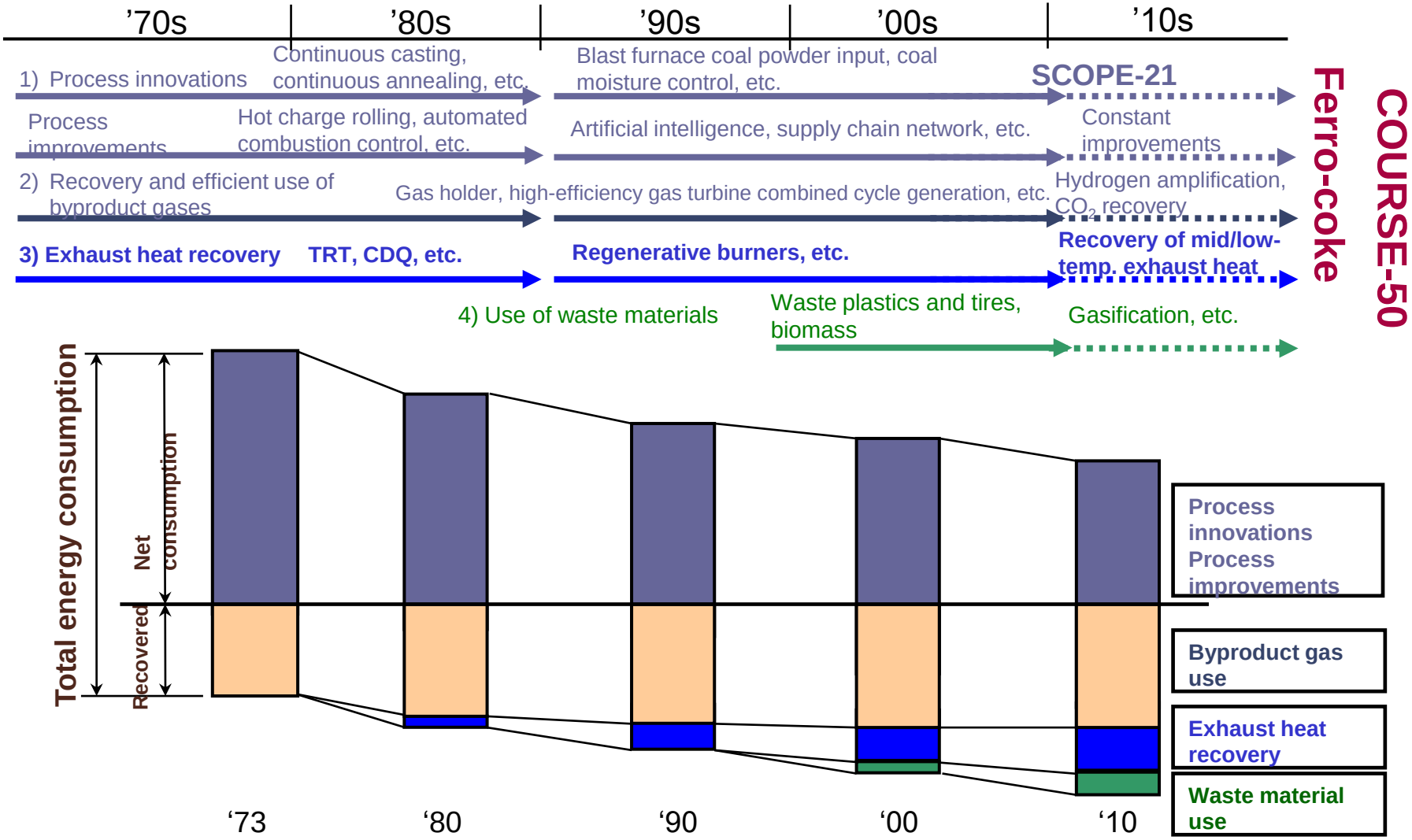
Overview of Technologies Customized List

March 2025

The Japan Iron and Steel Federation

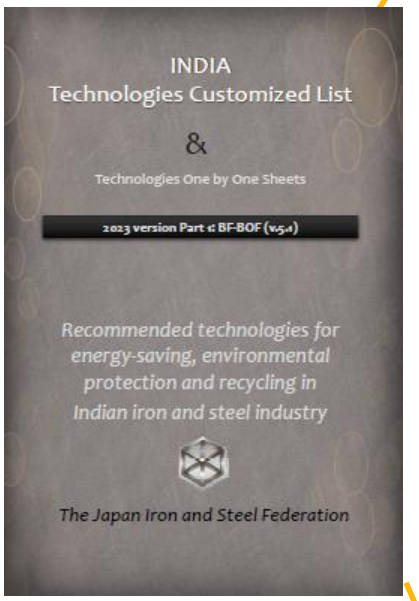
Energy Conservation History of Japan Steel Sector

- After the oil crisis during the 1970s, the Japanese steel industry made vigorous efforts and great success to save energy and reduce CO2.



What is Technologies Customized List (TCL)?

- Summarize the several Best Available Technologies (BATs) for India steel Industry
- The TCL contains information about technologies involving energy conservation and environment protection



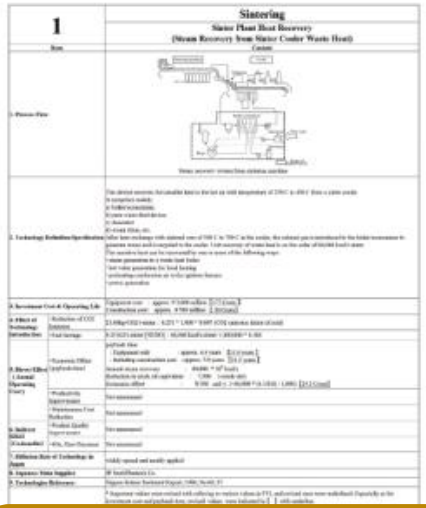
List of Technologies

Energy saving effect, co-benefit, supplier information etc.

- 44 techs for BF-BOF
- 35 techs for EAF

Technologies One-by-One Sheet

Technical information in details



Supplier information included!

Please download the latest TCL from QR code

Technologies Customized List

Technologies Customized List of Energy Saving Technologies for Indian Steel Industry 2023 version part-1: BF-BOF (v.5.1)

No.	Title of Technology	Technical Description	Expected Effects of Introduction					Diffusion Rate of Technology in 7 Major Steel Companies, % [1]
			Electricity Savings /t of product	Fuel Savings GJ/t of product	CO2 Reduction kg- CO2/t of product	Estimation Details	Co- benefits	
Sintering (product: sinter)								
A-1	Sinter Plant Heat Recovery (Steam Recovery from Sinter Cooler Waste Heat)	The device recovers the sensible heat in the hot air with temperature of 250C to 450C from a sinter cooler.	-	0.25	23.86 (emission factor: coal)	-	SOx, NOx, Dust	23
A-2	Sinter Plant Heat Recovery (Power Generation from Sinter Cooler Waste Heat)	This is a waste gas sensible heat recovery system from sinter cooler to generate electric energy.	22.1	-	19.96	-	-	8

1 Title of technology

2 Technical Description

3 Expected Effects of Introduction

4 Diffusion Rate

Contents of Technologies One-by-One sheet

List Number

Names of technology

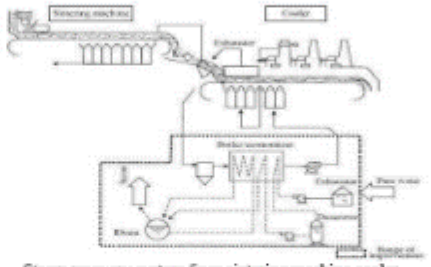
Process Flow or Diagram

Technology Definition/ Specification

Effect of Technology Introduction

Investment cost & Operating life

Other Information (Supplier Name, Technical Referance, etc)

A-1	Sintering Sinter Plant Heat Recovery (Steam Recovery from Sinter Cooler Waste Heat)	
. Process Flow		
. Technology efinition/Specification	This device recovers the sensible heat in the hot air with temperature of 250 C to 450 C from a sinter cooler. It comprises mainly; a) boiler/economizer, b) pure wa c) deserato d) steam d After heat boiler/ecoo kcal/t-sinte The sensitive heat can be recovered by one or more of the following ways: •steam generation in a waste heat boiler •hot water generation for local heating •preheating combustion air in the ignition furnace •power generation	the order of 60,000
. Investment Cost & Operating Life	Construction cost: approx. ¥ 500 million	
. Effect of Technology ntroduction	•Reduction of CO2 Emission	23.86kg-CO2/t-sinter : 0.251 * 1,000 * 0.095 (CO2 emission factor of coal)
	•Fuel Savings	0.251GJ/t-sinter [NEDO] : 60,000 kcal/t-sinter/ 1,000,000 * 4.186
Direct Effect Annual perating Cost)	•Economic Effect (payback time)	: Equipment only : approx. 22.1 years : Including construction cost : approx. 25.8 years Annual steam recovery : 60,000 * 10^6 kcal/y Reduction in crude oil equivalent : 7,500 t-crude oil/y Economic effect : ¥ 135.8 mil./y (=60,000 * (1.81/0.8) / 1,000)
	•Productivity Improvement	Not announced
	•Maintenance Cost Reduction	Not announced
Indirect Effect (Co-benefits)	•Product Quality Improvement	Not announced
	•SOx, Dust Decrease	Not announced
Diffusion Rate of Technology in pan		widely spread and
Japanese Main Supplier		JP
Technologies Reference:		Nip
. Preconditions		* Payback time was defined as (Investment cost / Economical merit) in this project. * annual sinter production : 1 mil. ton/y * CO2 emission factor of coal : 0.095 * unit cost of C heavy oil : ¥ 1.81/ 1,000 kcal [NEDO] overall boiler efficiency : 0.8 Economic effect : 60,000 * 1.81 /0.80 = ¥ 136 mil./y * Refer to http://asiapacificpartnership.org/japanese/soact2nd.aspx and http://www.nedo.go.jp/content/100107259.pdf

What are the advantages of the TCL?

1. The benefit of technology implementation is clearly demonstrated
   - CO_2 reduction effect and payback time are indicated for India, based on Indian energy prices, plant installation cost and CO_2 emission factor

2. Technologies listed on the TCL are reliable
   - Effects of the technologies are proven through Japanese steelmakers' operating experiences

3. Easy to reach out to further information when necessary
   - Contact detail of supplier companies which have the best available technologies

आपकी कृपा की आभारी हूं

Thank you.