Integrated Process Control based on Distributed In-Situ Sensors into Raw Material and Energy Feedstock

- **H2020-SPIRE-2014**
- **01/01/2015** to **31/12/2017**
- Partners: 15

Coordinator

Presenter
Project Case Study

DISIRE is evolving the existing industrial processes by advancing the Sustainable Process Industry through an overall RESOURCE AND ENERGY EFFICIENCY improvement by significant contributions in the fields of:

A. Novel concept of sensors for inline measurements
B. Online PAT analysis
C. Big data analytics for modeling and control
D. Real time integrated process control reconfiguration schemes, and real life experimentation and demonstration.
What are the key expected sustainability impacts of DISIRE?

**Chemicals**
- Increase overall energy efficiency by 2% - 5%
- Reduce GHG emissions by 2000 TOE/year per cracking furnace
- Optimizing predictive controller for improvement of processing control
- Increase safety of operations
- Reduce production costs (concrete values TBD)

**Mining**
- Increase the amount of extracted copper with 0.1%
- Increase overall energy efficiency by 1% - 4%
- Decrease energy consumption of conveyor belts up to four times
- Decrease downtimes and maintenance costs

**Steel**
- Reduction of shipment deviation with up to 50%
- Reduction of deviating inventory positions of up to 50%
- Reduction of operating costs by up to 20%
- Reduction of oil and coal usage of 0.1 l/ton
What outputs or learning from DISIRE could have value for other SPIRE projects here?

- Inline Sensing Technology
- Generalized Machine Learning Process Identification Modules
- Cloud Infrastructure for online PAT analysis
- Process Identification Toolbox based on inline sensing
- Interactive Innovation Toolkit
- Novel hybrid data-model driven combustion diagnosis tools

DISIRE will organize a final training event in a Seminar approach for industrial experts.  
13-14 December Barcelona  
“Tackling the Future of Plant Operation – Jointly towards a Digital Process Industry”

Interested to attend?  
Contact: George Georgoulas – geogeo@ltu.se, georgoul@gmail.com
What **outputs or learning** from DISIRE could have value for other SPIRE projects here?

**NOVEL SENSORS**

**NOVEL BIG DATA ANALYTICS FOR CONTROL & ONLINE PAT**
What **outputs or learning** from DISIRE could have value for other SPIRE projects here?

**5 FULL SCALE DEMOS**

- Blast Furnace
- Sintering plant
- Cracking furnace
- Walking Beam Furnace
- Cooper mining
BETTER PROCESS
BETTER CONTROL
BETTER KNOWLEDGE
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