EDITORIAL

The ULCOS program was launched in 2004. Its objective was simple: identify and develop solutions for making steel with a reduction of CO_2 emissions of more than 50% compared to what is achieved by the best performers today.

It was a pioneering approach for two quite different reasons.

On the one hand, the Steel Industry had been using production processes which are very efficient in terms of energy consumption and therefore there were no simple "no regret" solutions for cutting CO_2 emissions, based on the lever of energy savings. Breakthrough solutions based on "decoupling" had to be imagined and developed.

On the other hand, the level of threat due to Climate Change and the magnitude of the reaction that was appropriate to mitigate it were not clearly acknowledged by all stakeholders in the early 2000 years.

5 years into the program, the approach has been fully validated.

The threat is there without doubt, the level of mitigation ought to be very high and breakthrough solutions are needed, because the close loop society where materials can be produced by recycling is still very far away in the future, beyond the time horizon set by the Climate Change temporality.

The program has sorted what it presents as the best possible iron and steelmaking technologies for the future, out of an array of more than 80 potential ones. It has set forth to develop them all the way to the scale where they can be deployed in an industrial context. This cannot be achieved within the 5/6 year long, 75 million euro present ULCOS program, but new programs meant to pick up the various new processes where they stand now and develop them further are being framed and launched, with a budget of more than 500 millions euros at least.

ULCOS has been an adventure involving 48 organizations and more than 120 people covering virtually all the integrated steelmakers in the EU, industries representatives of the steel value chain, research institutes and universities from 11 countries. The program has been supported by the European Union Commission through three RFCS and one 6th Framework grants.

Beyond the blueprints and the roadmaps of new processes, the program has also produced many models, which were needed to help it move forward towards its target.

These special issues of the Revue de Métallurgie present part of the presentations on modeling which were given at a special session of the ULCOS seminar held in Essen from the 1st to the 3rd of October, 2008.

The models cover a broad range of disciplines, from process engineering, micro- and macro-economic modeling, flowsheet modeling, environmental modeling, up to the modeling of the ecosystem within which biomass from plantations grows.

These models and the results they have produced ought to be of interest in a broader context than ULCOS'.

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