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HOW THE EU HELPS NORTHERN SPARSELY POPULATED AREAS

Europe's northern sparsely populated areas face a common set of challenges linked to their remoteness, limited human capital and at times difficult climatic conditions. EU support can help them overcome these hurdles by facilitating new forms of economic activity and promoting greater use of e-technologies and innovative partnerships – ultimately improving people's lives. The EU-funded NorFast-HT project is one such example.

Northern Scandinavia forges new processes for steel production

An EU-funded project has developed new heat treatment technologies that can provide the Nordic steel industry with greener and more efficient ways to produce high-performance products, helping to position it as an international player.

The cross-border region covering the far north of Sweden, Finland and Norway is sparsely populated and remote yet home to a number of world-leading and innovative steel producers. The industry is important to the local economy and competes for business globally with companies from places like the USA and Japan.

An EU-supported project called the **Nordic Community for Fast Steel Heat Treatments (NorFast-HT)** brought together local steel manufacturers and materials science experts from Swedish and Finnish research institutions. The collaboration provided new innovations for steelmaking in the region that will give the participating companies a harder edge in the marketplace and help them overcome hurdles linked to their location.

NorFast-HT's main focus was to investigate the potential of using short-heat treatments in the production and processing of high-strength steel. Three laboratories for the industrial testing of induction heating were established by the project in Luleå and Lund, Sweden and Nivola in Finland.

NorFAST-HT supports a sector that has significant economic impact. In Norway, for example, the metals industry is one of the country's largest in terms of exports. In Sweden, some 26 000 jobs are linked to the steel industry, which generates substantial export earnings and tax revenues.



Regional and
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Researchers have created production machines for induction heating with the aim of producing harder steels than ever before, but in a way that is more cost-effective and environmentally friendly than traditional furnace and flame heating processes. Work covered the entire chain of production from raw materials to the manufacturing of bulk steel and the fabrication of end products.

Promising results

The NorFast-HT team has made significant progress in a number of areas relating to the hardening and tempering of carbon steels and the manufacturing of bulk ferritic stainless steel. It has also developed a novel processing route for the manufacture of ultra-high strength austenitic stainless steel. In addition, a new technology has been developed through the project that can bulk-scale the steel tempering process.

While the project closed in 2018, the work of its participants goes on. NorFast-HT has been established as an open forum and aims at cementing long-term research collaboration with the companies that participated in the initial project and other businesses that did not feature in the original consortium. New companies have already started preparations to join the community in future research activities, which could foster further innovations and economic opportunities.

The NorFast-HT community was founded at the University of Oulu, Finland in cooperation with Lund University, Luleå Technical University and Swerim-Mefos, a Swedish research organisation. Industrial partners in the first project were big steel producers SSAB Europe and Outokumpu and smaller companies Miilux, Swebor Stål and Olofsfors.



NORFAST-HT

Project full name: Nordic Community for Fast Steel Heat Treatments

Sectors: Research and innovation, Steel production

Project website: <http://norfast-ht.eu/>

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