

# HIPCON Public summary progress report M1-6



## ***Introduction***

Process industries in today's highly competitive global market must reconsider their production control policies and strategies if they are to achieve sustainable production and increase their competitiveness. In order to attain sustainable and economically efficient production, it is necessary to take a holistic view of process control and management. This can only be accomplished by integrating consideration of product quality, process economy and environmental impact in the next generation process control and optimisation systems.

The HIPCON project aims at developing methodology and technology to facilitate transformation of the European industry to adapting holistic process management from a life-cycle perspective. In order to demonstrate the results and measure advantages a prototype software platform for multi-objective optimisation and control will be developed. In the end of the project the system will be implemented and demonstrated at the two case study industries.

The HIPCON project is a 6<sup>th</sup> framework NMP priority STREP with contract number 505467-1 with 3 years duration from January 2004 to December 2006.

## ***Project progress***

The first six months of the project have constituted a preparation phase to place the foundation for and streamline further work. Efforts have been devoted to analysing and describing the two industrial process case studies, steel manufacturing at SSAB Oxelösund AB and the Stockholm Vatten AB wastewater treatment plant (WWTP). For both processes historical data have been collected and some initial work on evaluation of process data have been made.

In the steel plant the HIPCON project will mainly focus on the steel making part of the process, e.g. the so-called LD converter process. A key objective is to reduce and predict slopping in the LD converter which is of relevance both economically and environmentally.

In the WWTP the focus will be on chemical precipitation and the activated sludge process. One objective, among others, is to optimise the addition of precipitation chemicals, i.e. to minimise the dosage while maintain a high quality on the effluent and a stable process.

Another part of the work during the first six months has focused software requirements and specifications. Functionality and performance requirements for the software prototype have been specified and during the last months of the period work on software architecture has commenced.

## Partners

The development of a holistic process management system clearly requires close co-operation among experts in a variety of fields. Cutting edge research in several different areas is necessary, e.g. economic, environmental and process modelling, multi-objective optimisation and control theory. Integration of the research is of paramount importance. The partners of the project are:



### **IVL Swedish Environmental Research Institute, co-ordinator**

IVL is Sweden's leading organisation for environmental research. In HIPCON, IVL works primarily with project management, environmental modelling and process modelling.



### **London School of Economics and Political Science**

The activities of London School of Economics and Political Science in HIPCON are in the fields of econometrics and statistics.



### **Computer Technology Institute (CTI)**

CTI specialises in applied research related to computer science. In HIPCON, CTI works with decision support systems and is responsible for integration and implementation.



UPPSALA  
UNIVERSITET

### **Uppsala University, Division of Systems and Control**

The division does research in such areas as system identification, signal processing, fault detection and automatic control. UU is responsible for model based control.



### **IMCG Ltd**

IMCG is an international management consulting company based in London. IMCG works with dissemination and commercialisation of the project results.



### **SSAB Oxelösund AB**

SSAB is one of the medium-sized steel companies in Western Europe. The steel production facility in Oxelösund is one of the case studies in the project.



### **Stockholm Vatten AB**

Stockholm Vatten produces drinking water and manages and treats wastewater from Stockholm and neighbouring municipalities. One of the company's wastewater treatment plants is a case study in HIPCON.

## Contact information

Visit the project web site [www.hipcon.org](http://www.hipcon.org) for up-to date information about the project. For further information, contact the project manager at IVL, Jonas Röttorp ([jonas.rottorp@ivl.se](mailto:jonas.rottorp@ivl.se) , +46-8-59856300)