

Parameters for Performance Review of Commodity

STEEL LONG

1. Background

a. Brief about the commodity such as sample picture, lifecycle and various varieties/grade of the commodity found in India:

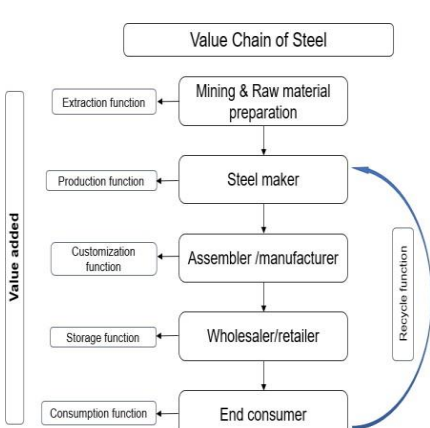
Steel industry is the heart of the global development. Steel is the world's most important engineering and construction material. It is used in every aspect of our lives. It's high tensile strength and lower cost of production which makes it a key component in construction of building, infrastructure, tools, automobiles, heavy machinery, weapons etc., Steel is an alloy of iron and carbon along with other elements like magnesium, phosphorus, sulphur etc.



Globally China is the largest producer of Steel in the world. As per the latest data available for 2021, the Global (Crude) Steel production was 1,962.3 million tonnes and the contribution of China was around 53%, i.e., 1035 million tonnes. India is the second largest Steel producer in the world with a Crude Steel production of 118 million tonnes in 2021. In terms of consumption, (Finished Steel) China is the largest consumer of Steel globally (Source: World Steel Association)

Crop Cycle

Steel is an industrial product and its manufacturing takes place round the year. The crop cycle is not applicable for it.

Life Cycle: Value Chain of the Commodity	Major grades/Varieties		
	Major Varieties: Steel's grade is determined by the amount of carbon, what other alloys it contains, and the way it has been processed. Steel is graded as a way of classification and is often categorized into four groups-Carbon, Alloy, Stainless, and Tool.		
	NCDEX: Quality Parameters		
	Parameter	Mild Steel Ingots	Mild Steel Billets
	Carbon Content	Upto 0.3%	Upto 0.3%
	Manganese Minimum	Minimum 0.4% & Maximum 0.9%	Minimum 0.4% & Maximum 0.9%
	Sulphur	Upto 0.06%	Upto 0.06%
	Phosphorous	Upto 0.075%	Upto 0.075%
	Sulphur + Phosphorous	Upto 0.135%	Upto 0.135%
	Weight min	90 kg per ingot	--
	Length	48 inches per ingot	6 m +/- 200 mm
	Size	3 ½ * 4 ½ inch	100*100 mm to 110*110 mm
	Other parameters	<ul style="list-style-type: none"> Heat number to be mentioned on each ingot. Ingots without harmful and appreciable 	<ul style="list-style-type: none"> Heat number to be mentioned on each Billet. Billets must have reasonably plain

		hollowness, piping and rising • Ingots must have reasonably plain surface	Surface	
	Additional Parameter	MS Ingots conforming to Bureau of Indian Standards (BIS) specification 2830 or 2831 produced by a BIS licensed plant/factory	MS Billets conforming to Bureau of Indian Standards (BIS) specification 2830 or 2831 produced by a BIS licensed plant/factory	

a. Commodity fundamentals and balance sheet as per the following format (to be prepared based on publicly available information on best effort basis):

Table - Fundamentals & Balance sheet (quantity)

(In million tonnes)

Global Scenario	Previous FY (2020-21) *	Current FY (2021-22) *
Opening Stocks	NA	NA
Production (Crude Steel)	1882.12	1962.33
Imports	398.68	445.11
Total Supply	NA	NA
Exports	405.57	460.38
Consumption (Finished steel)	1787.92	1839.05
Closing stocks	NA	NA

Source: World Steel Association (Report entitled 'Steel Statistical Yearbook 2022 online version').

NA: Data is not available in the public domain; Latest data with respect to FY 2022-23 is not available.

*Data is not available as per financial year. It is provided as per Calendar Year (CY) (Jan-Dec). Hence FY 2021-22 corresponds to CY 2021 and FY 2020-21 corresponds to CY 2020.

Crude Steel production includes all qualities: carbon, stainless, and other alloy.

Export as well as Import data represent addition of exports/imports of Finished + Semi-finished Steel product exports

Consumption Data represent Apparent Steel Use (crude steel equivalent)

(In million tonnes)

Indian Scenario	Previous FY (2021-22)	Current FY (2022-23)* P
Opening Stocks	NA	NA
Production (Crude Steel)	120.01	103.55
Production (Finished Steel)	113.60	99.48
Imports (Finished Steel)	4.67	5.00
Total Supply	NA	NA
Exports (Finished Steel)	13.49	5.33
Domestic Consumption (Finished Steel)	105.75	97.10
Closing Stocks	NA	NA

Source: Joint Plant Committee (JPC); P= Provisional

*: For Current year it is applicable from April 2022 till January 2023

NA: Data is not available in the public domain; Latest data for FY 2022-23 is not available

Finished Steel includes both non-alloy and alloy (including Stainless Steel)

(In million tonnes)

Rank	Top Steel (Crude) producing countries			Top Steel (finished) consuming countries		
	Country	Previous FY (2020-21) *	Current FY (2021-22)*	Country	Previous FY (2020-21)*	Current FY (2021-22)*
1	China	1064.77	1035.24	China	1006.34	952.04
2	India	100.26	118.20	India	89.33	106.23
3	Japan	83.19	96.34	USA	80.04	97.09
4	USA	72.73	85.79	Japan	52.63	57.41
5	Russia	71.62	77.02	South Korea	49.19	56.04
6	South Korea	67.08	70.42	Russia	42.31	43.92
7	Germany	35.68	40.24	Germany	31.16	35.34
8	Turkey	35.81	40.36	Turkey	29.48	33.38
9	Brazil	31.41	36.07	Italy	20.41	26.62
10	Iran	28.99	28.32	Brazil	21.45	26.34
	Others	290.58	334.33	Others	365.56	404.64
	World	1879.40	1962.33	World	1787.92	1839.05

Source: World Steel Association (Report entitled 'Steel Statistical Yearbook 2022 online version').

Latest data with respect to FY 2022-23 is not available.

*Data corresponds to Calendar Year (CY) (Jan-Dec). Hence, FY2021-22 corresponds to CY 2021 and FY 2020-21 corresponds to CY 2020.

Crude Steel production includes all qualities: carbon, stainless, and other alloy.

Consumption Data represent Apparent Steel Use (crude steel equivalent) Countries are arranged in descending order based on the figure in Current Year (2021-22) .

(In million tonnes)

Rank	Top Steel Exporting countries			Top Steel Importing countries		
	Country	Previous FY (2020-21) *	Current FY (2021-22)*	Country	Previous FY (2020-21) *	Current FY (2021-22)*
1	China	53.09	66.21	USA	20.14	29.69
2	Japan	31.07	33.76	China	38.71	27.82
3	Russia	28.84	32.58	Germany	19.19	23.27
4	South Korea	28.58	26.78	Italy	16.15	20.76
5	Germany	21.56	23.95	Turkey	12.93	16.15
6	Turkey	18.54	22.06	Thailand	13.41	15.71
7	India	17.30	20.37	Mexico	10.08	14.75
8	Italy	15.39	17.19	South Korea	11.98	14.07
9	Ukraine	15.21	15.70	Poland	11.18	13.70
10	Belgium	13.70	15.54	Belgium	10.80	13.70
	Others	162.29	186.24	Others	234.12	255.49
	World	405.57	460.38	World	398.68	445.11

Source: World Steel Association (Report entitled 'Steel Statistical Yearbook 2022 online version').

Latest data with respect to FY 2021-22 and 2022-23 is not available.

*Data corresponds to Calendar Year (CY) (Jan-Dec). Hence, FY2021-22 corresponds to CY 2021 and FY 2020-21 corresponds to CY 2020.

Export as well as Import data represent addition of exports/imports of Finished + Semi-finished Steelproduct exports.

Top 10 Major producing states in India

Top 10 Major producing states in India			
Rank	States	Previous FY (2021-22)	Current FY (2022-23)
	NA	NA	NA

NA: Data is not available in the public domain.

b. Major changes in the policies governing trade in the spot markets of the commodity (FY2022-23)

Date	Major policies governing trade and changes
21-May-2022	Govt waives import duty on some raw materials for steel industry, export duty on iron ore hiked up to 50% The import duty on ferronickel, coking coal, PCI coal has been cut from 2.5 per cent, while the duty on coke and semi-coke has been slashed from 5 per cent to 'nil'.
31-Mar-2023	India's steel production is estimated to grow 4-7% to 123-127 million tonnes in FY24 The domestic consumption growth rate is also expected to be healthy at 8-10% in FY24, driven by increased infrastructure spending, a surge in real estate and construction activities, and strong auto sales.

c. Geo-political issues in the commodity and its impact on Indian scenario (FY 2022-23)

Date	Event	Key Details	Key Implications/Impact
16-Feb-2023	China raises Steel prices in line with trend worldwide	The China expects market momentum to remain solid through next quarter, a traditional high season for the industry, citing a gradual recovery in the global economy	The rising costs of iron ore and coking coal, along with robust post-COVID-19 pandemic demand in China, Europe and the US on the back of inventory replenishment, and Beijing tightening control on crude steel production, boosted market outlook for the second quarter.

2. Trading related parameter

a. Monthly and Annual traded volume (quantity in appropriate units)

Month	Year	Symbol	Traded volume (MT)	Annual Traded Volume (MT)
Apr	2022	STEEL	3,280	285,510
May	2022	STEEL	1,180	
Jun	2022	STEEL	650	
Jul	2022	STEEL	210	
Aug	2022	STEEL	7,350	
Sep	2022	STEEL	23,430	
Oct	2022	STEEL	22,860	
Nov	2022	STEEL	48,840	
Dec	2022	STEEL	65,660	
Jan	2023	STEEL	38,500	
Feb	2023	STEEL	42,060	
Mar	2023	STEEL	31,490	

b. Annual traded volume as proportion of total deliverable supply (quantity in appropriate units)

Symbol	Traded Volume (MT)	Deliverable Supply(MT)	Proportion
STEEL	285,510.00	103,545,000	0.00

c. Annual traded volume as proportion of total annual production (quantity in appropriate units)

Symbol	Traded volume (MT)	Production(MT)	Proportion
STEEL	285,510	103,545,000	0.00

d. Annual average Open interest as proportion of total production

Symbol	Average Open Interest (MT)	Production(MT)	Proportion
STEEL	1,371.20	103,545,000	0.00

e. Annual average Open interest as proportion of total deliverable supply

Symbol	Average Open Interest (MT)	Deliverable supply(MT)	Proportion
STEEL	1,371.20	103,545,000	0.00

f. Monthly and Annual value of trade (in Rs. Crores)

Month	Years	Symbol	Traded Value (in Cr.)	Annual value (In Cr.)
Apr	2022	STEEL	18.52	1,370.39
May	2022	STEEL	6.31	
Jun	2022	STEEL	3.10	
Jul	2022	STEEL	1.08	
Aug	2022	STEEL	37.01	
Sep	2022	STEEL	115.78	
Oct	2022	STEEL	112.53	
Nov	2022	STEEL	218.30	
Dec	2022	STEEL	306.93	

Jan	2023	STEEL	191.39
Feb	2023	STEEL	204.56
Mar	2023	STEEL	154.87

g. Monthly and Annual quantity of delivery (in appropriate units)

Monthly Traded Value			
Month	Year	Traded Value(in MT)	
Sep	2022	580	
Oct	2022	620	
Nov	2022	570	
Dec	2022	250	
Jan	2023	270	
Feb	2023	260	
Mar	2023	1,680	
Yearly Value of Trade		4,230	

h. Monthly and Annual value of delivery (in Rs. Crores)

Monthly Delivery Value			
Month	Year	Value in Rs Cr	
Sep	2022	2.92	
Oct	2022	3.07	
Nov	2022	2.58	
Dec	2022	1.18	
Jan	2023	1.34	
Feb	2023	1.26	
Mar	2023	8.24	
Yearly Delivery Quantity		20.60	

i. Monthly and Annual Average Open Interest (OI) (in appropriate units)

Monthly OI			
Month	Year	OI (in MT.)	
Apr	2022	372.63	
May	2022	160.48	
Jun	2022	64.09	
Jul	2022	12.86	
Aug	2022	288.00	
Sep	2022	1,424.55	
Oct	2022	1,518.89	
Nov	2022	2,101.43	
Dec	2022	1,980.45	
Jan	2023	2,104.76	
Feb	2023	3,113.50	
Mar	2023	3,496.67	
Yearly Average OI		1371.20	

j. Annual average volume to open interest ratio

Symbol	Traded to Open interest
STEEL	82.96%

k. Total number of unique members and clients who have traded during the financial year

Symbol	Member Count	Client Count
STEEL	62	550

l. Ratio of open interest by FPOs/farmers/Hedge/VCP positions to total open interest (Annual average as well as maximum daily value)

	VCPs/ Hedger
Annual Average	0%
Maximum Daily value*	0%

*It is calculated on the day when commodity has highest open interest during the year.

Commodity wise client categorization is as per category details as provided by the members.

m. Number of unique FPOs / farmers and VCPs/hedgers who traded in the financial year

Commodity	Count
STEEL	0

Commodity wise client categorization is as per category details as provided by the members.

n. Algorithmic trading as percentage of total trading

Commodity	%
STEEL	33.65%

o. Delivery defaults

Number of instances	1
Quantity involved	40 MT
Value involved	0.21 Cr.

3. Price Movements
a. Comparison, correlation and ratio of standard deviation of Exchange futures price vis-à-vis international futures price (wherever relevant comparable are available).

NA

b. Comparison, correlation and ratio of standard deviation of Exchange futures price vis-à-vis international spot price (wherever relevant comparable are available) and domestic spot price (exchange polled price).

NA

c. Correlation between exchange futures & domestic spot prices along with ratio of standard deviation.

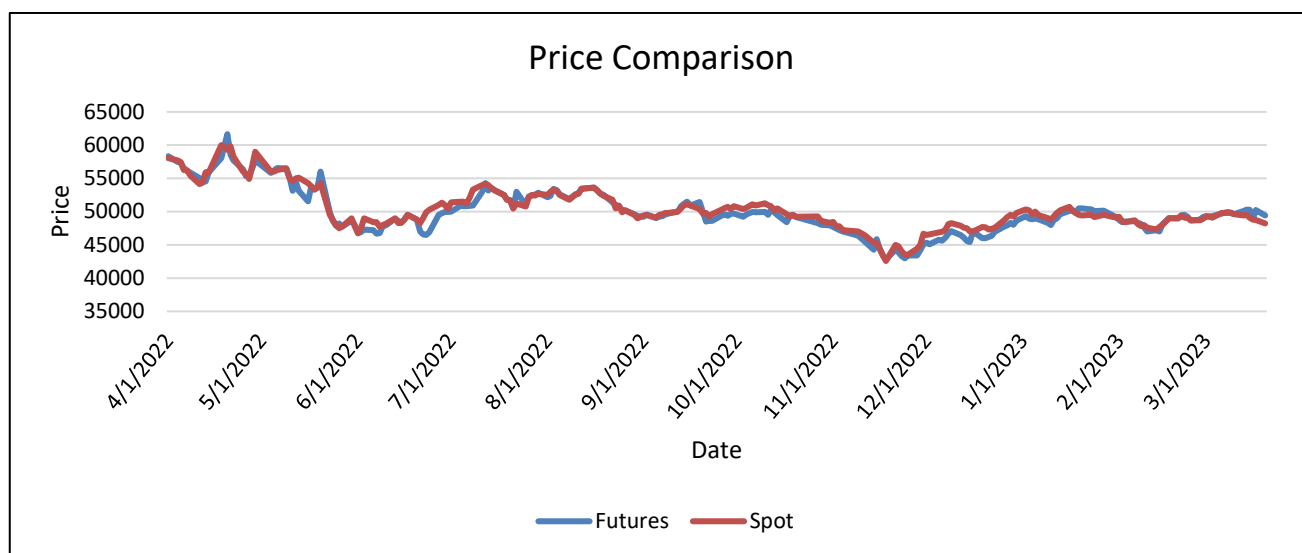
Correlation			
	Futures	Spot	Mandi
Futures	1	-	-
Spot	0.610971	1	-
Mandi	-	-	-

Standard Deviation			
	Futures	Spot	Mandi
Futures	1	0.934521	-
Spot	1.070066	1	-
Mandi	-	-	-

d. Correlation between international futures & international spot prices along with ratio of standard deviation (wherever relevant comparable are available).

NA

d. Comparison of Exchange polled price and mandi price (in case of agricultural commodities) / other relevant price (in case non-agricultural commodities) at basis centre.



Source: Spot and Future Prices: NCDEX

e. Maximum & Minimum value of daily futures price volatility and spot price volatility along with disclosure of methodology adopted for computing the volatility. (Volatility calculated by Square root of Standard Deviation of daily returns for the period from 01 Apr 2022 to 31 March 2023)

Volatility (Futures)	Month	Value
Max	May	0.026498
Min	Jan	0.008686

Volatility (Spot)	Month	Value
Max	Apr	0.026539
Min	Mar	0.005914

g. Number of times the futures contract was in backwardation/ contango by more than 4% for the near month contract in the period under review

Contango	8
Backwardation	7

4. Others parameters

a. Qualitative and quantitative measure for Hedge effectiveness ratio and basis Risk (Volatility of Basis) along with disclosure of methodology adopted for such calculations. **(Volatility calculated by Square root of Standard Deviation of daily returns)**

Basis Volatility	20.23287
Hedge Efficiency	0.619391284

The methodology for hedge efficiency ratio calculation is appended as Annexure 1

b. Details about major physical markets of the commodity vis-à-vis market reach in terms of availability of delivery centers (information to be provided state-wise and UT-wise).

State	Major Trading Centers	Availability of exchange delivery centers
Punjab	Mandi Gobindgarh	Mandi Gobindgarh as Basis Centre
	Ludhina	
	Malerkotla	
	Jalandhar	

State	Major Trading Centers	Availability of exchange delivery centers
Uttar Pradesh	Ghaziabad	N.A
	Muzzafarnagar	
	Aligarh	
	Varanasi	
	Gorakhpur	
	Kanpur	

State	Major Trading Centers	Availability of exchange delivery centers
Chattisgarh	Raipur	N.A
	Raigarh	
	Durg	
West Bengal	Kolkatta	N.A
	Durgapur	
	Asansol	
Gujarat	Gandhidham	N.A
	Bhavnagar	
	Ahmedabad	

c. Details about major physical markets of the commodity and average Open Interest for each month generated from those regions.

Note – The OI for each month is classified based on the Member level. The Average OI is on gross level (Long OI + Short OI)

Month	PUNJAB (Avg Qty (MT))	UTTARPRADESH (Avg Qty (MT))
April-22	148	64
May-22	104	29
June-22	27	49
July-22	30	1
Aug.-22	250	76
Sep.-22	673	398
Oct.-22	417	506
Nov.-22	758	718
Dec.-22	828	214
Jan-23	531	191
Feb-23	2011	217
Mar-23	3250	316

d. Details, such as number and target audience, of stakeholders' awareness programs carried out by the exchange.

Following list of Awareness programme, Stakeholder engagement programme have been conducted for FY 2022-23

Sr. No.	Program Type	Location	Participants
1	Investor Awareness Program	Jodhpur, Rajasthan	36
2	Investor Awareness Program	Bikaner, Rajasthan	47
3	Investor Awareness Program	Bhilwara, Rajasthan	35
4	Investor Awareness Program	Visakhapatnam, Andhra Pradesh	60
5	Investor Awareness Program	Padampur, Rajasthan	35
6	Investor Awareness Program	Andheri, Maharashtra	30
7	Investor Awareness Program	Bhubaneswar	31
8	Investor Awareness Program	Kota	53
9	Investor Awareness Program	Mehsana	25
10	Investor Awareness Program	Sri Ganganagar	53
11	Investor Awareness Program	Suratgarh	88
12	Investor Awareness Program	Wayanad	25
13	Investor Awareness Program	Amritsar	45
14	Investor Awareness Program	Bikaner	53

15	Investor Awareness Program	Ludhiana	60
16	Investor Awareness Program	RawatBhata	66
17	Investor Awareness Program	Mandi Gobindgarh	40
18	Investor Awareness Program	Kolkata	35
19	Investor Awareness Program	Surat	18
20	Investor Awareness Program	Guna, Madhya Pradesh	30
21	Investor Awareness Program	Anjar, Lutch, Gujarat	38
22	Investor Awareness Program	Raipur, Chhattisgarh	112
23	Investor Awareness Program	Patan, Gujarat	104
24	Investor Awareness Program	Nashik	200
25	Investor Awareness Program	Udaipur	150
26	Investor Awareness Program	Rajkot	100
27	Investor Awareness Program	Hissar	100
28	Investor Awareness Program	Nagpur, Maharashtra	120
29	Investor Awareness Program	Raipur	100
30	Investor Awareness Program	Gwalior, Madhya Pradesh	78
31	Investor Awareness Program	Bhopal , MP	54
32	Investor Awareness Program	Indore, Madhya Pradesh	47
33	Investor Awareness Program	Siliguri, West Bengal	39
34	Investor Awareness Program	Alipurduar, West Bengal	31
35	Investor Awareness Program	Meerut, Uttar Pradesh	30
36	Investor Awareness Program	Bhopal, Madhya Pradesh	44
37	Investor Awareness Program	Indore, Madhya Pradesh	80
38	Investor Awareness Program	Chennai, Tamil Nadu	24
39	Investor Awareness Program	Kanpur, Uttar Pradesh	60
40	Investor Awareness Program	Chindwara, MP	50
41	Investor Awareness Program	Seoni , MP	40
42	Investor Awareness Program	Kolkata	25

43	Investor Awareness Program	Raipur, Chattisgarh	136
44	Investor Awareness Program	Lucknow	177
45	Investor Awareness Program	Rourkela	65
46	Investor Awareness Program	Muzaffarnagar	70
47	Investor Awareness Program	Kochi	86
48	Investor Awareness Program	Bhilai	70
49	Investor Awareness Program	Thalamadla	80
50	Investor Awareness Program	Kolkata	45
51	Investor Awareness Program	Online	30
52	Investor Awareness Program	Online	18
53	Investor Awareness Program	Online	23
54	Investor Awareness Program	Odisha	9
55	Investor Awareness Program	Odisha	15
56	Investor Awareness Program	Karnataka	5
57	Investor Awareness Program	Bihar	18
58	Investor Awareness Program	West Bengal	6
59	Investor Awareness Program	Andhra Pradesh	29
60	Investor Awareness Program	Online	11
61	Investor Awareness Program	Online	7
62	Investor Awareness Program	Online	21
63	Investor Awareness Program	Online	6
64	Investor Awareness Program	Online	9
65	Investor Awareness Program	Online	14
66	Investor Awareness Program	Online	82
67	Investor Awareness Program	Online	28
68	Investor Awareness Program	Online	25
69	Investor Awareness Program	Online	50
70	Investor Awareness Program	Online	30
71	Investor Awareness Program	Online	25
72	Investor Awareness Program	Online	5
73	Investor Awareness Program	Online	10
74	Investor Awareness Program	Online	7
75	Investor Awareness Program	Online	13
76	Investor Awareness Program	Online	16
77	Investor Awareness Program	Online	23
78	Investor Awareness Program	Online	53
79	Investor Awareness Program	Online	17
80	Investor Awareness Program	Online	30
81	Investor Awareness Program	Online	15
82	Investor Awareness Program	Online	25
83	Investor Awareness Program	Online	35
84	Investor Awareness Program	Online	10
85	Investor Awareness Program	Online	30
86	Investor Awareness Program	Online	12
87	Investor Awareness Program	Online	6

88	Investor Awareness Program	Online	7
89	Investor Awareness Program	Online	20
90	Investor Awareness Program	Online	50
91	Investor Awareness Program	Online	30
92	Investor Awareness Program	Online	13
93	Investor Awareness Program	Online	10
94	Investor Awareness Program	Online	6
95	Investor Awareness Program	Online	6
96	Investor Awareness Program	Online	8
97	Investor Awareness Program	Online	13
98	Investor Awareness Program	Online	6
99	Investor Awareness Program	Online	25
100	Investor Awareness Program	Online	8
101	Investor Awareness Program	Online	14
102	Investor Awareness Program	Online	11
103	Investor Awareness Program	Online	10
104	Investor Awareness Program	Online	6
105	Investor Awareness Program	Online	9
106	Investor Awareness Program	Online	14
107	Investor Awareness Program	Online	16
108	Investor Awareness Program	Online	11
109	Investor Awareness Program	Online	8
110	Investor Awareness Program	Online	8
111	Investor Awareness Program	Online	13
112	Investor Awareness Program	Online	15
113	Investor Awareness Program	Online	25
114	Investor Awareness Program	Online	25
115	Investor Awareness Program	Online	26
116	Investor Awareness Program	Online	18
117	Investor Awareness Program	Online	52
118	Investor Awareness Program	Online	16

e. Steps taken / to be undertaken to improve hedging effectiveness of the contracts as well as to improve the performance of illiquid contracts.

- Creating an awareness about the Hedge policy to bona fide hedger
- Awareness Programme at Major trading centres as well as remote location
- Attend the National as well as international conferences, Trade meets, seminars etc.
- One to one meeting with market participants and hedgers
- Creating awareness over electronic, print & social media

5. Any other information to be disclosed as deemed important by the exchange or as suggested by the PAC

N.A

ANNEXURE I

Qualitative and quantitative measure for Hedge effectiveness ratio

Hedging Efficiency Methodology

Regression analysis is carried out between near month futures returns and NCDEX polled spot prices returns of the FY2022-23.

The R-Square value of the Regression analysis represents the “**Hedging Efficiency**”.

Note: -

Date for which spot prices were not available is not used for analysis.

Weekly returns are used for performing Regression Analysis.

The method used to calculate Hedging Efficiency does not consider liquidity risk because of this reason illiquid commodities can have high hedging efficiency.

References:

Ghosh, Ph.D, Nilanjan & Dey, Debojyoti & Moulvi, Nazir & Jain, Niteen & Sinha, Neha & Rachuri, Sarika. (2013). Hedging Efficiency—Measures and Empirical Study.
