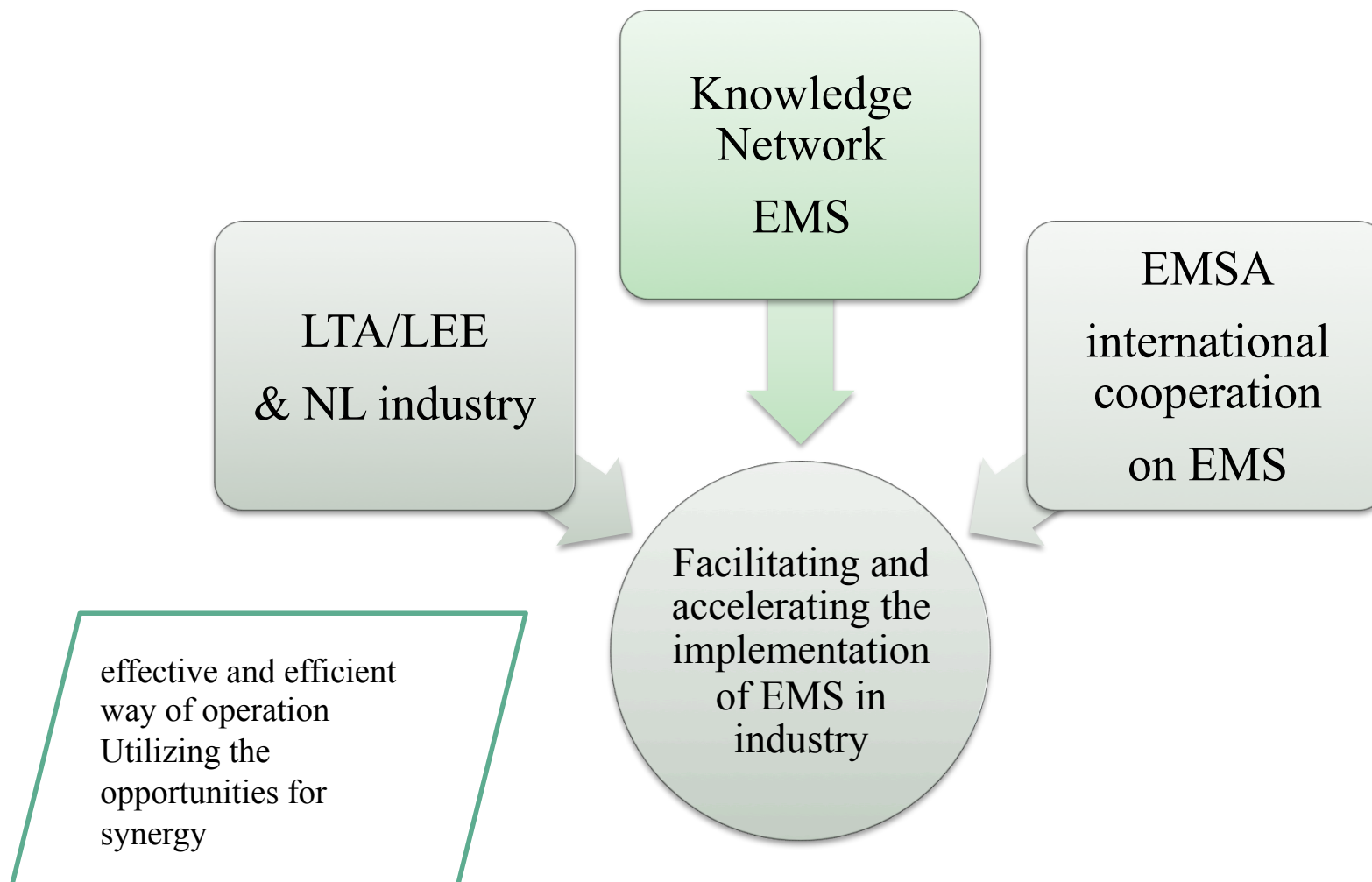
International exchange

Network of experts exchanging on motor systems efficiency



5 – 6 December 2012, Zürich
Switzerland

Concluding 3-way approach for EMS in NL



Thank you

Contact Information

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