

Final report

1.1 Project details

Project title	4E EMSA part II, Continuation of Danish participation in the IEA EMSA annex
Project identification (program abbrev. and file)	EUDP 11-II J.no.: 64011-0300
Name of the programme which has funded the project	EUDP
Project managing company/institution (name and address)	Danish Technological Institute Gregersensvej DK-2630 Taastrup, Denmark
Project partners	None
CVR (central business register)	5697 6116
Date for submission	August 29, 2015

1.2 Short description of project objective and results

The sole purpose of this project was to represent Denmark and participate in the annex of electrical motors and motor systems under IEA: 4E EMSA, Electrical Motor Systems Annex and in this content contribute with the vast Danish experience and knowledge on motors and motor systems.

4E EMSA is an International collaboration within IEA which main object is to spread and globalize methods and technics of electrical motors and motor systems. The Primary object is energy savings. EMSA consists of several subtasks where Denmark was task leader on one and contributed to the rest.

The homepage: <http://motorsystems.org> is the point of entry. All deliveries from the EMSA project can be found here.

A list of links and explanatory text to these deliverables are in the Annex of this report.

Hovedformålet med indeværende projekt var at repræsentere Danmark og deltage i det Internationale elmotor anneks under IEA: 4E EMSA, Electrical Motor Systems Annex i hvilket Danmark bidrog med vores erfaring inden for både stikprøvekontrol, test og viden omkring elmotorer og elmotorsystemer.

4E EMSA er et internationalt samarbejde under IEA med det hovedformål at udbrede og globalisere metoder og teknikker inden for anvendelse, test og håndtering af elmotorer og motorsystemer med energibesparelser for øje. EMSA er opdelt i flere underpunkter hvor DK var ansvarlig for én og bidrog til resten.

Hjemmesiden: <http://motorsystems.org> er vejen ind og herfra kan alle opnåede resultater findes.

I annekset til denne rapport findes en liste over rapporter og værktøjer annekset har leveret inklusive links og forklarende tekst.

1.3 Executive summary

This project was the continuation of the very successful EUDP project: EUDP08, J.Nr.: 63011-0251: 4E EMSA, Danish participation in IEA annex, in which Denmark have been a strong and influential participant.

Denmark have contributed to the entire span of the EMSA project but the primary and most visible contribution from Denmark have been the Motor Systems Tool – a software tool for calculating impartial and anonymously on motor systems. This tool was originally developed in Denmark as an internal Danish project supported by PSO funding. It was since brought to the International attention through the EMSA project, and was first introduced at the EEMODS conference in Washington D.C. in September 2011 and have since been expanded and developed during this project.

The Danish team has been Peter Nielsen, Rikke Næraa and Maria Rizzo from Danish Energy Agency and Sandie B. Nielsen from Danish Technological Institute. Peter Nielsen is also member of the 4E Executive committee, 4E ExCO and Denmark’s main responsible person to IEA in terms of motor systems.

The work routine of the 4E EMSA project have been two annual physical meetings in the respective member countries typically in combination with electro technical conferences etc.

In the current project, the following activities and deliverables have been the contribution from Denmark:

- 2012 05 – Stockholm, 4E EMSA + liaisons to Swedish Energy Agency
- 2012 12 – Zürich, 4E EMSA, Motor Summit '12 + MST-Tool workshop
- 2013 05 – Nice, 4E EMSA + 4E ExCO meeting
- 2013 10 – Rio de Janeiro, 4E EMSA + EEMODS '13 paper & presentation
- 2014 05 – Utrecht, 4E EMSA + MST-Tool workshop
- 2014 10 – Zürich, 4E EMSA, Motor Summit '14 presentation

During the project is was decided to expand the Danish contribution to EMSA to also include a massive effort within the International standardization committee IEC participating in IEC22G WG18 as an impartial laboratory with measurements and calculations in terms of testing and classifying motors driven by frequency converters etc.

A separate EUDP project was therefore applied and granted in the fall of 2013 and is now running in parallel to the “original” EMSA project from 2014 through 2016.



A third three year period prolonging the original EMSA project was equally applied for and granted by EUDP in the fall of 2014. This new project (4E EMSA III) have now superseded this current project ensuring the continued life and development of the 4E EMSA project up to and including 2017 with strong support from Denmark.

The work and goals of 4E EMSA are unique as 4E EMSA are the one of the few non-commercial organizations working to improve efficiency on motors and motor systems around the globe. Over time EMSA have always been present at conferences with papers but also lobbying for involving even more EMSA member countries to make it an even wider founded organization with sayings and opinions on motor policies, motor efficiencies and other issues involving motors and motor systems.

Denmark was co-founder and has been a cornerstone ever since to the 4E EMSA project since the beginning in 2009. The first ever meeting in 4E EMSA were held in Copenhagen and since then the participation in 4E EMSA have ensured Denmark's position as a strong and reliable partner in global motor and motor systems questions.

Denmark has contributed with a unique impartial software-tool as well as input to policy-reports, papers and presentations on conferences.

As a parallel project to the present Denmark now makes impartial measurements to provide solid inputs to the standardization on the motor topic as well.

In the current strategy for 4E EMSA (2015-2017) Denmark is task leader and responsible for the MST-Tool part of the work plan as well as contributing to all the other parts of the EMSA work, and thanks to the continued support from EUDP, Denmark continues to play a very important role in the 4E EMSA work.

Annex A

Relevant links for deliverables:

4E EMSA main project homepage:

- <http://motorsystems.org>

4E EMSA newsletters

- <https://www.motorsystems.org/newsletter>

International standards for motors and motor systems overview:

- <https://www.motorsystems.org/iec-standards>

National motor policies for EMSA countries:

- <https://www.motorsystems.org/national-motor-policies>

Policy publications:

- <https://www.motorsystems.org/policy-publications>

Conference papers and presentations:

- <https://www.motorsystems.org/calendar>

The Motor Systems Tool + calculation examples:

- <https://www.motorsystems.org/motor-systems-tool>

Annex B

4E EMSA PowerPoint presentation from an internal meeting at Danish Energy Agency in August 2015, illustrating and summarizing the broad 4E EMSA work contributed by Denmark.

The name of the PowerPoint is, "Annex B - ENS meeting 08 2015.pdf".