

Accepted Manuscript

Title: An energy intensity optimization model for production system in iron and steel industry

Author: Biao Lu, Guang Chen, Demin Chen, Weiping Yu

PII: S1359-4311(16)30014-X

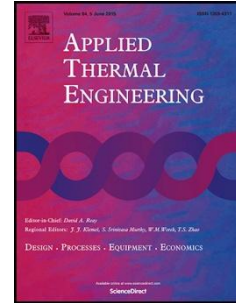
DOI: <http://dx.doi.org/doi: 10.1016/j.applthermaleng.2016.01.064>

Reference: ATE 7624

To appear in: *Applied Thermal Engineering*

Received date: 19-12-2015

Accepted date: 21-1-2016



Please cite this article as: Biao Lu, Guang Chen, Demin Chen, Weiping Yu, An energy intensity optimization model for production system in iron and steel industry, *Applied Thermal Engineering* (2016), <http://dx.doi.org/doi: 10.1016/j.applthermaleng.2016.01.064>.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

An energy intensity optimization model for production system in iron and steel industry

Biao Lu^a, Guang Chen^b, Demin Chen^c, Weiping Yu^{a*}

^a School of Energy and Environment, Southeast University, Nanjing 210096, China

^b School of Energy and Environment, Anhui University of Technology, Ma'anshan 243032, China

^c School of Civil Engineering, Anhui University of Technology, Ma'anshan 243032, China

Highlights

- An energy intensity model for production system is established.
- The Ironmaking stage is the focal point of production optimization.
- The energy saving technologies and measures favors production route re-optimizes.
- Improving the sinter ore grade is very important systematic energy saving measure.

Abstract: To optimize iron and steel production for the goal of energy intensity reduction, this paper systematically analyzed the flow characteristics of ferrite-flows and established an energy intensity production optimization model for production system in iron and steel industry. Production optimization model was calculated for a certain iron and steel company under five different ferrite-flows characters and structures. The results indicated that with the same product order, the energy intensity of the five optimized production schemes are decreased from the original scheme by 0.6%, 1.6%, 1.2%, 0.7% and 2.9%; calculated according to the crude steel production of the company in a month (October 2012, 1128 Kilo metric tons), energy saving of 4399 tce (ton coal equivalent), 111505 tce, 8798 tce, 4963 tce and 20980tce, respectively, can be achieved. Through comparative analysis of the productions of various units under different schemes, it is discovered that the production optimization of the Ironmaking stage is the key and that the energy saving margin in optimized production of Steel-Rolling stage is limited. And then the energy saving technologies and measures, which favors production

Download English Version:

<https://daneshyari.com/en/article/644866>

Download Persian Version:

<https://daneshyari.com/article/644866>

[Daneshyari.com](https://daneshyari.com)