

European process industry representatives discuss resource efficiency monitoring and improvement at the MORE Final Workshop

After more than three years of successful implementation of the EU project MORE, the Final Project Workshop on “**Real-time Monitoring and Optimization of Resource Efficiency – From Measurements to Optimal Operation**” was held on 15-16 February 2017 on the premises of DECHEMA in Frankfurt, Germany. During the workshop, over 60 participants discussed the outcomes of the project and recent and future developments in monitoring and optimization of resource efficiency in the process industries.



Since November 2013, the MORE project has developed indicators to measure resource efficiency of chemical production plants during daily operations and implemented operator support and optimization methods in 4 industrial plants. The developments led to significant improvements already during the duration of the project and will be rolled out further after the end of MORE. The aim of the workshop was to share the results and experiences and to discuss them with a broad audience of experts from different sectors of the process industries.

Svetlana Klessova, Director at inno TSD Director and MORE project coordinator welcomed the audience, who stressed the importance of sustainability for the European process industries and thanked the project team for the excellent collaboration and great work that made the MORE project an example of a European project with immediate as well as long-term impact. Ivan Scannapiecoro from the European Commission felicitated the project for its success and impact and stressed the importance of the results for other process industries. Àngels Orduña, the Executive Director of A.SPIRE, outlined the importance of resource efficiency for the process industries in Europe and the contribution of the SPIRE program within Horizon 2020 and the role of the SPIRE Association.

The scientific programme started with an introduction to the project and the MORE Resource Efficiency Indicators (REIs) by Sebastian Engell, Professor of Process Dynamics and Operations at the Technical University of Dortmund and MORE Scientific Leader. The following presentations illustrated the application of the MORE resource efficiency indicators and the decision support tools in two of the MORE case studies. MORE developments led to 3% energy savings in the evaporation process in viscose production at Lenzing AG, Austria, Europe’s leading viscose manufacturer, exceeding expectations by far. The optimization of the hydrogen system in Petronor’s oil refinery in Bilbao, Spain led to significant savings in the consumption of raw materials and seven-digit cost savings. LeiKon, a consulting and IT solutions provider from Germany, presented new technology for

configuring and implementing REI computations in heterogeneous IT environments. MORE also developed a step-by-step guidebook for the definition, selection and utilization of real-time Resource Efficiency Indicators that was presented by MORE partner VTT, Finland. A presentation of the EPOS project on improving resource efficiency by symbiosis of several industrial sectors by CEMEX, a leading European cement producer concluded the presentations of the first day, followed by a reception with discussions around posters presenting details on the MORE developments.



On the second day, INEOS gave an overview of the developments within MORE for the petrochemical site in Cologne, Germany. In collaboration with other MORE partners, INEOS developed operator dashboards to visualize resource efficiency to operators and plant and site managers and tools to help them improve efficiency. The dashboards that are based on a specific MORE design for REI visualization will be rolled out during 2017 and 2018.

S-PACT, Germany presented their work on real-time process analytics and stressed the importance of precise real-time composition measurements. Stefan Krämer, INEOS in Köln Site Energy Manager and MORE Industrial Application Coordinator then gave an overview of the MORE approach to improving resource efficiency in integrated production sites by real-time monitoring, visualization, optimization and improved control, and of the expected gains from rolling out the technology to the European process industries.

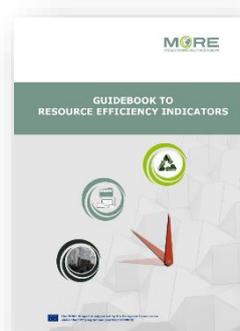
Then a panel with well-known experts from the European process industries moderated by Prof. Engell discussed the applicability of the MORE approach in other companies and industries, the lessons learnt, challenges, and steps forward towards a more sustainable production in Europe. Panelists were Dr. Kai Dadhe (Evonik), Dr. Alex van Delft (DSM), Dr. Martin Jenke (CEMEX), Dr. Stefan Krämer (INEOS in Köln), Dr. Günther Windecker (BASF) and Dr. Martin Winter (CEFIC and A.SPIRE).



The experts agreed that the developed resource efficiency indicators and methods for optimization and decision support were indeed “relevant for the diversity of processes we have in the company”, as stated by Alex van Delft, DSM. He added that “I am very pleased to see also that the “people” aspect has rightly been taken into account, as engaging staff (operators) is very important.” Kai Dadhe, Evonik, added, with the agreement of the whole panel that “the visualization tools are specifically convincing – and you need these when you want to show to the operators where potential improvements can be made. (...) At Evonik we are also interested in evaluating the feasibility of applying the technology developed by the MORE project partner LeiKon in our system.”

Further aspects of the discussion concerned aspects of IT integration, long-term maintenance of solutions, and pressing topics for future research and innovation projects. Martin Winter announced that the aspect of digitalization will play an important role in future SPIRE calls as significant improvements can be achieved without large investments into new plants.

The participants continued the discussion in small groups after the end of the plenary discussion. The final workshop confirmed that the MORE project followed the right approach and will have a significant impact, both in the companies involved and on a broader scale.



MORE Guidebook to Resource Efficiency Indicators:

Available for download under [“MORE Guidebook and REI Database”](#)

About the MORE final workshop:

Check out the complete information and presentations [here](#).

MORE project website: <http://www.more-nmp.eu/>

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About the MORE project:

MORE is supported by the European Commission under the FP7-NMP programme.

Start Date: 1st November 2013

Duration: 40 months

Total budget: 3,919,174 €, including a contribution from the European Commission of 2,815,572 €

MORE consortium members:

	<p>inno TSD, France – one of Europe’s leading innovation management consultancy firms, specialised in helping major private and public stakeholders design and implement R&D and innovation projects. http://www.inno-group.com/</p>
	<p>PETROLEOS DEL NORTE SA, Spain (Repsol group) – the biggest petroleum refinery in Spain with a deep knowledge of petro-chemical processes. http://www.petronor.com/</p>
	<p>INEOS Köln GmbH, Germany – operating the INEOS petrochemical site in Cologne, Germany, and part of the INEOS Group. The INEOS Group is one of the leading world scale chemical companies. http://www.ineoskoeln.de/</p>
	<p>BASF Personal Care and Nutrition GmbH, Düsseldorf, Germany – a global supplier of nature-based specialty chemical products and nutritional ingredients and one of the most important European research locations for personal care products worldwide. http://www.basf.com/</p>
	<p>LEIKON GmbH, Germany – an innovative company working in the area of MES (Manufacturing Execution Solution) and process control engineering. http://www.leikon.de</p>
	<p>VTT, Technical Research Centre of Finland – the largest multidisciplinary research organisation in Northern Europe, providing high-end technology solutions and innovation services, and having extensive knowledge in sustainability assessment and standardization. http://www.vtt.fi/</p>
	<p>TECHNISCHE UNIVERSITÄT DORTMUND, Germany – a leading German technically oriented research university with strengths in chemical engineering and in the operation of chemical processes. http://www.tu-dortmund.de</p>
 <p>Universidad de Valladolid</p>	<p>UNIVERSIDAD DE VALLADOLID, Spain – a European university with an excellent research group in chemical process operations. http://www.uva.es</p>
	<p>S-PACT GmbH, Germany – a Process Analytical Technology solution provider for process industries and scientific research institutions, with a focus in optical online spectroscopy. http://www.s-pact.de</p>
	<p>LENZING AKTIENGESELLSCHAFT, Austria – world market leader in global textile and nonwovens industry with high-quality man-made cellulose fibres, the leading supplier in many business to business markets. http://www.lenzing.com/en</p>