

Estimation of World Steel Production by Process

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Abstract : World GHG emissions should be reduced 50% by 2050 compared with 1990 level. CO₂ emission reduction from steel sector, an energy-intensive sector, is essential. To estimate CO₂ emission from steel sector in the world, estimation of steel production is required. The world steel production by process is estimated during the period of 2005-2050. The world is divided into aggregated 35 regions. For a steel making process, two kinds of processes are considered; basic oxygen furnace (BOF) and electric arc furnace (EAF). Steel production by process in each region is decided based on a current production capacity, supply-demand balance of steel and scrap, technology innovation of steel making, steel consumption projection, and goods trade. World steel production under moderate countermeasure scenario in 2050 increases by 1.3 times compared with that in 2012. When domestic scrap recycling is promoted, steel production in developed regions increases about 1.5 times. The share in developed regions changes from 34 %(2012) to about 40%(2050). This is because developed regions are main suppliers of scrap. 48-57% of world steel production is produced by EAF. Under the scenario which thinks much of supply-demand balance of steel, steel production in developing regions increases is 1.4 times and is larger than that in developed regions. The share in developing regions, however, is not so different from current level. The increase in steel production by EAF is the largest under the scenario in which supply-demand balance of steel is an important factor. The share reaches 65%.

Keywords : global steel production, production distribution scenario, steel making process, supply-demand balance

Conference Title : ICESSE 2016 : International Conference on Environmental Systems Science and Engineering

Conference Location : Paris, France

Conference Dates : February 22-23, 2016