The ENERGY-SMARTOPS project

Energy-Smartops Consortium PITN-GA-2010-264940

1st February 2011 to 31st January 2015
The ENERGY-SMARTOPS project

- Energy savings from smart operation of electrical, process and mechanical equipment

...“The EU’s action plan, Energy (2007-12), ... sets out a strategy to achieve 20% reduction before 2020 and suggests that manufacturing industry has the potential to achieve a 25% reduction.”...

- *Smart operation* makes use of new ICT and communications technologies and advanced algorithms such as optimization.
**ENERGY-SMARTOPS consortium**

- **€3M Marie Curie Initial Training Network (ITN)**
  - Imperial, ABB, BASF, Cranfield University, ETH Zurich, ThyssenKrupp, Polytechnic University of Krakow.
  - With associated partners: Carnegie Mellon University, ESD Ltd, and Statoil

- **Interdisciplinary experts in**
  - Drives, motors and rotating machinery
  - Condition monitoring and signal analysis
  - Automation, control and process operation
  - Modelling and optimization

- **Industry sectors**
  - Chemicals, steel, oil and gas industry,
  - Power electronics, automation and simulation
Challenges
- Manufacturing industry to reduce energy consumption (25% before 2020)
- Manufacturing industry has a huge base of existing installed assets
- Savings must come from better operation of installed assets

Project aims
- Automation systems with an integrated approach
  » processes, rotating machinery, electrical equipment
- Optimizing operation of equipment
- Optimizing workflows and intelligent decision making
Objective 1: Equipment monitoring systems e.g. using electrical/mechanical interactions for diagnosis

Objective 2: Performance monitoring and control e.g. optimal control of compressor train

Objective 3: Integrated energy savings e.g. energy management and electrical supply optimization
We aim to:

• Help the environment, reduce CO₂ emissions and energy use by
  - getting more from the same energy
  - operating already-installed equipment better
  - using smart process operations for energy savings

• Devise methods for smart operation
  - advanced algorithms such as optimization.
  - software, models, algorithms
  - decisions based on analysis of data.

• Demonstrate the methods are practical and valuable

• Disseminate findings through a synoptic web site:
  - information about energy saving
  - links to resources
  - results from energy saving projects
  - summaries and short papers
An excellent cohort of high calibre Early Stage Researchers

- Training by research on the job and in PhD programmes
- Training courses from consortium partners and associated partners
- Taking secondments to consortium partners and associated partners

Victor in Poland
David in Norway
Hubert in Germany
Matteo B in Germany

TBA

Alejandro
Jose Gregorio

Matteo C

Associated partners
hosting secondments

Ricky
Dionysios
Sara

Bart
Coordinator contact details:
Nina F. Thornhill
Imperial College London
South Kensington Campus
London SW7 2AZ
n.thornhill@imperial.ac.uk