



Government of Pakistan

Coal Resources of Pakistan: Investment Opportunities

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Mineral Ownership

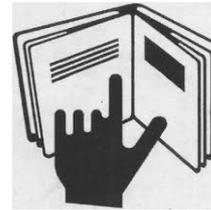
Federal Government:



Geological survey & mapping



National & international coordination



Formulation of national policies



Radioactive Minerals



Regulatory of Oil, Gas

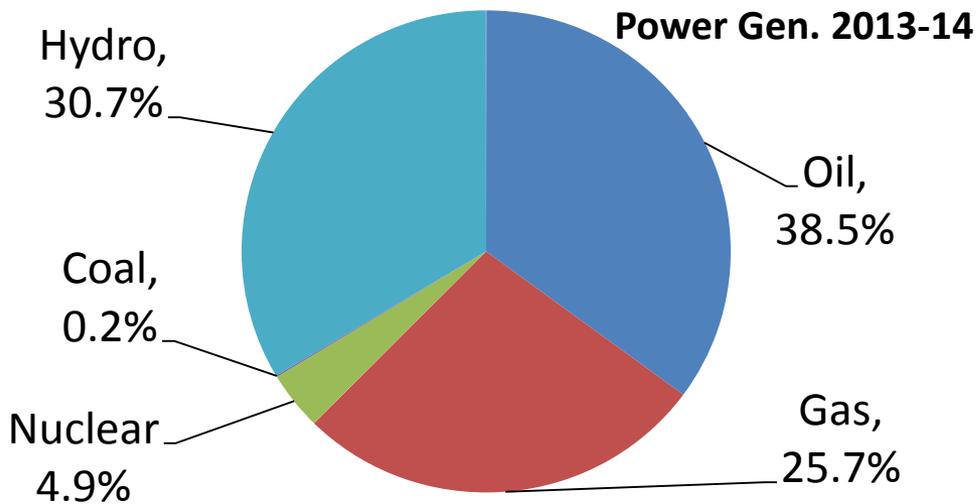
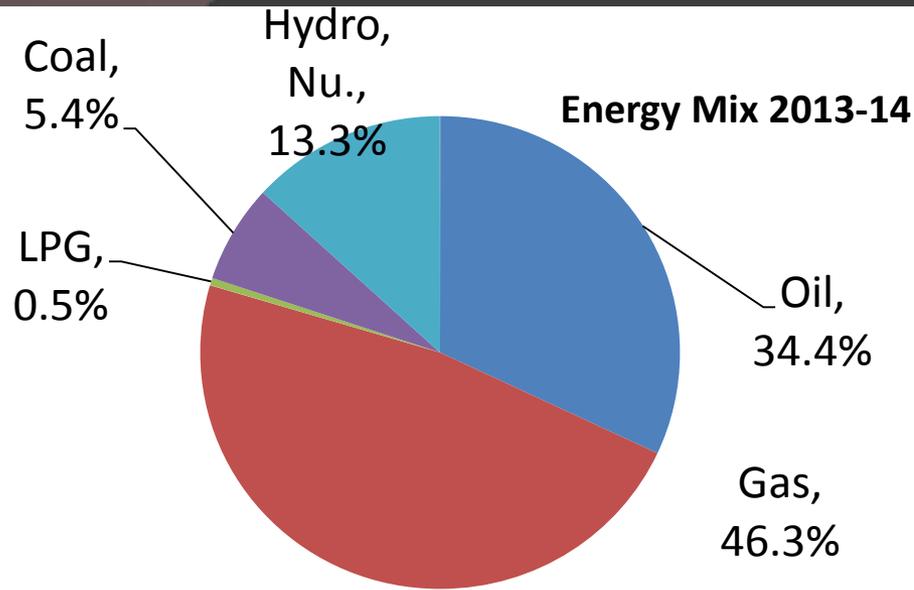


FATA, ICT and Offshore Water

Provincial Government:

- Regulation of Mineral Titles,
- Detail Exploration,
- Mineral Development, and
- Health & Safety

Coal Share



Country	Power Generated from Coal (%)
South Africa	93
China	79
India	68
USA	45
Germany	41
Australia	78
World Average	42
Pakistan	0.2

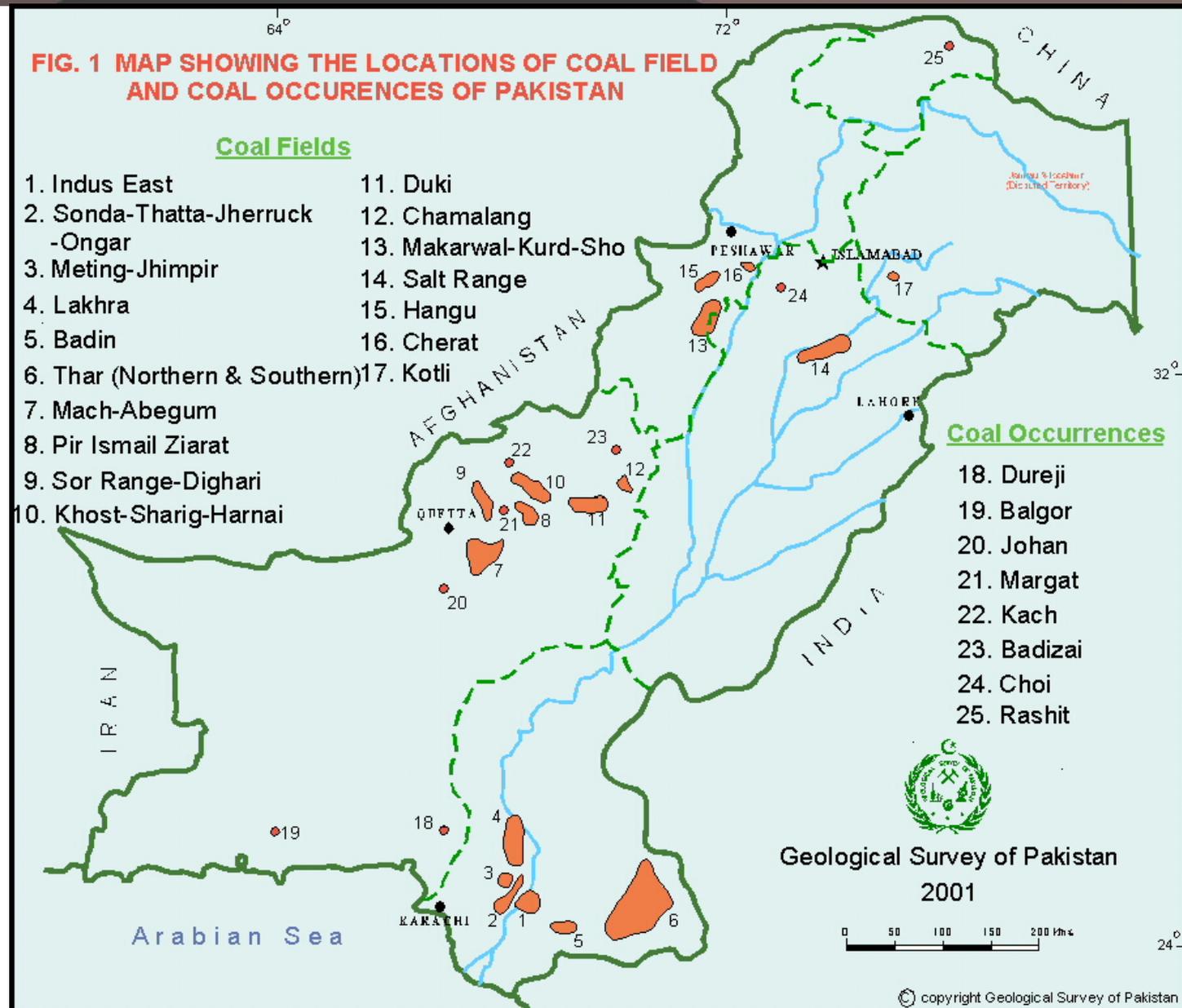
Coal Statistics

Year	Domestic Production (Million Tons)	Imports (Million Tons)	Total Supply (Million Tons)
2010-11	3.450	4.267	7.717
2011-12	3.613	4.057	7.670
2012-13	3.179	3.710	6.889
2013-14	3.438	3.119	6.557

Sector-wise Utilization:

Brick kilns	41.5%
Cement	54.3%
Coke making	1.7%
Power sector	2.5%

Coal Field Locations



Coal Fields Quality

Coal Field	Resources (Million tons)	Moist. %	V.M %	F.C%	Ash %	Sulphur %	H.V (Btu/lb)	Status
Thar	175,000	29.6- 55.5	23.1- 36.6	14.2- 34	2.9- 11.5	0.4-2.9	6,244- 11,045	Under development
Sondha	3,700	22.6-48	16.1- 36.9	8.9- 31.6	2.7- 52	0.2-15	8,878- 13,555	Non-Developed
Jherruck	1,823	9-39.5	20- 44.2	15- 58.8	5-39	0.4-7.7	8,800- 12,846	-do-
Lakhra	1,328	9.7-38.1	18.3- 38.6	9.8- 38.2	4.3- 49	1.2-14.8	5,503- 9,158	Developed
Sorange- Degari	50	3.9-18.9	20.7- 37.5	41- 50.8	4.9- 17.2	0.6-5.5	11,245- 13,900	-do-
Salt Range	213	3.2-10.8	21.5- 38.8	25.7- 44.8	12.3- 44.2	2.6-10.7	9,472- 15,801	-do-
Hangu- Orakzai	82	0.2-2.5	16.2- 33.4	21.8- 49.8	5.3- 43.3	1.5-9.5	10,500- 14149	-do-
Kotli	9	0.2-6	5.1- 32	26.3- 69.5	3.3- 50	0.3-4.8	9,386- 14,171	-do-

Mineral Policies/Laws

- National Mineral Policy -2013;
- Regulation of Mines & Oilfields and Mineral Development (Government Control) Act, 1948 and Mining Concession Rules framed there under by the provinces;
- The Sindh Coal Act, 2012;
- Mines Act 1923;
- Consolidated Mines Rules, 1952;
- Coal Mines Regulations, 1926;
- Excise Duty on Minerals (Labour Welfare) Act, 1967.

Mineral Titles

Mining Concession Rules provides the following mineral titles:

- **Reconnaissance License** - for one year not renewable
- **Exploration License** - for 3 years and extendable for 3 years
[In case of Thar-coal EL is granted for one year (extendable for 3 years) for preparation of bankable feasibility]
- **Mineral Deposit Retention License** – for 2 years extendable for 1 year.
- **Mining Lease** – for 30 years extendable for next 10 years or life of mine

Taxes & Levis

Following Tax & Levis are applicable on mining which may vary as per relevant laws:

- **Income Tax:**
 - Rate of Corporate Tax - 35%
 - Minimum Corporate Tax - 1% of declared turnover.
- **Withholding Tax:**
 - Dividend - 10%
 - Non-Resident Contractor - 6% on payment made to contractor.
 - Royalty & Fee - USD1.5/ton (Differ in each province)
- **Other Taxes:**
 - Sale Tax - As prescribed by government
 - Additional Profit Tax - agreed rates based on the economic projections .
- **Other Levis:**
 - Zakat - 2.5% of value of asset (For Muslims)
 - Worker Profit Participation Fund (WPPF) - Payable to trustee at agreed rate
 - Worker Welfare Fund - agreed rate of taxable income
 - Workers Children Education Cess - 04 Cents/Employee/Quarter
 - Employees' Social Security Contribution - USD 3.7/Employee/Month
 - Employees' Old-Age Benefits - USD 2.1/Employee/Month
 - Excise Duty on Minerals - USD 5 cents / ton
 - Surface Rent & Compensation - as agreed with landowner

Environmental Laws

Pakistan is signatory to number of international environmental agreements, therefore, local legislations and laws are legal binding to all investors. Few are listed below:

- International Plant Protection Convention, Rome, 1951.
- Agreement for the Establishment of a Commission for Controlling the Desert Locust in the Eastern Region of its Distribution Area in South-West Asia (as amended), Rome, 1963.
- Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Ramsar, 1971 and its amending Protocol, Paris, 1982.
- Convention Concerning the Protection of World Cultural and Natural Heritage (World Heritage Convention), 1972.
- Convention on International Trade in Endangered Species of Wild Funa and Flora (CITES), Washington, 1973.
- Convention on the Conservation of Migratory Species of Wild Animals, Bonn, 1979.
- Convention on the Law of the Sea, Montego Bay, 1982.
- Vienna Convention for the Protection of the Ozone Layer, Vienna, 1985.
- Montreal Protocol on Substances that Deplete the Ozone Layer, Montreal, 1987.
- Convention on Biological Diversity, Rio de Janeiro, 1992.
- United Nations Framework Convention on Climate Change, Rio De Janeiro, 1992.

Why Coal is Essential?

- ❑ Pakistan is energy deficit country.

Power Outage per day : **6 – 12 hours / day**
Supply Shortfall : **1100 – 6000 MW**
Electrification Rate : **91.4%**

- ❑ Rapid depletion of oil and gas reservoirs and rising oil import bill necessitates greater reliance on indigenous coal resources.

Why Thar Coal?

- **Huge lignite resource:**

Measured Reserves:	7,025 Million Tons
Indicated Resources:	17,130 Million Tons
Inferred Resources:	38,650 Million Tons
Hypothetical Resource:	112,700 Million Ton



- **Thar resources have the capacity to provide 100,000 MW electricity generation for centuries period.**
- **Special fiscal incentives & protections.**
- **GoP guarantees obligations of power purchaser.**
- **Most safe area of Pakistan.**

Salient Features:

Area of the field:	9000 sq. km.
Distance from Karachi:	380 Km.
Coal seam thickness:	0.2 -22.8m
Coal seam depth:	114-203m

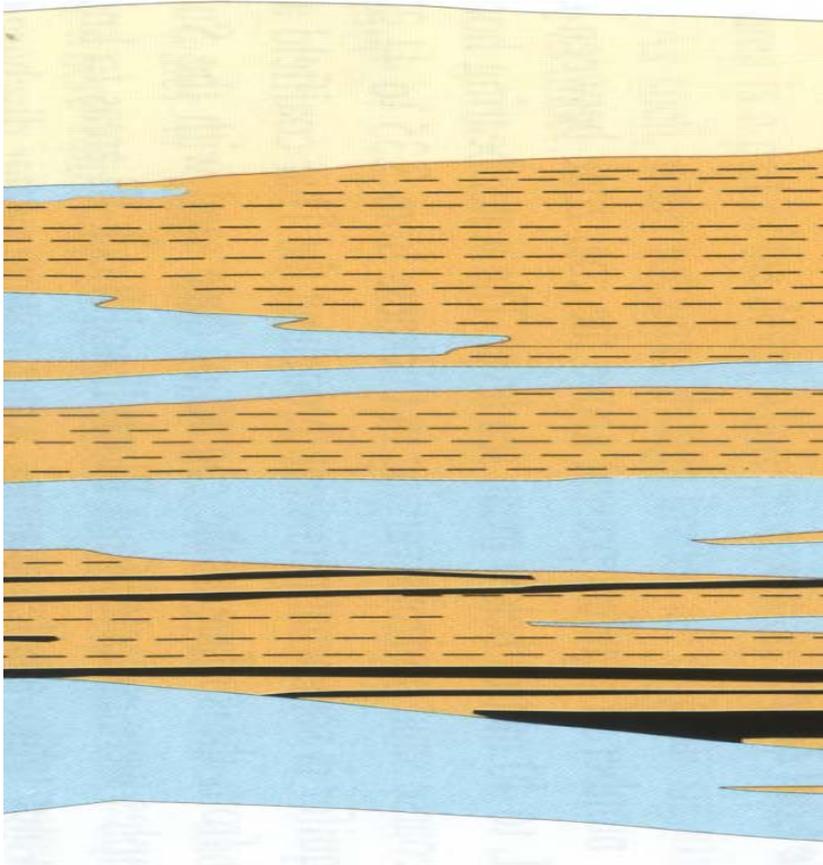
Quality Comparison

Country	Moisture %	Ash %	Volatile Matter %	Sulphur %
Australia	65.5	0.6	17.6	0.1
Bosnia	51	2.0	30.3	0.05
Germany	55	10	19.2	0.2
Greece	52	15.1	18.8	0.2
India	48	6.1	25.6	0.6
Kosovo	51	15	20.8	<1.0
Pakistan (Thar)	46	7.0	28.0	0.4 – 2.9
Poland	52.8	9.8	20.0	0.6
Turkey	50	16	22.8	1.7

Stripping Ratio

Country	Stripping Ratio (m ³ :t)	Heating Value (Btu/lb)
Kosovo	1:1	3,350
Rhenish Area, Germany	4.9:1	3,830
Pakistan (Thar)	6:1	6200 - 11,000
Hambach, Germany	6.3:1	4,510
Neyvelli lignite, India	7:1	5,200
Hungary lignite	9:1	3,035
Greece	10:1	2,159

General Geology of Thar



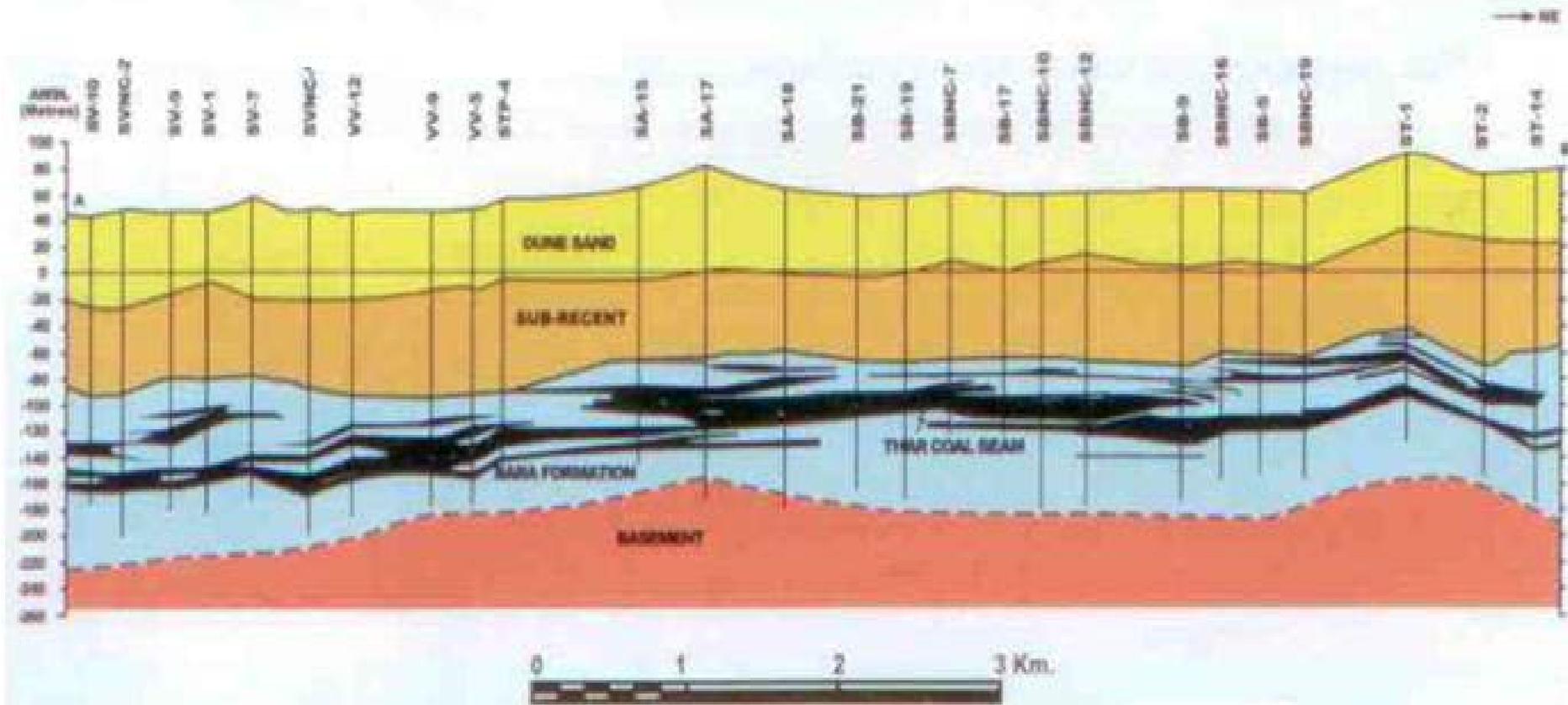
Dune Sand

Upper Aquifers & Silt Stone

Middle Aquifers

Lignite Bands &
Main Lignite Seam

Lower Aquifer



**GENERALISED CROSS-SECTION
THAR COALFIELD,**

Technical Studies

Reserves Credibility:

USGS;

GSP;

SCA

All studies confirmed presence of huge coal reserves.

Mining Feasibility:

- John T. Boyd
- RWE of Germany
- M/s Shenhua, China
- Sindh Engro Coal Mining Company
- Sindh Carbon Energy Ltd
- Sino-Sindh Resources (Pvt.) Ltd, China

Gasification Study:

Sasol Lurgi of South Africa proved that Thar coal can be gasified.

Development Challenges

Technical:

- i) Multiple aquifers; and
- ii) Lack of local expertise.

Financial:

- i. Capital investment of about US\$1.5 billion is required for coal mining project of 6 million tons/Year; and
- ii. Absence of financial capability to develop large-scale mine.

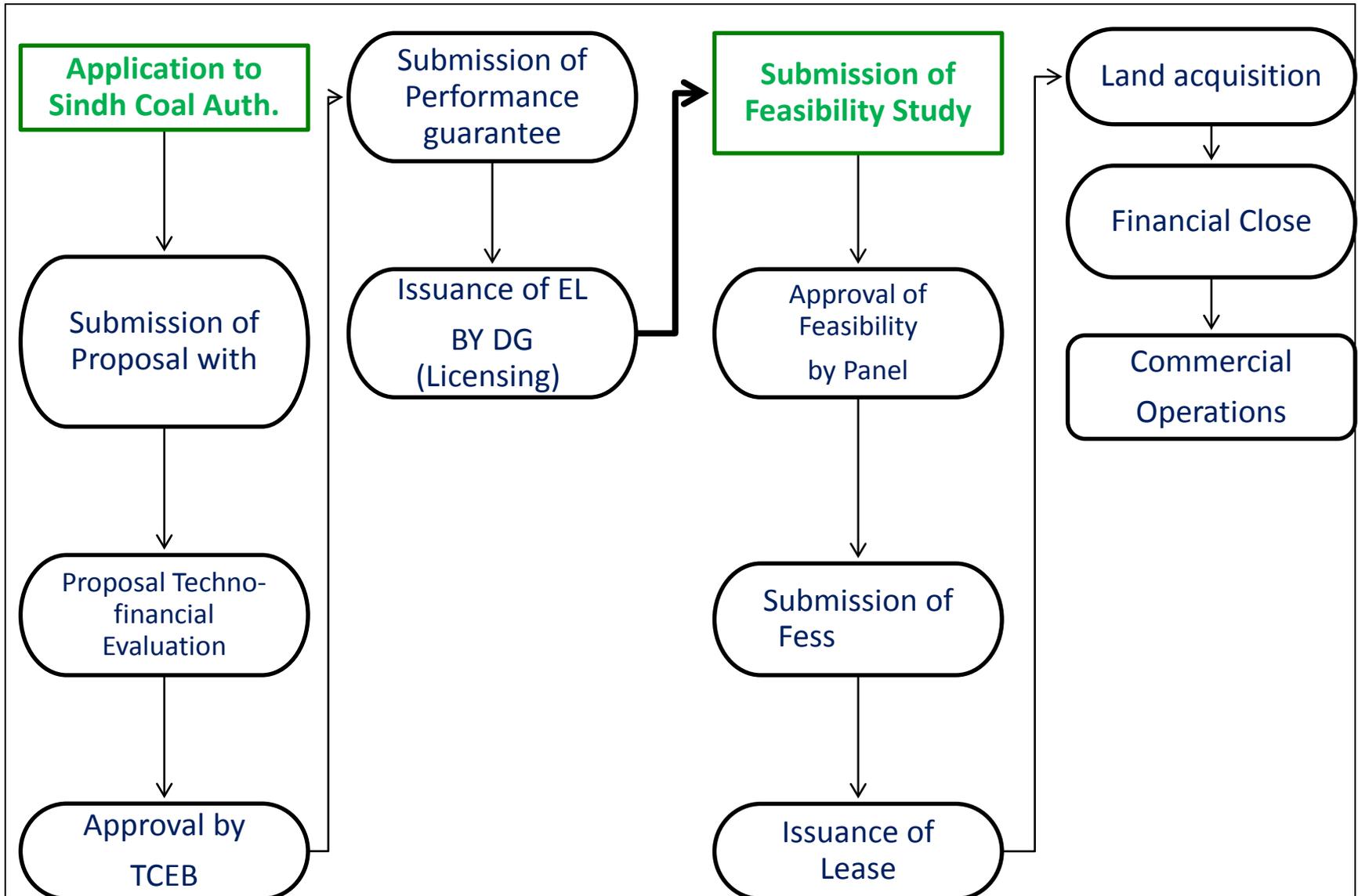
Fiscal Incentives

- 20% (\$ based) Internal Rate of Return (IRR) to firms which achieve Financial close before 31st December 2015 for Mining & Power Projects based on Indigenous coal.
- Zero % customs duties on import of coal mining equipment and machinery.
- Exemption on withholding tax to shareholders on dividend for initial 30 years.
- Exemption on withholding tax on procurement of goods and services during project construction and operations.
- Exemption for 30 years on other levies including special Excise Duty, Federal Excise Duty, WPPF and WWF.

Strategy for Development

- Thar coalfield declared as Special Economic Zone, and the projects declared as “Project of National Energy Security”.
- For transparency, Government has adopted policy of inviting Expression of Interest.
- Grant Exploration License (EL) through International Competitive Bidding.

Investment Process



INFRASTRUCTURE

ROAD NETWORK: 70 tons load carrying capacity metaled road up to Coal field area.

COMMUNICATION : Telephone & Internet communication through Optic fiber cable is available up to Thar Coalfield area.

DRINKING WATER :Reverse Osmosis Plants in Thar are available.

RESCUE STATION: Rescue Station at Thar coalfield has been constructed.

LIBRARY: A Coal library is situated at office of Sindh Coal Authority.

THAR LODGE: Thar Lodge at Islamkot with 20-bedded accommodation to facilitate investors has been constructed.

- Construction of transmission line, airport, heavy duty road, railway link and water for power plants are at different stages.



Current Status

- Total 12 coal blocks reserves have been established each with potential to cater for requirement of 1,000 MW power plant.
- Following coal blocks have been allocated for mining:

Block-I: Sino-Sindh Resources Ltd.

Block-II: Sindh-Engro Coal Mining Company.

Block-V: Planning Commission, Government of Pakistan (R&D Project).

Different companies have participated in the recent competitive bidding process for allocation of remaining coal-block. Technical & financial evaluation is under process.



Coal Based Power Generation

<i>Sponsor/Company Name</i>	<i>Location</i>	<i>Fuel</i>	<i>Gen. Capacity (MW)</i>	<i>Status</i>
Lakhra Power Plant, WAPDA	Khanote.	Lakhra Coal	150	Only one unit is operative and generating 30 MW.
Grange Power Limited	Arifwala.	Coal	163	Commissioned in 2019
Shanghai Electric	Thar Block-I.	Thar Coal	1320	LOI issued
Engro Powergen Thar Limited (EPL)	Thar Block-II.	Thar Coal	660	IA and PPA Signed on 4th May 2015
China Machinery Engineering Corporation	Salt Range, Punjab	Salt Range, Coal	300	LOI validity extended till 19-August-2015. NEPRA determined tariff
Sinohydro Resources Limited, China / Al Mirqab Capital, Qatar	Port Qasim, Karachi	Imported Coal	1,320	LOS Issued. IA, PPA Signed on 18th April 2015
	Pakistan Power Park, Gadani	Imported Coal	6,600	
Hub Power Company	HUB, Balochistan	Imported Coal	1320	LOI issued
Lucky Electric Power Company Limited	Port Qasim Karachi	Imported Coal	660	LOS Issued on 08-Jun-2015
Siddiqsons Limited	Port Qasim Karachi	Imported Coal	350	LOS Issued
Huaneng Shandong Ruyi (Pakistan) Energy (Pvt) Limited	Sahiwal	Imported Coal	1320	LOS Issued on 17th April 2015. IA, PPA signed

Source: Private Power & Infrastructure Board, Pakistan

LOI: Letter of Intent. **LOS:** Letter of Support. **IA:** Implementation Agreement **PPA:** Power Purchase Agreement 25

Investment Opportunities

- **Coal Mining in Thar,**
- **Mine-mouth Power generation,**
- **Local manufacturing/assembling of coal mine machinery.**

Major Coal Companies

- **Pakistan Mineral Development Corporation**
- **Punjab Mineral Development Corporation**
- **Lakhra Coal Development Company**
- **Sindh-Engro Mining Company**
- **Sindh Carbon Energy Limited (UK)**
- **Sino-Sindh Resources (Pvt.) Ltd (China)**

Contacts

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Energy Department (Coal Wing),
Government of Sindh. Lackson Building No 3, 7th floor, Sarwar
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Tel: +(92-21)-99204605. www.sindhcoal.gos.pk

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Department of Minerals Development,
Government of Khyber Pakhtunkhawa
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Industries & Minerals Development, Gilgit-
Baltistan. Gilgit-Baltistan Secretariat, Khomer, Jutial Gilgit.
Tel: +(92-5811) 920512

Industries and Minerals Department
Government of Azad Jammu & Kashmir. Muzaffarabad

Sindh Engro Mining Company
Tel: (92 21) 111 211 211
Engro Corporation Limited, 8th Floor, Harbor Front Building, Block 4,
Clifton, Karachi

Pakistan Mineral Development Corporation
Tel: (92 51) 9258701-02
Address: PMDC 13-H/9, Islamabad
URL: www.pmdc.gov.pk

Lakhra Coal Development Company
Address: LCDL Bungalow No.C6-A, Block-F, Gulshan-e-Jamal, Rashid
Minhas Road, Karachi
Tel: (92 21) 99245232, 99245235-39

Punjab Mineral Development Corporation
2nd Floor, Alflah Building, Mall Raod Lahore.
Tel: (92 42) 99205181 [http:// punjmin.com](http://punjmin.com)

Sindh Carbon Energy Limited
Tel: 44 (0) 207 317 4050
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Sino-Sindh Resources (Pvt.) Ltd. of China

THANK YOU