Appendix 7

About

Title: Benchmarking Tool for Steel Plant **Without** EAF (Exclusive Advanced Copy/ Strictly Confidential)
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Project: CTCN Project
Last Updated: March 12, 2018

Instructions

The intended user of this document is a Steel Plant building manager or energy manager.

There are 3 purposes of this document. This document serves users as a:
1) Energy Data Collection Tool for Steel Plants
2) Benchmarking Comparison Tool for Steel Plants
3) Means of Generating an Annual Plant Report for a Steel Plant to send to ISIT

This document requires the entry of steel plant energy and output data (annual data in Sheet B or monthly data in Sheets 01-12)
This document uses the data to generate a benchmarking comparison analysis and an Annual Plant Report for ISIT
See the Table of Contents below for more information on how to use this document

Table of Contents for this document:

A) Instructions	This sheet (A) provides information and tips for using this document
B) Annual Data Entry	This sheet (B) is used for collecting all the relevant energy consumption and output data of a steel plant in a calendar year
	This sheet (B) can be filled out manually or automatically (by filling out the individual Monthly Data Entry sheets (Sheets 01-12))
	All Input cells are highlighted in blue, for example: **input**
	Further instructions on entering data in the Annual Data Entry Sheet are visible at the top of Sheet B
C) Benchmarking Results	This sheet (C) automatically provides a graphic comparison of the energy intensity and emissions intensity of your steel plant to the industry averages and industry ranges in Thailand.
	This sheet (C) will only generate complete benchmarking results when all relevant data has been entered in Sheet B or Sheets 01-12
D) Annual Plant Report	This sheet (D) automatically generates an Annual Plant Report of specific metrics to send to ISIT
	This sheet (D) will only generate a complete Annual Plant Report when all the relevant data has been entered in Sheet B or Sheets 01-12
	There are two ways to send an Annual Plant Report to ISIT:
	Option 1 (most preferred): Copy sheet D, open a new Excel Workbook file, "paste special" "values and number formats" into a new Excel Workbook, save it, and email it to ISIT
	Option 2: Print sheet D as a PDF file and email it to ISIT
	Option 3: Print sheet D as a hard copy and send to ISIT via mail.
Monthly Data Entry Sheets	The following twelve sheets (01-12) are used for collecting all the relevant energy consumption and output data of a steel plant on a monthly basis
	Filling out total input and output in these sheets (01-12) will automatically calculate the annual figures in Sheet B
	If the user prefers to manually enter annual data, the user should delete or overwrite the formulas in Sheet B and manually input annual data in Sheet B
	These sheets also include additional option to record energy cost and facility-by-facility energy consumption data in these sheets.
	These data are not intended for reporting, and will not be reflected in the Annual Plant Report sheet.
	Recording of this information is suggested for the purpose of internal improvement by the steel plant.
	Further instructions on entering data in the Annual Data Entry Sheet are visible at the top of Sheets 01-12 and Sheet B
01 Jan.	This sheet (01) is for collecting all relevant energy consumption and output data of a steel plant in the month of January
02 Feb.	This sheet (02) is for collecting all relevant energy consumption and output data of a steel plant in the month of February
03 Mar.	This sheet (03) is for collecting all relevant energy consumption and output data of a steel plant in the month of March
04 Apr.	This sheet (04) is for collecting all relevant energy consumption and output data of a steel plant in the month of April
05 May.	This sheet (05) is for collecting all relevant energy consumption and output data of a steel plant in the month of May
06 Jun.	This sheet (06) is for collecting all relevant energy consumption and output data of a steel plant in the month of June
07 Jul.	This sheet (07) is for collecting all relevant energy consumption and output data of a steel plant in the month of July
08 Aug.	This sheet (08) is for collecting all relevant energy consumption and output data of a steel plant in the month of August
09 Sep.	This sheet (09) is for collecting all relevant energy consumption and output data of a steel plant in the month of September
10 Oct.	This sheet (10) is for collecting all relevant energy consumption and output data of a steel plant in the month of October
11 Nov.	This sheet (11) is for collecting all relevant energy consumption and output data of a steel plant in the month of November
12 Dec.	This sheet (12) is for collecting all relevant energy consumption and output data of a steel plant in the month of December
Factors	This sheet (Factors) provides a reference for energy consumption and emissions factors

B) Annual Data Entry sheet

Additional Instructions for Data Entry

Sheet B contains formulas in the cells that automatically sum the data entries in the 12 monthly data entry sheets (Sheets 01-12)

There are two options for entering data in this document:

Option 1: Manually enter annual data in Sheet B

Option 2: Manually enter monthly data in Sheets 01-12, which is automatically summed into annual data in Sheet B

If you choose Option 1, please delete or overwrite the forumulas in the input cells of Sheet B

Note:

1. "Energy consumption for total steel plant"part is based on ISO14404 Calculation Sheet for Steel Plant for EAF and/or RHF/Rolling, etc.
   1-1. "Input" means energy/materials purchased by the steelworks from suppliers.
   1-2. "Output" means energy/material sold to the customers outside of steelworks.
   1-3. "stp" means standard temperature and pressure.
2. "Heat consumption (annual average)" means annual average of energy intensity of RHF, which can be calculated by dividing the total fuel consumption of RHF by the amount of input semi-finished steel. This includes the heat consumption during holding time at mill stoppage and furnace temperature changing time.
3. "Heat consumption at stable operation" means the energy intensity of RHF when RHF is operated under the same conditions for more than two hours. This excludes the heat consumption during holding time at mill stoppage and furnace temperature changing time.

Please fill in blue-colored cells only. Gray/pink-colored cells are automatically calculated.

General information

Year of Assessment	2017		
Name of person in charge of this data	*********		
phone	***-****-****		
E mail	***@*******		
Company name	***		
Site name	***		
Established date	mm/dd/yyyy		
Main product	***		
Annual purchased semi-finished steel products	***	ton-steel/y	
Annual RHF production capacity	***	ton-steel*/y	(*semi-finished steel such as bloom, billet, slab etc.)
Actual annual RHF production of final steel products	0	ton-product steel/y	

Energy consumption for total steel plant

Energy Consumption Source			Unit	Input (purchased)	Output (sold)	Calculation results of energy consumption			Calculation results of CO_2 emission		
						Direct	Upstream	Credit	Direct	Upstream	Credit
						GJ/y			t-CO_2/y		
Gas fuel	1	Natural gas	10^3m^3(stp)	0	0	0	-	0	0	-	0
	2	Town gas	10^3m^3(stp)	0	0	0	-	0	0	-	0
Liquid fuel	3	Heavy oil	m^3	0	0	0	-	0	0	-	0
	4	Light oil	m^3	0	0	0	-	0	0	-	0
	5	Kerosene	m^3	0	0	0	-	0	0	-	0
	6	LPG	t	0	0	0	-	0	0	-	0
Solid fuel	7	EAF coal	dry t	0	0	0	-	0	0	-	0
	8	Steam coal	dry t	0	0	0	-	0	0	-	0
	9	Coke	dry t	0	0	0	-	0	0	-	0
	10	Charcoal	dry t	0	0	0	-	0	0	-	0
	11	SR/DR coal		0	0	-	-	-	0	-	0
Auxiliary material	12	Limestone	dry t	0	0	-	-	0	0	-	0
	13	Burnt lime	t	0	0	-	0	0	-	0	0
	14	Crude dolomite	dry t	0	0	-	-	0	0	-	0
	15	Burnt dolomite	t	0	0	-	0	0	-	0	0
	16	EAF graphite electrodes	t	0	0	-	-	0	0	0	0
	17	Nitrogen	10^3m^3(stp)	0	0	-	0	0	-	0	0
	18	Argon	10^3m^3(stp)	0	0	-	0	0	-	0	0
	19	Oxygen	10^3m^3(stp)	0	0	-	0	0	-	0	0
Energy carriers	20	Electricity	MWh	0	0	-	0	0	-	0	0
	21	Steam	t	0	0	-	0	0	-	0	0
Ferrous-containing material	22	Pellets	t	0	0	-	-	-	0	-	-
	23	Hot metal	t	0	0	-	-	-	0	-	0
	24	Cold iron	t	0	0	-	-	-	0	-	0
	25	Gas-based DRI	t	0	0	-	-	-	0	-	0
	26	Coal-based DRI	t	0	0	-	-	-	0	-	0
Alloys	27	Ferro-nickel	t	0	0	-	-	-	0	-	0
	28	Ferro-chromium	t	0	0	-	-	-	0	-	0
	29	Ferro-molybdenum	t	0	0	-	-	-	0	-	0
Product and by-product	30	CO_2 for external use	t	0	0	-	-	-	0	-	0
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0
Sub Total						0	0	0	0	0	0

Total Energy Consumption		GJ/y	
Intensity		GJ/ton-produc	
CO_2 Emission			ton-CO_2/y
Intensity			ton-CO_2/ton-product steel

Energy intensity of RHF

	No.		Unit	Intensity
Reheating furnace for hot rolling (RHF)	1	Heat consumption (monthly average)	GJ/ton- steel*	-
	2	Heat consumption at stable operation (cold charg	GJ/ton- steel*	-
	3	Heat consumption at stable operation (hot charge	GJ/ton- steel*	-

(*semi-finished steel such as bloom, billet, slab etc.)

Changes in operation and equipment

e.g.) Changing fuel, equipment, operation time, times of scrap charge etc.

Implementation of energy saving technologies/SOP

e.g.) Implementation of energy saving technologies such as "High temperature continuous scrap preheating EAF" or SOP such as "Good slag foaming with coherent burner" etc.

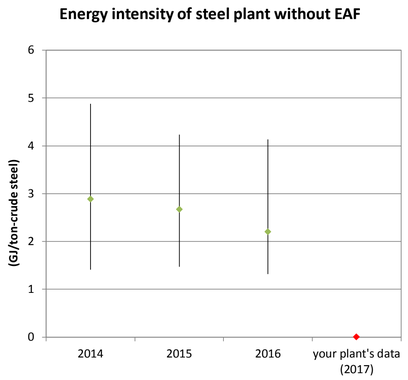
C) Benchmarking Results

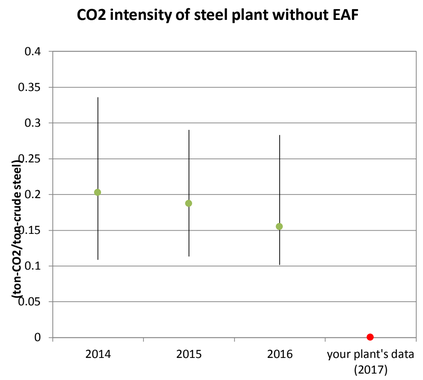
This sheet will only generate complete benchmarking results when all relevant data has been entered in Sheet B or Sheets 01-12
Red points show your plant's data in the graphs. The other color points show the average of Thailand steel industry.

Energy/CO2 intensity of Thailand steel industry (2014-2016)

	unit		2014	2015	2016	your plant's data (2017)
Plant with EAF energy intensity	(GJ/ton-crude steel)	Max	11.075	11.971	15.371	
		Min	5.791	5.826	5.175	
		Average	8.717	9.349	9.259	
Plant with EAF CO2 intensity	(ton-CO2/ton-crude steel)	Max	0.677	0.745	0.903	
		Min	0.383	0.388	0.296	
		Average	0.536	0.576	0.574	
		N =	9	9	9	

	unit		2014	2015	2016	your plant's data (2017)
Plant without EAF (Reroller) energy intensity	(GJ/ton-product steel)	Max	4.883	4.232	4.137	
		Min	1.412	1.471	1.320	
		Average	2.889	2.674	2.206	
Plant without EAF (Reroller) CO2 intensity	(ton-CO2/ton-product steel)	Max	0.336	0.290	0.283	
		Min	0.109	0.113	0.102	
		Average	0.202	0.187	0.155	
		N =	6	6	6	



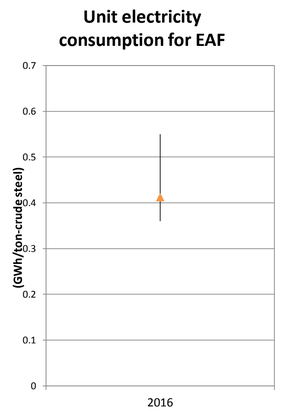


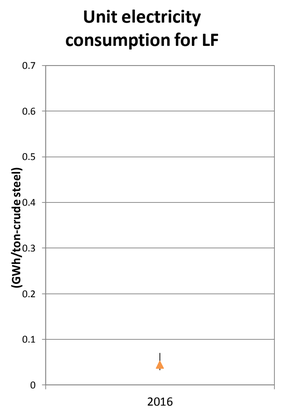
Unit electricity consumption for EAF/LF of Thailand steel industry

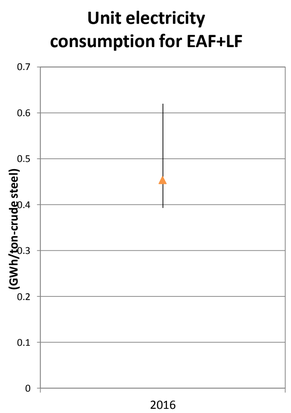
	unit		2014	2015	2016	your plant's data (2017)
EAF	(GWh/ton-crude steel)	Max			0.550	
		Min			0.360	
		Average			0.412	
		N =			9	

	unit		2014	2015	2016	your plant's data (2017)
LF	(GWh/ton-crude steel)	Max			0.070	
		Min			0.033	
		Average			0.045	
		N =			8	

	unit		2014	2015	2016	your plant's data (2017)
EAF+LF	(GWh/ton-crude steel)	Max			0.620	
		Min			0.393	
		Average			0.453	
		N =			8	







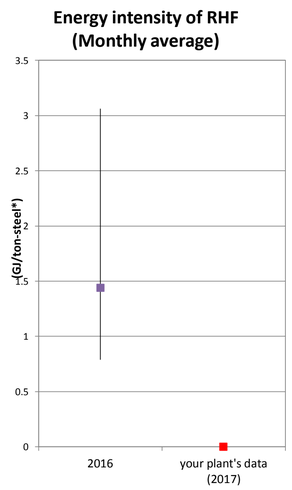
Energy intensity of RHF of Thailand steel industry

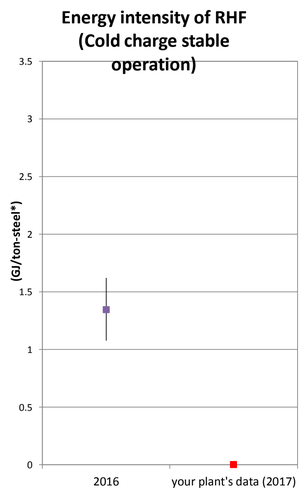
	unit		2014	2015	2016	your plant's data (2017)
Monthly average	(GJ/ton-steel*)	Max			3.063	
		Min			0.790	
		Average			1.439	-
		N =			17	

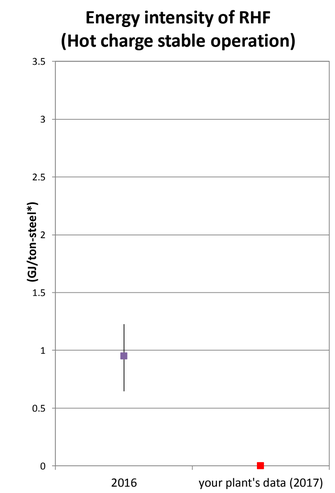
	unit		2014	2015	2016	your plant's data (2017)
Cold charge stable operation	(GJ/ton-steel*)	Max			1.620	
		Min			1.077	
		Average			1.345	-
		N =			16	

	unit		2014	2015	2016	your plant's data (2017)
Hot charge stable operation	(GJ/ton-steel*)	Max			1.225	
		Min			0.646	
		Average			0.950	-
		N =			9	

(*semi - finished steel such as bloom, billet, slab etc.)







D) Annual Plant Report

Additional Instructions for Sending the Annual Plant Report to ISIT

The Annual Plant Report is automatically generated in Sheet D after all data has been entered in this document either in Sheet B or Sheets 01-12

To protect sensitive or private data elsewhere in the document, do not send the entire document to ISIT

It is only necessary to send the contents of Sheet D to ISIT

To avoid calculation errors or sharing of private data, there are two options for sending the Annual Plant Report to ISIT:

- **Option 1 (preferred): Copy Sheet D, open a new Excel Workbook file, "paste special" "values and number formats" into the new Exel file, save it, and email it to ISIT**
- **Option 2: Print Sheet D as a PDF file and email it to ISIT**
- **Option 3: Print Sheet D as a hard copy and send to ISIT via mail**

General information

Year of Assessment	2017	
Name of person in charge of this data	*********	
phone	***-****-****	
E mail	***@*******	
Company name	***	
Site name	***	
Established date	mm/dd/yyyy	
Main product	***	
Annual purchased semi - finished steel products	***	ton-steel/y
Annual RHF production capacity	***	ton-steel*/y (*semi - finished steel such as bloom, billet, slab etc.)
Actual annual RHF production of final steel products	0	ton-product steel/y

Energy consumption for total steel plant

Energy Consumption Source			Unit	Input (purchased)	Output (sold)	Calculation results of energy consumption			Calculation results of CO2 emission		
						Direct	Upstream	Credit	Direct	Upstream	Credit
						GJ/y			t-CO2/y		
Gas fuel	1	Natural gas	103m3(stp)	0	0	0	-	0	0	-	0
	2	Town gas	103m3(stp)	0	0	0	-	0	0	-	0
Liquid fuel	3	Heavy oil	m3	0	0	0	-	0	0	-	0
	4	Light oil	m3	0	0	0	-	0	0	-	0
	5	Kerosene	m3	0	0	0	-	0	0	-	0
	6	LPG	t	0	0	0	-	0	0	-	0
Solid fuel	7	EAF coal	dry t	0	0	0	-	0	0	-	0
	8	Steam coal	dry t	0	0	0	-	0	0	-	0
	9	Coke	dry t	0	0	0	-	0	0	-	0
	10	Charcoal	dry t	0	0	0	-	0	0	-	0
	11	SR/DR coal	0	0	0	-	-	-	0	-	0
Auxiliary material	12	Limestone	dry t	0	0	-	-	0	0	-	0
	13	Burnt lime	t	0	0	-	0	0	-	0	0
	14	Crude dolomite	dry t	0	0	-	-	0	0	-	0
	15	Burnt dolomite	t	0	0	-	0	0	-	0	0
	16	EAF graphite electrodes	t	0	0	-	-	0	0	0	0
	17	Nitrogen	103m3(stp)	0	0	-	0	0	-	0	0
	18	Argon	103m3(stp)	0	0	-	0	0	-	0	0
	19	Oxygen	103m3(stp)	0	0	-	0	0	-	0	0
Energy carriers	20	Electricity	MWh	0	0	-	0	0	-	0	0
	21	Steam	t	0	0	-	0	0	-	0	0
Ferrous-containing material	22	Pellets	t	0	0	-	-	-	0	-	-
	23	Hot metal	t	0	0	-	-	-	0	-	0
	24	Cold iron	t	0	0	-	-	-	0	-	0
	25	Gas-based DRI	t	0	0	-	-	-	0	-	0
	26	Coal-based DRI	t	0	0	-	-	-	0	-	0
Alloys	27	Ferro-nickel	t	0	0	-	-	-	0	-	0
	28	Ferro-chromium	t	0	0	-	-	-	0	-	0
	29	Ferro-molybdenum	t	0	0	-	-	-	0	-	0
Product and by-product	30	CO2 for external use	t	0	0	-	-	-	0	-	0
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0
			Sub Total			0	0	0	0	0	0

Total Energy Consumption	GJ/y	O2 Emission	ton-CO2/y
Intensity	GJ/ton-produ	Intensity	ton-CO2/ton-product steel

Energy intensity of RHF

	No.		Unit	Intensity
Reheating furnace for hot rolling (RHF)	1	Heat consumption (monthly average)	GJ/ton- steel*	-
	2	Heat consumption at stable operation (cold cha	GJ/ton- steel*	-
	3	Heat consumption at stable operation (hot charg	GJ/ton- steel*	-

(*semi - finished steel such as bloom, billet, slab etc.)

Changes in operation and equipment

e.g.) Changing fuel, equipment, operation time, times of scrap charge etc.

Implementation of energy saving technologies/SOP

e.g.) Implementation of energy saving technologies such as "High temperature continuous scrap preheating EAF" or SOP such as "Good slag foaming with coherent burner" etc.

Inputs For Annual Industry Report:

										EAF-based	RHF only		EAF-based	RHF only								
Name	EAF?	EAF capacity	tons/yr	EAF production tons/yr	semi - finished proc	HF capacity	tons/y	uction of final ste	GJ/y	-	GJ/ton of steel	t-CO2/y	-	2/t of s	EAF MWh/	LF MWh/t	F+LF MW	HF mo/av	RHF cold	RHF hot	nges in op	tation of tech/SOP
***	no	-		-	***	***		0		-			-		-	-	-	-	-	-	peration t	uous scrap preheating EAF" or SOP such as "Good slag foaming with coherent burner" etc.

Appendix 7-4

Monthly data entry sheets start from the next sheet

Monthly Data Entry Sheets (01 Jan.)

Additional Instructions for Data Entry
Sheet B contains formulas in the cells that automatically sum the data entries in the 12 monthly data entry sheets (Sheets 01-12)
There are two options for entering data in this document:
Option 1: Manually enter annual data in Sheet B
Option 2: Manually enter monthly data in Sheets 01-12, which is automatically summed into annual data in Sheet B
If you choose Option 1, please delete or overwrite the forumulas in the input cells of Sheet B

Note: This sheet is based on ISO14404 Calculation Sheet for Steel Plant for EAF and/or RHF/Rolling, etc.
1. "Input" means energy/materials purchased by the steelworks from suppliers.
2. "Output" means energy/material sold to the customers outside of steelworks.
3. "stp" means standard temperature and pressure.

Please fill in blue-colored cells only. Gray/pink-colored cells are automatically calculated.

General information

Name of person in charge of this data	**********
phone	***-****-****
E mail	****@*******

Monthly purchased *semi-finished steel products	***	ton-steel/month
Actual monthly production	***	ton-product steel/month

*semi-finished steel = such as bloom, billet, slab etc.

Facilty-by-Facility Energy Consumption

Energy Consumption Source			Unit	Energy cost	Total		Facility by Facility									
							Oxygen plant		RHF		Rolling mill		Cooling water		Others	
				THB/Unit	Input (purchased)	Output (sold)	Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
Gas fuel	1	Natural gas	10^3m^3(stp)													
	2	Town gas	10^3m^3(stp)													
Liquid fuel	3	Heavy oil	m^3													
	4	Light oil	m^3													
	5	Kerosene	m^3													
	6	LPG	t													
Solid fuel	7	EAF coal	dry t													
	8	Steam coal	dry t													
	9	Coke	dry t													
	10	Charcoal	dry t													
	11	SR/DR coal														
Auxiliary material	12	Limestone	dry t													
	13	Burnt lime	t													
	14	Crude dolomite	dry t													
	15	Burnt dolomite	t													
	16	EAF graphite electrodes	t													
	17	Nitrogen	10^3m^3(stp)													
	18	Argon	10^3m^3(stp)													
	19	Oxygen	10^3m^3(stp)													
Energy carriers	20	Electricity	MWh													
	21	Steam	t													
Ferrous-containing material	22	Pellets	t													
	23	Hot metal	t													
	24	Cold iron	t													
	25	Gas-based DRI	t													
	26	Coal-based DRI	t													
Alloys	27	Ferro-nickel	t													
	28	Ferro-chromium	t													
	29	Ferro-molybdenum	t													
Product and by-product	30	CO_2 for external use	t													
Others	N	Other emission sources	—													

Calculation results

Energy Consumption Source			Unit	Total Energy Consumption			Total CO2 emission			Total energy cost		Facility by Facility Energy Consumption																							
												Oxygen plant			RHF			Rolling mill			Cooling water			Others									
				Direct	Upstream	Credit	Direct	Upstream	Credit	Input	Output	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit								
				GJ/month			t-CO_2/month			THB/month		GJ/month			GJ/month			GJ/month			GJ/month			GJ/month									
Gas fuel	1	Natural gas	10^3m^3(stp)	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	-	0							
	2	Town gas	10^3m^3(stp)	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	-	0							
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	-	0							
	4	Light oil	m^3	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	-	0							
	5	Kerosene	m^3	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	-	0							
	6	LPG	t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	-	0							
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	-	0							
	8	Steam coal	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	-	0							
	9	Coke	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	-	0							
	10	Charcoal	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	-	0							
	11	SR/DR coal		-	-	-	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0							
Auxiliary material	12	Limestone	dry t	-	-	-	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0							
	13	Burnt lime	t	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	-	0							
	14	Crude dolomite	dry t	-	-	-	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0							
	15	Burnt dolomite	t	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	-	0							
	16	EAF graphite electrodes	t	-	-	-	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0							
	17	Nitrogen	10^3m^3(stp)	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	-	0							
	18	Argon	10^3m^3(stp)	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	-	0							
	19	Oxygen	10^3m^3(stp)	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	-	0							
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	-	0							
	21	Steam	t	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	-	0							
Ferrous-containing	22	Pellets	t	-	-	-	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0							
	23	Hot metal	t	-	-	-	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0							
	24	Cold iron	t	-	-	-	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0							
	25	Gas-based DRI	t	-	-	-	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0							
	26	Coal-based DRI	t	-	-	-	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0							
Alloys	27	Ferro-nickel	t	-	-	-	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0							
	28	Ferro-chromium	t	-	-	-	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0							
	29	Ferro-molybdenum	t	-	-	-	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0							
Product and by-product	30	CO_2 for external use	t	-	-	-	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0							
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
Subtotal				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
			Total		GJ/month			t-CO_2/month			THB/month		GJ/month			GJ/month			GJ/month			GJ/month			GJ/month									
			Intensity (Unit)		GJ/t-product steel			t-CO_2/t-prod			THB/t-product steel		GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel									

Energy Consumption Source			Unit	Facility by Facility CO_2 Emission																													
				Oxygen plant			RHF			Rolling mill			Cooling water			Others																	
				Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit															
				t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month																	
Gas fuel	1	Natural gas	10^3m^3(stp)	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-													
	2	Town gas	10^3m^3(stp)	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-													
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-													
	4	Light oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-													
	5	Kerosene	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-													
	6	LPG	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-													
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-													
	8	Steam coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-													
	9	Coke	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-													
	10	Charcoal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-													
	11	SR/DR coal		-	-	-	0	-	0	-	-	0	-	-	0	-	-	0	-	-													
Auxiliary material	12	Limestone	dry t	-	-	-	0	-	0	-	-	0	-	-	0	-	-	0	-	-													
	13	Burnt lime	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0													
	14	Crude dolomite	dry t	-	-	-	0	-	0	-	-	0	-	-	0	-	-	0	-	-													
	15	Burnt dolomite	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0													
	16	EAF graphite electrodes	t	-	-	-	0	-	0	-	-	0	-	-	0	-	-	0	-	-													
	17	Nitrogen	10^3m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0													
	18	Argon	10^3m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0													
	19	Oxygen	10^3m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0													
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0													
	21	Steam	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0													
Ferrous-containing	22	Pellets	t	-	-	-	0	-	0	-	-	0	-	-	0	-	-	0	-	-													
	23	Hot metal	t	-	-	-	0	-	0	-	-	0	-	-	0	-	-	0	-	-													
	24	Cold iron	t	-	-	-	0	-	0	-	-	0	-	-	0	-	-	0	-	-													
	25	Gas-based DRI	t	-	-	-	0	-	0	-	-	0	-	-	0	-	-	0	-	-													
	26	Coal-based DRI	t	-	-	-	0	-	0	-	-	0	-	-	0	-	-	0	-	-													
Alloys	27	Ferro-nickel	t	-	-	-	0	-	0	-	-	0	-	-	0	-	-	0	-	-													
	28	Ferro-chromium	t	-	-	-	0	-	0	-	-	0	-	-	0	-	-	0	-	-													
	29	Ferro-molybdenum	t	-	-	-	0	-	0	-	-	0	-	-	0	-	-	0	-	-													
Product and by-product	30	CO_2 for external use	t	-	-	-	0	-	0	-	-	0	-	-	0	-	-	0	-	-													
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
Subtotal				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
			Total		t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month																	
			Intensity (Unit)		t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel																	

Energy Consumption Source			Unit	Facility by Facility Energy Cost																													
				Oxygen plant		RHF		Rolling mill		Cooling water		Others																					
				Input	Output	Input	Output	Input	Output	Input	Output	Input	Output																				
				THB/month		THB/month		THB/month		THB/month		THB/month																					
Gas fuel	1	Natural gas	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0																				
	2	Town gas	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0																				
Liquid fuel	3	Heavy oil	m^3	0	0	0	0	0	0	0	0	0	0																				
	4	Light oil	m^3	0	0	0	0	0	0	0	0	0	0																				
	5	Kerosene	m^3	0	0	0	0	0	0	0	0	0	0																				
	6	LPG	t	0	0	0	0	0	0	0	0	0	0																				
Solid fuel	7	EAF coal	dry t	0	0	0	0	0	0	0	0	0	0																				
	8	Steam coal	dry t	0	0	0	0	0	0	0	0	0	0																				
	9	Coke	dry t	0	0	0	0	0	0	0	0	0	0																				
	10	Charcoal	dry t	0	0	0	0	0	0	0	0	0	0																				
	11	SR/DR coal		0	0	0	0	0	0	0	0	0	0																				
Auxiliary material	12	Limestone	dry t	0	0	0	0	0	0	0	0	0	0																				
	13	Burnt lime	t	0	0	0	0	0	0	0	0	0	0																				
	14	Crude dolomite	dry t	0	0	0	0	0	0	0	0	0	0																				
	15	Burnt dolomite	t	0	0	0	0	0	0	0	0	0	0																				
	16	EAF graphite electrodes	t	0	0	0	0	0	0	0	0	0	0																				
	17	Nitrogen	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0																				
	18	Argon	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0																				
	19	Oxygen	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0																				
Energy carriers	20	Electricity	MWh	0	0	0	0	0	0	0	0	0	0																				
	21	Steam	t	0	0	0	0	0	0	0	0	0	0																				
Ferrous-containing	22	Pellets	t	0	0	0	0	0	0	0	0	0	0																				
	23	Hot metal	t	0	0	0	0	0	0	0	0	0	0																				
	24	Cold iron	t	0	0	0	0	0	0	0	0	0	0																				
	25	Gas-based DRI	t	0	0	0	0	0	0	0	0	0	0																				
	26	Coal-based DRI	t	0	0	0	0	0	0	0	0	0	0																				
Alloys	27	Ferro-nickel	t	0	0	0	0	0	0	0	0	0	0																				
	28	Ferro-chromium	t	0	0	0	0	0	0	0	0	0	0																				
	29	Ferro-molybdenum	t	0	0	0	0	0	0	0	0	0	0																				
Product and by-product	30	CO_2 for external use	t	0	0	0	0	0	0	0	0	0	0																				
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0	0	0																				
Subtotal				0	0	0	0	0	0	0	0	0	0																				
			Total		THB/month		THB/month		THB/month		THB/month		THB/month																				
			Intensity (Unit)		THB/t-product steel		THB/t-product steel		THB/t-product steel		THB/t-product steel		THB/t-product steel																				

Monthly Data Entry Sheets (02 Feb.)

Additional Instructions for Data Entry
Sheet B contains formulas in the cells that automatically sum the data entries in the 12 monthly data entry sheets (Sheets 01-12)
There are two options for entering data in this document:
Option 1: Manually enter annual data in Sheet B
Option 2: Manually enter monthly data in Sheets 01-12, which is automatically summed into annual data in Sheet B
If you choose Option 1, please delete or overwrite the forumulas in the input cells of Sheet B

Note: This sheet is based on ISO14404 Calculation Sheet for Steel Plant for EAF and/or RHF/Rolling, etc.
1. "Input" means energy/materials purchased by the steelworks from suppliers.
2. "Output" means energy/material sold to the customers outside of steelworks.
3. "stp" means standard temperature and pressure.

Please fill in blue-colored cells only. Gray/pink-colored cells are automatically calculated.

General information

Name of person in charge of this data: *********
phone: ***-****-****
E mail: ***@*******

Monthly purchased *semi-finished steel products: *** ton-steel/month — *semi-finished steel = such as bloom, billet, slab etc.
Actual monthly production: *** ton-product steel/month

Facilty-by-Facility Energy Consumption

				Energy cost	Total		Facility by Facility									
							Oxygen plant		RHF		Rolling mill		Cooling water		Others	
Energy Consumption Source			Unit	THB/Unit	Input (purchased)	Output (sold)	Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
Gas fuel	1	Natural gas	10^{3}m^3(stp)													
	2	Town gas	10^{3}m^3(stp)													
Liquid fuel	3	Heavy oil	m^3													
	4	Light oil	m^3													
	5	Kerosene	m^3													
	6	LPG	t													
Solid fuel	7	EAF coal	dry t													
	8	Steam coal	dry t													
	9	Coke	dry t													
	10	Charcoal	dry t													
	11	SR/DR coal														
Auxiliary material	12	Limestone	dry t													
	13	Burnt lime	t													
	14	Crude dolomite	dry t													
	15	Burnt dolomite	t													
	16	EAF graphite electrodes	t													
	17	Nitrogen	10^{3}m^3(stp)													
	18	Argon	10^{3}m^3(stp)													
	19	Oxygen	10^{3}m^3(stp)													
Energy carriers	20	Electricity	MWh													
	21	Steam	t													
Ferrous-containing material	22	Pellets	t													
	23	Hot metal	t													
	24	Cold iron	t													
	25	Gas-based DRI	t													
	26	Coal-based DRI	t													
Alloys	27	Ferro-nickel	t													
	28	Ferro-chromium	t													
	29	Ferro-molybdenum	t													
Product and by-product	30	CO$_2$ for external use	t													
Others	N	Other emission sources	—													

Calculation results

				Total Energy Consumption			Total CO2 emission			Total energy cost	
Energy Consumption Source			Unit	Direct	Upstream	Credit	Direct	Upstream	Credit	Input	Output
				GJ/month			t-CO$_2$/month			THB/month	
Gas fuel	1	Natural gas	10^{3}m^3(stp)	0	-	0	0	-	0	0	0
	2	Town gas	10^{3}m^3(stp)	0	-	0	0	-	0	0	0
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	0
	4	Light oil	m^3	0	-	0	0	-	0	0	0
	5	Kerosene	m^3	0	-	0	0	-	0	0	0
	6	LPG	t	0	-	0	0	-	0	0	0
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	0
	8	Steam coal	dry t	0	-	0	0	-	0	0	0
	9	Coke	dry t	0	-	0	0	-	0	0	0
	10	Charcoal	dry t	0	-	0	0	-	0	0	0
	11	SR/DR coal		-	-	-	0	-	0	0	0
Auxiliary material	12	Limestone	dry t	-	-	0	0	-	0	0	0
	13	Burnt lime	t	-	-	0	-	-	0	-	0
	14	Crude dolomite	dry t	-	-	0	0	-	0	0	0
	15	Burnt dolomite	t	-	0	0	-	0	0	0	0
	16	EAF graphite electrodes	t	-	-	0	-	-	0	-	0
	17	Nitrogen	10^{3}m^3(stp)	-	-	0	-	-	0	-	0
	18	Argon	10^{3}m^3(stp)	-	0	0	-	0	0	0	0
	19	Oxygen	10^{3}m^3(stp)	-	0	0	-	0	0	0	0
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	0	0
	21	Steam	t	-	0	0	-	0	0	0	0
Ferrous-containing material	22	Pellets	t	-	-	-	0	-	-	0	0
	23	Hot metal	t	-	-	-	0	-	0	0	0
	24	Cold iron	t	-	-	-	0	-	0	0	0
	25	Gas-based DRI	t	-	-	-	0	-	0	0	0
	26	Coal-based DRI	t	-	-	-	0	-	0	0	0
Alloys	27	Ferro-nickel	t	-	-	-	0	-	0	0	0
	28	Ferro-chromium	t	-	-	-	0	-	0	0	0
	29	Ferro-molybdenum	t	-	-	-	0	-	0	0	0
Product and by-product	30	CO$_2$ for external use	t	-	-	-	0	-	0	0	0
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0
Subtotal				0	0	0	0	0	0	0	0
			Total			GJ/month			t-CO$_2$/month		THB/month
			Intensity (Unit)			GJ/t-product steel			t-CO$_2$/t-produ		THB/t-product steel

				Facility by Facility Energy Consumption														
				Oxygen plant			RHF			Rolling mill			Cooling water			Others		
Energy Consumption Source			Unit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit
				GJ/month			GJ/month			GJ/month			GJ/month			GJ/month		
Gas fuel	1	Natural gas	10^{3}m^3(stp)	0	-	0	0	-	0	0	-	0	0	-	0	-	-	-
	2	Town gas	10^{3}m^3(stp)	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	4	Light oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	5	Kerosene	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	6	LPG	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	8	Steam coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	9	Coke	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	10	Charcoal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	11	SR/DR coal		-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
Auxiliary material	12	Limestone	dry t	-	-	0	-	-	0	-	-	0	-	-	0	-	-	-
	13	Burnt lime	t	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
	14	Crude dolomite	dry t	-	-	0	-	-	0	-	-	0	-	-	0	-	0	0
	15	Burnt dolomite	t	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
	16	EAF graphite electrodes	t	-	-	0	-	-	0	-	-	0	-	-	0	-	0	0
	17	Nitrogen	10^{3}m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
	18	Argon	10^{3}m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	19	Oxygen	10^{3}m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	21	Steam	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Ferrous-containing material	22	Pellets	t	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
	23	Hot metal	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24	Cold iron	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	25	Gas-based DRI	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	26	Coal-based DRI	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alloys	27	Ferro-nickel	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28	Ferro-chromium	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29	Ferro-molybdenum	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Product and by-product	30	CO$_2$ for external use	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Subtotal				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Total			GJ/month			GJ/month			GJ/month			GJ/month			GJ/month
			Intensity (Unit)			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel

				Facility by Facility CO$_2$ Emission														
				Oxygen plant			RHF			Rolling mill			Cooling water			Others		
Energy Consumption Source			Unit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit
				t-CO$_2$/month			t-CO$_2$/month			t-CO$_2$/month			t-CO$_2$/month			t-CO$_2$/month		
Gas fuel	1	Natural gas	10^{3}m^3(stp)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	Town gas	10^{3}m^3(stp)	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	4	Light oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	5	Kerosene	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	6	LPG	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	8	Steam coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	9	Coke	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	10	Charcoal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	11	SR/DR coal		0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Auxiliary material	12	Limestone	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	13	Burnt lime	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	14	Crude dolomite	dry t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	15	Burnt dolomite	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	16	EAF graphite electrodes	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	17	Nitrogen	10^{3}m^3(stp)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	18	Argon	10^{3}m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	19	Oxygen	10^{3}m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	21	Steam	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Ferrous-containing material	22	Pellets	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	23	Hot metal	t	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
	24	Cold iron	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	25	Gas-based DRI	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	26	Coal-based DRI	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Alloys	27	Ferro-nickel	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	28	Ferro-chromium	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	29	Ferro-molybdenum	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Product and by-product	30	CO$_2$ for external use	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Others	N	Other emission sources	—	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Subtotal				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Total			t-CO$_2$/month			t-CO$_2$/month			t-CO$_2$/month			t-CO$_2$/month			t-CO$_2$/month
			Intensity (Unit)			t-CO$_2$/t-product steel			t-CO$_2$/t-product steel			t-CO$_2$/t-product steel			t-CO$_2$/t-product steel			t-CO$_2$/t-produ

				Facility by Facility Energy Cost									
				Oxygen plant		RHF		Rolling mill		Cooling water		Others	
Energy Consumption Source			Unit	Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
				THB/month		THB/month		THB/month		THB/month		THB/month	
Gas fuel	1	Natural gas	10^{3}m^3(stp)	0	0	0	0	0	0	0	0	0	0
	2	Town gas	10^{3}m^3(stp)	0	0	0	0	0	0	0	0	0	0
Liquid fuel	3	Heavy oil	m^3	0	0	0	0	0	0	0	0	0	0
	4	Light oil	m^3	0	0	0	0	0	0	0	0	0	0
	5	Kerosene	m^3	0	0	0	0	0	0	0	0	0	0
	6	LPG	t	0	0	0	0	0	0	0	0	0	0
Solid fuel	7	EAF coal	dry t	0	0	0	0	0	0	0	0	0	0
	8	Steam coal	dry t	0	0	0	0	0	0	0	0	0	0
	9	Coke	dry t	0	0	0	0	0	0	0	0	0	0
	10	Charcoal	dry t	0	0	0	0	0	0	0	0	0	0
	11	SR/DR coal		0	0	0	0	0	0	0	0	0	0
Auxiliary material	12	Limestone	dry t	0	0	0	0	0	0	0	0	0	0
	13	Burnt lime	t	0	0	0	0	0	0	0	0	0	0
	14	Crude dolomite	dry t	0	0	0	0	0	0	0	0	0	0
	15	Burnt dolomite	t	0	0	0	0	0	0	0	0	0	0
	16	EAF graphite electrodes	t	0	0	0	0	0	0	0	0	0	0
	17	Nitrogen	10^{3}m^3(stp)	0	0	0	0	0	0	0	0	0	0
	18	Argon	10^{3}m^3(stp)	0	0	0	0	0	0	0	0	0	0
	19	Oxygen	10^{3}m^3(stp)	0	0	0	0	0	0	0	0	0	0
Energy carriers	20	Electricity	MWh	0	0	0	0	0	0	0	0	0	0
	21	Steam	t	0	0	0	0	0	0	0	0	0	0
Ferrous-containing material	22	Pellets	t	0	0	0	0	0	0	0	0	0	0
	23	Hot metal	t	0	0	0	0	0	0	0	0	0	0
	24	Cold iron	t	0	0	0	0	0	0	0	0	0	0
	25	Gas-based DRI	t	0	0	0	0	0	0	0	0	0	0
	26	Coal-based DRI	t	0	0	0	0	0	0	0	0	0	0
Alloys	27	Ferro-nickel	t	0	0	0	0	0	0	0	0	0	0
	28	Ferro-chromium	t	0	0	0	0	0	0	0	0	0	0
	29	Ferro-molybdenum	t	0	0	0	0	0	0	0	0	0	0
Product and by-product	30	CO$_2$ for external use	t	0	0	0	0	0	0	0	0	0	0
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0	0	0
Subtotal				0	0	0	0	0	0	0	0	0	0
			Total		THB/month		THB/month		THB/month		THB/month		THB/month
			Intensity (Unit)		THB/t-produc		THB/t-produc		THB/t-produc		THB/t-produc		THB/t-product steel

Monthly Data Entry Sheets (03 Mar.)

Additional Instructions for Data Entry
Sheet B contains formulas in the cells that automatically sum the data entries in the 12 monthly data entry sheets (Sheets 01-12)
There are two options for entering data in this document:
Option 1: Manually enter annual data in Sheet B
Option 2: Manually enter monthly data in Sheets 01-12, which is automatically summed into annual data in Sheet B
If you choose Option 1, please delete or overwrite the forumulas in the input cells of Sheet B

Note: This sheet is based on ISO14404 Calculation Sheet for Steel Plant for EAF and/or RHF/Rolling, etc.
1. "Input" means energy/materials purchased by the steelworks from suppliers.
2. "Output" means energy/material sold to the customers outside of steelworks.
3. "stp" means standard temperature and pressure.

Please fill in blue-colored cells only. Gray/pink-colored cells are automatically calculated.

General information

Name of person in charge of this data	*********	
phone	***-****-****	
E mail	***@*******	
Monthly purchased *semi-finished steel products	***	ton-steel/month
Actual monthly production	***	ton-product steel/month

*semi-finished steel = such as bloom, billet, slab etc.

Facilty-by-Facility Energy Consumption

				Energy cost	Total		Facility by Facility									
							Oxygen plant		RHF		Rolling mill		Cooling water		Others	
Energy Consumption Source			Unit	THB/Unit	Input (purchased)	Output (sold)	Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
Gas fuel	1	Natural gas	10^3m^3(stp)													
	2	Town gas	10^3m^3(stp)													
Liquid fuel	3	Heavy oil	m^3													
	4	Light oil	m^3													
	5	Kerosene	m^3													
	6	LPG	t													
Solid fuel	7	EAF coal	dry t													
	8	Steam coal	dry t													
	9	Coke	dry t													
	10	Charcoal	dry t													
	11	SR/DR coal														
Auxiliary material	12	Limestone	dry t													
	13	Burnt lime	t													
	14	Crude dolomite	dry t													
	15	Burnt dolomite	t													
	16	EAF graphite electrodes	t													
	17	Nitrogen	10^3m^3(stp)													
	18	Argon	10^3m^3(stp)													
	19	Oxygen	10^3m^3(stp)													
Energy carriers	20	Electricity	MWh													
	21	Steam	t													
Ferrous-containing material	22	Pellets	t													
	23	Hot metal	t													
	24	Cold iron	t													
	25	Gas-based DRI	t													
	26	Coal-based DRI	t													
Alloys	27	Ferro-nickel	t													
	28	Ferro-chromium	t													
	29	Ferro-molybdenum	t													
Product and by-product	30	CO_2 for external use	t													
Others	N	Other emission sources	—													

Calculation results

				Total Energy Consumption			Total CO2 emission			Total energy cost		Facility by Facility Energy Consumption															Facility by Facility CO_2 Emission															Facility by Facility Energy Cost									
												Oxygen plant			RHF			Rolling mill			Cooling water			Others			Oxygen plant			RHF			Rolling mill			Cooling water			Others			Oxygen plant		RHF		Rolling mill		Cooling water		Others	
Energy Consumption Source			Unit	Direct	Upstream	Credit	Direct	Upstream	Credit	Input	Output	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
				GJ/month			t-CO_2/month			THB/month		GJ/month			GJ/month			GJ/month			GJ/month			GJ/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			THB/month		THB/month		THB/month		THB/month		THB/month	
Gas fuel	1	Natural gas	10^3m^3(stp)	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0
	2	Town gas	10^3m^3(stp)	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	4	Light oil	m^3	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	5	Kerosene	m^3	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	6	LPG	t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	8	Steam coal	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	9	Coke	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	10	Charcoal	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	11	SR/DR coal		-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
Auxiliary material	12	Limestone	dry t	-	-	0	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	-	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	13	Burnt lime	t	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	14	Crude dolomite	dry t	-	-	0	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
	15	Burnt dolomite	t	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	16	EAF graphite electrodes	t	-	-	0	0	0	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
	17	Nitrogen	10^3m^3(stp)	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	18	Argon	10^3m^3(stp)	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
	19	Oxygen	10^3m^3(stp)	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
	21	Steam	t	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
Ferrous-containing material	22	Pellets	t	-	-	-	0	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
	23	Hot metal	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	0	0	0	0	0	0	0	0	0
	24	Cold iron	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	25	Gas-based DRI	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	26	Coal-based DRI	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
Alloys	27	Ferro-nickel	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	28	Ferro-chromium	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	29	Ferro-molybdenum	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
Product and by-product	30	CO_2 for external use	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
Subtotal				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Total			GJ/month			t-CO_2/month		THB/month			GJ/month			GJ/month			GJ/month			GJ/month			GJ/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month		THB/month		THB/month		THB/month		THB/month		THB/month
			Intensity (Unit)			GJ/t-product steel			t-CO_2/t-produ		THB/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-produ		THB/t-produc		THB/t-produc		THB/t-produc		THB/t-produc		THB/t-product steel

Monthly Data Entry Sheets (04 Apr.)

Additional Instructions for Data Entry
Sheet B contains formulas in the cells that automatically sum the data entries in the 12 monthly data entry sheets (Sheets 01-12)
There are two options for entering data in this document:
Option 1: Manually enter annual data in Sheet B
Option 2: Manually enter monthly data in Sheets 01-12, which is automatically summed into annual data in Sheet B
If you choose Option 1, please delete or overwrite the forumulas in the input cells of Sheet B

Note: This sheet is based on ISO14404 Calculation Sheet for Steel Plant for EAF and/or RHF/Rolling, etc.
1. "Input" means energy/materials purchased by the steelworks from suppliers.
2. "Output" means energy/material sold to the customers outside of steelworks.
3. "stp" means standard temperature and pressure.

Please fill in blue-colored cells only. Gray/pink-colored cells are automatically calculated.

General information

Name of person in charge of this data	*********	
phone	***-****-****	
E mail	***@*******	
Monthly purchased *semi-finished steel products	***	ton-steel/month
Actual monthly production	***	ton-product steel/month

*semi-finished steel = such as bloom, billet, slab etc.

Facilty-by-Facility Energy Consumption

				Energy cost	Total		Facility by Facility									
							Oxygen plant		RHF		Rolling mill		Cooling water		Others	
Energy Consumption Source			Unit	THB/Unit	Input (purchased)	Output (sold)	Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
Gas fuel	1	Natural gas	10^3m^3(stp)													
	2	Town gas	10^3m^3(stp)													
Liquid fuel	3	Heavy oil	m^3													
	4	Light oil	m^3													
	5	Kerosene	m^3													
	6	LPG	t													
Solid fuel	7	EAF coal	dry t													
	8	Steam coal	dry t													
	9	Coke	dry t													
	10	Charcoal	dry t													
	11	SR/DR coal														
Auxiliary material	12	Limestone	dry t													
	13	Burnt lime	t													
	14	Crude dolomite	dry t													
	15	Burnt dolomite	t													
	16	EAF graphite electrodes	t													
	17	Nitrogen	10^3m^3(stp)													
	18	Argon	10^3m^3(stp)													
	19	Oxygen	10^3m^3(stp)													
Energy carriers	20	Electricity	MWh													
	21	Steam	t													
Ferrous-containing material	22	Pellets	t													
	23	Hot metal	t													
	24	Cold iron	t													
	25	Gas-based DRI	t													
	26	Coal-based DRI	t													
Alloys	27	Ferro-nickel	t													
	28	Ferro-chromium	t													
	29	Ferro-molybdenum	t													
Product and by-product	30	CO_2 for external use	t													
Others	N	Other emission sources	—													

Calculation results

				Total Energy Consumption			Total CO2 emission			Total energy cost	
Energy Consumption Source			Unit	Direct	Upstream	Credit	Direct	Upstream	Credit	Input	Output
				GJ/month			t-CO_2/month			THB/month	
Gas fuel	1	Natural gas	10^3m^3(stp)	0	-	0	0	-	0	0	0
	2	Town gas	10^3m^3(stp)	0	-	0	0	-	0	0	0
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	0
	4	Light oil	m^3	0	-	0	0	-	0	0	0
	5	Kerosene	m^3	0	-	0	0	-	0	0	0
	6	LPG	t	0	-	0	0	-	0	0	0
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	0
	8	Steam coal	dry t	0	-	0	0	-	0	0	0
	9	Coke	dry t	0	-	0	0	-	0	0	0
	10	Charcoal	dry t	0	-	0	0	-	0	0	0
	11	SR/DR coal		-	-	-	0	-	0	0	0
Auxiliary material	12	Limestone	dry t	-	-	0	0	-	0	0	0
	13	Burnt lime	t	-	0	0	-	0	0	0	0
	14	Crude dolomite	dry t	-	-	0	0	-	0	0	0
	15	Burnt dolomite	t	-	0	0	-	0	0	0	0
	16	EAF graphite electrodes	t	-	-	0	0	0	0	0	0
	17	Nitrogen	10^3m^3(stp)	-	0	0	-	0	0	0	0
	18	Argon	10^3m^3(stp)	-	0	0	-	0	0	0	0
	19	Oxygen	10^3m^3(stp)	-	0	0	-	0	0	0	0
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	0	0
	21	Steam	t	-	0	0	-	0	0	0	0
Ferrous-containing material	22	Pellets	t	-	-	-	0	-	-	0	0
	23	Hot metal	t	-	-	-	0	-	0	0	0
	24	Cold iron	t	-	-	-	0	-	0	0	0
	25	Gas-based DRI	t	-	-	-	0	-	0	0	0
	26	Coal-based DRI	t	-	-	-	0	-	0	0	0
Alloys	27	Ferro-nickel	t	-	-	-	0	-	0	0	0
	28	Ferro-chromium	t	-	-	-	0	-	0	0	0
	29	Ferro-molybdenum	t	-	-	-	0	-	0	0	0
Product and by-product	30	CO_2 for external use	t	-	-	-	0	-	0	0	0
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0
Subtotal				0	0	0	0	0	0	0	0
			Total			GJ/month			t-CO_2/month		THB/month
			Intensity (Unit)			GJ/t-product steel			t-CO_2/t-produ		THB/t-product steel

				Facility by Facility Energy Consumption														
				Oxygen plant			RHF			Rolling mill			Cooling water			Others		
Energy Consumption Source			Unit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit
				GJ/month			GJ/month			GJ/month			GJ/month			GJ/month		
Gas fuel	1	Natural gas	10^3m^3(stp)	0	-	0	0	-	0	0	-	0	0	-	0	-	-	-
	2	Town gas	10^3m^3(stp)	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	4	Light oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	5	Kerosene	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	6	LPG	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	8	Steam coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	9	Coke	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	10	Charcoal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	11	SR/DR coal		-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
Auxiliary material	12	Limestone	dry t	-	-	0	-	-	0	-	-	0	-	-	0	-	-	-
	13	Burnt lime	t	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
	14	Crude dolomite	dry t	-	-	0	-	-	0	-	-	0	-	-	0	-	0	0
	15	Burnt dolomite	t	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
	16	EAF graphite electrodes	t	-	-	0	-	-	0	-	-	0	-	-	0	-	0	0
	17	Nitrogen	10^3m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
	18	Argon	10^3m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	19	Oxygen	10^3m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	21	Steam	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Ferrous-containing material	22	Pellets	t	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
	23	Hot metal	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24	Cold iron	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	25	Gas-based DRI	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	26	Coal-based DRI	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alloys	27	Ferro-nickel	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28	Ferro-chromium	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29	Ferro-molybdenum	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Product and by-product	30	CO_2 for external use	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Subtotal				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Total			GJ/month			GJ/month			GJ/month			GJ/month			GJ/month
			Intensity (Unit)			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel

				Facility by Facility CO_2 Emission														
				Oxygen plant			RHF			Rolling mill			Cooling water			Others		
Energy Consumption Source			Unit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit
				t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month		
Gas fuel	1	Natural gas	10^3m^3(stp)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	Town gas	10^3m^3(stp)	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	4	Light oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	5	Kerosene	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	6	LPG	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	8	Steam coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	9	Coke	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	10	Charcoal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	11	SR/DR coal		0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Auxiliary material	12	Limestone	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	13	Burnt lime	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	14	Crude dolomite	dry t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	15	Burnt dolomite	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	16	EAF graphite electrodes	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	17	Nitrogen	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	18	Argon	10^3m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	19	Oxygen	10^3m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	21	Steam	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Ferrous-containing material	22	Pellets	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	23	Hot metal	t	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
	24	Cold iron	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	25	Gas-based DRI	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	26	Coal-based DRI	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Alloys	27	Ferro-nickel	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	28	Ferro-chromium	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	29	Ferro-molybdenum	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Product and by-product	30	CO_2 for external use	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Others	N	Other emission sources	—	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Subtotal				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Total			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month
			Intensity (Unit)			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-produ

				Facility by Facility Energy Cost									
				Oxygen plant		RHF		Rolling mill		Cooling water		Others	
Energy Consumption Source			Unit	Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
				THB/month		THB/month		THB/month		THB/month		THB/month	
Gas fuel	1	Natural gas	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0
	2	Town gas	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0
Liquid fuel	3	Heavy oil	m^3	0	0	0	0	0	0	0	0	0	0
	4	Light oil	m^3	0	0	0	0	0	0	0	0	0	0
	5	Kerosene	m^3	0	0	0	0	0	0	0	0	0	0
	6	LPG	t	0	0	0	0	0	0	0	0	0	0
Solid fuel	7	EAF coal	dry t	0	0	0	0	0	0	0	0	0	0
	8	Steam coal	dry t	0	0	0	0	0	0	0	0	0	0
	9	Coke	dry t	0	0	0	0	0	0	0	0	0	0
	10	Charcoal	dry t	0	0	0	0	0	0	0	0	0	0
	11	SR/DR coal		0	0	0	0	0	0	0	0	0	0
Auxiliary material	12	Limestone	dry t	0	0	0	0	0	0	0	0	0	0
	13	Burnt lime	t	0	0	0	0	0	0	0	0	0	0
	14	Crude dolomite	dry t	0	0	0	0	0	0	0	0	0	0
	15	Burnt dolomite	t	0	0	0	0	0	0	0	0	0	0
	16	EAF graphite electrodes	t	0	0	0	0	0	0	0	0	0	0
	17	Nitrogen	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0
	18	Argon	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0
	19	Oxygen	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0
Energy carriers	20	Electricity	MWh	0	0	0	0	0	0	0	0	0	0
	21	Steam	t	0	0	0	0	0	0	0	0	0	0
Ferrous-containing material	22	Pellets	t	0	0	0	0	0	0	0	0	0	0
	23	Hot metal	t	0	0	0	0	0	0	0	0	0	0
	24	Cold iron	t	0	0	0	0	0	0	0	0	0	0
	25	Gas-based DRI	t	0	0	0	0	0	0	0	0	0	0
	26	Coal-based DRI	t	0	0	0	0	0	0	0	0	0	0
Alloys	27	Ferro-nickel	t	0	0	0	0	0	0	0	0	0	0
	28	Ferro-chromium	t	0	0	0	0	0	0	0	0	0	0
	29	Ferro-molybdenum	t	0	0	0	0	0	0	0	0	0	0
Product and by-product	30	CO_2 for external use	t	0	0	0	0	0	0	0	0	0	0
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0	0	0
Subtotal				0	0	0	0	0	0	0	0	0	0
			Total		THB/month		THB/month		THB/month		THB/month		THB/month
			Intensity (Unit)		THB/t-produc		THB/t-produc		THB/t-produc		THB/t-produc		THB/t-product steel

Monthly Data Entry Sheets (05 May.)

<u>Additional Instructions for Data Entry</u>
Sheet B contains formulas in the cells that automatically sum the data entries in the 12 monthly data entry sheets (Sheets 01-12)
There are two options for entering data in this document:
- Option 1: Manually enter annual data in Sheet B
- Option 2: Manually enter monthly data in Sheets 01-12, which is automatically summed into annual data in Sheet B

If you choose Option 1, please delete or overwrite the forumulas in the input cells of Sheet B

<u>Note</u>: This sheet is based on ISO14404 Calculation Sheet for Steel Plant for EAF and/or RHF/Rolling, etc.
1. "Input" means energy/materials purchased by the steelworks from suppliers.
2. "Output" means energy/material sold to the customers outside of steelworks.
3. "stp" means standard temperature and pressure.

Please fill in blue-colored cells only. Gray/pink-colored cells are automatically calculated.

General information

Name of person in charge of this data	*********	
phone	***-****-****	
E mail	***@*******	
Monthly purchased *semi-finished steel products	***	ton-steel/month
Actual monthly production	***	ton-product steel/month

*semi-finished steel = such as bloom, billet, slab etc.

Facilty-by-Facility Energy Consumption

Energy Consumption Source			Unit	Energy cost	Total		Facility by Facility									
							Oxygen plant		RHF		Rolling mill		Cooling water		Others	
				THB/Unit	Input (purchased)	Output (sold)	Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
Gas fuel	1	Natural gas	10^3m^3(stp)													
	2	Town gas	10^3m^3(stp)													
Liquid fuel	3	Heavy oil	m^3													
	4	Light oil	m^3													
	5	Kerosene	m^3													
	6	LPG	t													
Solid fuel	7	EAF coal	dry t													
	8	Steam coal	dry t													
	9	Coke	dry t													
	10	Charcoal	dry t													
	11	SR/DR coal														
Auxiliary material	12	Limestone	dry t													
	13	Burnt lime	t													
	14	Crude dolomite	dry t													
	15	Burnt dolomite	t													
	16	EAF graphite electrodes	t													
	17	Nitrogen	10^3m^3(stp)													
	18	Argon	10^3m^3(stp)													
	19	Oxygen	10^3m^3(stp)													
Energy carriers	20	Electricity	MWh													
	21	Steam	t													
Ferrous-containing material	22	Pellets	t													
	23	Hot metal	t													
	24	Cold iron	t													
	25	Gas-based DRI	t													
	26	Coal-based DRI	t													
Alloys	27	Ferro-nickel	t													
	28	Ferro-chromium	t													
	29	Ferro-molybdenum	t													
Product and by-product	30	CO_2 for external use	t													
Others	N	Other emission sources	—													

Calculation results

Energy Consumption Source			Unit	Total Energy Consumption			Total CO2 emission			Total energy cost	
				Direct	Upstream	Credit	Direct	Upstream	Credit	Input	Output
				GJ/month			t-CO_2/month			THB/month	
Gas fuel	1	Natural gas	10^3m^3(stp)	0	-	0	0	-	0	0	0
	2	Town gas	10^3m^3(stp)	0	-	0	0	-	0	0	0
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	0
	4	Light oil	m^3	0	-	0	0	-	0	0	0
	5	Kerosene	m^3	0	-	0	0	-	0	0	0
	6	LPG	t	0	-	0	0	-	0	0	0
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	0
	8	Steam coal	dry t	0	-	0	0	-	0	0	0
	9	Coke	dry t	0	-	0	0	-	0	0	0
	10	Charcoal	dry t	0	-	0	0	-	0	0	0
	11	SR/DR coal		-	-	-	0	-	0	0	0
Auxiliary material	12	Limestone	dry t	-	-	0	0	-	0	0	0
	13	Burnt lime	t	-	0	0	-	0	0	0	0
	14	Crude dolomite	dry t	-	-	0	0	-	0	0	0
	15	Burnt dolomite	t	-	0	0	-	0	0	0	0
	16	EAF graphite electrodes	t	-	-	0	0	0	0	0	0
	17	Nitrogen	10^3m^3(stp)	-	0	0	-	0	0	0	0
	18	Argon	10^3m^3(stp)	-	0	0	-	0	0	0	0
	19	Oxygen	10^3m^3(stp)	-	0	0	-	0	0	0	0
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	0	0
	21	Steam	t	-	0	0	-	0	0	0	0
Ferrous-containing material	22	Pellets	t	-	-	-	0	-	-	0	0
	23	Hot metal	t	-	-	-	0	-	0	0	0
	24	Cold iron	t	-	-	-	0	-	0	0	0
	25	Gas-based DRI	t	-	-	-	0	-	0	0	0
	26	Coal-based DRI	t	-	-	-	0	-	0	0	0
Alloys	27	Ferro-nickel	t	-	-	-	0	-	0	0	0
	28	Ferro-chromium	t	-	-	-	0	-	0	0	0
	29	Ferro-molybdenum	t	-	-	-	0	-	0	0	0
Product and by-product	30	CO_2 for external use	t	-	-	-	0	-	0	0	0
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0
Subtotal				0	0	0	0	0	0	0	0
			Total			GJ/month			t-CO_2/month		THB/month
			Intensity (Unit)			GJ/t-product steel			t-CO_2/t-product steel		THB/t-product steel

Energy Consumption Source			Unit	Facility by Facility Energy Consumption														
				Oxygen plant			RHF			Rolling mill			Cooling water			Others		
				Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit
				GJ/month			GJ/month			GJ/month			GJ/month			GJ/month		
Gas fuel	1	Natural gas	10^3m^3(stp)	0	-	0	0	-	0	0	-	0	0	-	0	-	-	-
	2	Town gas	10^3m^3(stp)	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	4	Light oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	5	Kerosene	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	6	LPG	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	8	Steam coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	9	Coke	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	10	Charcoal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	11	SR/DR coal		-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
Auxiliary material	12	Limestone	dry t	-	-	0	-	-	0	-	-	0	-	-	0	-	-	-
	13	Burnt lime	t	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
	14	Crude dolomite	dry t	-	-	0	-	-	0	-	-	0	-	-	0	-	0	0
	15	Burnt dolomite	t	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
	16	EAF graphite electrodes	t	-	-	0	-	-	0	-	-	0	-	-	0	-	0	0
	17	Nitrogen	10^3m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
	18	Argon	10^3m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	19	Oxygen	10^3m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	21	Steam	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Ferrous-containing material	22	Pellets	t	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
	23	Hot metal	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24	Cold iron	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	25	Gas-based DRI	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	26	Coal-based DRI	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alloys	27	Ferro-nickel	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28	Ferro-chromium	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29	Ferro-molybdenum	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Product and by-product	30	CO_2 for external use	t	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Subtotal				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Total			GJ/month			GJ/month			GJ/month			GJ/month			GJ/month
			Intensity (Unit)			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel

Energy Consumption Source			Unit	Facility by Facility CO_2 Emission														
				Oxygen plant			RHF			Rolling mill			Cooling water			Others		
				Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit
				t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month		
Gas fuel	1	Natural gas	10^3m^3(stp)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	Town gas	10^3m^3(stp)	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	4	Light oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	5	Kerosene	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	6	LPG	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	8	Steam coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	9	Coke	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	10	Charcoal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	11	SR/DR coal		0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Auxiliary material	12	Limestone	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	13	Burnt lime	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	14	Crude dolomite	dry t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	15	Burnt dolomite	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	16	EAF graphite electrodes	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	17	Nitrogen	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	18	Argon	10^3m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	19	Oxygen	10^3m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	21	Steam	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Ferrous-containing material	22	Pellets	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	23	Hot metal	t	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
	24	Cold iron	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	25	Gas-based DRI	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	26	Coal-based DRI	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Alloys	27	Ferro-nickel	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	28	Ferro-chromium	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	29	Ferro-molybdenum	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Product and by-product	30	CO_2 for external use	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Others	N	Other emission sources	—	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Subtotal				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Total			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month
			Intensity (Unit)			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-produ

Energy Consumption Source			Unit	Facility by Facility Energy Cost									
				Oxygen plant		RHF		Rolling mill		Cooling water		Others	
				Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
				THB/month		THB/month		THB/month		THB/month		THB/month	
Gas fuel	1	Natural gas	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0
	2	Town gas	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0
Liquid fuel	3	Heavy oil	m^3	0	0	0	0	0	0	0	0	0	0
	4	Light oil	m^3	0	0	0	0	0	0	0	0	0	0
	5	Kerosene	m^3	0	0	0	0	0	0	0	0	0	0
	6	LPG	t	0	0	0	0	0	0	0	0	0	0
Solid fuel	7	EAF coal	dry t	0	0	0	0	0	0	0	0	0	0
	8	Steam coal	dry t	0	0	0	0	0	0	0	0	0	0
	9	Coke	dry t	0	0	0	0	0	0	0	0	0	0
	10	Charcoal	dry t	0	0	0	0	0	0	0	0	0	0
	11	SR/DR coal		0	0	0	0	0	0	0	0	0	0
Auxiliary material	12	Limestone	dry t	0	0	0	0	0	0	0	0	0	0
	13	Burnt lime	t	0	0	0	0	0	0	0	0	0	0
	14	Crude dolomite	dry t	0	0	0	0	0	0	0	0	0	0
	15	Burnt dolomite	t	0	0	0	0	0	0	0	0	0	0
	16	EAF graphite electrodes	t	0	0	0	0	0	0	0	0	0	0
	17	Nitrogen	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0
	18	Argon	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0
	19	Oxygen	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0
Energy carriers	20	Electricity	MWh	0	0	0	0	0	0	0	0	0	0
	21	Steam	t	0	0	0	0	0	0	0	0	0	0
Ferrous-containing material	22	Pellets	t	0	0	0	0	0	0	0	0	0	0
	23	Hot metal	t	0	0	0	0	0	0	0	0	0	0
	24	Cold iron	t	0	0	0	0	0	0	0	0	0	0
	25	Gas-based DRI	t	0	0	0	0	0	0	0	0	0	0
	26	Coal-based DRI	t	0	0	0	0	0	0	0	0	0	0
Alloys	27	Ferro-nickel	t	0	0	0	0	0	0	0	0	0	0
	28	Ferro-chromium	t	0	0	0	0	0	0	0	0	0	0
	29	Ferro-molybdenum	t	0	0	0	0	0	0	0	0	0	0
Product and by-product	30	CO_2 for external use	t	0	0	0	0	0	0	0	0	0	0
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0	0	0
Subtotal				0	0	0	0	0	0	0	0	0	0
			Total		THB/month		THB/month		THB/month		THB/month		THB/month
			Intensity (Unit)		THB/t-produc		THB/t-produc		THB/t-produc		THB/t-produc		THB/t-product steel

Monthly Data Entry Sheets (06 Jun.)

Additional Instructions for Data Entry
Sheet B contains formulas in the cells that automatically sum the data entries in the 12 monthly data entry sheets (Sheets 01-12)
There are two options for entering data in this document:
Option 1: Manually enter annual data in Sheet B
Option 2: Manually enter monthly data in Sheets 01-12, which is automatically summed into annual data in Sheet B
If you choose Option 1, please delete or overwrite the forumulas in the input cells of Sheet B

Note: This sheet is based on ISO14404 Calculation Sheet for Steel Plant for EAF and/or RHF/Rolling, etc.
1. "Input" means energy/materials purchased by the steelworks from suppliers.
2. "Output" means energy/material sold to the customers outside of steelworks.
3. "stp" means standard temperature and pressure.

Please fill in blue-colored cells only. Gray/pink-colored cells are automatically calculated.

General information

Name of person in charge of this data	*********		
phone	***-****-****		
E mail	***@*******		
Monthly purchased *semi-finished steel products	***	ton-steel/month	*semi-finished steel = such as bloom, billet, slab etc.
Actual monthly production	***	ton-product steel/month	

Facilty-by-Facility Energy Consumption

				Energy cost	Total		Facility by Facility									
							Oxygen plant		RHF		Rolling mill		Cooling water		Others	
Energy Consumption Source			Unit	THB/Unit	Input (purchased)	Output (sold)	Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
Gas fuel	1	Natural gas	10^3m^3(stp)													
	2	Town gas	10^3m^3(stp)													
Liquid fuel	3	Heavy oil	m^3													
	4	Light oil	m^3													
	5	Kerosene	m^3													
	6	LPG	t													
Solid fuel	7	EAF coal	dry t													
	8	Steam coal	dry t													
	9	Coke	dry t													
	10	Charcoal	dry t													
	11	SR/DR coal														
Auxiliary material	12	Limestone	dry t													
	13	Burnt lime	t													
	14	Crude dolomite	dry t													
	15	Burnt dolomite	t													
	16	EAF graphite electrodes	t													
	17	Nitrogen	10^3m^3(stp)													
	18	Argon	10^3m^3(stp)													
	19	Oxygen	10^3m^3(stp)													
Energy carriers	20	Electricity	MWh													
	21	Steam	t													
Ferrous-containing material	22	Pellets	t													
	23	Hot metal	t													
	24	Cold iron	t													
	25	Gas-based DRI	t													
	26	Coal-based DRI	t													
Alloys	27	Ferro-nickel	t													
	28	Ferro-chromium	t													
	29	Ferro-molybdenum	t													
Product and by-product	30	CO_2 for external use	t													
Others	N	Other emission sources	—													

Calculation results

				Total Energy Consumption			Total CO2 emission			Total energy cost	
Energy Consumption Source			Unit	Direct	Upstream	Credit	Direct	Upstream	Credit	Input	Output
				GJ/month			t-CO_2/month			THB/month	
Gas fuel	1	Natural gas	10^3m^3(stp)	0	-	0	0	-	0	0	0
	2	Town gas	10^3m^3(stp)	0	-	0	0	-	0	0	0
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	0
	4	Light oil	m^3	0	-	0	0	-	0	0	0
	5	Kerosene	m^3	0	-	0	0	-	0	0	0
	6	LPG	t	0	-	0	0	-	0	0	0
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	0
	8	Steam coal	dry t	0	-	0	0	-	0	0	0
	9	Coke	dry t	0	-	0	0	-	0	0	0
	10	Charcoal	dry t	0	-	0	0	-	0	0	0
	11	SR/DR coal		-	-	-	0	-	0	0	0
Auxiliary material	12	Limestone	dry t	-	-	0	0	-	0	0	0
	13	Burnt lime	t	-	0	0	-	0	0	0	0
	14	Crude dolomite	dry t	-	-	0	0	-	0	0	0
	15	Burnt dolomite	t	-	0	0	-	0	0	0	0
	16	EAF graphite electrodes	t	-	-	0	0	0	0	0	0
	17	Nitrogen	10^3m^3(stp)	-	0	0	-	0	0	0	0
	18	Argon	10^3m^3(stp)	-	0	0	-	0	0	0	0
	19	Oxygen	10^3m^3(stp)	-	0	0	-	0	0	0	0
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	0	0
	21	Steam	t	-	0	0	-	0	0	0	0
Ferrous-containing material	22	Pellets	t	-	-	-	0	-	-	0	0
	23	Hot metal	t	-	-	-	0	-	0	0	0
	24	Cold iron	t	-	-	-	0	-	0	0	0
	25	Gas-based DRI	t	-	-	-	0	-	0	0	0
	26	Coal-based DRI	t	-	-	-	0	-	0	0	0
Alloys	27	Ferro-nickel	t	-	-	-	0	-	0	0	0
	28	Ferro-chromium	t	-	-	-	0	-	0	0	0
	29	Ferro-molybdenum	t	-	-	-	0	-	0	0	0
Product and by-product	30	CO_2 for external use	t	-	-	-	0	-	0	0	0
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0
Subtotal				0	0	0	0	0	0	0	0
			Total			GJ/month			t-CO_2/month		THB/month
			Intensity (Unit)			GJ/t-product steel			t-CO_2/t-produ		THB/t-product steel

		Facility by Facility Energy Consumption														
		Oxygen plant			RHF			Rolling mill			Cooling water			Others		
No.	Energy Consumption Source	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit
		GJ/month			GJ/month			GJ/month			GJ/month			GJ/month		
1	Natural gas	0	-	0	0	-	0	0	-	0	0	-	0	-	-	-
2	Town gas	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
3	Heavy oil	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
4	Light oil	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
5	Kerosene	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
6	LPG	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
7	EAF coal	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
8	Steam coal	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
9	Coke	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
10	Charcoal	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
11	SR/DR coal	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
12	Limestone	-	-	0	-	-	0	-	-	0	-	-	0	-	-	-
13	Burnt lime	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
14	Crude dolomite	-	-	0	-	-	0	-	-	0	-	-	0	-	0	0
15	Burnt dolomite	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
16	EAF graphite electrodes	-	-	0	-	-	0	-	-	0	-	-	0	-	0	0
17	Nitrogen	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
18	Argon	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
19	Oxygen	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
20	Electricity	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
21	Steam	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
22	Pellets	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
23	Hot metal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	Cold iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Gas-based DRI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	Coal-based DRI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	Ferro-nickel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Ferro-chromium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Ferro-molybdenum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	CO_2 for external use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	Other emission sources	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Subtotal		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total			GJ/month			GJ/month			GJ/month			GJ/month			GJ/month
	Intensity (Unit)			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel

		Facility by Facility CO_2 Emission														
		Oxygen plant			RHF			Rolling mill			Cooling water			Others		
No.	Energy Consumption Source	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit
		t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month		
1	Natural gas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Town gas	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
3	Heavy oil	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
4	Light oil	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
5	Kerosene	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
6	LPG	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
7	EAF coal	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
8	Steam coal	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
9	Coke	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
10	Charcoal	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
11	SR/DR coal	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
12	Limestone	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
13	Burnt lime	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
14	Crude dolomite	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
15	Burnt dolomite	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
16	EAF graphite electrodes	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
17	Nitrogen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Argon	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
19	Oxygen	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
20	Electricity	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
21	Steam	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
22	Pellets	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
23	Hot metal	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
24	Cold iron	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
25	Gas-based DRI	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
26	Coal-based DRI	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
27	Ferro-nickel	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
28	Ferro-chromium	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
29	Ferro-molybdenum	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
30	CO_2 for external use	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
N	Other emission sources	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Subtotal		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month
	Intensity (Unit)			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-produ

		Facility by Facility Energy Cost									
		Oxygen plant		RHF		Rolling mill		Cooling water		Others	
No.	Energy Consumption Source	Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
		THB/month		THB/month		THB/month		THB/month		THB/month	
1	Natural gas	0	0	0	0	0	0	0	0	0	0
2	Town gas	0	0	0	0	0	0	0	0	0	0
3	Heavy oil	0	0	0	0	0	0	0	0	0	0
4	Light oil	0	0	0	0	0	0	0	0	0	0
5	Kerosene	0	0	0	0	0	0	0	0	0	0
6	LPG	0	0	0	0	0	0	0	0	0	0
7	EAF coal	0	0	0	0	0	0	0	0	0	0
8	Steam coal	0	0	0	0	0	0	0	0	0	0
9	Coke	0	0	0	0	0	0	0	0	0	0
10	Charcoal	0	0	0	0	0	0	0	0	0	0
11	SR/DR coal	0	0	0	0	0	0	0	0	0	0
12	Limestone	0	0	0	0	0	0	0	0	0	0
13	Burnt lime	0	0	0	0	0	0	0	0	0	0
14	Crude dolomite	0	0	0	0	0	0	0	0	0	0
15	Burnt dolomite	0	0	0	0	0	0	0	0	0	0
16	EAF graphite electrodes	0	0	0	0	0	0	0	0	0	0
17	Nitrogen	0	0	0	0	0	0	0	0	0	0
18	Argon	0	0	0	0	0	0	0	0	0	0
19	Oxygen	0	0	0	0	0	0	0	0	0	0
20	Electricity	0	0	0	0	0	0	0	0	0	0
21	Steam	0	0	0	0	0	0	0	0	0	0
22	Pellets	0	0	0	0	0	0	0	0	0	0
23	Hot metal	0	0	0	0	0	0	0	0	0	0
24	Cold iron	0	0	0	0	0	0	0	0	0	0
25	Gas-based DRI	0	0	0	0	0	0	0	0	0	0
26	Coal-based DRI	0	0	0	0	0	0	0	0	0	0
27	Ferro-nickel	0	0	0	0	0	0	0	0	0	0
28	Ferro-chromium	0	0	0	0	0	0	0	0	0	0
29	Ferro-molybdenum	0	0	0	0	0	0	0	0	0	0
30	CO_2 for external use	0	0	0	0	0	0	0	0	0	0
N	Other emission sources	0	0	0	0	0	0	0	0	0	0
Subtotal		0	0	0	0	0	0	0	0	0	0
	Total		THB/month		THB/month		THB/month		THB/month		THB/month
	Intensity (Unit)		THB/t-produc		THB/t-produc		THB/t-produc		THB/t-produc		THB/t-product steel

Monthly Data Entry Sheets (07 Jul.)

Additional Instructions for Data Entry
Sheet B contains formulas in the cells that automatically sum the data entries in the 12 monthly data entry sheets (Sheets 01-12)
There are two options for entering data in this document:
Option 1: Manually enter annual data in Sheet B
Option 2: Manually enter monthly data in Sheets 01-12, which is automatically summed into annual data in Sheet B
If you choose Option 1, please delete or overwrite the forumulas in the input cells of Sheet B

Note: This sheet is based on ISO14404 Calculation Sheet for Steel Plant for EAF and/or RHF/Rolling, etc.
1. "Input" means energy/materials purchased by the steelworks from suppliers.
2. "Output" means energy/material sold to the customers outside of steelworks.
3. "stp" means standard temperature and pressure.

Please fill in blue-colored cells only. Gray/pink-colored cells are automatically calculated.

General information

Name of person in charge of this data	*********		
phone	***-****-****		
E mail	***@*******		
Monthly purchased *semi-finished steel products	***	ton-steel/month	*semi-finished steel = such as bloom, billet, slab etc.
Actual monthly production	***	ton-product steel/month	

Facilty-by-Facility Energy Consumption

				Energy cost	Total		Facility by Facility									
							Oxygen plant		RHF		Rolling mill		Cooling water		Others	
Energy Consumption Source			Unit	THB/Unit	Input (purchased)	Output (sold)	Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
Gas fuel	1	Natural gas	10^3m^3(stp)													
	2	Town gas	10^3m^3(stp)													
Liquid fuel	3	Heavy oil	m^3													
	4	Light oil	m^3													
	5	Kerosene	m^3													
	6	LPG	t													
Solid fuel	7	EAF coal	dry t													
	8	Steam coal	dry t													
	9	Coke	dry t													
	10	Charcoal	dry t													
	11	SR/DR coal														
Auxiliary material	12	Limestone	dry t													
	13	Burnt lime	t													
	14	Crude dolomite	dry t													
	15	Burnt dolomite	t													
	16	EAF graphite electrodes	t													
	17	Nitrogen	10^3m^3(stp)													
	18	Argon	10^3m^3(stp)													
	19	Oxygen	10^3m^3(stp)													
Energy carriers	20	Electricity	MWh													
	21	Steam	t													
Ferrous-containing material	22	Pellets	t													
	23	Hot metal	t													
	24	Cold iron	t													
	25	Gas-based DRI	t													
	26	Coal-based DRI	t													
Alloys	27	Ferro-nickel	t													
	28	Ferro-chromium	t													
	29	Ferro-molybdenum	t													
Product and by-product	30	CO_2 for external use	t													
Others	N	Other emission sources	—													

Calculation results

				Total Energy Consumption			Total CO2 emission			Total energy cost	
Energy Consumption Source			Unit	Direct	Upstream	Credit	Direct	Upstream	Credit	Input	Output
				GJ/month			t-CO_2/month			THB/month	
Gas fuel	1	Natural gas	10^3m^3(stp)	0	-	0	0	-	0	0	0
	2	Town gas	10^3m^3(stp)	0	-	0	0	-	0	0	0
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	0
	4	Light oil	m^3	0	-	0	0	-	0	0	0
	5	Kerosene	m^3	0	-	0	0	-	0	0	0
	6	LPG	t	0	-	0	0	-	0	0	0
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	0
	8	Steam coal	dry t	0	-	0	0	-	0	0	0
	9	Coke	dry t	0	-	0	0	-	0	0	0
	10	Charcoal	dry t	0	-	0	0	-	0	0	0
	11	SR/DR coal		-	-	-	0	-	0	0	0
Auxiliary material	12	Limestone	dry t	-	-	0	0	-	0	0	0
	13	Burnt lime	t	-	0	0	-	0	0	0	0
	14	Crude dolomite	dry t	-	-	0	0	-	0	0	0
	15	Burnt dolomite	t	-	0	0	-	0	0	0	0
	16	EAF graphite electrodes	t	-	-	0	0	0	0	0	0
	17	Nitrogen	10^3m^3(stp)	-	0	0	-	0	0	0	0
	18	Argon	10^3m^3(stp)	-	0	0	-	0	0	0	0
	19	Oxygen	10^3m^3(stp)	-	0	0	-	0	0	0	0
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	0	0
	21	Steam	t	-	0	0	-	0	0	0	0
Ferrous-containing material	22	Pellets	t	-	-	-	0	-	-	0	0
	23	Hot metal	t	-	-	-	0	-	0	0	0
	24	Cold iron	t	-	-	-	0	-	0	0	0
	25	Gas-based DRI	t	-	-	-	0	-	0	0	0
	26	Coal-based DRI	t	-	-	-	0	-	0	0	0
Alloys	27	Ferro-nickel	t	-	-	-	0	-	0	0	0
	28	Ferro-chromium	t	-	-	-	0	-	0	0	0
	29	Ferro-molybdenum	t	-	-	-	0	-	0	0	0
Product and by-product	30	CO_2 for external use	t	-	-	-	0	-	0	0	0
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0
Subtotal				0	0	0	0	0	0	0	0
			Total			GJ/month			t-CO_2/month		THB/month
			Intensity (Unit)			GJ/t-product steel			t-CO_2/t-produ		THB/t-product steel

		Facility by Facility Energy Consumption														
		Oxygen plant			RHF			Rolling mill			Cooling water			Others		
No.	Energy Consumption Source	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit
		GJ/month			GJ/month			GJ/month			GJ/month			GJ/month		
1	Natural gas	0	-	0	0	-	0	0	-	0	0	-	0	-	-	-
2	Town gas	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
3	Heavy oil	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
4	Light oil	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
5	Kerosene	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
6	LPG	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
7	EAF coal	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
8	Steam coal	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
9	Coke	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
10	Charcoal	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
11	SR/DR coal	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
12	Limestone	-	-	0	-	-	0	-	-	0	-	-	0	-	-	-
13	Burnt lime	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
14	Crude dolomite	-	-	0	-	-	0	-	-	0	-	-	0	-	0	0
15	Burnt dolomite	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
16	EAF graphite electrodes	-	-	0	-	-	0	-	-	0	-	-	0	-	0	0
17	Nitrogen	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
18	Argon	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
19	Oxygen	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
20	Electricity	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
21	Steam	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
22	Pellets	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
23	Hot metal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	Cold iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Gas-based DRI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	Coal-based DRI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	Ferro-nickel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Ferro-chromium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Ferro-molybdenum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	CO_2 for external use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	Other emission sources	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Subtotal		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total			GJ/month			GJ/month			GJ/month			GJ/month			GJ/month
	Intensity (Unit)			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel

		Facility by Facility CO_2 Emission														
		Oxygen plant			RHF			Rolling mill			Cooling water			Others		
No.	Energy Consumption Source	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit
		t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month		
1	Natural gas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Town gas	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
3	Heavy oil	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
4	Light oil	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
5	Kerosene	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
6	LPG	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
7	EAF coal	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
8	Steam coal	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
9	Coke	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
10	Charcoal	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
11	SR/DR coal	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
12	Limestone	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
13	Burnt lime	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
14	Crude dolomite	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
15	Burnt dolomite	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
16	EAF graphite electrodes	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
17	Nitrogen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Argon	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
19	Oxygen	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
20	Electricity	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
21	Steam	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
22	Pellets	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
23	Hot metal	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
24	Cold iron	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
25	Gas-based DRI	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
26	Coal-based DRI	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
27	Ferro-nickel	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
28	Ferro-chromium	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
29	Ferro-molybdenum	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
30	CO_2 for external use	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
N	Other emission sources	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Subtotal		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month
	Intensity (Unit)			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-produ

		Facility by Facility Energy Cost									
		Oxygen plant		RHF		Rolling mill		Cooling water		Others	
No.	Energy Consumption Source	Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
		THB/month		THB/month		THB/month		THB/month		THB/month	
1	Natural gas	0	0	0	0	0	0	0	0	0	0
2	Town gas	0	0	0	0	0	0	0	0	0	0
3	Heavy oil	0	0	0	0	0	0	0	0	0	0
4	Light oil	0	0	0	0	0	0	0	0	0	0
5	Kerosene	0	0	0	0	0	0	0	0	0	0
6	LPG	0	0	0	0	0	0	0	0	0	0
7	EAF coal	0	0	0	0	0	0	0	0	0	0
8	Steam coal	0	0	0	0	0	0	0	0	0	0
9	Coke	0	0	0	0	0	0	0	0	0	0
10	Charcoal	0	0	0	0	0	0	0	0	0	0
11	SR/DR coal	0	0	0	0	0	0	0	0	0	0
12	Limestone	0	0	0	0	0	0	0	0	0	0
13	Burnt lime	0	0	0	0	0	0	0	0	0	0
14	Crude dolomite	0	0	0	0	0	0	0	0	0	0
15	Burnt dolomite	0	0	0	0	0	0	0	0	0	0
16	EAF graphite electrodes	0	0	0	0	0	0	0	0	0	0
17	Nitrogen	0	0	0	0	0	0	0	0	0	0
18	Argon	0	0	0	0	0	0	0	0	0	0
19	Oxygen	0	0	0	0	0	0	0	0	0	0
20	Electricity	0	0	0	0	0	0	0	0	0	0
21	Steam	0	0	0	0	0	0	0	0	0	0
22	Pellets	0	0	0	0	0	0	0	0	0	0
23	Hot metal	0	0	0	0	0	0	0	0	0	0
24	Cold iron	0	0	0	0	0	0	0	0	0	0
25	Gas-based DRI	0	0	0	0	0	0	0	0	0	0
26	Coal-based DRI	0	0	0	0	0	0	0	0	0	0
27	Ferro-nickel	0	0	0	0	0	0	0	0	0	0
28	Ferro-chromium	0	0	0	0	0	0	0	0	0	0
29	Ferro-molybdenum	0	0	0	0	0	0	0	0	0	0
30	CO_2 for external use	0	0	0	0	0	0	0	0	0	0
N	Other emission sources	0	0	0	0	0	0	0	0	0	0
Subtotal		0	0	0	0	0	0	0	0	0	0
	Total		THB/month		THB/month		THB/month		THB/month		THB/month
	Intensity (Unit)		THB/t-produc		THB/t-produc		THB/t-produc		THB/t-produc		THB/t-product steel

Monthly Data Entry Sheets (08 Aug.)

Additional Instructions for Data Entry
Sheet B contains formulas in the cells that automatically sum the data entries in the 12 monthly data entry sheets (Sheets 01-12)
There are two options for entering data in this document:
Option 1: Manually enter annual data in Sheet B
Option 2: Manually enter monthly data in Sheets 01-12, which is automatically summed into annual data in Sheet B
If you choose Option 1, please delete or overwrite the forumulas in the input cells of Sheet B

Note: This sheet is based on ISO14404 Calculation Sheet for Steel Plant for EAF and/or RHF/Rolling, etc.
1. "Input" means energy/materials purchased by the steelworks from suppliers.
2. "Output" means energy/material sold to the customers outside of steelworks.
3. "stp" means standard temperature and pressure.

Please fill in blue-colored cells only. Gray/pink-colored cells are automatically calculated.

General information

Name of person in charge of this data	*********		
phone	***-****-****		
E mail	***@*******		
Monthly purchased *semi-finished steel products	***	ton-steel/month	*semi-finished steel = such as bloom, billet, slab etc.
Actual monthly production	***	ton-product steel/month	

Facilty-by-Facility Energy Consumption

				Energy cost	Total		Facility by Facility									
							Oxygen plant		RHF		Rolling mill		Cooling water		Others	
Energy Consumption Source			Unit	THB/Unit	Input (purchased)	Output (sold)	Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
Gas fuel	1	Natural gas	10^3m^3(stp)													
	2	Town gas	10^3m^3(stp)													
Liquid fuel	3	Heavy oil	m^3													
	4	Light oil	m^3													
	5	Kerosene	m^3													
	6	LPG	t													
Solid fuel	7	EAF coal	dry t													
	8	Steam coal	dry t													
	9	Coke	dry t													
	10	Charcoal	dry t													
	11	SR/DR coal														
Auxiliary material	12	Limestone	dry t													
	13	Burnt lime	t													
	14	Crude dolomite	dry t													
	15	Burnt dolomite	t													
	16	EAF graphite electrodes	t													
	17	Nitrogen	10^3m^3(stp)													
	18	Argon	10^3m^3(stp)													
	19	Oxygen	10^3m^3(stp)													
Energy carriers	20	Electricity	MWh													
	21	Steam	t													
Ferrous-containing material	22	Pellets	t													
	23	Hot metal	t													
	24	Cold iron	t													
	25	Gas-based DRI	t													
	26	Coal-based DRI	t													
Alloys	27	Ferro-nickel	t													
	28	Ferro-chromium	t													
	29	Ferro-molybdenum	t													
Product and by-product	30	CO_2 for external use	t													
Others	N	Other emission sources	—													

Calculation results

				Total Energy Consumption			Total CO2 emission			Total energy cost		Facility by Facility Energy Consumption														
												Oxygen plant			RHF			Rolling mill			Cooling water			Others		
Energy Consumption Source			Unit	Direct	Upstream	Credit	Direct	Upstream	Credit	Input	Output	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit
				GJ/month			t-CO_2/month			THB/month		GJ/month			GJ/month			GJ/month			GJ/month			GJ/month		
Gas fuel	1	Natural gas	10^3m^3(stp)	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	-	-	-
	2	Town gas	10^3m^3(stp)	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	4	Light oil	m^3	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	5	Kerosene	m^3	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	6	LPG	t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	8	Steam coal	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	9	Coke	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	10	Charcoal	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	11	SR/DR coal		-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
Auxiliary material	12	Limestone	dry t	-	-	0	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	-
	13	Burnt lime	t	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
	14	Crude dolomite	dry t	-	-	0	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0	0
	15	Burnt dolomite	t	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
	16	EAF graphite electrodes	t	-	-	0	0	0	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0	0
	17	Nitrogen	10^3m^3(stp)	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
	18	Argon	10^3m^3(stp)	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	19	Oxygen	10^3m^3(stp)	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	21	Steam	t	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Ferrous-containing material	22	Pellets	t	-	-	-	0	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
	23	Hot metal	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24	Cold iron	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	25	Gas-based DRI	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	26	Coal-based DRI	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alloys	27	Ferro-nickel	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28	Ferro-chromium	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29	Ferro-molybdenum	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Product and by-product	30	CO_2 for external use	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Subtotal				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Total			GJ/month			t-CO_2/month		THB/month			GJ/month			GJ/month			GJ/month			GJ/month			GJ/month
			Intensity (Unit)			GJ/t-product steel			t-CO_2/t-produ		THB/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel

				Facility by Facility CO_2 Emission															Facility by Facility Energy Cost									
				Oxygen plant			RHF			Rolling mill			Cooling water			Others			Oxygen plant		RHF		Rolling mill		Cooling water		Others	
Energy Consumption Source			Unit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
				t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			THB/month		THB/month		THB/month		THB/month		THB/month	
Gas fuel	1	Natural gas	10^3m^3(stp)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0
	2	Town gas	10^3m^3(stp)	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	4	Light oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	5	Kerosene	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	6	LPG	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	8	Steam coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	9	Coke	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	10	Charcoal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	11	SR/DR coal		0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
Auxiliary material	12	Limestone	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	13	Burnt lime	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	14	Crude dolomite	dry t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
	15	Burnt dolomite	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	16	EAF graphite electrodes	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
	17	Nitrogen	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	18	Argon	10^3m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
	19	Oxygen	10^3m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
	21	Steam	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
Ferrous-containing material	22	Pellets	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
	23	Hot metal	t	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	0	0	0	0	0	0	0	0	0
	24	Cold iron	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	25	Gas-based DRI	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	26	Coal-based DRI	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
Alloys	27	Ferro-nickel	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	28	Ferro-chromium	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
	29	Ferro-molybdenum	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
Product and by-product	30	CO_2 for external use	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
Others	N	Other emission sources	—	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0
Subtotal				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Total			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month		THB/month		THB/month		THB/month		THB/month		THB/month
			Intensity (Unit)			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-produ		THB/t-produc		THB/t-produc		THB/t-produc		THB/t-produc		THB/t-product steel

Monthly Data Entry Sheets (09 Sep.)

Additional Instructions for Data Entry
Sheet B contains formulas in the cells that automatically sum the data entries in the 12 monthly data entry sheets (Sheets 01-12)
There are two options for entering data in this document:
Option 1: Manually enter annual data in Sheet B
Option 2: Manually enter monthly data in Sheets 01-12, which is automatically summed into annual data in Sheet B
If you choose Option 1, please delete or overwrite the forumulas in the input cells of Sheet B

Note: This sheet is based on ISO14404 Calculation Sheet for Steel Plant for EAF and/or RHF/Rolling, etc.
1. "Input" means energy/materials purchased by the steelworks from suppliers.
2. "Output" means energy/material sold to the customers outside of steelworks.
3. "stp" means standard temperature and pressure.

Please fill in blue-colored cells only. Gray/pink-colored cells are automatically calculated.

General information

Name of person in charge of this data	*********		
phone	***-****-****		
E mail	***@*******		
Monthly purchased *semi-finished steel products	***	ton-steel/month	*semi-finished steel = such as bloom, billet, slab etc.
Actual monthly production	***	ton-product steel/month	

Facilty-by-Facility Energy Consumption

Energy Consumption Source			Unit	Energy cost	Total		Facility by Facility									
							Oxygen plant		RHF		Rolling mill		Cooling water		Others	
				THB/Unit	Input (purchased)	Output (sold)	Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
Gas fuel	1	Natural gas	10^3m^3(stp)													
	2	Town gas	10^3m^3(stp)													
Liquid fuel	3	Heavy oil	m^3													
	4	Light oil	m^3													
	5	Kerosene	m^3													
	6	LPG	t													
Solid fuel	7	EAF coal	dry t													
	8	Steam coal	dry t													
	9	Coke	dry t													
	10	Charcoal	dry t													
	11	SR/DR coal														
Auxiliary material	12	Limestone	dry t													
	13	Burnt lime	t													
	14	Crude dolomite	dry t													
	15	Burnt dolomite	t													
	16	EAF graphite electrodes	t													
	17	Nitrogen	10^3m^3(stp)													
	18	Argon	10^3m^3(stp)													
	19	Oxygen	10^3m^3(stp)													
Energy carriers	20	Electricity	MWh													
	21	Steam	t													
Ferrous-containing material	22	Pellets	t													
	23	Hot metal	t													
	24	Cold iron	t													
	25	Gas-based DRI	t													
	26	Coal-based DRI	t													
Alloys	27	Ferro-nickel	t													
	28	Ferro-chromium	t													
	29	Ferro-molybdenum	t													
Product and by-product	30	CO_2 for external use	t													
Others	N	Other emission sources	—													

Calculation results

Energy Consumption Source			Unit	Total Energy Consumption			Total CO2 emission			Total energy cost		Facility by Facility Energy Consumption														
												Oxygen plant			RHF			Rolling mill			Cooling water			Others		
				Direct	Upstream	Credit	Direct	Upstream	Credit	Input	Output	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit
				GJ/month			t-CO_2/month			THB/month		GJ/month			GJ/month			GJ/month			GJ/month			GJ/month		
Gas fuel	1	Natural gas	10^3m^3(stp)	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	-	-	-
	2	Town gas	10^3m^3(stp)	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	4	Light oil	m^3	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	5	Kerosene	m^3	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	6	LPG	t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	8	Steam coal	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	9	Coke	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	10	Charcoal	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	11	SR/DR coal		-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
Auxiliary material	12	Limestone	dry t	-	-	0	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	-
	13	Burnt lime	t	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
	14	Crude dolomite	dry t	-	-	0	0	-	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0	0
	15	Burnt dolomite	t	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
	16	EAF graphite electrodes	t	-	-	0	0	0	0	0	0	-	-	0	-	-	0	-	-	0	-	-	0	-	0	0
	17	Nitrogen	10^3m^3(stp)	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	-	0
	18	Argon	10^3m^3(stp)	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	19	Oxygen	10^3m^3(stp)	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	21	Steam	t	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Ferrous-containing material	22	Pellets	t	-	-	-	0	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
	23	Hot metal	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24	Cold iron	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	25	Gas-based DRI	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	26	Coal-based DRI	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alloys	27	Ferro-nickel	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28	Ferro-chromium	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29	Ferro-molybdenum	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Product and by-product	30	CO_2 for external use	t	-	-	-	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Subtotal				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Total			GJ/month			t-CO_2/month		THB/month			GJ/month			GJ/month			GJ/month			GJ/month			GJ/month
			Intensity (Unit)			GJ/t-product steel			t-CO_2/t-produ		THB/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel

Energy Consumption Source			Unit	Facility by Facility CO_2 Emission														
				Oxygen plant			RHF			Rolling mill			Cooling water			Others		
				Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit
				t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month		
Gas fuel	1	Natural gas	10^3m^3(stp)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	Town gas	10^3m^3(stp)	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	4	Light oil	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	5	Kerosene	m^3	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	6	LPG	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	8	Steam coal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	9	Coke	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	10	Charcoal	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	11	SR/DR coal		0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Auxiliary material	12	Limestone	dry t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	13	Burnt lime	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	14	Crude dolomite	dry t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	15	Burnt dolomite	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	16	EAF graphite electrodes	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	17	Nitrogen	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	18	Argon	10^3m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	19	Oxygen	10^3m^3(stp)	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Energy carriers	20	Electricity	MWh	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	21	Steam	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
Ferrous-containing material	22	Pellets	t	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0
	23	Hot metal	t	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
	24	Cold iron	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	25	Gas-based DRI	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	26	Coal-based DRI	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Alloys	27	Ferro-nickel	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	28	Ferro-chromium	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
	29	Ferro-molybdenum	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Product and by-product	30	CO_2 for external use	t	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Others	N	Other emission sources	—	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0
Subtotal				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Total			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month			t-CO_2/month
			Intensity (Unit)			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-product steel			t-CO_2/t-produ

Energy Consumption Source			Unit	Facility by Facility Energy Cost									
				Oxygen plant		RHF		Rolling mill		Cooling water		Others	
				Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
				THB/month		THB/month		THB/month		THB/month		THB/month	
Gas fuel	1	Natural gas	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0
	2	Town gas	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0
Liquid fuel	3	Heavy oil	m^3	0	0	0	0	0	0	0	0	0	0
	4	Light oil	m^3	0	0	0	0	0	0	0	0	0	0
	5	Kerosene	m^3	0	0	0	0	0	0	0	0	0	0
	6	LPG	t	0	0	0	0	0	0	0	0	0	0
Solid fuel	7	EAF coal	dry t	0	0	0	0	0	0	0	0	0	0
	8	Steam coal	dry t	0	0	0	0	0	0	0	0	0	0
	9	Coke	dry t	0	0	0	0	0	0	0	0	0	0
	10	Charcoal	dry t	0	0	0	0	0	0	0	0	0	0
	11	SR/DR coal		0	0	0	0	0	0	0	0	0	0
Auxiliary material	12	Limestone	dry t	0	0	0	0	0	0	0	0	0	0
	13	Burnt lime	t	0	0	0	0	0	0	0	0	0	0
	14	Crude dolomite	dry t	0	0	0	0	0	0	0	0	0	0
	15	Burnt dolomite	t	0	0	0	0	0	0	0	0	0	0
	16	EAF graphite electrodes	t	0	0	0	0	0	0	0	0	0	0
	17	Nitrogen	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0
	18	Argon	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0
	19	Oxygen	10^3m^3(stp)	0	0	0	0	0	0	0	0	0	0
Energy carriers	20	Electricity	MWh	0	0	0	0	0	0	0	0	0	0
	21	Steam	t	0	0	0	0	0	0	0	0	0	0
Ferrous-containing material	22	Pellets	t	0	0	0	0	0	0	0	0	0	0
	23	Hot metal	t	0	0	0	0	0	0	0	0	0	0
	24	Cold iron	t	0	0	0	0	0	0	0	0	0	0
	25	Gas-based DRI	t	0	0	0	0	0	0	0	0	0	0
	26	Coal-based DRI	t	0	0	0	0	0	0	0	0	0	0
Alloys	27	Ferro-nickel	t	0	0	0	0	0	0	0	0	0	0
	28	Ferro-chromium	t	0	0	0	0	0	0	0	0	0	0
	29	Ferro-molybdenum	t	0	0	0	0	0	0	0	0	0	0
Product and by-product	30	CO_2 for external use	t	0	0	0	0	0	0	0	0	0	0
Others	N	Other emission sources	—	0	0	0	0	0	0	0	0	0	0
Subtotal				0	0	0	0	0	0	0	0	0	0
			Total		THB/month		THB/month		THB/month		THB/month		THB/month
			Intensity (Unit)		THB/t-produc		THB/t-produc		THB/t-produc		THB/t-produc		THB/t-product steel

Monthly Data Entry Sheets (10 Oct.)

Additional instructions for Data Entry
Sheet B contains formulas in the cells that automatically sum the data entries in the 12 monthly data entry sheets (Sheets 01-12)
There are two options for entering data in this document
Option 1: Manually enter annual data in Sheet B
Option 2: Manually enter monthly data in Sheets 01-12, which is automatically summed into annual data in Sheet B
If you choose Option 1, please delete or overwrite the forumulas in the input cells of Sheet B

Note: This sheet is based on ISO14404 Calculation Sheet for Steel Plant for EAF and/or BF/Rolling, etc.
1. "Input" means energy/materials purchased by the steelworks from suppliers.
2. "Output" means energy/material sold to the customers outside of steelworks.
3. "Ntp" means standard temperature and pressure.

Please fill in blue-colored cells only. Gray/pink-colored cells are automatically calculated.

General information

Name of person in charge of this data: **********
phone: ***-****-****
E-mail: ****@*********

Monthly purchased *semi-finished steel products: **** ton-steel/month
Actual monthly production: **** ton-product steel/month

*semi-finished steel = such as bloom, billet, slab etc.

Facilty-by-Facility Energy Consumption

Energy Consumption Source		Unit	Energy cost	Total		Facility by Facility									
			THB/Unit	Input (purchased)	Output (sold)	Oxygen plant		BF		Rolling mill		Cooling water		Others	
						Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
Gas fuel	1	Natural gas	10^3n^3/yrp)												
	2	Town gas	10^3n^3/yrp)												
Liquid fuel	3	Heavy oil	m^3												
	4	Light oil	m^3												
	5	Kerosene	m^3												
	6	LPG	t												
Solid fuel	7	EAF coal	dry t												
	8	Steam coal	dry t												
	9	Coke	dry t												
	10	Charcoal	dry t												
	11	SR/DR coal	-												
Auxiliary material	12	Limestone	dry t												
	13	Burnt lime	t												
	14	Crude dolomite	dry t												
	15	Burnt dolomite	t												
	16	EAF graphite electrodes	t												
	17	Nitrogen	10^3n^3/yrp)												
	18	Argon	10^3n^3/yrp)												
	19	Oxygen	10^3n^3/yrp)												
Energy carriers	20	Electricity	MWh												
	21	Steam	t												
Ferrous-containing material	22	Pellets	t												
	23	Hot metal	t												
	24	Cold iron	t												
	25	Gas-based DRI	t												
	26	Coal-based DRI	t												
Alloys	27	Ferro-nickel	t												
	28	Ferro-chromium	t												
	29	Ferro-molybdenum	t												
Product and byproduct	30	CO_2 for external use	t												
Others	N	Other emission sources	---												

Calculation results

Energy Consumption Source		Unit	Total Energy Consumption			Total CO2 emission			Total energy cost	Facility by Facility Energy Consumption														Facility by Facility CO_2 Emission												Facility by Facility Energy Cost									
										Oxygen plant			BF/BF			Rolling mill			Cooling water			Others			Oxygen plant			BF/BF			Rolling mill			Cooling water			Others			Oxygen plant		BF/BF		Rolling mill		Cooling water		Others	
			Direct	Upstream	Credit	Direct	Upstream	Credit	Input	Output	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Direct	Upstream	Credit	Input	Output	Input	Output	Input	Output	Input	Output	Input	Output
			GJ/month			tCO2/month			THB/month		GJ/month			GJ/month			GJ/month			GJ/month			GJ/month			tCO2/month			tCO2/month			tCO2/month			tCO2/month			THB/month		THB/month		THB/month		THB/month		THB/month	
Gas fuel	1	Natural gas	10^3n^3/yrp)	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	2	Town gas	10^3n^3/yrp)	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
Liquid fuel	3	Heavy oil	m^3	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	4	Light oil	m^3	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	5	Kerosene	m^3	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	6	LPG	t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
Solid fuel	7	EAF coal	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	8	Steam coal	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	9	Coke	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	10	Charcoal	dry t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	11	SR/DR coal	-	-	-	0	0	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
Auxiliary material	12	Limestone	dry t	-	-	0	0	-	0	0	-	-	-	-	-	-	0	-	-	0	-	-	0	-	-	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	13	Burnt lime	t	-	0	0	0	-	0	0	-	0	-	-	0	-	0	-	-	0	-	-	0	-	-	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	14	Crude dolomite	dry t	-	0	0	-	0	0	0	-	0	-	-	0	-	0	-	-	0	-	-	0	-	-	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	15	Burnt dolomite	t	-	0	0	-	0	0	0	-	0	-	-	0	-	0	-	-	0	-	-	0	-	-	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	16	EAF graphite electrodes	t	-	0	0	-	0	0	0	-	0	-	-	0	-	0	-	-	0	-	-	0	-	-	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	17	Nitrogen	10^3n^3/yrp)	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	18	Argon	10^3n^3/yrp)	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	19	Oxygen	10^3n^3/yrp)	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
Energy carriers	20	Electricity	MWh	0	-	0	-	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	21	Steam	t	0	-	0	0	-	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
Ferrous-containing material	22	Pellets	t	-	-	-	0	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	23	Hot metal	t	-	-	-	0	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	24	Cold iron	t	-	-	-	0	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	25	Gas-based DRI	t	-	-	-	0	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	26	Coal-based DRI	t	-	-	-	0	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
Alloys	27	Ferro-nickel	t	-	-	-	0	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	28	Ferro-chromium	t	-	-	-	0	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
	29	Ferro-molybdenum	t	-	-	-	0	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
Product and byproduct	30	CO_2 for external use	t	-	-	-	0	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
Others	N	Other emission sources	---	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal			0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	GJ/month			tCO2/month			THB/month		GJ/month			GJ/month			GJ/month			GJ/month			GJ/month			tCO2/month			tCO2/month			tCO2/month			tCO2/month			THB/month		THB/month		THB/month		THB/month		THB/month	
		Intensity (Unit)	GJ/t-product steel			tCO2/t-product steel			THB/t-product steel		GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			GJ/t-product steel			tCO2/t-product steel			tCO2/t-product steel			tCO2/t-product steel			tCO2/t-product steel			THB/t-product		THB/t-product		THB/t-product		THB/t-product		THB/t-product steel	