

What are we without steel?

In the third and final part of his exclusive interview with Dr. Edwin Basson, director-general of worldsteel, **Matthew Moggridge*** discusses carbon emissions, climate change, the environment and sustainability.

Heavy industry and the environment, now there's a marriage made in heaven, but it all depends on your perspective. On the one hand, technology providers supplying steelmakers – companies like SMS-Siemag, Siemens Vai and Danieli, to name but three – have pushed the envelope in terms of developing production systems that are designed to reduce carbon emissions. On the other, there are clearly worries, certainly in Europe, where European steelmakers are making their feelings known about EU climate policy and its adverse effect on industrial competitiveness going forward.

Dr. Edwin Basson, director-general of worldsteel, says that 'environmental sensitivity' is a global phenomenon. "I don't think there's a place in the world where the broad concept of being green doesn't exist," he said. "There is a growing realisation that carbon is important, but it's probably not the only thing that we need to focus on."

According to Dr. Basson, carbon emissions have been behind most of the lurid headlines concerning the environment. "I think the realisation is yes, carbon emissions are important, but there are other things: water is becoming increasingly important, air cleanliness too, and many of these things have nothing to do with carbon emissions," he said, adding dust and particle emissions to the mix.

That said he realises that Government attention has focused largely on carbon emissions 'for the moment' partly because it's a measurable handle on which to assess progress and a good indicator of what happens to other emissions.

"If we were able to get a level playing field it would be very nice. Sadly, I don't personally believe it will be very soon, even if there is willingness from governments around the world to put a price on carbon, the approaches are vastly different," he said.

He alluded to vastly differing carbon trading schemes in

different parts of the world and carbon taxes elsewhere. "There are carbon taxes that are specifically linked in to mitigation systems where the taxes are legally committed to mitigation; and elsewhere there are taxes that are not committed to mitigation and can go into the normal tax pool," Basson explained.

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Basson believes that, in an ideal world, the best approach would be a fully international, tradable system, which can then, through market-related impacts, find a level of carbon emissions. "But how do you treat not only industries of the same type in different parts of the world the same, but also different industries in one region on a level playing field? We will not be getting to a level playing field in the near future," he said.

A level playing field

Is the lack of a level playing field good or bad? "I think that, probably, the most we can say is it's inconvenient. None of the other resources that we use – our raw materials, our manpower and interest rates for capital investment – are the same around the world. Maybe we're buying the same raw materials, but the transportation costs are different, the handling costs are different at a local level, labour is different in terms of productivity and in terms of training and endurance. So this becomes one of the other 'uniquenesses' that we need to understand around the world," Basson said.

He argues that carbon leakage is likely to become an empty term as the 10 largest steelmakers around the world are, to a greater or lesser degree, already involved in carbon mitigation systems. "So, in a way, you could say it is a level playing field in the sense that everybody is at least paying some price for carbon. In another sense it's not level because prices differ from one region to another – that's life," he said.

The term 'carbon leakage' was born when Europe was investigating ways of putting a price on carbon. "Eventually they did so by having a tradable instrument called the ETS. In the debate around what would be the impact if you started pricing carbon in Europe, but not elsewhere, the term 'carbon leakage' was born," said Basson.

The argument is simple: if you start charging for carbon in Europe, but not in, say, India, then it's quite likely that producers will relocate from Europe (where they pay to emit carbon) to a place where they don't have to pay – and in that way Europe ends up having the weakest or the worst of both worlds. "They lose production capacity with the accompanying loss of employment and because of this, capacity relocates to another place where they still pump carbon into the atmosphere and this is seen as 'carbon leakage'. In other words, as a result of a carbon focus – or an excess of focus on carbon – businesses are forced to relocate, which means you find leakage as a result of the carbon, but the carbon emissions continue," he said.

In many ways this is the 'green dilemma' facing the global steel industry today and

for Basson the big question is: what is the likelihood of a stable and constant supply of energy – be it electrical, natural gas or anything else? "Clearly, all energy relates to carbon emissions," he said, adding that, according to the World Energy Association, around 46% of all carbon emissions are linked directly to energy production – and a big part of that sits in the developed world."

Another big question is: what is going to happen to future energy supply? If you want to develop a business in Europe where you have guarantees of long-term supplies of energy, argues Basson, then Europe is still a good place to be a producer of steel – particularly where higher grades of steel are concerned (for aerospace, some parts of automotive and shipbuilding, machinery and so on).

"If you don't have access to a stable supply of energy then most likely you will have to consider a production process for steel that generates its own energy," said Basson, explaining how the blast furnace does this best because 'chucking the carbon into the blast furnace by way of coking coal really becomes the energy source for the reduction of iron oxides into iron'.

"This is why we find that the first choice of steel making capacity tends to be the blast furnace because there is not enough electrical energy available at one level, and secondly there is most likely not available scrap in sufficient proximity to the new facility to be able to use an electric arc furnace," said Basson.

Sufficient energy supply

The question for European steelmakers in future, says Basson, is not whether Europe is a good location to put a new facility, but can we get a sufficient energy supply and can we sell our product into applications that have sufficient premium in terms of sale price, that allow us to carry the extra cost in carbon for energy use for steelmaking?

Such an argument implies that electric steelmaking is less viable in Europe than BOF. Basson argues that the latter is probably 'more viable' stating that where the former is concerned, a relatively constant availability of scrap and a well-established energy supply network is required – both of which Europe offers. "But it's reaching the end of its lifecycle," he said, pointing to nuclear power's unpopularity and the fact that while coal is unpopular from a carbon perspective, it is far from reaching the end of the road. Wind power is popular but unreliable and solar energy is not really an option.

Energy, in other words, is a key determinant when considering the development of a new steel plant in Europe and, as such, would go against

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electric steelmaking.

"Against the BOF will be that, most likely, you won't get the environmental licensing," he said, arguing that more existing BOF operations will be refurbished to comply with licensing regulations and will be larger, more 'state-of-the-art' and, therefore, more efficient.

Environmental indicators

A set of eight environmental indicators measuring the performance of the global steel industry in close collaboration with 90 participating steelmakers have been established by worldsteel. Four of the indicators relate to production sustainability, two to the environment and two to social sustainability.

Basson says that safety and health indicators have consistently improved above and beyond the others and attributes their success to the emphasis placed on them by worldsteel and its member companies. "We are now at the point where general safety performance has improved substantially and is now in the same target range of many of our competitor commodities," he said, citing aluminium and oil. There were also vast improvements in energy usage and carbon emissions.

"Internally our target is to continue to work with those that are not performing so well so that we can drive them into a better performance environment," he said, adding that there has been an overall decline in carbon emissions and energy usage, but that a lot of work still needs to be done.

"A sustainable steel industry requires a number of things. Firstly that the industry is viable and sustainable on an economic basis; so many of the things that we work on are part of that process," he said, explaining how much of worldsteel's work in this respect is concerned with social sustainability and safety issues, but also training.

"We found a number of years back that universities stopped providing training in metallurgy as a science: it has become part of 'metal sciences' and our members are saying this is not good enough because they can't find good engineers to run their blast furnaces. As a result of this we have developed an e-learning programme, which is available to most universities around the world and is being used to train our engineers of the future," he said.

Basson believes that the overall sustainability of the steel industry is vital for the maintenance of modern society as without steel so many things that people take for granted are not possible. ■