

# COAL MINING & TRADING

## SECTOR OVERVIEW

### Table of Contents

- Industry Snapshot
- Coal Reserves & Technical Details
- Coal Reserves & Blocking
- Block II Specifications
- Demand & Supply
- World Power Generation Mix
- Handling & Transport
- Bibliography

# INDUSTRY SNAPSHOT

## OVERVIEW

- The presence of coal deposits in Pakistan was known before independence, but its economic value was highlighted in 1980 when large reserves of coal were discovered in the Lakhra and Sonda areas of Sindh Province.
- The discovery of another huge coal deposit of 175.5 billion tones in an area of 10,000 sq. km in Tharparkar District of Sindh has provided a quantum increase in the coal resources of Pakistan.
- After this discovery, Pakistan is now the 6th richest nation of the world in respect of coal resources.
- Majority of the Coal resources available to Pakistan exist in Tharparkar District of Sindh.
- Below is the Coal consumption mix of Pakistan:

Coal   Consumption Mix   mln TPA						
Description	FY17	%	FY18	%	9MFY19	%
Power	0.9	7.7%	4.4	24.7%	8.9	70.8%
Brick Kilns	2.9	25.5%	3.9	21.9%	2.2	17.2%
Cement	7.5	66.8%	9.6	53.4%	1.5	12.0%
Other Govt	-	-	-	-	-	-
Total	11.2	100.0%	18.0	100.0%	12.5	100.0%

Source: Pakistan Economy Survey 2018-19

# COAL | RESERVES & TECHNICAL DETAIL | PAKISTAN

Sr. No	Province	Resource mm Tones	Heating Value (Btu/LB)	Moisture %	Ash Content %	Volatile Matter %	Fixed Carbon %	Sulphur %
1	Sindh	184,623	5,219-13,555	16.1-47.2	3.3-37.5	19.1-39.8	10.96-43.46	0.6-10.8
3	Punjab	235	9,472-15,801	3-8.4	9.35-37.5	26.5-40.95	30.3-44.87	2.7-8.25
2	Baluchistan	217	9,637-15,499	4.05-13.4	7.2-27.37	24.05-43.95	31.73-44.52	2.83-7.11
4	KPK	91	9,386-14,217	0.1-7.1	5.3-43.3	14-33.4	21.8-76.9	1.1-9.5
5	AJK	9	7,336-12,338	0.2-6	3.3-50	5.1-32	26.3-69.5	0.3-4.8
<b>Total</b>		<b>185,175</b>	<b>8,210-14,282</b>	<b>4.69-16.42</b>	<b>5.69-39.134</b>	<b>17.75-38.02</b>	<b>24.22-55.85</b>	<b>1.51-8.09</b>

Source: Pakistan Energy Vision 2035 – Sustainable Development Policy Institute

- Pakistan has total coal reserves of 185 billion tones.
- While The Thar coalfield in Sindh has alone 175 billion tones of coal, followed by Punjab, Baluchistan, KPK and AJK as shown in an adjacent table.
- In long term, there is a need to explore the coal resources in Baluchistan, Punjab, KPK and AJK having heating value around 9000 Btu/LB -15000Btu/LB which is greater than the heating value of Thar coal resources i.e. 5000-13000Btu/LB.

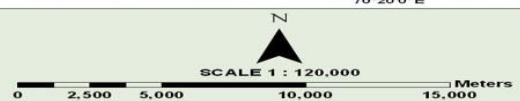
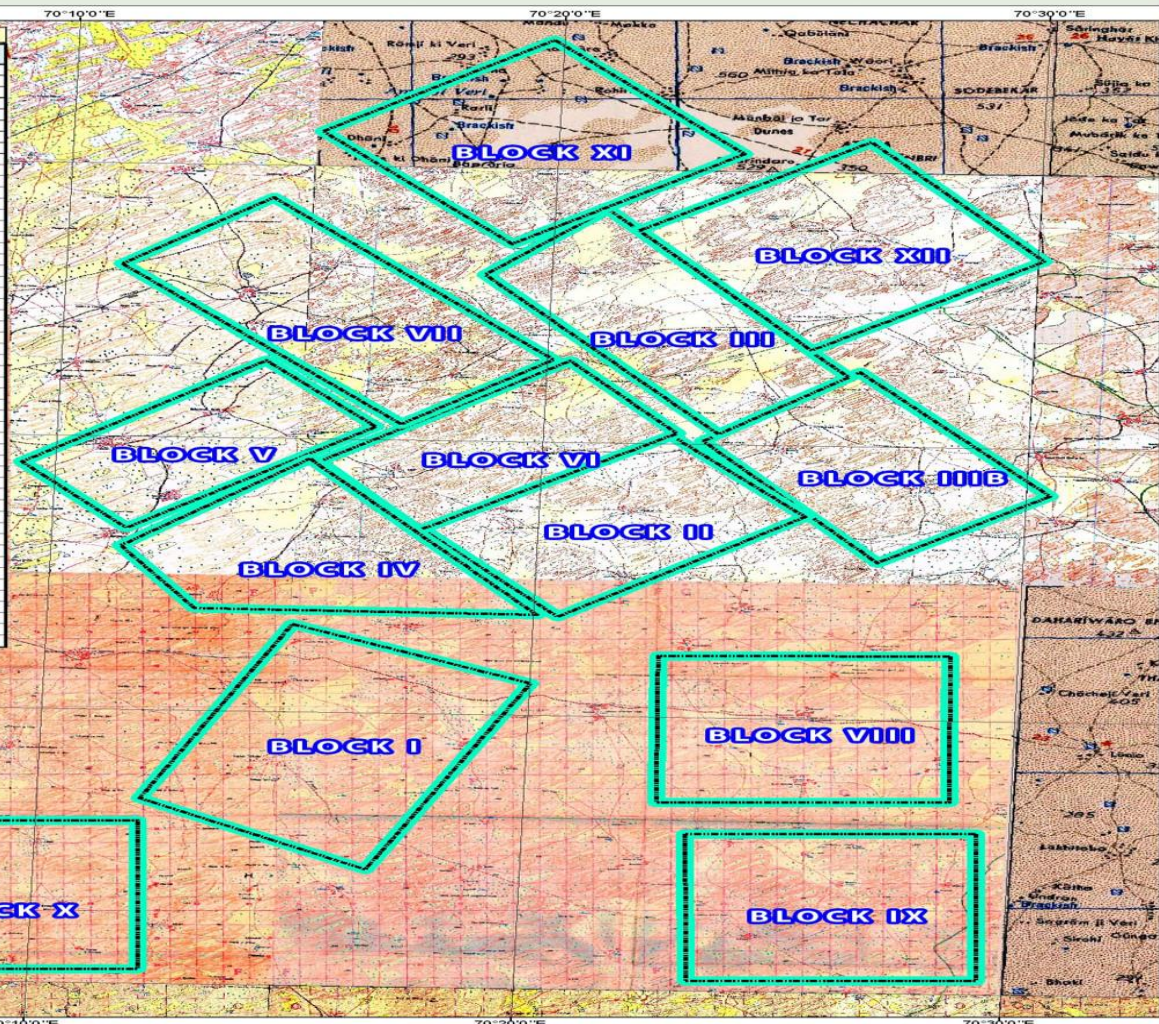
Coal Field	Coal Resources (Mln Tonnes)
<b>Sindh</b>	
Thar	175,506
Sonda-Jherruck	5,523
Indus East	1,777
Lakhra	1,328
Meting-Jhampir	473
badin	16
<b>Sub Total</b>	<b>184,623</b>
<b>Balochistan</b>	
Khost-Sharigh-Harnai-Ziarat	88
Duki	56
Sor Range/Degari	50
Mach	23
<b>Sub Total</b>	<b>217</b>
<b>Punjab</b>	
Salt Range	213
Makarwal	22
<b>Sub Total</b>	<b>235</b>
<b>KPK</b>	
Hangu	82
Cherat	9
<b>Sub Total</b>	<b>91</b>
<b>AJK</b>	
Kotli	9
<b>Sub Total</b>	<b>9</b>
<b>Grand Total</b>	<b>185,175</b>

Source: State of Industry Report 2017

# COAL | RESERVES & BLOCKING | PAKISTAN

## THAR COAL FIELD BLOCKS I - XII

COORDINATE TABLE OF I - XII BLOCKS			
BLOCK NAME	GCP NO.	EASTING	NORTHING
I	1	70.251	24.720
	2	70.334	24.686
	3	70.280	24.571
	4	70.202	24.613
IV	1	70.254	24.821
	2	70.334	24.728
	3	70.217	24.729
	4	70.191	24.767
II	1	70.377	24.839
	2	70.424	24.790
	3	70.342	24.727
	4	70.293	24.778
VI	1	70.257	24.820
	2	70.341	24.883
	3	70.379	24.840
	4	70.292	24.778
VII	1	70.284	24.843
	2	70.186	24.939
	3	70.236	24.980
	4	70.335	24.884
V	1	70.276	24.841
	2	70.192	24.778
	3	70.185	24.817
	4	70.237	24.881
VIII	1	70.477	24.706
	2	70.479	24.617
	3	70.379	24.615
	4	70.377	24.704
IX	1	70.489	24.598
	2	70.491	24.509
	3	70.392	24.506
	4	70.389	24.596
III	1	70.330	24.935
	2	70.351	24.976
	3	70.453	24.858
	4	70.413	24.817
X	1	70.103	24.597
	2	70.202	24.599
	3	70.205	24.509
	4	70.106	24.506
IIIB	1	70.390	24.835
	2	70.44	24.874
	3	70.507	24.805
	4	70.45	24.763
XI	1	70.329	25.078
	2	70.397	25.010
	3	70.318	24.954
	4	70.252	25.021
XII	1	70.440	25.019
	2	70.501	24.947
	3	70.423	24.891
	4	70.362	24.963



# COAL | RESERVES & BLOCKING | PAKISTAN

Sindh   mln Tons Per Annum					
Thar					
Blocks	Total Reserves	%	sq km	Reserves Tons PA	%
Block I	3,566	2%	122	71.32	2%
Block II	1,584	1%	81	31.68	1%
Block III	2,008	1%	77	40.16	1%
Block IV	2,572	1%	82	51.43	1%
Block V	1,394	1%	71	27.88	1%
Block VI	1,655	1%	85	33.10	1%
Block VII	2,176	1%	100	43.52	1%
Block VIII	3,036	2%	100	60.72	2%
Block IX	2,862	2%	100	57.25	2%
Block X	2,948	2%	100	58.96	2%
Block XI	1,612	1%	101	32.24	1%
Block XII	2,346	1%	101	46.91	1%
Others	147,748	84%	7,879	2954.96	84%
<b>Total</b>	<b>175,506</b>	<b>100%</b>	<b>9,000</b>	<b>3510.12</b>	<b>100%</b>

Source: Sindhcoal.gos.pk

- Out of total reserves at Thar amounting to 175,506 mln Tons, 27,758 mln Tons or 16% comprising in twelve blocks with area covering ~1,121 sq km.
- Blocking of remaining 84% reserves is still need to be done with an area covered of ~7,879 sq km

# THAR | BLOCK II | SPECIFICATIONS | PAKISTAN

Thar Block-II Coal Quality Vs Global				
Deposit	Heating Value	Sulphur	Ash	Moisture
	(Net) (Kcal/kg)	(%)	(%)	(%)
	Higher is better	Lower is better	Lower is better	Lower is better
Thar Block-II	2770	1.07	7.8	47.46
Gujarat, India	2600-3000	3.4-5.9	9-12	38-40
Hambach, Germany	1911-2747	0.2-0.4	2-5	48-52
Maritza East- Bulgaria	1550	4.5	19-35	54

Source: PACRA Data Base

Block II				
Description	Phase 1	Phase 2	Phase 3	Phase 4
Customer	Engro Powergen Thar	i. Thal Energy Limited ii. Thal Nova Power Thar Limited	i. Lucky Electrc ii. Siddiqson Limited	NA
Power Generation (MW)	330 * 2	330 * 2	660 + 330	NA
Coal Supply Agreement	30 Years	30 Years	A non-binding expression of interest is entered with above parties	NA
Project Cost	845.3mIn USD	215mIn USD	NA	NA
Debt	75%	69%	NA	NA
Equity	25%	31%	NA	NA

Source: PACRA Data Base

- Better coal quality in relation to India's coal.
- Phase I of the Block II has been commissioned in July 2019 within stipulated time.
- Block II can generate 5,000 MW of electricity every year for a period of 50 years.

# COAL | DEMAND & SUPPLY | PAKISTAN

- Total coal demand jumped to 21 mln TPA during FY19 as comparison with the corresponding period. (FY18: 18 mln TPA)
- Estimated quantity of coal imported reached to 15.5 mln TPA (FY18: 13.7 mln TPA).
- However, increase in local production amounting to 5.5 mln TPA in FY19E as compare to 4.3 mln TPA during FY18 shows a positive trajectory.
- Going forward, local production is set to increase due to the recent commissioning of SECMC.
- Indigenous production would make our reliance less on import going forward, thus reducing import bill.

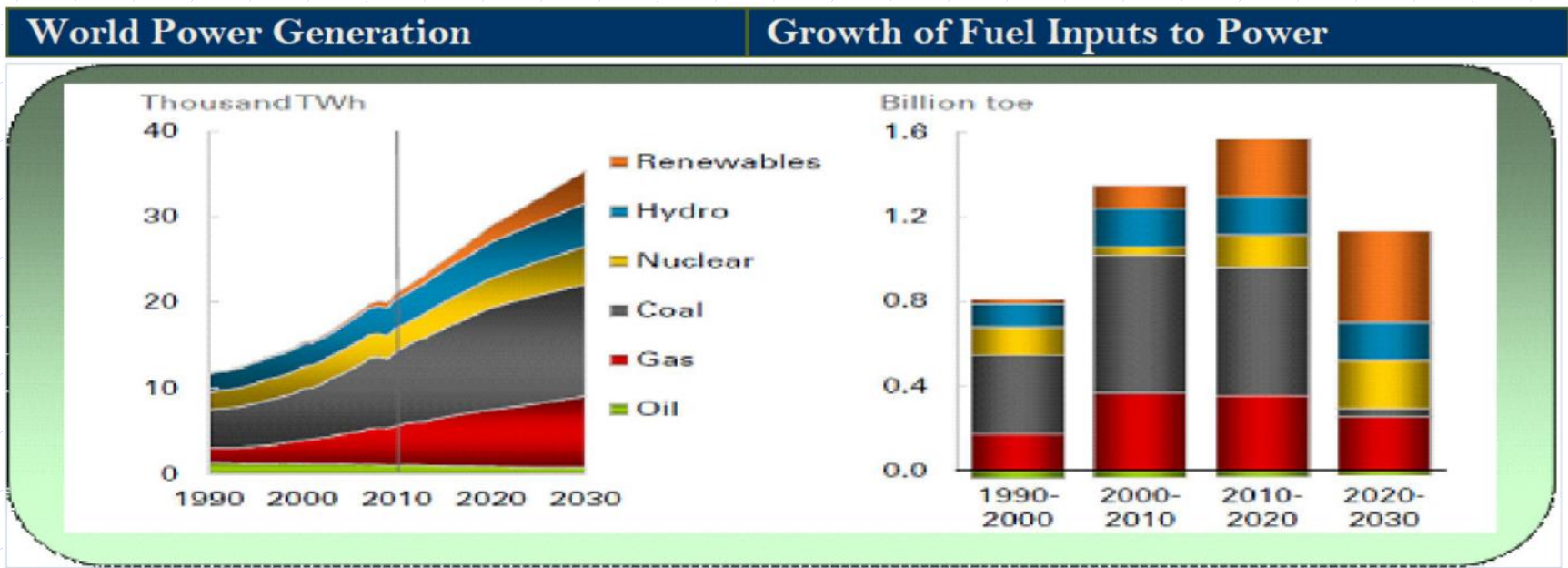
Demand   Supply   mln TPA				
	FY18	%	FY19E	%
Imported	13.7	76%	15.5	74%
Local	4.3	24%	5.5	26%
Consumption	18.0	100%	21.0	100%

Source: Pakistan Economy Survey 2018-19

Coal Import - Pakistan					In MT
Sr. No	Description	FY19E	FY18	FY17	FY16
<b>Power IPPs</b>					
1	Huaneng Shangdong Ruyi	1,824,872	2,104,917	506,919	-
2	Port Qasim Power	2,446,498	1,742,676	-	-
3	China Power Hub Generation	620,228	-	-	-
4	FFBL Power Limited	336,717	-	-	-
<b>Sub Total</b>		<b>5,228,315</b>	<b>3,847,593</b>	<b>506,919</b>	<b>-</b>
<b>Other - Cement/ Textile/ Steel</b>					
5	Agrotrade	53,899	164,033	108,156	-
6	Awan & Group	1,278,498	2,429,697	2,340,203	1,555,581
7	Bestway	112,315	308,755	444,449	-
8	Waterlink	59,588	-	-	-
9	Oilboy (Pvt.) Limited	54,278	-	-	-
10	Fatima Energy Limited	-	504,751	-	-
11	Glenvore International	454,991	114,807	-	-
12	Lucky Commodities	1,366,829	1,785,912	1,709,991	1,574,593
13	Mansoor	-	-	92,400	61,294
14	MJM	-	53,779	-	-
15	Norecom Ltd	-	-	163,955	125,851
16	Pacific Exim (Pvt.) Ltd	-	-	115,544	-
17	Petrocoal	164,618	391,554	1,025,006	817,723
18	Seatrade	2,444,495	2,124,023	2,059,835	1,569,041
19	Sugih Energy South Africa	-	58,107	-	-
20	Others	4,282,174	1,916,989	-	-
<b>Sub Total</b>		<b>10,271,685</b>	<b>9,852,407</b>	<b>8,059,539</b>	<b>5,704,083</b>
<b>Total Quantity Imported</b>		<b>15,500,000</b>	<b>13,700,000</b>	<b>8,566,458</b>	<b>5,704,083</b>

Source: Custom Department, Pakistan

# POWER GENERATION | WORLD



**Source:** Pakistan Energy Vision 2035 – Sustainable Development Policy Institute

- Most of the power generation will be through coal till 2020 but after that hydropower, nuclear and renewables will take over. The power generation by oil will remain in a decreasing trend till the proposed future projects till 2030 are commissioned.



# Coal Handling & Transport

- PIBT has been setup as the Country's first terminal for handling Coal, Clinker and Cement on build, operate and transfer (BOT) basis at total cost of US \$305 million at Port Qasim Authority.
- Port Qasim handles more than 40% of Pakistan's cargo.
- PIBT has built capacity for handling upto 12m tons of Coal. PIBT has been set up for handling and delivering coal to Power and Cement plants by utilizing the rail, road and sea networks.
- Coal handling has been shifted to Pakistan International Bulk Terminal (PIBT) after Supreme Court had banned the handling of coal at Karachi Port due to pollution and other reasons

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