

# Optimisation of Biomass Supply for the Iron and Steel Making Industry

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## Motivation

Decrease CO<sub>2</sub> emissions and enhance the usage of alternative bio-carbon fuels in strongly fossil fuel dependant industries, such as iron and steel making.

## Problem

Concerns about consistency in the quality and quantity of the supplied fuel whilst preserving the economic appeal of the alternative fuel.

## Goal

Promote the use of biomass from waste stream in steel sector and achieve profitable resource sharing between different industries.

## Project Description

This work is to model the biomass supply chain from multiple bio-waste producing industries for an iron and steel plant. The focus is on the variation in the fuel quantity and quality as well as issues related to transport and storage (Figure below). The aim is to optimise costs of the bio-carbon based fuel supply for a steel plant and propose the production cost appealing biomass that can partially substitute coal in this sector.

## Modelling Objectives

- Using gPROMS ModelBuilder, create a flowsheet describing resource sharing between industries producing biomass waste and a steel plant.
- Identify how different stages in the biomass supply chain affect the cost of the fuel.
- Optimise the use of different biomass fuels in a steel plant to decrease the material costs related to the production of steel.

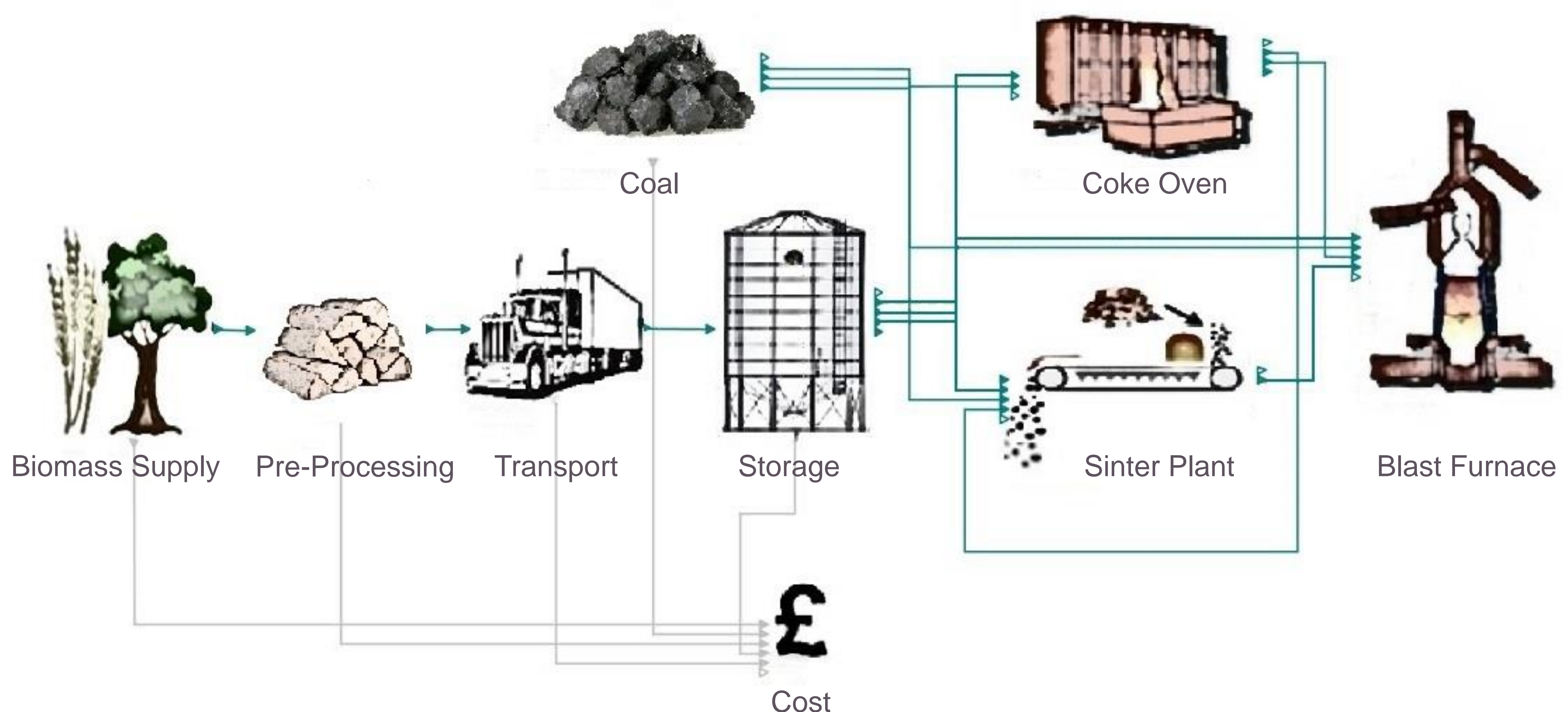


Figure: Flowsheet demonstrating the considered stages in the biomass supply chain and their corresponding impact on the fuel price.

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