

COAL & LIGNITE



Indian Minerals Yearbook 2021

(Part- III : MINERAL REVIEWS)

60th Edition

COAL & LIGNITE

(ADVANCE RELEASE)

**GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES**

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Coal is a fossil fuel. It is a combustible, sedimentary, organic rock, which is composed mainly of carbon, hydrogen and oxygen. It is formed from vegetation, which has been consolidated between rock strata and altered by the combined effects of pressure and heat over millions of years to form coal seams.

The build-up of silt and other sediments, together with movements in the earth's crust (known as tectonic movements) buried these swamps and peat bogs, often to great depths causing the plant material to be subjected to high temperatures and pressures. Millions of year of deep burial engendered such physical and chemical changes which transformed the vegetation into peat and then into coal.

The quality of each coal deposit is determined by temperature and pressure and by the length of time in formation, which is referred to as its 'organic maturity'. Initially the peat is converted into lignite or 'brown coal' – these are coal types with low organic maturity. In comparison to other coals, lignite is quite soft and its colour can range from dark black to various shades of brown.

Many more millions of years of continuous effects of temperature and pressure produced further transformation of lignite, progressively increasing its organic maturity into the range known as 'sub-bituminous' coals.

Further chemical and physical changes have caused these coals to become harder and blacker, forming the 'bituminous' or 'hard coals'. Under the right conditions and progressive contrivance of organic maturity, finally results in the formation of anthracite.

Coal is vital for sustainable development. It is the most widely used energy source for electricity generation and an essential input for steel production. Coal is an essential resource for meeting the challenges facing the modern world. In India, coal accounts for around 55% of the country's primary commercial energy. Nearly 72% of the entire power generated in the country is coal based. India has a long history of commercial coal mining since 1774 and nationalisation of coal mines was put to effect on 01.05.1973. As per Integrated Energy Policy Committee of erstwhile Planning Commission, coal will remain India's most important energy source till 2031-32 and possibly beyond.

GEOLOGICAL RESOURCES

Coal

The coal deposits in India primarily are concentrated in the Gondwana sediments occurring mainly in the eastern and central parts of Peninsular India, although Gondwana coal deposits are also found to occur in the north-eastern part of the country mainly in Assam and Sikkim. The Tertiary coal-bearing sediments are found in Assam, Arunachal Pradesh, Nagaland and Meghalaya. As a result of exploration carried out by GSI, CMPDI and other agencies, about 352.126 billion tonnes (including that estimated in Sikkim) of geological coal resources up to 1,200 m depth have been established in the country as on 01.04.2021. Out of these resources, 177.179 billion tonnes are Proved resources, 146.949 billion tonnes are Indicated resources and the remaining about 27.998 billion tonnes are in the Inferred category. Of the total resources, the share of prime-coking coal is 5.313 billion tonnes, medium-coking 28.08 billion tonnes and blendable/semi-coking 1.708 billion tonnes. Share of non-coking coal, including high sulphur (tertiary) is 317.026 billion tonnes. State-wise/Coalfield-wise and State-wise/Type-wise Geological resources of coal as on 01.04.2021 are furnished in Tables-1 & 2, respectively.

Lignite

Indian lignite deposits occur in the Tertiary sediments in the southern and western parts of peninsular shield particularly in Tamil Nadu, Puducherry, Gujarat & Rajasthan and also in Jammu & Kashmir. The total known geological resources of lignite as on 01.04.2021 is about 46.02 billion tonnes, of which 79.3% resources (about 36.49 billion tonnes) are located in Tamil Nadu, Rajasthan (13.8%) and Gujarat (5.92%). Other States where lignite deposits have been located are West Bengal and Kerala. State-wise/District-wise Geological resources of lignite as on 01.04.2021 are detailed in Table - 3.

EXPLORATION & DEVELOPMENT

Exploration and development details, if any, are covered in the Review on "Exploration & Development" under "General Reviews" i.e, Vol. I of the title.

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**Table – 1 : Geological Resources of Coal as on 01.04.2021
(By States/Coalfields)**

(In million tonnes)

State/Coalfield	Proved	Indicated	Inferred	Total
All India : Total	177179	146949	27998	352126
Gondwana Coalfields*	176585	146828	27089	350502
Andhra Pradesh/ Godavari Valley	921	901	425	2247
Assam/Singrimari	–	14	–	14
Bihar/Rajmahal	310	3143	11	3464
Chhattisgarh	31562	40425	1437	73424
Sohagpur	94	10	–	104
Sonhat	365	2304	2	2671
Jhilimili	228	39	–	267
Chirimiri	320	11	31	362
Bisrampur	1735	696	5	2436
East Bisrampur	–	165	–	165
Lakhanpur	456	3	–	459
Panchbahini	–	11	–	11
Hasdeo-Arand	2032	3273	223	5529
Sendurgarh	153	126	–	279
Korba	7055	5763	159	12976
Mand-Raigarh	17978	24859	924	43761
Tatapani-Ramkola	1145	3165	93	4403
Jharkhand	52046	28882	5288	86217
Raniganj	1538	467	32	2036
Jharia	16282	3248	–	19531
East Bokaro	3497	3923	863	8284
West Bokaro	3923	1279	17	5218
Ramgarh	937	912	58	1906
North Karanpura	10929	6173	1865	18967
South Karanpura	5176	1312	1143	7632
Aurangabad	352	2142	503	2997
Hutar	191	27	32	250
Daltonganj	84	60	–	144
Deogarh	326	74	–	400
Rajmahal	8811	9267	774	18852
Madhya Pradesh	13479	13060	3678	30217
Johilla	185	263	33	481
Umaria	178	4	–	181
Pench-Kanhan	1967	923	1166	4056
Pathakhera	291	88	68	447
Gurgunda	–	85	53	138
Mohpani	8	–	–	8
Sohagpur	2129	5659	293	8082
Singrauli	8722	6039	2064	16824

(contd)

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(Table-1, conclud)

(In million tonnes)

State/Coalfield	Proved	Indicated	Inferred	Total
Maharashtra	7770	3320	1847	12936
Wardha Valley	4713	1785	1441	7940
Kamthi	2046	938	107	3091
Umrer Makardhokra	308	–	161	469
Nand Bander	691	596	118	1405
Bokhara	10	–	20	30
Odisha	43326	35222	6330	84878
Ib-River	16365	13509	2228	32102
Talcher	26961	21713	4103	52776
Telangana	11089	8328	3433	22851
Godavari Valley	11089	8328	3433	22851
Sikkim/Rangit Valley	–	58	43	101
Uttar Pradesh/Singrauli	884	178	–	1062
West Bengal	15199	13296	4597	33092
Raniganj	14781	7117	3680	25578
Barjora	201	–	–	201
Birbhum	218	6179	901	7298
Darjeeling	–	–	15	15
Tertiary Coalfields	594	121	909	1624
Assam	465	43	3	511
Makum	432	21	–	453
Dilli-Jeypore	32	22	–	54
Mikir Hills	1	–	3	4
Arunachal Pradesh	31	40	19	90
Namchik-Namphuk	31	40	13	84
Miao Bum	–	–	6	6
Meghalaya	89	17	471	576
West Darangiri	65	–	60	125
East Darangiri	–	–	34	34
Balphakram-Pendenguru	–	–	107	107
Siju	–	–	125	125
Langrin	10	17	106	133
Mawlong Shelia	2	–	4	6
Khasi Hills	–	–	10	10
Bapung	11	–	23	34
Jayanti Hills	–	–	2	2
Nagaland	9	22	416	446
Borjan	6	–	5	10.00
Jhanzi-Disai	2	22	109	133
Tiensang	1	–	2	3
Tiru Valley	–	–	7	7
DGM	–	–	293	293

Source: Coal Directory of India 2020-21, Coal Controller's Organisation, Kolkata, West Bengal.

* Including Sikkim. Figures rounded off.

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**Table – 2 : Geological Reserves/Resources of Coal as on 01.04.2021
(By States/Types)**

(In million tonnes)

State/Type of coal	Proved	Indicated	Inferred	Total
All India : Total	177179	146949	27998	352126
Prime-coking	4668	645	–	5313
Medium-coking	14972	11245	1863	28080
Blendable/Semi-coking	530	992	186	1708
Non-coking (Incl. high sulphur)	157010	134067	25949	317026
Andhra Pradesh/Non-coking	921	901	425	2247
Arunachal Pradesh/ High sulphur	31	40	19	90
Assam	465	57	3	525
Semi-coking/Non-coking	–	14	–	14
High sulphur	465	43	3	511
Bihar/Non-coking	310	3143	11	3464
Chhattisgarh	31562	40425	1437	73424
Semi-coking	71	99	–	170
Non-coking	31419	40326	1437	73254
Jharkhand	52046	28882	5288	86217
Prime-coking	4668	645	–	5313
Medium-coking	14067	9685	1590	25342
Semi-coking	223	472	53	748
Non-coking	33088	18080	3645	54814
Madhya Pradesh	13479	13060	3678	30217
Medium-coking	354	1560	273	2187
Non-coking	13125	11500	3405	28029
Maharashtra/Non-coking	7770	3320	1847	12936
Meghalaya/High sulphur	89	17	471	576
Nagaland/High sulphur	9	22	416	446
Odisha/Non-coking	43326	35222	6330	84828
Sikkim/Non-coking	–	58	423	101
Telangana/Non-coking	11089	8328	3433	22851
Uttar Pradesh/Non-coking	884	178	–	1062
West Bengal	15199	13296	4597	33092
Medium-coking	550	–	–	550
Semi-coking	236	420	133	789
Non-coking	14414	12876	4464	31753

Source: Coal Directory of India 2020-21, Coal controller's Organisaaton, Kolkata.

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**Table – 3 : Fieldwise Geological Reserves/Resources of Lignite as on 01.04.2021
(By States/Districts)**

		(In million tonnes)			
State/District	Area/Lignite field	Proved	Indicated	Inferred	Total
All India : Total		7374.10	25650.53	12993.84	46018.46
Gujarat		1278.65	283.70	1159.70	2722.05
Kachchh	Panandhro & Panandhro Extn., Barkhan Dam, Kaiyari Block-A & B, Mata-No-Madh, Umarsar, Lakhpat-Dhedadi (Punahrajpur), Akrimota, Jhularai-Waghapadar, Hamla-Ratadia & Pranpur.	335.61	56.40	33.09	425.10
Bharuch	Bhuri, Valia, Bhaga, Luna, Pansoli, Nani Pardi, Bhimpur, Rajpardi (GMDC leasehold) by MECL and Rajpardi (CGM) by MECL.	724.76	118.59	491.23	1334.58
Bhavnagar	Kharsalia, Rampur, Hoidad, Bhuteshwar, Surka, etc.	–	–	299.17	299.17
Surat	Tadkeswar, Dungra, East of Kamraj-Vesma, Nani Naroli, Tadkeswar block-Mongrol, Mandvi, Vastan, Ghala, etc.	218.28	108.71	336.21	663.20
Jammu & Kashmir U/T		–	20.25	7.30	27.55
Kupwara	Nichahom, Nichahom-Budhasung	–	20.25	7.30	27.55
Kerala		–	–	9.65	9.65
Kannur	Madayi, Kadamkottumala, Kayyur and Nileswaram	–	–	9.65	9.65
Rajasthan		1168.53	3029.78	2150.77	6349.08
Bikaner	Palana, Barsingsar, Gurha East & West, Bholasar, Bithnok Main & East (Extn.), Gadiyala, Girirajsar, Raneri, Mandal Chaman, Hadda, Hadda north & west, Hadla, Badhnu, Hira-ki-Dhani, Chak-Vijaisinghpura, Kuchore (Napasar), Riri, Lalamdesar, Lalamdesar Bada, East of Riri, Bania, Kuchaur-Athuni, Sarupdesar-Palana west, Palana East, Gigasar-Kesardesar, Khar Charan, Ambasar-Gigasar, Girirajsar Extn., Bapeau, Bigga-Abhaysinghpura. Diyatra, Pyau, Deshnok-Ramsar-Sinthal, Borana, Bangarsar-Jaimalsar and Kmta-Ki-Basti & South of Bhane-Ka-Gao, etc.	560.30	230.33	309.19	1099.82
Barmer	Kapurdi, Jalipa, Bothia (Jalipa N Ext.), Giral, Jogeswartala, Sonari, Sachcha-Sauda, Bharka, Bothia-Bhakra-Dunga, Sindhari East & West, Kurla, Kurla East, Chokla North, Mahabar-Shivkar, Mithra, Hodu, Nimbalkot, Nimbalkot North, Nagurda, Nagurda (East), Munabao, Kawas Gravity Block, South of Nimbla and Magne-Ki-Dhani.	495.23	2509.46	1496.77	4501.46
Jaisalmer & Bikaner	Panna & Charanwala	–	–	11.47	11.47
Jaisalmer	Bhanda, Ramgarh & Khuiyala	–	–	70.44	70.44
Jaisalmer & Barmer	Khuri	–	–	13.80	13.80
Jalore	Sewara	–	–	76.08	76.08
Nagaur	Deswal, Gangardi, Indawar, Kaprion-Ki-Dhani, Kasnau-Igiar, Kuchera, Lunsara, Matasukh, Merta Road & Meeranagar, Mokala, Nimbri-Chadawatan and Ucharda,	113.00	289.49	156.48	558.97
Nagaur & Pali	Phalki, Phalki North and Phalodi	-	0.50	18.69	19.19

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Table - 3 (concl'd)

State/District	Area/Lignite field	Proved	Indicated	Inferred	Total
Tamil Nadu		4926.92	21910.06	9652.62	36489.60
Cuddalore	Neyveli Lignite Corporation (NLC) Leasehold areas, (Mine-I & expansion, Mine-IA, II & expansion, Mine-III, Block B, Mine-I, II & III and river), Devandgudi & areas, South of Vellar (Srimushnam), Veeranam (Lalpettai), Eastern part of NLC leasehold area, Kullanchavadi, Kudikadu, Bhuvanagiri-Kullanchavadi, Eastern part of Neyveli, Bahur*, West of Bahur* of Neyveli Lignite Field.	4022.69	1525.29	1302.23	6850.21
Ariyalur	Meensuruti, Jayamkondamcholapuram, Michaelpatti, & Michaelpatti Extn. of Neyveli Lignite Field	904.23	302.50	512.37	1719.10
Thanjavur & Thiruvarur	Mannargudi-Central, Mannargudi-NE Mannargudi-NE Extn., Mannargudi SE, Melnattam-Araharam of Mannargudi Lignite Field	–	17248.06	3123.46	20371.52
Thanjavur	Cholapuram, Mannargudi-NW & SW, Maharajapuram Orattanadu-Pattukottai, Vadaseri (Orattanadu-Pattukottai), Madukkur-Anaikkadu, Veppanagulam-Kasangadu of Mannargudi Lignite Field	–	2306.17	156.33	2462.50
Thanjavur & Nagapattinam	Alangudi, Pandanallur, Kadalangudi, Tirumangaicheri, and Thirumangalam of Mannargudi Lignite Field	–	359.21	926.62	1285.83
Thiruvarur & Nagapattinam	Nachiyarkudi of Mannargudi Lignite Field	–	–	574.05	574.05
Ramanathapuram	Misal, Bogalur, Bogalur (East), Uttarakosamangai & Tiyannur, Kalari North West & East of Ramanathapuram Lignite Field	–	168.83	2072.35	2241.18
Ramanathapuram & Sivaganga	Rajasing Mangalam & Settanur of Ramanathapuram Lignite Field	–	–	985.21	985.21
Puducherry U/T	Bahur & West of Bahur of Neyveli Lignite Field	–	405.61	11.00	416.61
West Bengal		–	1.13	2.80	3.93
Bardhaman	Rakshitpur, Gaurangapur-Bankati	–	0.29	1.82	2.11
Birbhum	Mahalla, Dhobbanpur & Djara	–	0.84	0.98	1.82

Source: Coal Directory of India 2020-21, Coal Controller's Organisation, Kolkata and Geological Survey of India.

* Both blocks cover parts of Tamil Nadu and Puducherry.

PRODUCTION AND STOCKS

COAL

Production

The total reported production (provisional) of coal in 2020-21 was 716.083 million tonnes decreased by about 2% in comparison to that of the previous year. Chhattisgarh is the largest coal producing State with a share of about 22.12% followed by Odisha and Madhya Pradesh having contribution of 21.53% and 18.51% respectively in the national output. Next in order of share in the total production were Jharkhand (16.66%), Telangana (7.35%), Maharashtra (6.62%), West Bengal (4.83%) and Uttar Pradesh (2.38%). Small quantity of coal production was produced by Assam and Union Territory of Jammu & Kashmir. Coal mining was confined mainly to the Public Sector which contributed 96% to the national production. The remaining 4% was contributed by the private sector (Table-4).

**Table – 4 : Production of Coal, 2018-19 to 2020-21
(By Sectors/States)**

State/UT	(Quantity in '000 tonnes)		
	2018-19	2019-20	2020-21 (P)
India	728718	730874	716083
Public Sector	694983	698224	685950
Private Sector	33735	32650	30133
Assam	784	517	36
Chhattisgarh	161893	157745	158410
Jammu & Kashmir	13	14	10
Jharkhand	134666	131763	119295
Madhya Pradesh	118661	125726	132531
Maharashtra	49818	54746	47435
Meghalaya	-	-	-
Odisha	144312	143016	154151
Telangana	65160	65703	52603
Uttar Pradesh	20275	18030	17016
West Bengal	33136	33614	34596

Source: Coal Directory of India 2020-21.

A total of 442 coal mines (as on 31.03.2021) in India reported production in 2020-21. Out of these, Jharkhand accounted for 113 mines while West Bengal 72 mines, Madhya Pradesh 61, Maharashtra 54, Chhattisgarh 53, Telangana 48 and Odisha 31. The remaining 10 mines were from Assam, Union Territory of Jammu & Kashmir and Uttar Pradesh (Table - 5).

**Table – 5 : Number of Coal Mines, 2019-20 & 2020-21 (P)
(By States)**

State	No. of Mines	
	2019-20	2020-21 (P)
India	442	442
Assam	3	3
Chhattisgarh	54	53
Jammu & Kashmir	2	2
Jharkhand	119	113
Madhya Pradesh	60	61
Maharashtra	54	54
Odisha	29	31
Telangana	46	48
Uttar Pradesh	5	5
West Bengal	70	72

Source: Coal Directory of India 2020-21.

Note: Coal Mines in the State of Meghalaya operate under the Private Sector.

#: Relates to number of mines as last day of financial year 2

During the year 2020-21, out of the total production of coal, 6.25% was coking coal and the rest 93.75% was non-coking coal. As in the earlier years, bulk of the coking coal production in 2020-21 i.e., about 86.9% was reported from the Public Sector. Grade-wise analysis of coking coal in 2020-21 revealed that Washery Grade IV had the maximum share at 60%, followed by Washery Grade V (28.58%), Washery Grade II (5.28%) and Washery Grade III (4.06%). The remaining 2.08% production of coking coal was of Semi-coking Grade, Washery Grade I & VI and Steel Grade I & II. Out of the total production of coking coal in India, bulk quantity, i.e., 99.11% was produced in Jharkhand (44.387 million tonnes). The remaining 1% (0.4 million tonnes) was contributed by Chhattisgarh and Madhya Pradesh (Tables-6 & 7).

During 2020-21, except for a nominal quantity (4%), the balance production of non-coking coal (96%) came from the Public Sector. Out of the total production of non-coking coal grades, G11 grade accounted for 29% followed by G13 (12%), G12 (10.9%), G10 (10.4%), G14 (9.9%), G8 (7.1%) and G7 (5.6%). The remaining about 15% production was accounted for G1, G2, G3, G4, G5, G6, G9, G15, G16, G17 and UNG grades of non-coking coal. Chhattisgarh was the largest producing

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**Table –6: Production of Coking Coal, 2019-20
(By States and Grades)**

(In '000 tonnes)

State	All-Grades	ST-I	ST-II	W-I	W-II	W-III	W-IV	W-V	W-VI	SC
India	52936	18	132	136	2303	7361	33094	9635	7	250
Chhattisgarh	250	-	-	-	-	-	-	-	-	250
Jharkhand	52364	18	132	136	2244	7276	32916	9635	7	-
Madhya Pradesh	178	-	-	-	-	-	178	-	-	-
West Bengal	144	-	-	-	59	85	-	-	-	-

Coal Directory of India, 2020-21.

**Table –7: Production of Coking Coal, 2020-21
(By States and Grades)**

(In '000 tonnes)

State	All-Grades	ST-I	ST-II	W-I	W-II	W-III	W-IV	W-V	W-VI	SC
India	44787	1	8	202	2365	1820	26943	12798	431	219
Chhattisgarh	219	-	-	-	-	-	-	-	-	219
Jharkhand	44387	1	8	202	2365	1820	26762	12798	431	-
Madhya Pradesh	181	-	-	-	-	-	181	-	-	-
West Bengal	-	-	-	-	-	-	-	-	-	-

Source: Coal Directory of India, 2020-21, Coal Controller's Organisation, Kolkata.

* **Note:** Gradewise figures vis-a-vis States not available.

State of non-coking coal in 2020-21 which alone accounted for 23.6% of the national output. Next in order were Odisha with a contribution of (22.96%), Madhya Pradesh (19.7%), Jharkhand (11.8%), Telangana (7.8%), Maharashtra (7%), West Bengal (4.5%) and Uttar Pradesh (2.5%). The remaining 0.1% production came from Assam and Union Territory of Jammu & Kashmir (Tables-8 to 10).

Despatches

The provisional despatches of coal at 690.884 million tonnes in 2020-21 were lower by around 2.3% as compared to that of the previous year. Odisha was the leading State in the despatches in 2020-21 and accounted for 21.99% of the total despatches. The States next in the order were Chhattisgarh (21.2%), Jharkhand (17.7%), Madhya Pradesh (15.25%), Telangana (7.3%), Maharashtra (6.7%), Uttar Pradesh (5.55%) and West Bengal (4.28%). The remaining very small quantity of despatches were from the State of Assam and Union Territory of Jammu & Kashmir.

During the year 2020-21, statewise analysis revealed that there was decrease in the despatches of coal from almost all States namely Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Telangana, West Bengal, Assam and Union Territory of Jammu & Kashmir, except Odisha and Uttar Pradesh where increase in despatch was reported as against that of the previous year.

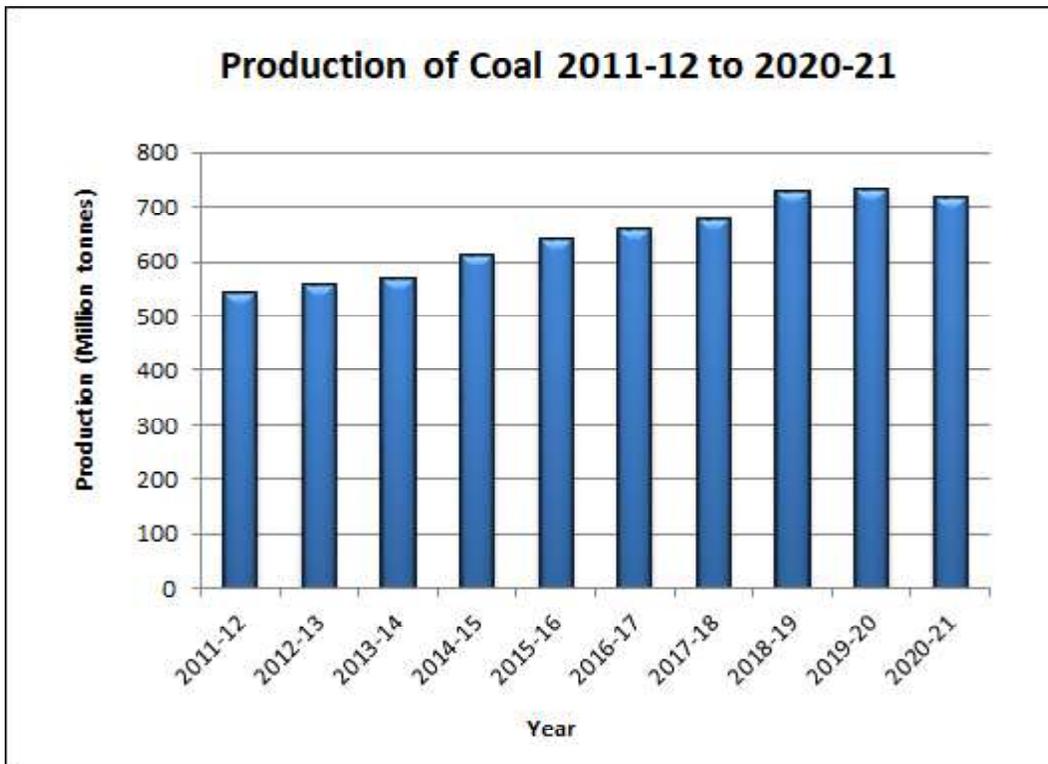
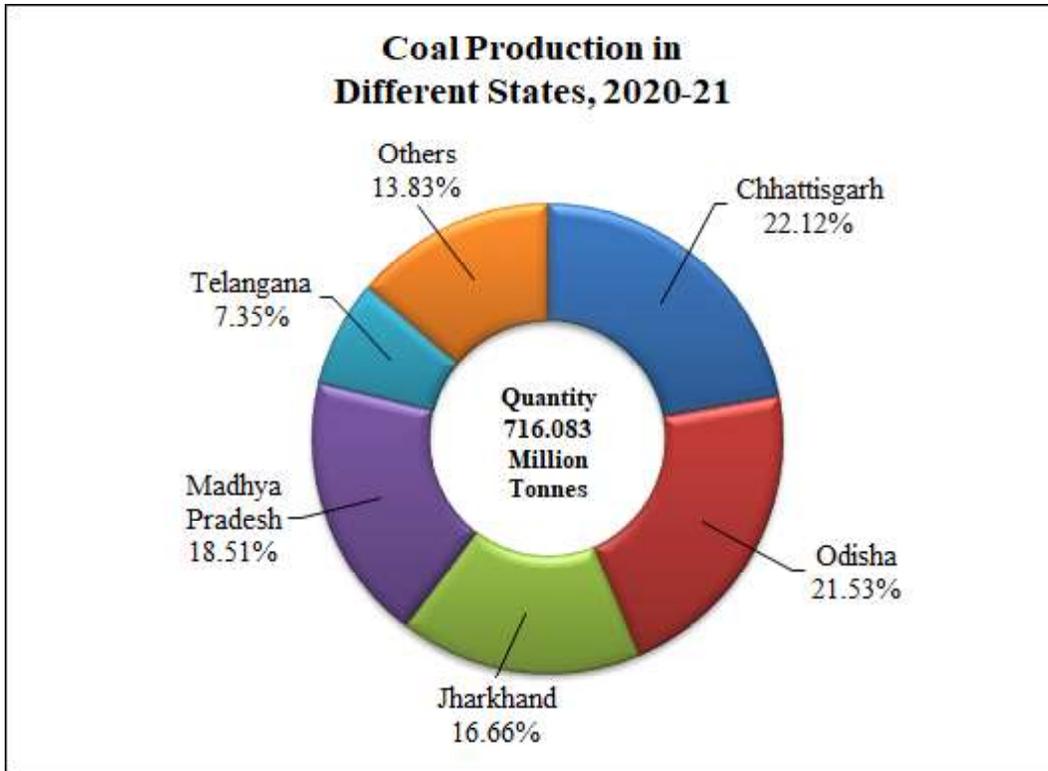
Of the total provisional despatches of raw coal effected in 2020-21, a sizeable share of 84.1% was made to the Electricity Sector (Power utility and Power captive). As much as 1.4% to the Sponge iron Industry, 1.3% was made to the Steel Industry, 1 % to the Fertilizer Industry, 0.98% to the Cement Industry, 0.15% to Pulp & Paper Industry and 0.1% to the other basic metals. The remaining 6.5% was made for other priority sectors including Chemical, Steel (boilers), Textile & Rayons, Bricks and Other (Tables-11 & 12).

Stocks

The mine-head stocks of coal at the end of the year 2020-21 were 109.06 million tonnes which increased by about 34% from that of the stocks that were available at the beginning of the year. Out of the total mine-head stocks of coal during the year 2020-21, 98.85% was confined mainly to the Public Sector and remaining 1.15 % to the Private Sector.

Similarly, the mine-head stocks of coal at the end of the year 2019-20 were 81.43 million tonnes which decreased by 41% from that of the stocks that were available at the beginning of the year.

Bulk of the coal stocks (about 99.9%) at the end of the year was accounted for by the mines located in the States of Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Telangana, Uttar Pradesh and West Bengal (Tables-13 & 14).



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**Table – 8: Production of Coal, 2019-20 & 2020-21
(By Grades and Sectors)**

(In '000 tonnes)

Grade	2019-20			2020-21 (P)		
	Total	Pub. Sec.	Pvt. Sec.	Total	Pub. Sec.	Pvt. Sec.
All Grades	730874	698224	32650	716083	685950	30133
Coking	52936	46726	6210	44787	38934	5853
ST-I	18	18	-	1	1	-
ST-II	132	132	-	8	8	-
W-I	136	31	105	202	202	-
W-II	2303	1862	441	2365	1716	649
W-III	7361	6473	888	1820	1431	389
W-IV	33094	28318	4776	26943	22128	4815
W-V	9635	9635	-	12798	12798	-
W-VI	7	7	-	431	431	-
SC-I	250	250	-	219	219	-
Mg feed	-	-	-	-	-	-
Non-coking	677938	651498	26440	671296	647016	24280
G1	21	21	-	3	3	-
G2	288	288	-	27	27	-
G3	3231	3231	-	2681	2681	-
G4	14472	14472	-	14221	14221	-
G5	14633	14633	-	9707	9707	-
G6	4605	4550	55	4252	4206	46
G7	40891	40722	169	37446	37446	-
G8	45546	44108	1438	47702	47262	440
G9	37869	37869	-	36723	36723	-
G10	78135	68448	9687	69883	59558	10325
G11	193872	179693	14179	194693	181515	13178
G12	71628	70716	912	73346	73167	179
G13	86864	86864	-	80935	80823	112
G14	58795	58795	-	66297	66297	-
G15	17598	17598	-	26201	26201	-
G16	4033	4033	-	6790	6790	-
G17	5282	5282	-	236	236	-
UNG	175	175	-	153	153	-

Source: 1. Coal Directory of India, 2019-20 & 2020-21, Coal Controller's Organisation, Kolkata.

Note: Meghalaya Coal has not been graded by Coal Controller. For statistical purpose, grade may be treated as 'A'/'B' non-coking coal.

COAL & LIGNITE

**Table – 9 : Production of Non-coking Coal, 2019-20
(By States and Grades)**

State	All-Grades	Grades																		
		G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14	G15	G16	G17 UNG		
India	677938	21	288	3231	14472	14633	4605	40891	45546	37869	78135	193872	71628	86864	58795	17598	4033	5282	175	
Assam	517	21	288	-	14	-	194	-	-	-	-	-	-	-	-	-	-	-	-	
Chhattisgarh	157495	-	-	1590	123	2512	948	2386	2662	1247	2447	121379	2089	5823	1873	4799	2483	5134	-	
Jammu & Kashmir	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-
Jharkhand	79399	-	-	612	-	1301	912	3548	5503	18634	4754	13810	8566	21759	-	-	-	-	-	
Madhya Pradesh	125548	-	-	-	30	579	1305	27535	13275	5020	43938	26747	6802	165	152	-	-	-	-	
Maharashtra	54746	-	-	-	-	-	-	101	1350	6356	18114	17886	6355	4584	-	-	-	-	-	
Meghalaya	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Odisha	143016	-	-	-	-	-	-	115	85	30	-	-	44234	37205	53605	7742	-	-	-	
Telangana	65703	-	-	-	-	682	42	3560	6582	6206	6514	11732	3582	16722	3165	5057	1550	134	175	
Uttar Pradesh	18030	-	-	-	-	-	-	-	14926	376	2368	360	-	-	-	-	-	-	-	
West Bengal	33470	-	-	1029	14305	9559	1204	3646	1163	-	-	1958	-	606	-	-	-	-	-	

Source: Coal Directory of India, 2020-21, Coal Controllers' Organisation, Kolkata.

Note: Meghalaya coal has not been graded. For statistical purpose grade may be treated as "A"/"B" non-coking coal.

COAL & LIGNITE

Table-10: Production of Non-coking Coal, 2020-21

State	All-Grades	Grades																(In '000 tonnes)	
		G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14	G15	G16		G17
India	671296	3	27	2681	14221	9707	4252	37446	47702	36723	69883	194693	73346	80935	66297	26201	6790	236	153
Assam	36	3	27	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-
Chhattisgarh	158191	-	1640	-	1860	945	2601	2212	1561	2379	120900	2039	5899	1093	8272	6790	-	-	-
Jammu & Kashmir	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
Jharkhand	79041	-	228	43	1070	669	3396	4865	18491	6638	11939	9795	21907	-	-	-	-	-	-
Madhya Pradesh	132350	-	-	-	436	1335	25073	17696	3840	38692	33426	7825	3929	98	-	-	-	-	-
Maharashtra	47435	-	-	-	-	-	107	696	5377	16058	17635	4645	2917	-	-	-	-	-	-
Meghalaya	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Odisha	154151	-	-	-	-	-	-	76	-	-	-	44769	34105	62925	12276	-	-	-	-
Telangana	52603	-	-	-	450	76	3741	5967	6882	3159	8546	3621	11948	2181	5653	-	-	226	153
Uttar Pradesh	17016	-	-	-	-	-	-	14319	572	1957	168	-	-	-	-	-	-	-	-
West Bengal	30463	-	-	813	14178	5891	1221	2528	1871	1000	2079	652	230	-	-	-	-	-	-

Source: Coal Directory of India, 2020-21, Coal Controller's Organisation, Kolkata.

Note: Meghalaya coal has not been graded. For Statistical purpose grade may be treated as "A"/"B" non-coking coal. Gradewise figures vis-a-vis states not available.

COAL & LIGNITE

**Table – 11: Despatches of Raw Coal,
2019-20 & 2020-21
(By States)**

States	(In '000 tonnes)	
	2019-20 (R)	2020-21 (P)
India	707176	690884
Arunachal Pradesh	-	-
Assam	562	90
Chhattisgarh	147076	146253
Jammu & Kashmir U/T	10	8
Jharkhand	132418	122238
Madhya Pradesh	109283	105384
Maharashtra	50008	46571
Meghalaya	-	-
Odisha	135878	151911
Telangana	64122	50533
Uttar Pradesh	34775	38355
West Bengal	33044	29541

Source: Coal Directory of India, 2019-20 & 2020-21, Coal Controller's Organisation, Kolkata.

**Table –12 : Despatches of Raw Coal,
2019-20 & 2020-21
(By Priorities)**

Priority	(In '000 tonnes)	
	2019-20 (R)	2020-21 (P)
Total	707176	690884
Power (Utility)	540995	535447
Power (Captive)	85154	45786
Steel	11674	8875
Cement	8569	6754
Sponge Iron	10529	9565
Fertilizer	1764	1527
Paper & Pulp	1326	1045
Other Basic metal	603	683
Chemical	209	158
Textiles & Rayons	101	80
Steel (Boilers)	234	100
Bricks	26	25
Others	45992	80839

Source: Coal Directory of India, 2019-20 & 2020-21, Coal Controller's Organisation, Kolkata.

Note: Steel includes direct feed & coking washery for metallurgical use and steel (boilers);

Others include non-coking washery and Bricks.

**Table – 13: Mine-head Stocks of Coal, 2019-20
(By States)**

State	(In '000 tonnes)	
	At the beginning of the year	At the end of the year
India	57640	81432
Arunachal Pradesh	-	-
Assam	100	54
Chhattisgarh	8424	18264
Jammu & Kashmir U/T	3	7
Jharkhand	19286	17959
Madhya Pradesh	4187	4078
Maharashtra	8939	13673
Odisha	12906	20999
Telangana	1611	3192
Uttar Pradesh	759	1388
West Bengal	1425	1818

Source: Coal Directory of India, 2019-20.

COAL & LIGNITE

**Table – 14: Mine-head Stocks of Coal, 2020-21 (P)
(By States)**

(In '000 tonnes)

State	At the beginning of the year	At the end of the year
India	81432	109060
Arunachal Pradesh	-	-
Assam	54	-
Chhattisgarh	18264	29723
Jammu & Kashmir U/T	7	9
Jharkhand	17959	19320
Madhya Pradesh	4078	6796
Maharashtra	13673	14533
Odisha	20999	24922
Telangana	3192	5247
Uttar Pradesh	1388	5163
West Bengal	1818	3347

Source : Coal Directory of India, 2020-21.

LIGNITE

Production

During the year 2020-21, the provisional production of lignite at 37.10 million tonnes decreased by about 10% in comparison to that of the previous year. The production from Tamil Nadu alone accounted for 48%. The share of Gujarat in lignite production was 28% and that of Rajasthan was 24 % (Table-15).

Out of the total 19 mines that reported lignite production in 2019-20, ten mines are located in Gujarat, six in Rajasthan and the remaining three in Tamil Nadu (Table-16).

Despatches

The provisional quantum of despatches of lignite was about 38.49 million tonnes during the year 2020-21, which decreased by about 9% as compared to 42.27 million tonnes in the previous year (Table-17).

Stocks

The mine-head stocks of lignite at the end of 2020-21 were 4,981 thousand tonnes which decreased marginally by 9% from that of the stocks that were available at the beginning of the year (Table-18).

**Table – 15 : Production of Lignite, 2018-19 to 2020-21
(By Sectors/States)**

(Quantity in '000 tonnes)

State	2018-19	2019-20	2020-21 (P)
India	44282	42096	37895
Public Sector	43884	41366	36903
Private Sector	398	730	992
Gujarat	12565	10357	10813
Tamil Nadu	23041	23516	18026
Rajasthan	8676	8223	9056

Source: Coal Directory of India, 201920-21, Coal Controller's Organisation, Kolkata.

**Table – 16 : Number of Lignite Mines
2020-21
(By States)**

State	No. of Mines	
	2019-20	2020-21
India	19	20
Gujarat	10	11
Rajasthan	6	6
Tamil Nadu	3	3

Source: Coal Directory of India, 2020-21.

No. of mines as on the last day of financial year

**Table – 17 : Despatches of Lignite
2019-20 & 2020-21
(By States)**

State	(In '000 tonnes)	
	2019-20	2020-21 (P)
India	42267	38492
Gujarat	10354	110819
Rajasthan	8138	9157
Tamil Nadu	23775	18516

Source: Coal Directory of India, 2019-20 & 2020-21.

**Table – 18 : Mine-head Stocks of Lignite, 2019-20 & 2020-21
(By States)**

State	2019-20		2020-21	
	At the beginning of the year	At the end of the year	At the beginning of the year	At the end of the year
India	5672	5495	5495	4981
Gujarat	25	28	28	103
Rajasthan	328	408	408	307
Tamil Nadu	5319	5059	5059	4571

Source: Coal Directory of India, 2019-20 & 2020-21

MINING & MARKETING

Coal

Coal mining in the country is carried out by both open-cast and underground methods. Opencast mining contributed 94.44% of the total provisional production, whereas the rest of the production (5.56%) came from underground mining during 2019-20. Most of the mines are either semi-mechanised or mechanised. The machinery commonly deployed are drill machines, load-haul-dumper (LHD), ventilation fans, pumps for dewatering, haulage for transport, etc. In order to arrest the decline in production from a few underground mines, "mass production technology" by introducing 'continuous miner' is being practised. CIL has planned to introduce 26 nos. of 'continuous miner' in 19 mines and 2 PSLV in 2 mines in the coming 5 years. Modern roof-bolting technology with "flexibolts" up to 5 m length; 'smart bolting' for cost reduction of roof support; and introduction of mechanised roof bolting using hydraulic bolts for difficult roof are new technology

absorptions in Indian Underground Coal Mining. Mechanised Long wall mining (long wall powered support) has also been introduced in a limited scale which yields higher output with high percentage recovery (70–80%). In opencast mines, machinery like draglines, dozers, shovels, dumpers and graders are deployed for various operations. CIL has introduced high capacity HEMM's like 42 CuM shovel with 240 tonnes rear dumper in Gevra Expansion, Dipka & Kusmunda open-cast mines.

The latest policy pursued by CIL is to encourage technology upgradation through Global Tender. Global tender approach has been used towards introduction of high productivity with the use of Continuous Miners.

Eastern Coalfields Limited (ECL), Bharat Coking Coal Limited (BCCL), Central Coalfields Limited (CCL), Western Coalfields Limited (WCL), South-Eastern Coalfields Limited (SECL), Mahanadi Coalfields Limited (MCL), Northern Coalfields Limited (NCL) and NEC (North-Eastern Coalfield are the 8 subsidiary companies of Coal India Ltd (CIL), a

Government of India Undertaking. The coal mines in Assam and its neighbouring areas are controlled directly by CIL under the unit North Eastern Coalfields Ltd (NEC). CMPDIL is a subsidiary of CIL which is engaged in surveying, planning and designing work with a view to optimise coal production. The Singareni Collieries Company Limited (SCCL) is a joint venture between Government of India and Government of Telangana.

BCCL is the major producer of prime-coking coal (raw and washed). Medium-coking coal is also produced in Mohuda and Barakar areas. In addition to production of hard coke and soft coke, BCCL operates a number of sand gathering plants, a network of aerial ropeways for transport of sand and nine coal washeries, namely, Dugda-I, Dugda-II, Bhojudih, Patherdih, Mahuda, Sudamdih, Barora, Moonidih and Madhuband.

CCL operates mines in Bokaro, Ramgarh, Giridih and North & South Karanpura Coalfields in Jharkhand and four coal washeries, namely, Kathara, Swang, Rajrappa and Kedla. Its products included medium-coking coal (raw and washed), non-coking coal, soft coke and hard coke.

WCL operates coal mines located in PENCH, Kanhan and Patharkheda Coalfields in Madhya Pradesh and Wardha Valley & Kamthi Coalfields in Maharashtra. This Company largely meets the requirements of thermal power plant and industries in the western region of the country.

ECL covers Raniganj Coalfields in West Bengal and Mugma & Rajmahal Coalfields in Jharkhand. It produces and supplies coal to the local and other industries which require relatively higher grades of coal.

The coalfields of Chhattisgarh, viz, Korba (East & West), Baikunthpur, Chirimiri, Hasdeo, Sohagpur, Jamuna-Kotma and Johilia are under SECL. This subsidiary continued to be the leading producer of CIL.

NEC is responsible for development and production of coal in the North-Eastern States. The present mining activities are confined to Arunachal Pradesh, Assam and Meghalaya. At present, 3 Nos. of existing mines namely Tirap, Tikale and Tipong. Out of these, Tipong colliery is on Underground mine and remains colliery are openast mines. The area has large proven reserves of low ash, high calorific value coal but because of its high sulphur content, it cannot be used directly as metallurgical coal.

SCCL operates coal mines in Telangana state which produces non-coking coal. The coal requirements of consumers in south are mostly met by this Company. SCCL contributes around 9% of the total all India production of coal.

MCL had been incorporated as another subsidiary Company of CIL. Its area of jurisdiction comprises Talcher and Ib Valley Coalfields of Odisha.

NCL covers the entire Singrauli Coalfields situated in Madhya Pradesh and Uttar Pradesh.

Jharkhand State Mineral Development Corporation Ltd (JSMDC) and Jammu & Kashmir Minerals Ltd (JKML) are the State Government Undertakings and Damodar Valley Corporation (DVC) is the Central Public Sector Undertaking that are engaged in coal mining. IISCO steel plant of SAIL is the only Public Sector steel unit operating captive mines for coal. Bengal Emta Coal Mines Ltd (BECML), Jindal Steel & Power Ltd (JSPL), Hindalco and Tata Steel are the Companies operating captive mines in the Private Sector.

As on 31.3.2021, there were 442 operating mines for coal in the country out of which 225 were opencast, while 190 were underground mines. The remaining 22 were mixed collieries. There were 420 Public Sector mines and 22 mines in Private Sector (Table-19). Thrust is given on further increasing production from opencast mines where the gestation period is comparatively shorter. In 2020-21, the share of provisional production of raw coal from opencast mines was 683.872 million tonnes (95.50%) and 32.211 million tonnes (4.50%) from underground mines (Table-20). Production of coal by different mining technologies employed during 2020-21 is furnished in Table-21. The overall Output per Man Shift (OMS) in open-cast and underground mines for CIL in 2020-21 was 10.32 tonnes as against 9.64 tonnes in 2019-20. The overall OMS in open-cast and underground mines for SCCL was 5.62 tonnes in 2020-21 as against 7.29 tonnes in 2019-20.

Under the Colliery Control Order, 1945, the Central Government was empowered to fix the prices of coal gradewise and collierywise. As per recommendations of the Bureau of Industrial Costs & Prices and the Committee on Integrated Coal Policy, prices of different grades of coal were subjected to deregulation since 22.3.1996, in a phased manner. As the prices of all grades of coking coal got deregulated with effect from 1.4.1996, distribution fell under the purview of CIL/coal

companies. The Government of India amended the provisions of Colliery Control Order 1945 and Colliery Control Order 2000 were notified, according to which, the price & distribution of all grades of coal with effect from 1.1.2000 have been deregulated.

Coal movements by coastal shipment to southern and western regions through Haldia, Paradip and Vizag ports continued as usual. Major portion of the despatches was achieved through railways, followed by roads, Merry-Go-Round System, belt conveyer, ropeways and sea route.

Table – 19 : Number* of Coal Mines, 2020-21 (By Sectors/States)

State	No. of collieries			
	OC	UG	Mixed	Total
All India	225	190	27	442
Public Sector	212	183	25	420
Private Sector	13	7	2	22
Arunachal Pradesh	-	-	-	-
Assam	2	1	-	3
Chhattisgarh	24	28	1	53
Jammu & Kashmir U/T	-	2	-	2
Jharkhand	73	26	14	113
Madhya Pradesh	22	37	2	61
Maharashtra	38	16	-	54
Meghalaya	-	-	-	-
Odisha	23	8	-	31
Telangana	19	29	-	48
Uttar Pradesh	5	-	-	5
West Bengal	19	43	10	72

Source: Coal Directory of India, 2020-21, Coal Controller's Organisation, Kolkata.

* Relates to no. of mines as on last day of the financial year (As on 31.3.2021).

Note: OC - Open-cast UG - Underground. U/T - Union Territory

Table – 20 : Production of Raw Coal

(In million tonnes)

Year	Production from open-cast mines (% share)	Production from underground mines (% share)	Total production
2018-19	686.212 (94.2%)	42.506 (5.8%)	728.718
2019-20	690.208 (94.44%)	40.666 (5.56%)	730.974
2020-21 (p)	683.872 (95.50%)	32.211 (4.50%)	716.083

Source: Coal Directory of India, 2020-21 Coal Controller's Organisation, Kolkata

Table – 21 : Production of Coal, 2020-21 (By Technology)

(In million tonnes)

Technology adopted	Production	Percentage of total
All India : Total	716.83	100
Open-cast (Total)	683.87	95.50
Mechanised	683.872	100
Manual	-	-
Underground (Total)	32.21	4.50
Conventional B&P	0.427	1.33
Mechanised B&P	23.779	73.82
Conventional LW	0.157	0.49
Mechanised LW	0.116	0.36
Other methods	7.732	24.00

Source: Coal Directory of India, 2020-21, Coal Controller's Organisation, Kolkata.

Note: B&P - Board-and-pillar; LW - Longwall

Lignite

As on 31.03.2021, the total number of operating lignite mines was 20 and all are worked by open-cast method. Out of these, 16 are captive and the remaining four are non-captive. Four mines are owned by Neyveli Lignite Corporation (NLC), six by Gujarat Mineral Development Corporation Ltd (GMDCL), three each by Rajasthan State Mines & Minerals Limited (RSMML) & Gujarat Industries Power Co. Ltd (GIPCL) and one each by Gujarat Heavy Chemicals Ltd (GHCL), Barmer Lignite Mining Company Limited (BLMCL), GPCL & V S Lignite Power Pvt. Ltd (VSLPPL). Sector-wise, seventeen mines are under Public Sector and the remaining three are under Private Sector, i.e., GHCL, GPCL & VSLPPL.

The Neyveli Lignite Mine is the largest open-cast mine in the country with eco-friendly technology. To increase the power demand and to manage both social and environmental externalities, NLC has now diversified into coal mining, coal-based power generation and green energy. NLC operates three open-cast mines at Neyveli, Tamil Nadu and one opencast mine at Barsingsar, Rajasthan. The present installed capacity in lignite mining of all NLC mines stands at 30.60 MTPA viz. Mine-I with 10.5 MTPA, Mine-IA with 3.0 MTPA, Mine-II with 15.0 MTPA, Barsingsar with 2.1 MTPA Besides, additional planned capacity of lignite mining of 31.55 MTPA viz. Bithnok Lignite Mine (2.25 MTPA), Hadla Mine (1.9 MTPA), Barsingsar expansion (0.40 MTPA),

expansion of Mine-I A (4.0 MTPA), Mine-III project (11.50 MTPA) and South of Vellar & Palayamkottai lignite blocks (11.50 MTPA) is under implementation. The planned capacity of coal mining of 31.00 MTPA viz. Talabira II & III block (20.00 MTPA) in the State of Odisha and Pachwara South Coal block (11.00 MTPA) in the State of Jharkhand has been allotted to Neyveli Uttar Pradesh Power Ltd (NUPPL) and is under implementation. The production of lignite for all NLC mines was 192.62 lakh tonnes during 2020-21 which decreased by 2.2% from 248.64 lakh tonnes in the previous year. Due to poor demand on account of pandemic situation and shutdown of few units, Lignite production is restricted accordingly during 2020-21. The NLC's mines are highly mechanised. Presently, these mines are linked to three thermal power stations.

In Power Sector, NLC has added 500 MW Thermal Power and 17.5 MW Renewable power during the year 2020-21 and retired 350 MW of its installed capacity with addition and retirement of unit.

The Corporate Plan Document envisages increase in overall lignite production by 62.15 MTPA, coal production by 31.00 MTPA and power generation up to 21 GW by the year 2025.

Therefore, as on 31.03.2020, the total number of coal blocks that existed was 105. Out of these, 82 blocks were vested/ allotted which accounted for 10,994.79 million tonnes; 11 blocks were under Auction by Competitive Bidding Rules, 2012 with 4,054.84 million tonnes; 8 blocks were that of Custodian with 417.02 million tonnes; and 4 blocks with 2,262.88 million tonnes remained as 'not cancelled' by the Hon'ble Supreme Court.

Up to 2020-21, a total of 126 coal blocks with 21488.45 million tonnes geological/extractable reserves have been allotted in various States (Table - 22). Of these, 80 coal blocks with 18853.48 million tonnes are under Public Sector Undertakings (PSU) and the remaining 46 blocks with about 2634.97 million tonnes are under Private Sector companies. Among these, 62 blocks with 14146.41 million tonnes have been allocated for Power, 26 blocks with 1018.90 million tonnes for Non-regulated Sector (NRS), 2 blocks with 350.11 million tonnes for Ultra Mega Power Project (UMPP) and 36 blocks with 5971.33 million tonnes for commercial mining.

Similarly, up to 31.03.2021, 23 captive lignite blocks stand allocated with 1,555.33 million tonnes geological/extractable reserves have been allocated. Of these, 21 blocks with 1,502.87 million tonnes are under Public Sector Undertakings (State PSU) and the remaining 2 blocks are under Private Sector with 52.46 million tonnes. By sectors, 12 blocks with 1,138.60 million tonnes have been allocated for power generation and 11 blocks with 416.73 million tonnes for commercial end-use. Statewise, 13 lignite blocks with 762.84 million tonnes for Gujarat and 10 blocks with 792.49 million tonnes for Rajasthan have been allocated.

Table – 22 : Statewise Allotment of Captive Coal Blocks that stand Allocated/Vested/ including Blocks Allotted Under MMDR Act up to 2020-2021 (Except CIL as custodian)

(In million tonnes)		
State	No. of blocks	Geological/ extractable Reserves
Coal		
Chhattisgarh	23	4078.24
Jharkhand	36	7027.08
Madhya Pradesh	18	1415.58
Maharashtra	13	370.92
Odisha	19	5472.26
Telangana	2	151.79
West Bengal	15	2972.58
Total	126	21488.45

Source: Coal Directory of India 2020-21, Coal Controller's Organisation, Kolkata.

Note: Extractable reserves (in million tonnes) have been shown against the newly allocated/vested coal blocks as per CM(SP)Act, 2015.

FOREIGN COLLABORATION

To meet the country's growing demand for coal, Coal India Limited (CIL) has expressed intent for foreign collaboration with the following objectives:

(a) bringing in proven technologies and advanced management skills for running underground (UG) and open-cast (OC) mines and in coal preparation;

(b) exploration and exploitation of coal-bed methane, in situ gasification of coal

COAL WASHERIES

Presently, 16 coal washeries (12 in Public Sector and 4 in Private Sector) with 29.98 million tonnes per annum (MTPA) capacity of washed coking coal produced about 4.22 million tonnes of coking coal in 2020-21 out of which about 1.303 million tonnes were produced by the Public Sector and 3.119 million tonnes by Private Sector. Under Public Sector, BCCL operates 6 coking coal washeries (Dugda, Bhojudih, Sudamdih, Moonidih, Mahuda and Madhuban), CCL operates 4 washeries (Kathara, Swang, Rajrappa and Kedla), WCL operates one (Nandan) and SAIL too has one (Chasnala), whereas 4 washeries (West Bokaro-II, West Bokaro-III, Jamadoba and Bhelatand) are operated by Tata Steel Ltd (TSL) under Private Sector. Similarly, 19 coal washeries with 110.88 million tonnes per annum capacity washed non-coking coal of about 47.912 million tonnes during the year. Of these, about 5.510 million tonnes have been under Public Sector and about 19.211 million tonnes under Private Sector. Under Public Sector, 2 non-coking coal washeries (in CCL) were operational, whereas under Private Sector, 17 non-coking coal washeries were in operation.

By and large ash content in raw coal used by washeries varied between 24% and 33%. The ash content in the washed coal and middlings produced by washeries ranged from 19 to 22% and 35 to 40%, respectively. The rejects in most washeries contained over 50% ash. The capacity and production of washed coking/non-coking coal are shown in Tables - 23 to 26, respectively.

Table – 23 : Production of Washed Coking Coal, 2019-20 & 2020-21 (Sector-wise/Company-wise)

	(In million tonnes)	
	2019-20	2020-21
All India : Total	5.285	4.518
Public Sector	1.812	1.399
BCCL	0.664	0.365
CCL	0.762	0.437
IISCO	0.386	0.597
Private Sector	3.473	3.119
Tata Steel Ltd	3.473	3.119

Source: Coal Directory of India, 2020-21, Coal Controller's Organisation, Kolkata.

Table – 24 : Capacity of Washed Coking Coal, 2020-21 (Sector-wise/Company-wise)

Coalfield/Washery	State	Raw Coal Capacity (In million tonnes)
Grand Total		29.98
Public Sector	Total	21.98
BCCL		10.93
Dugda	Jharkhand	2.00
Bhojudih	West Bengal	1.70
Sudamdih	Jharkhand	1.60
Moonidih	-do-	1.60
Mahuda	-do-	0.63
Madhuban	-do-	2.50
CCL		9.35
Kathara	Jharkhand	3.00
Swang	-do-	0.75
Rajrappa	-do-	3.00
Kedla	-do-	2.60
WCL		1.20
Nandan (Pench-Kanhan)	Madhya Pradesh	1.20
SAIL		1.40
Chasnala	Jharkhand	1.40
Private Sector	Total	8
Tata Steel Ltd		8
West Bokaro-II	Jharkhand	2.50
West Bokaro-III	-do-	2.70
Jamadoba	-do-	1.30
Bhelatand	-do-	1.30

Source: Coal Directory of India, 2020-21, Coal Controller's Organisation, Kolkata (except totals).

Table – 25 : Production of Washed Non-coking Coal : 2019-20 & 2020-21 (Sector-wise/Company-wise)

	(In million tonnes)	
Sector/Company	2019-20	2020-21
All India : Total	41.802	24.721
Public Sector	6.480	5.510
CCL	6.480	5.510
Private Sector	35.322	19.211
Adani Enterprises Ltd	11.709	12.170
Aryan Coal Beneficiation Pvt. Ltd	18.003	4.444
Aryan Energy Pvt. Ltd	1.426	0.549
Global Coal & Mining Pvt. Ltd	2.790	1.138
Jindal Power Ltd	0.372	0.463
Kartikay Coal Washeries Pvt. Ltd	0.089	0.009
Maruti Clean Coal	0.933	0.438

Source: Coal Directory of India, 2020-21, Coal Controller's Organisation, Kolkata.

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**Table – 26 : Capacity of Washed Non-coking Coal, 2020-21
(Sector-wise/Company-wise)**

(In '000 tpy)

Washery/Location	Coalfield	State	Raw Coal Capacity
Grand Total			113600
Public Sector	Total		11720
CCL			
East Bokaro Coalfield, Jharkhand			11720
Gidi	East Bokaro	Jharkhand	2500
Piparwar	N. Karanpura	-do-	6500
Kargali	Bokaro	-do-	2720
Private Sector	Total		101880
Adani Enterprises Ltd			15000
AEL	Parsa	Chhattisgarh	15000
Aryan Coal Beneficiation Pvt. Ltd			60690
Chakabura	Korba	Chhattisgarh	7500
Dipka	-do-	-do-	14000
Pander Pauni	Ballarpur	Maharashtra	2620
Gevra	Korba	Chhattisgarh	6250
Binjhri	-do-	-do-	4800
Hemgir	Hemgir	Odisha	5000
Ratija	Korba	Chhattisgarh	11000
Talcher	Bharatpur	Odisha	9520
Aryan Energy Pvt. Ltd			2340
Talcher	Talcher	Odisha	2340
Global Coal & Mining Pvt. Ltd			10000
Ib Valley	Ib Valley	Odisha	3500
Ramagundam	Ramagundam	Telangana	1000
Talcher	Talcher	Odisha	4000
Manuguru	Manuguru	Telangana	1500
Jindal Power Ltd			4750
JPL	Raigarh	Chhattisgarh	4750
Kartikay Coal Washeries Pvt. Ltd			2500
Wani	Wardha	Maharashtra	2500
Maruti Clean Coal			6600
Maruti	-	Chhattisgarh	6600

Source: Coal Directory of India, 2020-21, Coal Controller's Organisation, Kolkata.

Import Policy of Coal

The present import policy of coal allows imports to be carried out freely under Open General Licence by the consumers themselves considering their needs. Coking coal is imported by Steel Sector and coke manufacturers mainly on availability and quality consideration. Coal-based power stations and cement plants are also importing non-coking coal on consideration of

transport logistics and commercial precedence. In spite of hardening prices of both coking and non-coking coal internationally and increase in ocean freight, large amounts of coal continue to be imported.

FDI Policy

Indian Government permits 100% automatic FDI approval for coal & lignite mining only for captive consumption by power projects, iron & steel and cement units and for other eligible activities subject

to the provisions of Coal Mines (Nationalisation) Act, 1973. This is in addition to the existing stipulated policy applied for the Power Sector.

CLASSIFICATION AND GRADES

Indian coal is classified into two main categories, namely, coking and non-coking. Coking coal is a type of coal from which, on carbonisation, coke suitable for use in metallurgical industries, particularly, in Iron and Steel industries can be produced. Parameters determining coking property

of coal are coking index, volatile matter (VM %), vitrinite %, crucible swell no., fluidity, reflectance, etc. Although for commercial gradation, ash percentage is the sole criterion, for semi-weakly-coking coal, along with ash percentage, moisture percentage too is considered as an added criterion. For non-coking coal, an empirical formula is used to determine Useful Heat Value (UHV) of coal in kcal/kg.

The classification of coal as per the Ministry of Coal is reflected in Table - 27.

Table – 27 : Classification of Coal

Sl. No	Class	Grade	Grade/Specification
1.	Non-coking coal produced in all States other than Assam, Arunachal Pradesh, Meghalaya and Nagaland	A	Useful Heat Value exceeding 6,200 kcal per kg.
		B	Useful Heat Value exceeding 5,600 kcal per kg but not exceeding 6,200 kcal per kg.
		C	Useful Heat Value exceeding 4,940 kcal per kg but not exceeding 5,600 kcal per kg.
		D	Useful Heat Value exceeding 4,200 kcal per kg but not exceeding 4,940 kcal per kg.
		E	Useful Heat Value exceeding 3,360 kcal per kg but not exceeding 4,200 kcal per kg.
		F	Useful Heat Value exceeding 2,400 kcal per kg but not exceeding 3,360 kcal per kg.
		G	Useful Heat Value exceeding 1,300 kcal per kg but not exceeding 2,400 kcal per kg.
2.	Non-coking coal produced in Arunachal Pradesh, Assam, Meghalaya and Nagaland	A	Useful Heat Value between 6,200 and 6,299 kcal per kg and corresponding ash plus moisture content between 18.85 and 19.57%.
		B	Useful Heat Value between 5,600 and 6,199 kcal per kg and corresponding ash plus moisture content between 19.58 and 23.91%.
3.	Coking coal	Steel Grade I	Ash content not exceeding 15%.
		Steel Grade II	Ash content exceeding 15% but not exceeding 18%.
		Washery Grade I	Ash content exceeding 18% but not exceeding 21% .
		Washery Grade II	Ash content exceeding 21% but not exceeding 24%.
		Washery Grade III	Ash content exceeding 24% but not exceeding 28%.
		Washery Grade IV	Ash content exceeding 28% but not exceeding 35%.
		Washery Grade V	Ash content exceeding 35% but not exceeding 42%.
Washery Grade VI	Ash content exceeding 42% but not exceeding 49%.		
4.	Semi-coking and weakly-coking coal	Semi-coking Grade I	Ash plus moisture content not exceeding 19%.
		Semi-coking Grade II	Ash plus moisture content exceeding 19% but not exceeding 24%.
5.	Hard coke	By-product Premium	Ash content not exceeding 25%.
		By-product Ordinary	Ash content exceeding 25% but not exceeding 30%.
		Beehive Premium	Ash content not exceeding 27%.
		Beehive Superior	Ash content exceeding 27% but not exceeding 31%.
		Beehive Ordinary	Ash content exceeding 31% but not exceeding 36%.

In order to adopt the best international practices, India decided to switch over from the grading based on Useful Heat Value (UHV) to the grading based on Gross Calorific Value (GCV); and, consequently on 16.01.2011 the Ministry of Coal notified the switch over. As per the new system, the following nomenclature has been introduced for gradation of non-coking coal:

Grades	GCV Range (kcal/kg)
G1	GCV exceeding 7,000
G2	GCV exceeding 6,701 but not above 7,000
G3	GCV exceeding 6,401 but not above 6,700
G4	GCV exceeding 6,101 but not above 6,400
G5	GCV exceeding 5,801 but not above 6,100
G6	GCV exceeding 5,501 but not above 5,800
G7	GCV exceeding 5,201 but not above 5,500
G8	GCV exceeding 4,901 but not above 5,200
G9	GCV exceeding 4,601 but not above 4,900
G10	GCV exceeding 4,301 but not above 4,600
G11	GCV exceeding 4,001 but not above 4,300
G12	GCV exceeding 3,700 but not above 4,000
G13	GCV exceeding 3,400 but not above 3,700
G14	GCV exceeding 3,101 but not above 3,400
G15	GCV exceeding 2,801 but not above 3,100
G16	GCV exceeding 2,501 but not above 2,800
G17	GCV exceeding 2,201 but not above 2,500

Based on the GCV ranges of proposed gradation and erstwhile gradation, a Concordance Table has been generated for better understanding. However, it may be noted that this concordance does not depict exact one-to-one relation between the two systems.

Concordance Table

Old grading based on UHV	New grading based on GCV
A	G1, G2, G3
B	G4, G5
C	G6
D	G7, G8
E	G9, G10
F	G11, G12
G	G13, G14
Non-coking coal Un-graded	G15, G16, G17

Source: Coal Directory 2019-20, Coal Controller's Organisation, Kolkata.

CONSUMPTION

Thermal power plants, iron & steel, sponge iron and cement continued to be the major consuming industries for coal in India. Sizeable quantities are also consumed by the railways, collieries and as domestic fuel. Data regarding consumption in these sectors is not available. However, industry-wise despatches of coal during 2018-19, 2019-20 and 2020-21 are depicted in Table-28.

DEMAND & SUPPLY

To comprehend the requirement of coal in real term, the erstwhile Planning Commission of India did maintain the practice of estimating demand for each year in advance. However, the apparent supply (Despatch + Import – Export) did show variance from the projected estimates. Against the estimated demand of coking coal and non-coking coal, the data on actual despatch, import and export of coal (coking coal and non-coking coal) during 2019-20 and 2020-21 are provided in Table -29.

**Table – 28 : Despatches* of Coal
2018-19 to 2020-21
(By Industries)**

(In million tonnes)

Industry	2018-19	2019-20 (R)	2020-21 (P)
Total	732.79	707.18	690.884
Electricity	637.95	626.15	574.731
Iron & steel [§]	17.66	11.91	8.975
Sponge iron	12.23	10.53	9.565
Fertilizer	1.79	1.76	1.527
Cement	8.82	8.57	6.754
Others (Chemical, other basic metals, paper & pulp, textile & rayon, bricks, others, etc.)	54.34	48.26	82.83

Source: Coal Directory of India 2020-21.

* Data on consumption is not available.

§ Includes direct feed, coking washery and steel (boilers).

Table – 29 : Demand-Supply of Coal, 2019-20 & 2020-21

(In million tonnes)

Year	Demand*	Apparent Supply			
		Despatch	Import	Export	Total
2019-20 (R)	991.35	706.77	248.537	1.029	954.278
2020-21 (P)	1000.00	690.884	215.251	2.945	903.19

*Source: Coal Directory of India 2020-21.***Annual Plan, Ministry of Coal.*

WORLD REVIEW

World proved coal reserves were estimated at 1074.108 billion tonnes at the end of 2020 of which 753.639 billion tonnes (70%) has been classified as anthracite & bituminous coal and 320.469 billion tonnes (30%) as sub-bituminous coal & lignite. USA has the largest coal reserves with about 23% share of the total world reserves, followed by Russian Federation (15%), Australia (14%) and China (13%) (Table-30).

Table – 30 : World Proved Coal Reserves at the end of 2020 (By Principal Countries)

(In million tonnes)			
Country	Anthracite and bituminous coal	Sub-bituminous coal and lignite	Total
World : Total	753639	320469	1074108
USA	218938	30003	248941
Russian Federation	71719	90447	162166
Australia	73719	76508	150227
China	135069	8128	143197
India*	105979	5073	111052
Indonesia	23141	11728	34869
Germany	-	35900	35900
Ukraine	32039	2336	34375
Poland	22530	5865	28395
Kazakhstan	25605	-	25605
Turkey	550	10975	11525
South Africa	9893	-	9893
Serbia	402	7112	7514
Brazil	1547	5049	6596
Canada	4346	2236	6582
Colombia	4554	-	4554
Other countries	23608	29109	52717

Source: BP Statistical Review of World Energy, 2021.

*India's resources of coal as on 1.4.2021 are estimated at about 352.126 billion tonnes to a depth of 1,200 m and those of lignite are estimated at about 46.02 billion tonnes.

World production of coal and lignite slightly decreased from about 8.105 billion tonnes in 2019 to 7.658 billion tonnes in 2020. China continued to be the largest producer of coal & lignite in 2020 with about 50% share in total world production, followed by India (9.08%), USA (5.70%), Indonesia (7.35%), Australia (6.08%) and Russia (5.19%) (Table-31).

Table – 31 : World Production of Coal and Lignite (By Principal Countries)

(In million tonnes)			
Country	2018	2019	2020
World : Total	8022	8105	7658
Australia			
Bituminous ⁽ⁱ⁾	457	462	426
Brown coal ^(e)	45	42	40
Bosnia & Herzegovina			
Brown coal & lignite	14	13	13
Bulgaria			
Lignite	29	29	29
Brown Coal	1	1 ^e	1 ^e
Canada			
Coal	55	52	48
China			
Coal	3698	3846	3850
Colombia			
Bituminous	81	79	45
Czech. Rep.			
Bituminous	4	3	2
Brown Coal	39	37	29
Country	2016	2017	2018
Germany			
Anthracite & Bituminous	3	-	-
Brown coal	166	131	107
Greece			
Lignite	36	26	14
India*			
Bituminous ^(h)	728	729	716

(contd)

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Table - 31 (concl'd)

Country	2018	2019	2020
Lignite ^(h)	44	42	36
Indonesia			
Anthracite & Bituminous	557	616	563
Kazakhstan			
Bituminous coal	107	104	104
Lignite	6	6	5
Korea, Dem. Rep. of			
Coal	18	18	17
Mexico			
Bituminous	12	1	7
Mongolia			
Brown coal & Lignite	51	55	43
Poland			
Bituminous	51	50	42
Lignite	61	52	47
Romania			
Anthracite & Bituminous	1	1	1
Lignite	23	21	15
Russia			
Coal	439	439	398
Serbia^d			
Lignite & brown coal	37	38	39
South Africa			
Anthracite & Bituminous	249	251	244
Thailand			
Lignite	14	14	13
Turkey			
Anthracite	1	1	1
Lignite	97	92	84
USA			
Bituminous	326	307	215
Sub-Bituminous	305	282	222
Ukraine			
Bituminous	26	25	24
Vietnam			
Anthracite	42	47	48
Other countries			
Coal & Lignite	199	193	170

Source: BGS, *World Mineral Production, 2016-2020*.

Hard coal – Including anthracite, bituminous & sub-bituminous coal. Coal- All ranks of coal.

d- excluding production in Kosovo, 1- including sub-bituminous.

**India's production of coal during 2018-19, 2019-20 & 2020-21 was 728.71, 730.87 & 716.10 million tonnes, respectively.*

** India's production of lignite during 2018-19, 2019-20 & 2020-21 was 44.28.42.09 & 37.89 million tonnes, respectively.*

(j) includes sub-bituminous.

(g) year ended 30th June of that stated.

(h) year ended 30th March following that stated.

Global coal demand rebounded strongly in 2021 to 5640 million tonnes of coal equivalent (Mtce) as economies recovered from the pandemic and coal-fired power generation reached a historic high in 2021. Both China and India have boosted investment in domestic coal production, but global production struggled to keep pace with demand increases, causing coal prices to surge. Russia – the world's third-largest coal exporter – and its invasion of Ukraine complicated coal market dynamics and brought additional pressure on prices.

The outlook for coal is heavily dependent on the strength of the world's resolve to address climate change. In the Stated Policies Scenario (STEPS), coal demand declines gradually. In the Announced Pledges Scenario (APS), it declines about 20% below current levels by 2030, and 70% by 2050; coal demand peaks in China in the early 2020s and in India in the late 2020s. In the Net Zero Emissions by 2050 (NZE) Scenario, demand falls 45% by 2030 and 90% by 2050.

2030. Coal use in industry falls by 20% to 2030, in part reflecting an increase in the production of near zero emissions primary steel and near zero emissions clinker for use in cement. In India, coal demand in the STEPS rises by 25% to 2030. Strong economic growth – the economy expands 90% between 2021 and 2030 – brings with it more demand for coal-fired power generation and in the use of coal to produce iron and steel and cement. Coal-fired power capacity increases from 240 GW in 2021 to 275 GW in 2030, while there is limited use of electric arc furnaces in industry. In the APS, coal demand in India increases by just under 15% between 2021 and 2030, reflecting increased deployment of renewables, improvements in energy efficiency, and the installation of gas and electricity-based equipment in industry. The increase in coal demand in the industry sector is around half of that seen in STEPS, and the increase in the power sector is about 20% less. To provide generalised view of the development in various countries, the countrywise description sourced from the latest available publication of USGS is detailed below.

Australia

Queensland remained Australia's leading producer of anthracite and bituminous coal (reported as black coal by Geoscience Australia), accounting for 54% of the country's production in 2017, followed by New South Wales, 44%; Western Australia, 1%;

and Tasmania, 0.1%. The BHP Billiton Mitsubishi Alliance (BMA) (owned by BHP Billiton, 50%, and Mitsubishi Corp. of Japan, 50%) was the leading producer of anthracite and bituminous coal in Australia. BMA operated seven mines in Queensland. In March, Cyclone Debbie affected coal operations at multiple mines in the Bowen basin in northern Queensland and caused coal export delays, which led to an increase in global coal prices. The affected mines stockpiled coal while repairs to rail and port infrastructure were completed. The majority of lignite was produced in Victoria and used for domestic energy generation. Loy Yang Power Ltd. operated the Loy Yang Mine, which was Australia's leading lignite mine by capacity. The Hazelwood Mine, which was owned by ENGIE SA of France, and the associated Hazelwood coal-fired powerplant closed in March owing to the powerplant no longer being commercially viable.

China

In 2019, coal production increased by 4.6% to 3.85 Gt. China accounted for 51.7% of the world's coal production (in terms of contained energy) in 2019. China's coal production reached a peak of about 4 Gt in 2013 and had declined since then until 2016 owing to the slowdown in the economy, weak domestic demand, and low prices for coal. Production had gradually increased since 2016 because of increasing demand, the restart of some inactive existing capacity, and the commissioning of new capacities. As of 2019, there were 5,271 coal mines in the country with total production capacity (including capacity under construction) of 5.2 Gt/yr, of which 3.9 Gt/yr capacity was in operation, 1.0 Gt/yr capacity was under construction, and about 300 Mt/yr capacity was inactive. Coal imports in 2019 were 299.7 Mt, which was an increase of 6.6% compared with imports in 2018. China's leading import trade partners (in terms of energy content of imported coal) in 2019 were Indonesia, which supplied 34% of China's coal imports; Australia 32%; Mongolia 16%; Russia 13%; and Canada 2%. Coal exports in 2019 were 6.03 Mt,

which was an increase of 22.3% compared with those of 2018. Coal consumption increased by 1.0% in 2019 to 4.0 Gt, of which 2.37 Gt was used for electricity generation; 660 Mt, by the steel industry; 380 Mt, for construction material production; 300 Mt, by the chemical industry; and 320 Mt, for other uses. In 2019, the revenue of the coal industry totaled \$360 billion, which was an increase of 3.2% compared with that of 2018, and the profits of these companies totaled \$41 billion, which was a decrease of 2.4%

FOREIGN TRADE

Exports

Exports of coal (excl. lignite) increased substantially by 181% to about 2.94 million tonnes in 2020-21 from 1.04 million tonnes in the previous year. On the other hand, exports of coke increased by about 86% to 207.41 thousand tonnes in 2020-21 from 111.50 thousand tonnes in 2019-20. Coal (excluding lignite) was mainly exported to Nepal (74%), Bangladesh (22%), and Bhutan (1%). Coke was exported predominantly to Bhutan (30%), Vietnam (29%), Brazil (20%), Nepal (7%) and Bangladesh (3%). Exports of lignite were 2 thousand tonnes during the years 2020-21 as compared to 3 tonnes during 2019-20. (Tables - 32 to 35).

Imports

Imports of coal (excl. lignite) decreased by 14% to 215.26 million tonnes in 2020-21 from 248.54 million tonnes in the previous year. Imports of coke decreased by 16% to about 2.46 million tonnes in 2020-21 from about 2.91 million tonnes in the previous year. Coal (excl. lignite) was mainly imported from Indonesia (43%), Australia (25%), South Africa (14%), USA (5%), Russia (3%) and Singapore (2%) whereas coke was imported mainly from Poland (38%), Colombia (20%) & Japan (16%). Imports of lignite remained unchanged in 2020-21 as compared to preceding year. Lignite was imported solely from China. (Tables - 36 to 38).

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**Table – 32 : Exports of Coal (Excl. Lignite)
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (‘000 t)	Value (₹‘000)	Qty (‘000 t)	Value (₹‘000)
All Countries	1045	5929549	2943	5736794
Nepal	823	4685902	2200	4294441
Bangladesh	201	992977	665	738728
Bhutan	20	211431	48	472514
China	++	2	30	208910
UAE	1	14109	++	8436
Saudi Arabia	++	2385	++	5091
Myanmar	++	4121	++	2489
Oman	++	1714	++	1359
Qatar	++	1977	++	1326
Singapore	-	-	++	684
Other countries	++	14931	++	2816

Figures rounded off

**Table – 33 : Exports of Coal, Water Gas, etc.
(Except Gaseous Hydrocarbons)
(By Countries)**

Country	2018-19 (R)		2019-20 (P)	
	Qty (‘000 t)	Value (₹‘000)	Qty (‘000 t)	Value (₹‘000)
All Countries	++	100	-	-
Bangladesh	++	100	-	-

Figures rounded off

**Table – 34 : Exports of Coke
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹‘000)	Qty (t)	Value (₹‘000)
All Countries	111507	2383337	207412	4771075
Vietnam	-	-	60500	1547731
Bhutan	52999	1294897	62746	1531890
Brazil	33500	804168	40501	964977
Indonesia	68	1603	14872	365032
Nepal	18080	141989	15096	120403
Oman	20	475	5500	103103
Bangladesh	4169	67647	6707	93940
Qatar	459	14280	520	15427
Sri Lanka	214	6599	205	6741
Jordan	451	13917	228	6520
Other countries	1547	37762	537	15311

Figures rounded off

COAL & LIGNITE

**Table – 35 : Exports of Coal : Lignite
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty ('000 t)	Value (₹'000)	Qty ('000 t)	Value (₹'000)
All Countries	3	319838	2	234709
Saudi Arabia	2	138879	2	159214
Oman	1	80041	++	29999
Singapore	-	-	++	22430
UAE	++	14191	++	7543
Indonesia	++	4154	++	5422
Ukraine	++	6347	++	5160
Thailand	++	5217	++	2547
Russia	++	29419	++	2394
Germany	-	-	++	++
USA	-	-	++	++
Other countries	++	41590	-	-

*Figures rounded off***Table – 36 : Imports of Coal : Lignite
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty ('000 t)	Value (₹'000)	Qty ('000 t)	Value (₹'000)
All Countries	1	5170	1	5746
China	1	5168	1	5738
Ghana	-	-	++	8
Indonesia	++	2	-	-

Figures rounded off

COAL & LIGNITE

**Table – 37: Imports of Coal (Excl. Lignite)
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty ('000 t)	Value (₹'000)	Qty ('000 t)	Value (₹'000)
All Countries	248545	1527478152	215260	1160506410
Australia	46719	510169875	54952	426857044
Indonesia	116662	460848909	92535	341262086
South Africa	42481	212693029	31095	142867128
USA	12159	97484006	12203	86477695
Russia	8227	60491642	6748	45686817
Singapore	5728	45071484	4486	28538085
Canada	4685	57586236	2963	27359117
Mozambique	5476	40272625	3570	23492408
Colombia	1913	9529639	2349	11949444
Switzerland	1329	8934503	1968	11401971
Other countries	3166	24396204	2391	14614615

Figures rounded off

**Table – 38: Imports of Coke
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	2912775	61067396	2463036	4421773
Poland	814762	19526722	956636	18379850
Colombia	394210	7123899	511793	8254215
Japan	413660	8706920	396558	7439354
Switzerland	30531	565136	212135	3437938
Indonesia	132088	2898905	134664	2877509
Russia	322561	6659793	118850	2223214
China	347189	7263253	33179	777874
Singapore	176351	3439457	51878	765451
Australia	141056	2491709	21519	225853
Chile	-	-	11364	194459
Other countries	140367	2391602	14460	246056

Figures rounded off

FUTURE OUTLOOK

Coal is the backbone on which modern electricity generation rests. Coal currently supplies around 30% of primary energy and 41% of global electricity generation. The forecast for coal-use is that, it would rise to over 50% by 2030, with developing countries being responsible for 97% of this increase, primarily to meet their futuristic electrification targets.

To meet the country's growing demand for coal, foreign collaborations with advanced coal producing countries are also being considered by the Government with an aim to bring in new technologies both in underground and open-cast sectors for efficient management of the Coal Industry along with building adequate support mechanism through comprehensive skill development and training activities.

As per the draft National Energy Policy (NEP), (version as on 27.06.2017) formulated by the NITI Aayog, India Vision 2040 envisages demand-driven provision of energy at affordable prices, high per capita consumption of electricity, access to clean cooking energy & electricity with universal coverage, low emission and security of supply as criteria that would characterise the energy parameters of India in 2040.

The installed coal-based electricity generation capacity is expected to grow to 330- 441 GW by 2040. This is likely to translate into a coal demand of

1.1-1.4 billion tonnes. The known levels of proven coal reserves of about 177 billion tonnes as of 01.04.2021 may only be able to support an annual peak production of 1.2-1.3 billion tonnes till 2037, with a gradual decrease thereafter. This fact calls for intensifying exploration to enhance the proven coal reserves. Multiple institutions, such as, GSI and CMPDI are responsible for exploration of coal in India. There is a need to synergise the efforts of all these agencies to undertake 100% resource mapping of coal.

India aims to become an economy of USD 5 trillion by 2024 and for this investing heavily in infrastructure would be an essential imperative. This will boost energy demand for industry and consequently improving electricity production would be high in the agenda. Although India has succeeded in bringing some form of electricity access to almost all of its citizens, the country's per capita power consumption is still low, giving it significant scope to grow. Power generation from renewables is forecasted to expand strongly, with wind capacity doubling and solar photovoltaics (PV) projected to increase fourfold between 2018 and 2024. But that is not enough to prevent coal power generation from increasing by 4.6% per year through 2024. Overall, India's coal demand is expected to grow by more than that of any other country, in absolute terms, over the forecast period.