Contribution ID: **47** Type: **Oral Presentation - Full Paper will be submitted**

Simulation of Logistics for Sustainable Steelmaking: Enhancing Efficiency in Green Steel Transitions

Thursday 22 May 2025 10:40 (20 minutes)

The transition to carbon-free steel production presents significant challenges for steel manufacturers, particularly in adapting to new process timelines, routes, and transport logistics. The shift from the conventional integrated plant based on Blast Furnace (BF) operation and Basic Oxygen Furnace (BOF) process to electric steel production entails substantial changes in secondary metallurgy and primary aggregates, disrupting established operational workflows. Additionally, evolving material flows - including scrap, hot metal, Direct Reduced Iron (DRI), and Hot Briquetted Iron (HBI) - necessitate a reconfiguration of production facilities.

Leading steel manufacturers worldwide use logistics simulations to optimize processes in melt shops and adjacent areas such as scrap yards, securing investments, and facilitating the transition to electric steel production.

This paper explores the role of simulation in addressing these operational complexities and supporting the industry's decarbonization efforts. It examines the critical importance of transport logistics simulation in integrating an Electric Arc Furnace into an existing BOF-based steel plant, with a particular focus on the case study of voestalpine Linz.

Author: Mr MÜHLBÖCK, Stefan (Primetals Technologies GmbH)

Co-authors: LEHNER, Joachim (Senior Expert Primary Metallurgy); Mr ÖRTELT, Peter (Primetals Technologies GmbH)

Presenter: Mr MÜHLBÖCK, Stefan (Primetals Technologies GmbH)

Session Classification: Transformation towards electric steelmaking (EAF, SMELTER)

Track Classification: Transformation towards electrical steelmaking (EAF, SMELTER)