

List of Transmission Licensees as on 31.03.2024

S.No.	Name of Licensee	Date of grant of licence
1	Powerlinks Transmission Ltd.	13.11.2003
2	Torrent Power Grid Ltd	16.05.2007
3	Jaypee Powergrid Ltd	01.10.2007
4	Essar Power Transmission Company Ltd.	10.04.2008
5	Parbati Koldam Transmission Company Ltd	15.09.2008
6	Western Region Transmission (Maharashtra) (P) Ltd	30.12.2008
7	Western Region Transmission (Gujrat) (P) Ltd	30.12.2008
8	Teestavalley Power Transmission Ltd	14.05.2009
9	North East Transmission Company Ltd	16.06.2009
10	East - North Inter - Connection Company Ltd.	28.10.2010
11	Talcher - II Transmission Company Ltd.	08.11.2010
12	Cross Border Power Transmission Company Ltd	01.12.2010
13	North Karanpura Transmission Company Ltd.	16.12.2010
14	Jindal Power Ltd	09.05.2011
15	Raichur Sholapur Transmission Company Ltd	24.08.2011
16	Jabalpur Transmission Company Ltd	12.10.2011
17	Bhopal Dhule Transmission Company Ltd	12.10.2011
18	Powergrid NM Transmission Ltd	20.06.2013
19	Torrent Power Ltd	16.07.2013
20	Adani Transmission (India) Ltd	29.07.2013
21	Aravali Power Co. Ltd.	07.11.2013
22	Kudgi Transmission Ltd	07.01.2014
23	Powergrid Vizag Transmission Ltd	08.01.2014
24	Darbhanga - Motihari Transmission Company Ltd	30.05.2014
25	Purulia & Kharagpur Transmission Company Ltd	30.05.2014
26	Patran Transmission Company Ltd	14.07.2014
27	Powergrid Unchahar Transmission Ltd	21.07.2014
28	RAPP Transmission Company Ltd	31.07.2014
29	NRSS XXXI (B) Transmission Ltd	25.08.2014
30	Powergrid Kala Amb Transmission Ltd (NRSS XXXI (A) Transmission Ltd)	04.09.2014
31	NRSS XXIX Transmission Ltd (Sterlite)	14.11.2014
32	Powergrid Jabalpur Transmission Ltd	15.06.2015
33	Powergrid Parli Transmission Ltd (Gadarwara (B) Transmission Ltd)	10.07.2015
34	POWERGRID Warora Transmission Ltd	05.08.2015
35	Maheshwaram Transmission Ltd	23.11.2015
36	Raipur-Rajandgaon-Warora Transmission Ltd	29.02.2016

37	Chhattisgarh-WR Transmission Ltd	29.02.2016
38	Sipat Transmission Ltd	07.03.2016
39	POWERGRID Southern Interconnector Transmission System Ltd	14.03.2016
40	Alipurduar Transmission Ltd	21.03.2016
41	Odisha Generation Phase-II Transmission Ltd	30.06.2016
42	Gurgaon Palwal Transmission Ltd	29.09.2016
43	Warora-Kurnool Transmission Ltd	29.09.2016
44	North Karanpura Transco Ltd	29.09.2016
45	Khargone Transmission Ltd	17.11.2016
46	NRSS XXXVI Transmission Ltd	07.12.2016
47	NER-II Transmission Ltd	20.06.2017
48	Powergrid Medinipur Jeerat Transmission Ltd	20.06.2017
49	Kohima-Mariani Transmission Ltd	10.07.2017
50	Powergrid Mithilanchal Transmission Limited (ERSS XXI Transmission Ltd)	24.04.2018
51	Goa - Tamnar Transmission Project Ltd	13.07.2018
52	Fatehgarh-Bhadla Transmission Ltd	27.08.2018
53	Powergrid Varanasi Transmission Ltd (WR-NR Power Transmission Ltd)	27.08.2018
54	Powergrid Khetri Transmission System Limited	19.12.2019
55	Bikaner-Khetri Transmission Limited	27.12.2019
56	Udupi Kasargode Transmission Limited (UKTL)	24.01.2020
57	WRSS XXI (A) Transco Limited	24.01.2020
58	Power Grid Bhuj Transmission Limited (PBTL)	03.03.2020
59	Lakadia Banaskantha Transco Limited	03.03.2020
60	Powergrid Ajmer Phagi Transmission Limited (PAPTL)	04.03.2020
61	Powergrid Fatehgarh Transmission Limited (PFTL)	04.03.2020
62	Lakadia Vadodara Transmission Project Limited (LVTPL)	04.03.2020
63	Jam Khambhaliya Transco Limited	24.03.2020
64	Vapi-II North Lakhimpur Transmission Limited	01.04.2021
65	Powergrid Ramgarh New Transmission Limited	31.05.2021
66	Powergrid Bikaner Transmission System Limited (Bikaner-II Bhiwadi Transco Limited)	15.07.2021
67	NRSS XXXI (A) Transmission Limited, (Now known as Powergrid Kala Amb Transmission Limited - on the RTM route)	22.03.2022
68	Koppal-Narendra Transmission Limited	28.03.2022
69	Powergrid Sikar Transmission Limited	27.05.2022
70	POWERGRID Aligarh Sikar Transmission Limited	28.05.2022
71	Karur Transmission Limited	16.06.2022
72	Khavda-Bhuj Transmission Limited	16.06.2022
73	Kallam Transmission Limited	18.07.2022
74	POWERGRID Southern Interconnector Transmission System Limited (RTM Route)	18.07.2022



75	Gadag Transmission Limited	18.07.2022
76	Nangalbibra-Bongaigaon Transmission Limited	28.07.2022
77	Rajgarh Transmission Limited (RTL)	13.09.2022
78	Warora Kurnool Transmission Limited (RTM Route)	13.09.2022
79	Khetri-Narela Transmission Limited	26.09.2022
80	POWERGRID Bikaner Transmission System Limited (RTM Route)	21.11.2022
81	Power Grid Bhadla Transmission Limited,	25.11.2022
82	POWERGRID Neemuch Transmission System Limited,	27.12.2022
83	Khandukhal Rampura Transmission Limited	27.01.2023
84	POWERGRID ER NER Transmission Limited	04.02.2023
85	Gadag II-A Transmission Limited	26.02.2023
86	WRSR Power Transmission Limited	17.04.2023
87	Kishtwar Transmission Limited	12.05.2023
88	Patran Transmission Company Limited (RTM route)	13.06.2023
89	POWERGRID ERWR Power Transmission Limited	31.07.2023
90	Khavda II-C Transmission Limited	31.07.2023
91	POWERGRID Dharamjaigarh Transmission Limited	31.07.2023
92	POWERGRID KPS2 Transmission Limited	04.08.2023
93	Khavda II-A Transmission Limited	09.08.2023
94	POWERGRID Khavda RE Transmission System Limited	17.08.2023
95	POWERGRID Khavda II-B Transmission Limited	22.08.2023
96	POWERGRID Raipur Pool Dhamtari Transmission Limited	23.08.2023
97	POWERGRID Bhadla Sikar Transmission Limited	30.08.2023
98	POWERGRID KPS3 Transmission Limited	31.08.2023
99	KPS1 Transmission Limited	30.09.2023
100	NRSS XXIX Transmission Limited (RTM Mode)	01.11.2023
101	POWERGRID Bikaner Transmission System Limited	28.01.2024
102	Fatehgarh III Transmission Limited	28.01.2024
103	Fatehgarh IV Transmission Limited	30.01.2024
104	POWERGRID Bhadla III Transmission Limited	29.02.2024
105	POWERGRID Ananthpuram Kurnool Transmission Limited	29.02.2024
106	Beawar Transmission Limited	02.03.2024
107	Fatehgarh III Beawar Transmission Limited	05.03.2024

List of Trading Licensee as on 31.03.2024

Sr. No.	Name of Trading Licensee	Date of Issue of License	Category of License
1	Tata Power Trading Company Ltd	09.06.2004	I
2	Adani Enterprises Ltd	09.06.2004	I
3	PTC India Ltd.	30.06.2004	I
4	NTPC Vidyut Vyapar Nigam Ltd	23.07.2004	I
5	National Energy Trading & Services Ltd	23.07.2004	III
6	Instinct Infra & Power Ltd	07.09.2005	IV
7	Essar Electric Power Development Corporation Ltd.	14.12.2005	#
8	JSW Power Trading Company Ltd.	25.04.2006	III
9	Greenko Energies (P) Ltd	22.01.2008	III
10	Ambitious Power Trading Company Ltd	16.09.2008	IV
11	RPG Power Trading Company Ltd	23.09.2008	II
12	GMR Energy Trading Ltd	14.10.2008	I
13	Knowledge Infrastructure Systems (P) Ltd	18.12.2008	IV
14	Kreate Energy (I) Pvt. Ltd.	12.02.2009	II
15	Shree Cement Ltd	16.03.2010	IV
16	ABJA Power Pvt. Ltd.	26.04.2011	III
17	Customised Energy Solutions India (P) Ltd	08.06.2011	V
18	Statkraft Markets (P) Ltd	21.06.2012	I
19	Manikaran Power Ltd	29.06.2012	I
20	Arunachal Pradesh Power Corporation (P) Ltd	11.09.2012	II
21	Vedprakash Power (P) Ltd.	19.08.2013	#
22	Solar Energy Corporation of India	01.04.2014	I
23	Saranyu Power Trading Private Limited	10.02.2015	#
24	Gita Power & Infrastructure (P) Ltd	20.10.2015	V
25	Phillip Commodities India Pvt. Ltd.	21.01.2016	IV
26	Atria Energy Services Private Limited	20.06.2017	V
27	NHPC Limited	23.04.2018	I
28	NLC India Ltd.	13.07.2018	I
29	Refex Energy Ltd.	30.08.2018	I
30	NTPC Limited	08.07.2019	I
31	Amp Energy Markets India Pvt. Ltd.	15.04.2021	V
32	Altilium Energies Pvt. Ltd.	23.05.2021	V
33	Shubheksha Advisors Pvt. Ltd.	31.07.2021	V
34	Renurja Power LLP	31.07.2021	V
35	ReNew Energy markets Pvt. Ltd.	28.11.2021	IV
36	Shell Energy Marketing and Trading India Pvt. Ltd.	22.12.2021	V
37	SJVN Limited	10.01.2022	I
38	Instant Ventures Pvt. Ltd.	09.02.2022	V
39	Refex Industries Ltd.	21.03.2022	I
40	Ideal Energy Solutions Pvt. Ltd.	22.03.2022	V
41	AEI New Energy Trading Pvt. Ltd.	25.03.2022	III



42	Kundan International Private Ltd.	29.04.2022	II
43	Saini Power Transactor	06.07.2022	V
44	Powerfull Energy Trading Private Ltd.	09.08.2022	V
45	Visual Percept Solar Projects Private Ltd.	27.11.2022	III
46	REL Power Trading LLP	13.12.2022	V
47	VEH Global India Private Ltd.	26.12.2022	IV
48	Renesys Solar Private Limited	23.04.2023	V
49	THDC India Ltd.	06.05.2023	IV
50	Embassy Classic Private Ltd.	14.07.2023	V
51	Adarsh Stainless Private Ltd.	15.08.2023	IV
52	Energedge Power Trading Private Ltd.	18.09.2023	V
53	Elsa Consultancy	23.10.2023	V
54	EKI Power Trading Private Ltd.	11.12.2023	IV
55	Viviid Power Trading Private Ltd.	11.01.2024	V
56	Yggdrasil Commodities India Private Ltd.	11.01.2024	V
57	Radiance Green Markets Private Ltd.	02.03.2024	V
58	Serentica Renewables India 2 Private Ltd.	15.03.2024	V
59	NEFA Power Trading Private Ltd.	21.03.2024	V

License category under review

Note: This list does not include Global Energy Pvt. Ltd.

Historical Volatility Formula:

$$\sigma = \sqrt{\frac{1}{(n-1)} \sum_{y=1}^n \left(\ln \frac{y_i}{y_{i-1}} - \mu \right)^2}$$

$$\mu = \frac{1}{n} \sum_{y=1}^n \left(\ln \frac{y_i}{y_{i-1}} \right)$$

where

1. Daily prices returns = $\text{Ln} (y_i / y_{i-1})$.
2. y_i is price for today; y_{i-1} is price on previous day.
3. Ln is natural logarithm
4. n is the number of observations
5. u is the average daily returns

Herfindahl-Hirschman Index (HHI)

Formula for computing the HHI is as under:

$$\mathbf{HHI} = \sum_{i=1}^N s_i^2$$

where, s_i is the market share of firm i in the market, and N is the number of firms.

The Herfindahl-Hirschman Index (HHI) ranges from $1/N$ to 1, where N is the number of firms in the market. Equivalently, if percentages are used as whole numbers, as in 75 instead of 0.75, the index can range up to 100^2 or 10,000.

- HHI below 0.01 (or 100) indicates a highly competitive index.
- HHI below 0.15 (or 1,500) indicates an unconcentrated index.
- HHI between 0.15 to 0.25 (or 1,500 to 2,500) indicates moderate concentration.
- HHI above 0.25 (above 2,500) indicates high concentration.

There is also a normalized Herfindahl index. Whereas, the Herfindahl index ranges from $1/N$ to 1, the normalized Herfindahl index ranges from 0 to 1.



Central Electricity Regulatory Commission
6th, 7th & 8th Floor, Tower B, World Trade Centre,
Nauroji Nagar, New Delhi- 110029
Phone: +91-11-26189709, Fax: +91-11-20904365
www.cercind.gov.in