Future in metallurgy under the perspective of a sustainable development

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Metallurgy *Sustainable development* *Decarbonation*

Abstract Sustainable development implies an efficient use of matter and energy, and the transitions necessary to fight global warming requires decarbonation both of our industry, and of our way of life. Making an efficient use of matter requires design procedures avoiding excessive safety factors, and leads to building lighter vehicles. It also requires a massive development of recycling processes which in turn will imply an evolution in our alloy design procedure. Decarbonizing our industry and our way of life can be efficiently attained by electrification of processes, when possible, and will lead to massive development of electricity production, which, in turn, will require again alloy design, alloy production, alloy implementation. Metals will play an essential role in the energy transitions, both for energy production, but also for energy vectors. Ut in order to develop efficient, durable and environmentally friendly devices, metals will have to live with other materials, to last longer, to be reused or recycled. The ideology of "fabless factory" and full delocalization having been proven totally inappropriate for a sustainable development, metallurgy appears as essential, both as a science, as a technology and as an industry.