

Newsletter

Issue 11 – July 2013



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Editorial

Some news from Brussels:

1. the status of ESTEP as a technological platform was reconfirmed, after the assessment carried out by the Commission.

2. The High Level Group on Steel concluded that the steel industry is an essential sector for Europe and for its future and that R&D will be a key element to help the sector ride out of the economic crisis. A Green Paper on a 2030 framework for climate and energy policies was published at the end of June by DG Energy to project their energy vision for 2030 and prepare for the target of 88/92% reduction in GHG emissions by 2050.

3. The Irish presidency managed to sanctuarize the budget of the next research framework program before the end of June: 70.2 billions Euros will be made available over the seven years that the HORIZON 2020 will last. This gives a green light to launch H2020, until now stuck in EU budget discussions.

4. The status of SPIRE (Sustainable Process Industry through Resource and Energy Efficiency) as a PPP (Public Private Partnerships) was confirmed on 10 July 2013. This is one of the initiatives at EU level, which are of paramount importance for the ESTEP community. Some EIP (European Innovation Partnership) should also be mentioned in this class: the EIP on Raw Materials, the EIP on Water, and also the EMIRI initiative (Industry Materials Industry Research Initiative), which did not get the PPP status yet but was assured of significant funding for the EU. EIP and PPP will help the Commission flesh out its future Research & Innovation programs in H2020 through strategic implementation plans (SIP) on the one hand and roadmaps on the other. Volunteers from the ESTEP constituency have been called upon to sit in various working groups to prepare these documents.

5. RFCS, the research program that has been closest to Steel for the last 13 years, has published a Monitoring Report and an Assessment Report, which analyze the achievements of the first ten years of the program. They show, for example, that the average value creation of an RFCS project, which received support, is 7 times its budget. A very high leverage level, considering that it is

further increased by mutualisation of research in a consortium and by subsidies.

6. ESTEP is changing officers and actors. Nicol Remoy left early this year and Bertrand de Lamberterie at mid-year. The ESTEP community is indebted to both for their outstanding contributions and wishes them the best in their new activities. Rosellina Di Santo and Jean-Pierre Birat are filling in their jobs.

7. ESTEP has recently published some important documents, like a new SRA, a Mission statement for "WG2 Transport" and a document on Steel & Water prepared with the WssTP, the water Technological Platform. ESTEP was also very active in the preparation of the SPIRE roadmap. ESTEP helped organized the final conference of the GT-VET project and sponsored the 8th Seminar on Society and Materials.

I wish you all a revitalizing, sunny and creative summer!

JP. Birat

Jean-Pierre Birat, the new Secretary General, introduces himself



I joined ESTEP as Secretary General on the day that EU-28 was born, hopefully a good omen.

I am a French scientist and engineer, freshly retired from ArcelorMittal, where I worked for 43 years in connection with R&D, formerly with IRSID. an ArcelorMittal Group expert, I was recently in charge of a research team called sustainability, and spent a large part of my carrier launching and running large projects, like ULCOS recently and Myosotis of the Circle of Iron previously. I was also chair of TGS2 at RFCS and of WG4, in ESTEP, and thus grew familiar with the EU research sphere. I have publication list of 400+ papers and conference contributions and teach in places like USTB.

I am aware of what the two previous Secretary Generals have accomplished. Jean-Claude Charbonnier created the Platform from scratch and gave birth to one of the first ETPs. Bertrand de Lamberterie fleshed it out by refreshing

the SRA roadmap, instilling life in the various working-groups that are the flesh and blood of ESTEP and helping create two essential initiatives, related to the new Horizon 2020 framework program of the Commission, SPIRE and EMIRI. Following on the steps of these two giants will be tough.

ESTEP is a community of people, giving their time, their energy and their imagination to project what the EU steel industry wants to become for the next 20 and 30 years. I think that ESTEP is unique in the world at the scale of a powerful regional organization such as the European Union. It is probably little known that the consumption of steel per capita, at 310 kg/cap, is the highest of any region in the world, be it NAFTA or Far-East Asia: it shows how strong and essential steel still is in our continent. With your help and the leadership of our President Heribert Fisher, ESTEP should continue to proceed forward with pride, imagination and success for the next few years.

JP. Birat

Jean-Pierre Birat is 65. He is married to a French University professor born in the US and has two children, a cloth designer and an environmental engineer. His home is in Lorraine, France. His hobbies, besides work, are photography, biking, teaching, making friends, philosophy and art.

WG1 PROFIT



Two meetings were held in the first half of the year (in January and May) with a strong involvement of the members. Due to the persisting difficult economic situation, one meeting on two is organized as a web and telephone conference.

The most important technical items debated by the working group can be

summarized as follows:

- An active contribution to the updating of the ESTEP Strategic Research Agenda (SRA), the working group taking care more particularly of the chapter 2.2 "Safe, cost-effective and lower capital technologies"
- A close follow-up of the RFCS programme. Analysing the results of the 2012 RFCS call, a high concern was expressed about the significant decrease of process-related proposals accepted for funding. An internal discussion has been launched to boost the preparation of the future proposals and their alignment with priorities meeting the objectives of the European Steel Sector.
- A full support the "SPIRE" initiative with several actions and recommendations addressed to the "Support Group" of ESTEP:
- The need for a "common and unique voice" defending the Steel position in the highest levels of the SPIRE organization
- The building of an ad-hoc monitoring team regrouping all the active ESTEP representatives involved inside SPIRE in order remain perfectly informed about the evolution in the 6 SPIRE thematic items and to coordinate the Steel position.
- The launching of a large consultation among the Steel industrial members and R&D organizations to define the priorities for the 1st call selected in the items "Process" and "Waste to Resources"
- The ad-hoc working on "Integrated Intelligent Manufacturing (IIM)" has met in May with the objectives to redefine its main missions. It has also discussed the possibility to join the future European conference to be organized in April 2014 by dedicating a specific session on IIM items.

C. Marique

WG2 TRANSPORT



A visible demonstration of active workgroup members are four meetings in 2012 including two focus team meetings to finish our mission statement and three meetings in 2013 including one focus team meeting - up to now.

After finishing the mission statement this year we were invited to show the presentation to the ESTEP Steering Group members in March. It was a great pleasure to present the results of the group and to demonstrate the potential of steel nowadays and in the future.

The statement shows that mobility combined with steel is the combination of choice meeting the topics safety, affordability and lowest emission in a life cycle concerning passenger and goods transport.

We also demonstrate with this document that the development of and with steel won't stop. Research is an essential element and will be a major item of the steel industry to reach affordable solutions to fulfill the requirements of the transport sector in line with the aims and priorities of the European Union. New steels and steel related technologies which are under development are always focused on best processing like cold and hot forming or joining to keep steel solutions always ahead. New steel related products enhance the performance, reduce the weight and therewith the emission of cars - within an excellent price performance ratio.

Next topics of the group are related to underline the contribution of steel to best Life Cycle Assessment results. Our next meeting is scheduled on 1 October in Brussels. You are invited to send us your contributions and comments to let us know your ideas and priorities of future steel research.

O. Hoffman

WG3 Construction



WG3 group has been very productive in the first half of this year. The group's approach of having a core, active members group and a consultation platform of stakeholders has proven to be effective in delivering the group's activities. WG3 has been setting directions and supporting other initiatives including:

- Setting priority topics for RFCS call
- Supporting Research for Future Infrastructure Networks of Europe (reFINE)
- Updating ESTEP SRA
- Developing a new direction for WG3
- Setting up a specific initiative for WG3 roadmap development
- Presenting at a Workshop organised by FrameUp Project on Modular Steel Building (with speakers from America and Japan to share best practice) in June 13 2013 - Stockholm

Our recent WG3 meeting on 12 June, 2013 at The Swedish Institute of Steel Construction (SBI) was well attended. The group had a guest speaker Dr Ryoichi KANNO (Nippon Steel & Sumitomo Metal Corporation) who presented the Challenges of Steel Building Construction in Japan. The group sought to explore the applicability of Japan construction industry's approach to tackling similar challenges in Europe.

S. Boudjabeur

WG4 Planet

The Planet working group published a document on steel and water with the Water ETP (WssTP), Transversal Rtdi Themes Proposed by the Steel and Water Technological Platforms on Water and Steel. It should be used by the Water EIP (European Innovation Partnership) as the basis for its SIP (Strategic Implementation Plan) and then for Research calls. It is essential to review these documents quickly and to publish them timely. The paper is available on the web sites of ESTEP and of the WssTP (<http://www.wsstp.eu/files/WSSTPX0001/Water%20Steel%20Report%20vOnline.pdf>). It completes the roadmaps previously authored by WG4.

The group updated the RFCS list of priorities, which are related to its themes. This will feed into the negotiation towards a new set of priorities for next year.

Generally, Planet related issues are strongly represented in on-going research projects (RECREATE, MATVAL, CO2QUEST & PHOSTER, FP7 and LIFE+) and forthcoming ones.

Due to the chairman moving into the job of ESTEP Secretary General, the chair has become vacant. After an exchange about candidacies within the WG, a candidate emerged and was proposed to the Support Group, who accepted him.

Enrico Malfa, of CSM, will thus assume the chairmanship of WG4. He has been a faithful, strong and active member of the group in the last few years and should lead Planet to new heights. Thanks to him for accepting the charge and good luck!

The group would also like to thank Jean-Sébastien Thomas, of ArcelorMittal, who served as secretary carried out the duty of being the WG secretary and did it swiftly and well!

JP. Birat

WG 5 PEOPLE



Rudolf-Carl Meiler stepped down as WG 5 chair in February 2013. Veit Echterhoff, Head of the Human Resource Policy Department at ThyssenKrupp Steel Europe, was appointed as the new chairman.

Organized by EUROFER, ESTEP, industriALL (formerly EMF) and TUDO sfs, the project GT-VET held its final conference in Brussels with members of the EU Commission and European parties. Conclusions and training modules were presented. GT-VET's approach was highly appreciated and considered as offering relevance for the future. A high-level round table panel discussed "Green Skills Relevance for the Competitiveness of the European Industry", with participants from OECD, DG-EAC, EUROFOUND, industryALL, DG Employment, ESTEP and European Parliament.

The future perspective of a green skilled industry depends on three factors: recognition, large investment in finance and skills (governments, companies, etc.) and visions/illustrations/objectives (e.g. reports/papers from the European Commission, projects etc.). Skills need to be anticipated by education ministries in order to set up the appropriate curricula. Green Deals (like in the UK) have to be made. Anticipation to offer demand-related training is necessary. Green skills are transversal in covering all levels and all jobs, on the shop floor as well as in management, posing future challenges for companies with regard to the establishment of a common "mind set" for green awareness.

On 15 May 2013, WG 5 met in Brussels. The following decisions were taken for continuing WG5 work:

- prepare a survey for "retaining talents in the EU steel industry"
- develop a follow-up project to the GT-VET approach
- identify ways to integrate the workplace innovation approach in steel industry

V. Echterhoff

WG 6 ENERGY



In the first semester 2013 the working group continued to strongly support the European Commission(EC) public-private-partnerships (PPP) initiatives dealing with the group thematic topics such as Sustainable Process Industry Resource Efficiency (SPIRE - Applications) and Energy Materials Industrial Research Initiative

(EMIRI).

Various initiatives on renewables were carried out. On 8th of April for instance, the group also supported the EC workshop of the Research Fund for Coal and Steel (RFCS) "Future trends in finishing and coating for the European Steel Sector" focused on automotive and energy applications.

Coming to the funding, 3 additional projects in the FP7 framework started, 2 on CO₂ quality and 1 on materials for the nuclear sector.

The CO₂ projects aim to address the influence of CO₂ quality on transport, while developing knowledge and unified rules for design, fracture control and overall fitness-for-service of pipelines for safe transport during the entire life-span.

Concerning proposal presented to and projects allowed by the RFCS program, the major trend is a sharp increase in numbers, in line with expectations of the SET- PLAN roadmap.

The interest for energy steel products and applications is continuously growing!

P. Gimondo

Steel Low Carbon Roadmap

EUROFER contracted the Boston Consulting Group (BCG) with support from VDeH to assess options to decrease CO₂ emissions until 2050 in the EU Steel sector. Published in May 2013, the study looked both at sectorial emission reduction and at the induced cuts in the rest of the economic due to the use of innovative steel solutions.

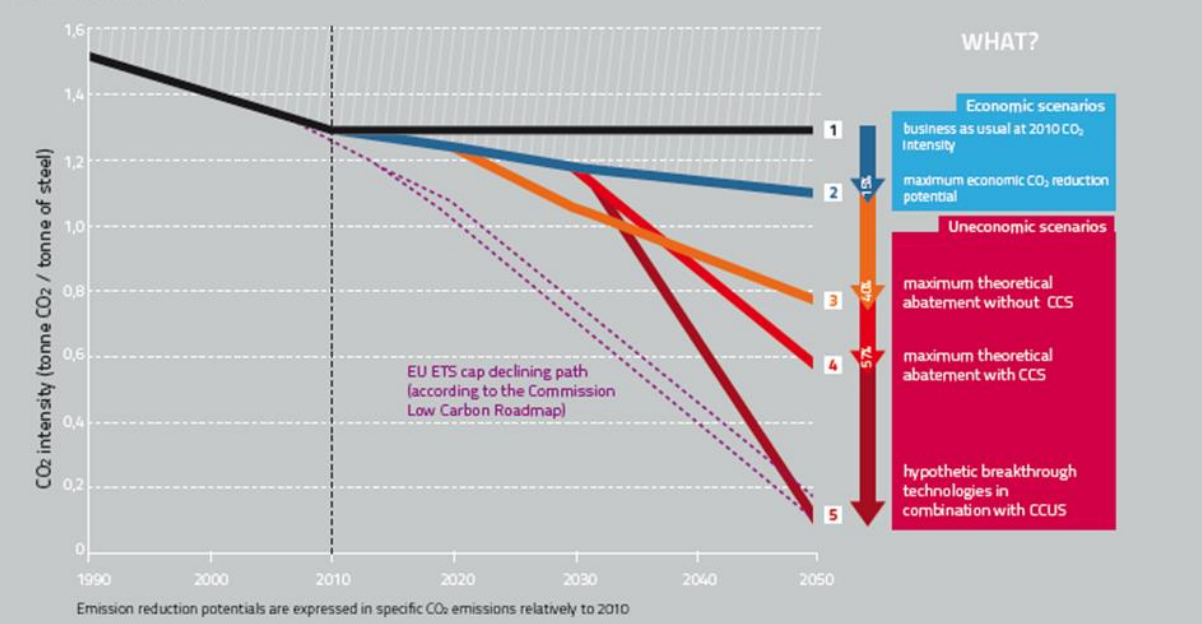
EUROFER published its own "Steel Roadmap for a Low Carbon Europe in 2050" on 3 July 2013, based on various publications beyond the BCG report. The point was to come up with a set of recommendations regarding policies that would make EU steel's contribution to the decarbonisation of Europe a success.

CO₂ emissions dropped from 1990 to 2010

CO₂ emissions from EU27 steel production fell by 25% between 1990 and 2010, from 298 Mt to 223 Mt, due to a partial shift from the integrated to the electric arc furnace (EAF) route, a contraction in production volume, efficiency gains, and, the decrease of CO₂ emissions from electricity generation. Specific CO₂ emissions decreased by about 15%, from 1.508 to 1.293 tonnes CO₂/t of steel.

TECHNICAL CO₂ INTENSITY PATHWAYS UP TO 2050

Source: BCG-VDEH, EUROFER



Potential of further CO₂ emission reduction from 2010 to 2050

For the 2050 horizon, BCG analysed three decarbonisation scenarios:

- the first one, called the economic scenario, focuses on implementing incremental, cost-effective innovations and sharing best-practices through-out the sector, taking on board an increased share of EAF production from 40% today to 44% in 2050, due to the increased scrap generation, and the expected drop in the CO₂ intensity of the power sector. In this scenario, specific CO₂ emissions decrease by 10% between 2010 and 2030 and by 15% between 2010 and 2050.
- the second scenario, called the direct reduction scenario, projects a drop in specific CO₂ emissions of 40% between 2010 and 2050. However, with the current energy price conditions prevailing today, this scenario is not economically feasible as the DRI-EAF route on which it is based relies on natural gas and electricity. If prices were to become more favourable, the change over to this route would require huge investments that would keep its economic feasibility in doubt.
- the third scenario, called the CCS (CO₂ Capture & Storage) scenario, exhibits a CO₂ intensity of ca. 0.7 tonne CO₂/tonne of steel), and involves the retrofit of existing blast furnaces to the ULCOS-BF top gas recycling technology. The scenario reduction in specific CO₂ emissions would be ca. 60% in 2050 compared to 2010. This still falls short of the EU's 80-95% aspirational reduction objective.

It can be concluded that from today's perspective and given current energy market conditions and infrastructure, the ambitious objective proposed in the Commission Low Carbon roadmap for the ETS of 43-48% by 2030 and 88-92% by 2050 compared to 2005 levels is unachievable for the steel industry unless alternative innovative steelmaking technologies combined with CCS are deployed at industrial scale and at the same time steps are taken to shield the sector's competitiveness against EU climate policy-related distortive effects on the global steel markets.

In view of the above, the EU steel sector will need substantial support and co-operation from policy makers to shape the right framework conditions in order to maximise its contribution, especially regarding CO₂ mitigation at process level. The forthcoming 2030 Climate and Energy package has to acknowledge that industry sectors like

steel cannot go ahead on the decarbonisation path at the same pace as others.

Steel as a CO₂ mitigation enabler

According to BCG case studies on eight CO₂ savings applications for which steel cannot be replaced by any other material, the yearly savings for EU27 due to these applications alone would amount to 440 Mt of CO₂ per year until at least 2030. This amount ought to be compared to emissions related to producing the corresponding steel grades (70 Mt CO₂ per year) and to the total EU steel industry emissions of 220 Mt CO₂ per year. Most of these savings would take place in the power and the transport sector. Steel is part of the solution and will definitely be key to the achievement of the EU's low carbon objectives.


D. Valenti

SAM-7, the latest edition of the "Society & Materials" seminars, Aix-La-Chapelle, 25-26 April 2013



The 7th edition of the SAM seminars was hosted by RWTH, organized by ArcelorMittal and the host University and sponsored by ESTEP, Materialia and IRTM2P. 84 people attended and presented 31 communications from 3 continents and 13 countries,

representing structural materials (steel, aluminium, plastics and bio-sourced materials) and a broad range of disciplines (architects, process and materials engineers, biologists, sociologists, economists, ecological scientists) and communities (LCA, MFA). The seminar has hit all its targets and demonstrated the lively status of innovation in methodologies related to sustainability assessment and metrics. LCA is well and alive in the community of LCA practitioners and ought to replace antiquated indicators like "fuel economy" in EU policy making – an enormous progress for steel! The limitations of present LCA are also being clearly identified (e.g. fairly large *uncertainties*, which make comparison between competing materials not always clear-cut, need for "dynamic LCA"). The most powerful way to use LCA is as a basis for ecodesign. To broaden the scope of available methodologies beyond the micro-scale nature of LCA, MFA (Material Flow Analysis) is becoming more powerful and used for strategy and



polycymaking. Holistic methods encompassing all the pillars of sustainability are also being developed, including a significant effort on the social dimension.

SAM-8 will take place in Liège, on 20-21 May, at ULg in Liège, Belgium

JP Birat

Forthcoming events

Meeting WG4: 18 September – Brussels

Meeting WG1: 25 September – Brussels

Meeting WG6: 27 September – Brussels

Meeting WG2: 1st October – Brussels

Meeting WG5: 11 October – Brussels

Meeting Support Group: 15 October – Brussels

EMIRi Steering Committee: 24 October – Brussels

SPIRE General Assembly: 21 October- Brussels

Horizon2020: 22 October – Brussels

IAG Spire: 4 October – Brussels

MEFOS anniversary: 3 October – Luleå

CSM celebrations: 23/24 September – Rome

CENIM 50th anniversary: 24/25 October – Madrid

The ESTEP Newsletter is issued on a regular basis by the ESTEP Secretariat to the ESTEP members. The editorial panel consists of JP Birat, Rosellina Di Santo and WHL. Moonen. Contributions for the newsletter can be sent to the ESTEP secretariat.

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