



**Government of Pakistan
Ministry of Energy
(Petroleum Division)**

Petroleum Sector in Pakistan

**Nadeem Babar
Special Assistant to Prime Minister on Petroleum**



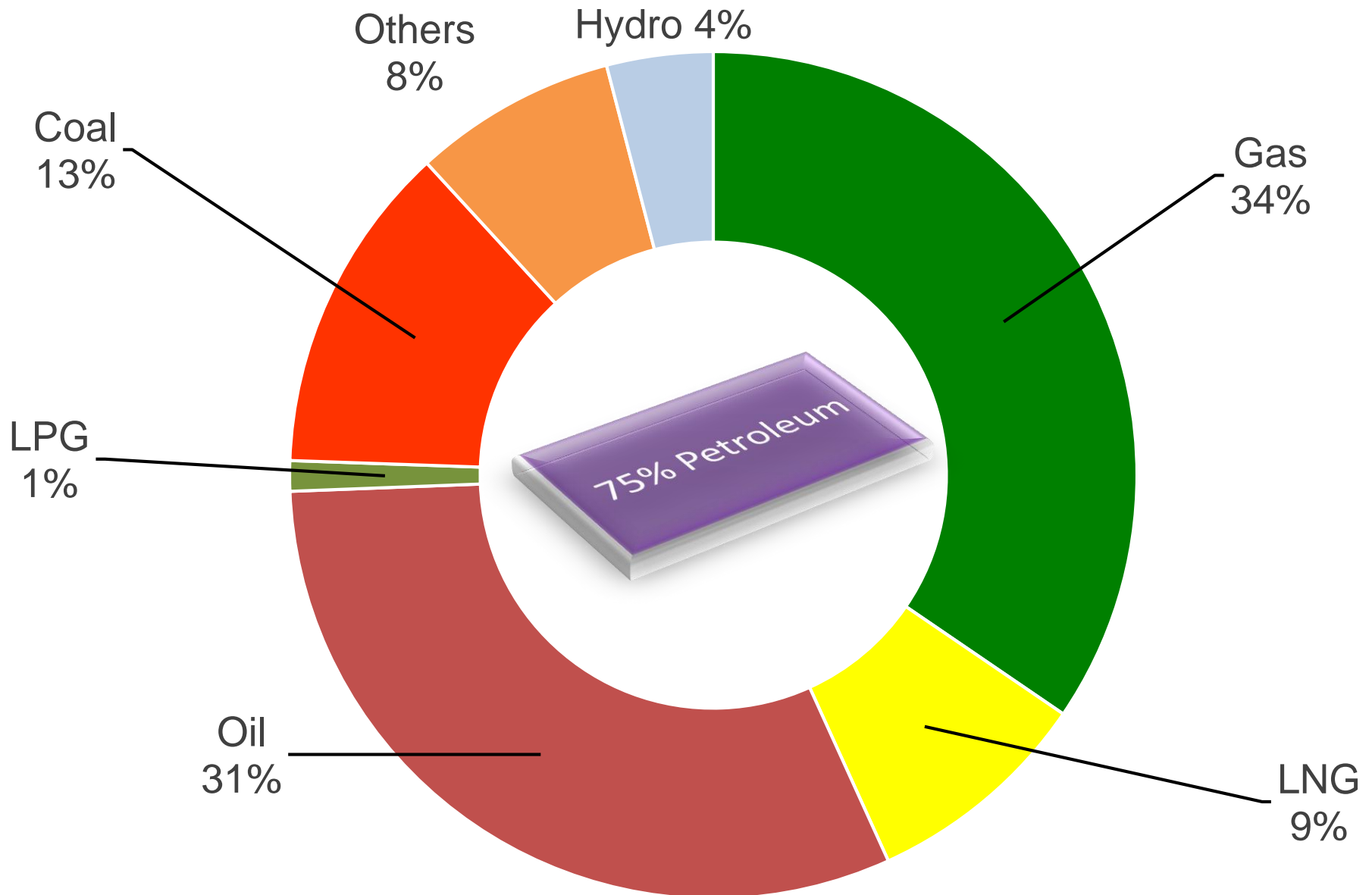
Pakistan

- Total Area is 796,095 Sq. Km
- Population is 217 million
- Capital: Islamabad
- Oil production
> 89,000 bbl/day (4.4 MMTOE)
- Oil consumption
> 26.9 MMTOE (84% imports)
- Local Refining
~ 14.3 MMTOE
- Gas production
> 4,000 MMCFD
- Constrained Gas consumption
~ 5,200 MMCFD
- LNG Imports
~ 1,200 MMCFD



Primary Energy Supply

86 Million Tonnes of Oil Equivalent [1.6 million BOE/day]



Important Statistics – Oil Sector

▪ Balance Recoverable Reserves	347.9 Million Barrels
▪ Crude Oil Production	89,000 barrels/day
▪ Crude Oil Imports	211,000 barrels/day
▪ Total Crude Processed by refineries	300,000 barrels/day
▪ Installed Refineries Capacity	19 Million tonnes/annum
▪ Refineries Production (300,000 BBL/day)	13 million tonnes/annum
▪ Petroleum Products Imports	13 million tonnes/annum
▪ Consumption of Petroleum Products	26 million tonnes/annum

Important Statistics – Gas Sector

▪ Balance Recoverable Reserves	19.5 TCF
▪ Natural Gas Production	4,000 million cubic feet/day
▪ LNG Imports	~1,200 million cubic feet/day
▪ LNG Terminals capacity	1,200 million cubic feet/day
▪ Gas Demand (constrained)	5,200 million cubic feet/day
▪ Gas Demand (unconstrained)	6,000 + million cubic feet/day
▪ LPG Production	2,400 metric tonnes/day
▪ LPG Imports	1,100 metric tonnes/day(average)

Company-wise Oil & Gas Production (2017-18)

Company Name	Oil (BBL/Day)	Raw Gas (MMCFD)
OGDCL	41,616	1,147
PPL	8,592	769
MPCL	2,276	714
MOL	22,549	321
UEP	10,004	502
POL	1,997	14
OMV Maurice	1,075	18
OPL	399	6
OPPL	309	66
Eni	273	233
Dewan	55	8
OMV	52	140
PEL		28
Polish Oil		30
Total	89,197	3,997

Exploration Activities

Total Sedimentary Area: 827,268 Sq.Km

**Area under Exploration:
224,976 sq.km. (27 %)**

Expl. Wells 1,088

Dev. Wells 1,440

Total: 2,528

**Drilling Density: 3.0 Wells/1,000
Sq.Kms**

Discoveries 394

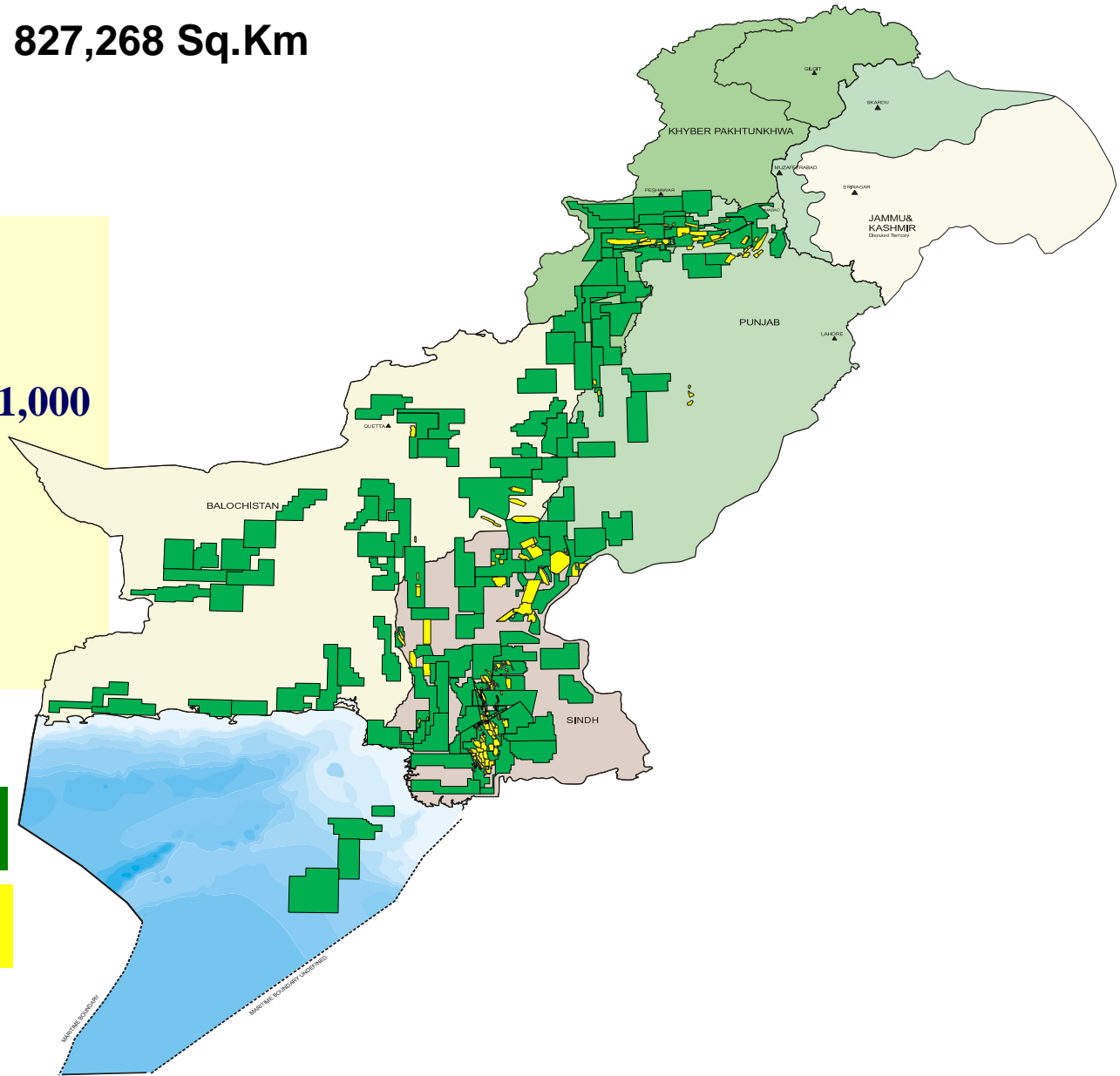
Oil 85

Gas/Cond 309

Success rate 34%

Active Exploration Licenses =126

Active D&P Leases =183



Petroleum Policy

Hassan Mehmood
Senior Petroleum Economist

History – Regulatory Framework

- The first well was drilled in 1866 at oil seepage Kundal in the Mianwali District of Punjab Province
- The First Commercial Exploration success in Pakistan came with the drilling of Khaur-1 by Attock Oil Company in 1915
- Independence 1947
- Regulation of Mines and Oilfields and Mineral Development [Government Control] Act, 1948
- Pakistan Petroleum (Exploration and Production) Rules 1949, 1986, 2001, 2009, 2013
- Pakistan Petroleum Policy 1991, 1994, 1997, 2001, 2007, 2009, 2012
- Model Petroleum Concessions Agreement / Production Sharing Agreement

Petroleum Rights – 2012 Policy

Procedure for grant of E&P Rights

- Petroleum Exploration Licence for entering PCA or PSA through **competitive bidding**
 - Bidding against work unit
 - Maximum area 2,500 Sq.KM

Types of Exploration and Production Rights

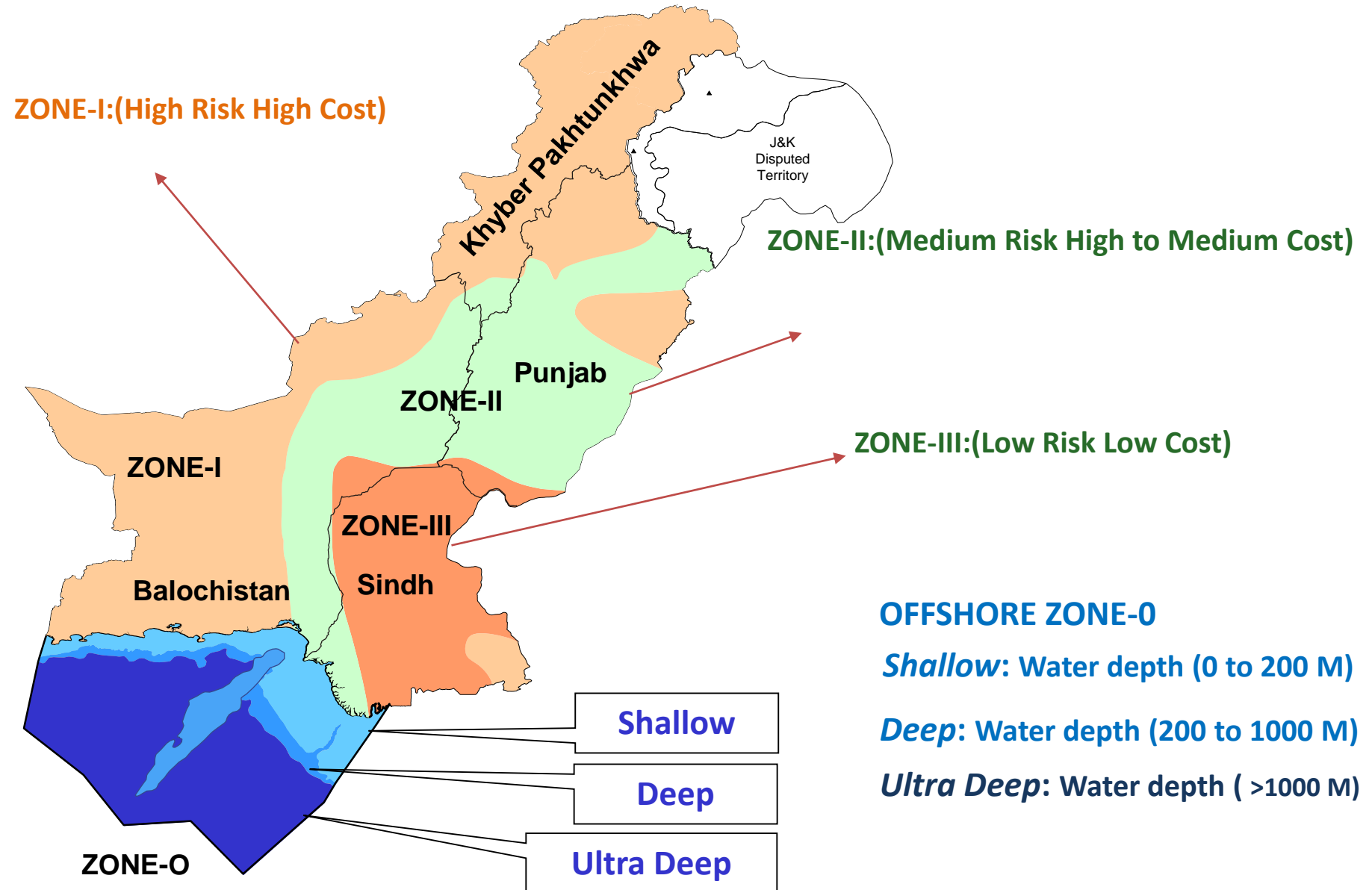
Petroleum Exploration Licence – Onshore/Offshore

- 5 years initial term (Phase-I of 3 years and Phase-II of 2 years) + two renewals of 1 year each.
- A maximum period of appraisal renewal for 1 year
- 5 years retention period for gas market for onshore and 10 years for offshore

Development & Production Lease

Up to 25 years + renewal for 5 years + Re-grant for 5 years with 15% extra bonus

Fiscal Regime – (Licensing Zones)



Wellhead Gas Pricing – Sample Calculations

US\$/BBL	Applicable %age of C&F Price	US\$/BBL
0 to 30	100%	30
Above 30 to 50	Plus 50% of incremental increase	10
Above 50 to 70	Plus 30% of incremental increase	6
Above 70 to 110	Plus 20% of incremental increase	8
Applicable C&F Price	(A+B+C+D)	54

	Zone-III	Zone-II	Zone-I	Zone-0 Shallow	Zone-0 Deep	Zone-0 U/Deep
Indexation for Zone (%)	63.33	66.50	69.66	73.88	84.44	95
Marker Price (\$/BBL)	34	36	38	39	46	51
Conversion Factor	5.7 MMBTU/BBL					
Wellhead Price \$ / MMBTU	6.0	6.3	6.6	7.0	8.0	9.0

Crude Oil Pricing

The **Producer Crude Oil Price:**

- C&F price of a comparable crude oil or a basket of Arabian/Persian Gulf crude oils (Reference Crude or RC)
- quality differential between the RC and the local crude oil
- Windfall Levy

$$\text{Windfall Levy (WLO)} = 0.4 \times (M-R) \times (P-B)$$

Where:

WLO - Windfall Levy on crude oil and condensate;

M - Net production (petroleum produced & saved);

R – Royalty @ 12.50%;

P - Market Price of crude oil and condensate as set out in paragraph 11 below;

B - Base Price for crude oil and condensate will be USD 40 per bbl.

Producers' Oil and Gas Pricing at various prices of Int'l Crude Oil

Producers Gas Pricing (\$/MMBTU)

Reference Crude Price \$/BBL	40	60	80	100	110
Zone-III	3.9	4.8	5.3	5.8	6.0
Zone-II	4.1	5.0	5.6	6.1	6.3
Zone-I	4.3	5.3	5.9	6.4	6.6
Zone-0 Shallow	4.5	5.6	6.2	6.7	7.0
Zone-0 Deep	5.2	6.4	7.1	7.7	8.0
Zone-0 Ultra Deep	5.8	7.2	8.0	8.7	9.0
Bonanza of \$ 1/MMBTU for first three offshore discoveries.					

Producers' Oil Pricing \$/BBL

Reference Crude Price	40	60	80	100	110
<i>Royalty @ 12.5%</i>	<i>5.0</i>	<i>7.5</i>	<i>10.0</i>	<i>12.5</i>	<i>13.8</i>
Net of royalty	35.0	52.5	70.0	87.5	96.3
Base Price	40.0	40.0	40.0	40.0	40.0
Incremental Value	0.0	12.5	30.0	47.5	56.3
WLO @ 40% of incremental Value	0.0	5.0	12.0	19.0	22.5
Producers' take	40.0	55.0	68.0	81.0	87.5

Royalties and Income Tax

- **Royalty**
 - **Onshore** **12.5% of value of petroleum at field gate**

 - **Offshore**
After Commencement of Commercial Production:
 - **First 48 Months** **No royalty**
 - **After 48 Months** **5%-10% at field gate**
 - **After 72 Months** **12.5% at field gate**

- **Tax on income @ 40% of profit. Royalties as expense for tax**
- **Depletion allowance @ 50% of taxable income or 15% of wellhead value whichever is less**

Other Obligations

- **CSR / Training/Marine Research Fee / Production Bonus**

Incentives for unconventional hydrocarbons

- **Tight gas price** **20% premium over 2012 Policy Price**
- **Marginal/Stranded gas fields** **\$ 0.25/MMBTU premium over 2012 Policy**
- **Low BTU gas price \$ 6/MMBTU for 450 BTU/Scf gas with \$0.01 increase for each BTU/Scf reduction subject to ceiling of \$ 8.75**
- **Shale gas policy** *Being formulated*
95 TCF shale gas recoverable
14 billion barrels shale oil recoverable

Requirements for award of new blocks

- E&P experience
- Bank guarantee/ Escrow Account equal to 25% of the minimum financial obligation
- or
- Parent Company Guarantee of a multinational exploration and production Company of international repute with a proven track record

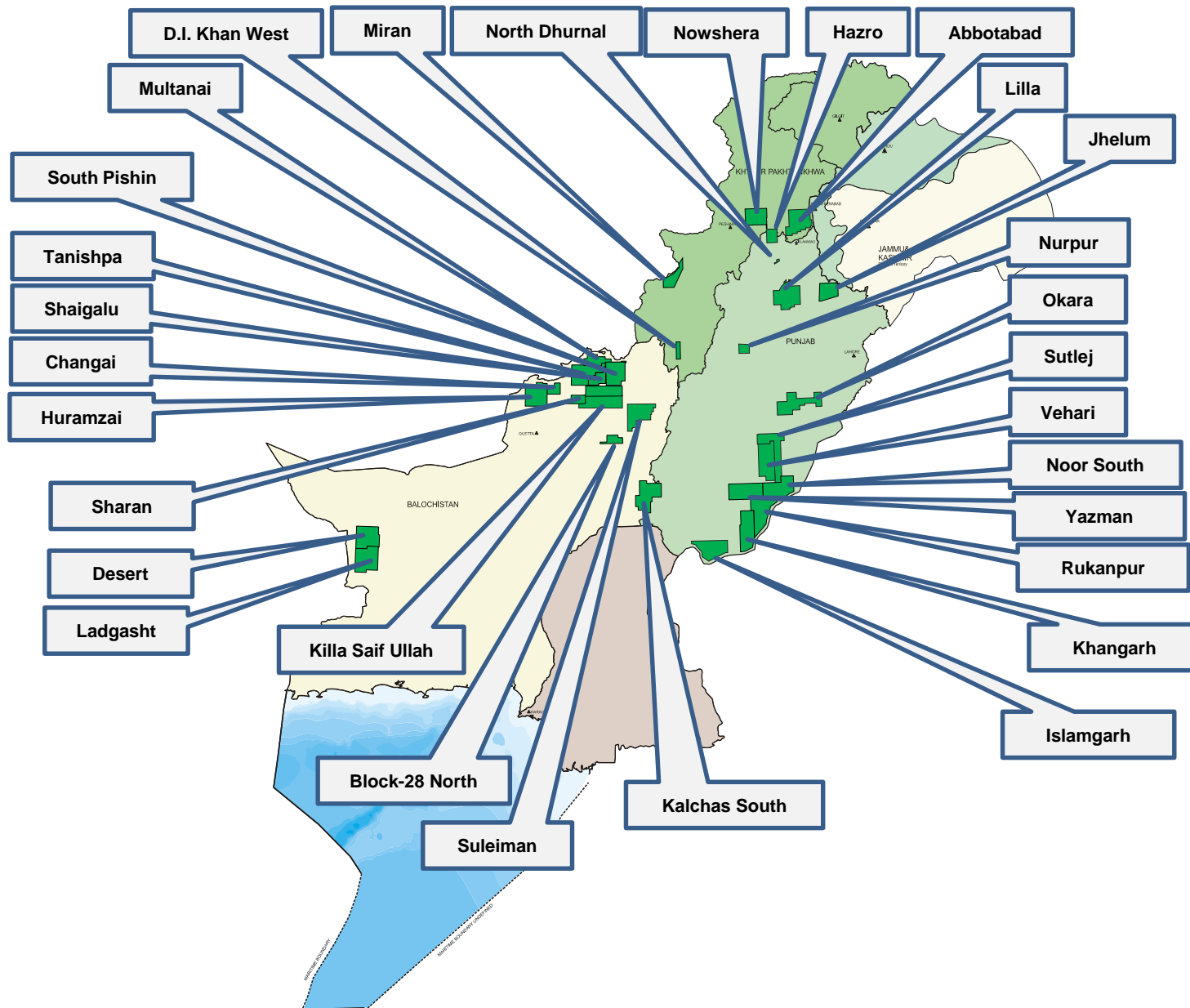
Why to invest in Pakistan

- Mature regulatory framework (since 1949)
- 70% untapped area
- Gas price US\$ 4 – 9 / MMBTU
- Guaranteed offtake through state owned buyers
- Remittance of sale proceeds
- Delivery at field gate
- Skilled human resource available

Forward plan

- **Exploration and Production (E&P) Companies may participate in next bidding round (As operator or non operating JV partner)**
- **Join OGDCL / PPL is their existing blocks**
- **30 onshore blocks**

Blocks map



Relevant Contacts/Website

Policies/Rules can be accessed through following weblink:

<http://www.ppisonline.com/gov-policy/>

Mr. Imran Ahmed

Director General (Petroleum Concessions)

Email: directorexploration@gmail.com

Mr. Kashif Ali

Director (Production)

Email: kashifdgpc@yahoo.com

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Senior Petroleum Economist/

Director (Monitoring and Evaluation)

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Thank you

Equivalency of Work Units

Type of Work		Zone-I & II	Zone-III
1 line-kilometre of 2D seismic (acquired, processed, interpreted & mapped)		0.3	0.3
1 square kilometre of 3D seismic (acquired, processed, interpreted & mapped)		1	1
1 Line-Kilometre of Airborne non-seismic geophysical survey (acquired, processed, interpreted and mapped)		0.12	0.12
1 Line-Kilometre of ground based non-seismic geophysical survey such as gravity and magnetic (acquired, processed, interpreted and mapped)		0.1	0.1
1 exploration well with a surface location in onshore with the following well depths:	1,000 metres	100	50
	2,000 metres	200	80
	3,000 metres	400	100
	4,000 metres	600	200
	5,000 metres	1,000	330
	6,000 metres	2,000	600
	7,000 metres	3,000	900

Other Obligations

Social Welfare

a. During exploration stage until Commercial Production USD 30,000 per Licence Year

b. During Commercial Production Phase (BOE/d)

	<u>Amount/Lease Year (USD) (For all Zones)</u>	
Less than 2,000	50,000 (Zones O & I);	37,500 (Zones II & III)
2,000 - 5,000	100,000 (Zones O & I);	75,000 (Zones II & III)
5,000 - 10,000	200,000 (Zones O & I);	150,000 (Zones II & III)
10,000 - 50,000	400,000 (Zones O & I);	300,000 (Zones II & III)
More than 50,000	700,000 (Zones O & I);	525,000 (Zones II & III)

Production Bonus

CUMULATIVE PRODUCTION (MMBOE)	AMOUNT (USD)
At start of commercial production	600,000
30	1,200,000
60	2,000,000
80	5,000,000
100	7,000,000

Other Obligations

Training

Onshore Zones

- USD 25,000 per year - during exploration phase
- USD 50,000 per year - during development and production

Offshore Zone

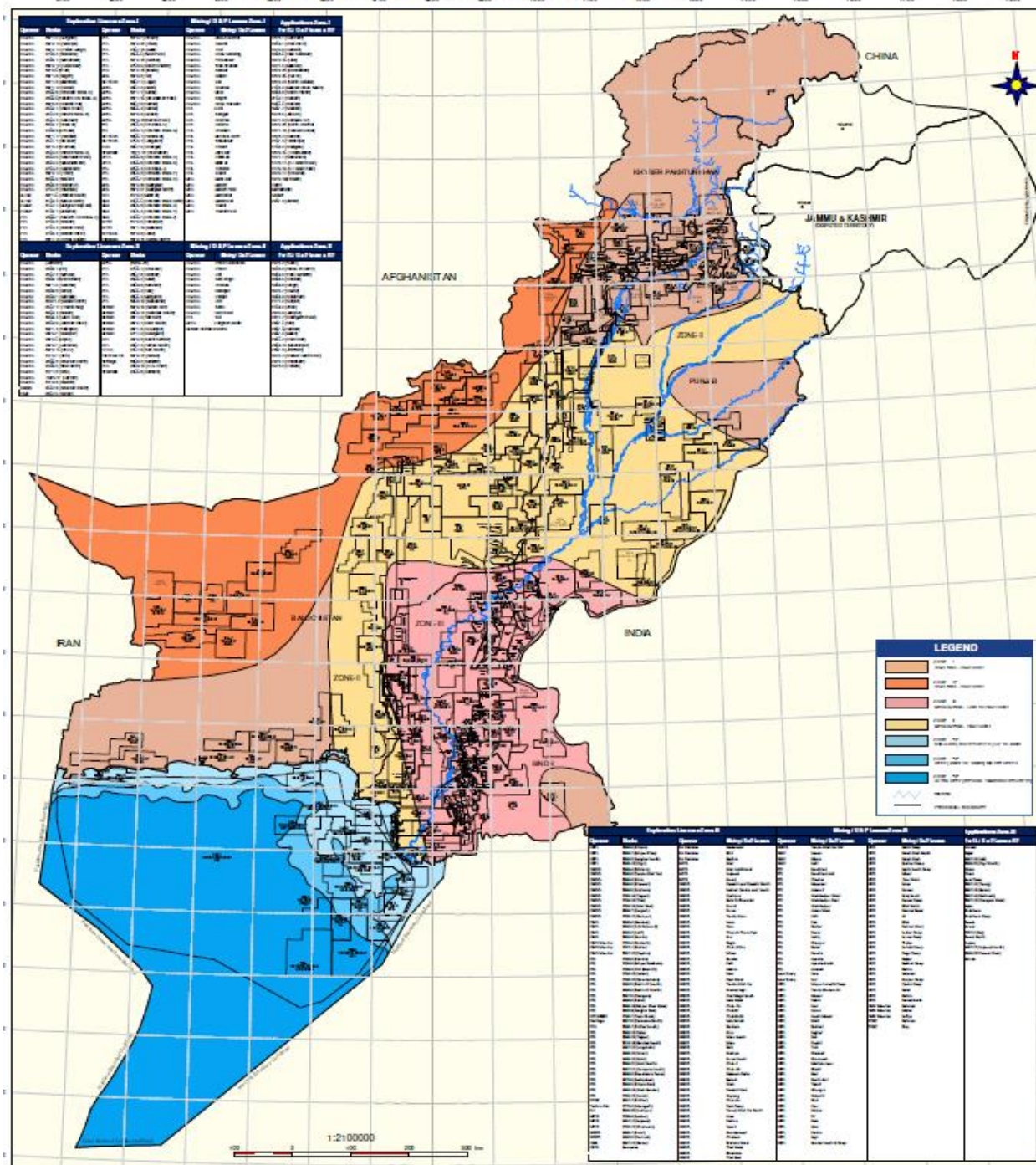
- USD 50,000 per year - during exploration phase
- USD 250,000 per year - during development and production

Marine Research and Coastal Area Development Fee

- USD 50,000 per year - until first discovery
- USD 100,000 per year - thereafter until declaration of commerciality
- USD 250,000 per year - during development phase
- USD 500,000 per year - during production phase

75% to be expensed on coastal area development and 25% for marine research

D-00 D-01 D-02 D-03 D-04 D-05 D-06 D-07 D-08 D-09 D-10 D-11 D-12 D-13 D-14 D-15 D-16 D-17 D-18 D-19 D-20 D-21 D-22 D-23 D-24 D-25 D-26 D-27 D-28 D-29 D-30 D-31 D-32 D-33 D-34 D-35 D-36 D-37 D-38 D-39 D-40 D-41 D-42 D-43 D-44 D-45 D-46 D-47 D-48 D-49 D-50 D-51 D-52 D-53 D-54 D-55 D-56 D-57 D-58 D-59 D-60 D-61 D-62 D-63 D-64 D-65 D-66 D-67 D-68 D-69 D-70 D-71 D-72 D-73 D-74 D-75 D-76 D-77 D-78 D-79 D-80 D-81 D-82 D-83 D-84 D-85 D-86 D-87 D-88 D-89 D-90 D-91 D-92 D-93 D-94 D-95 D-96 D-97 D-98 D-99



Petroleum Sector Initiatives

- Review of Petroleum Policy**
 - Removal of difficulties (SOPs and Templates)**
 - Compliance based regulation**

- Model PCA/PSA (Already in place)**
- Model GPA/GSA (Being developed)**

- Separation of Policy & Regulation function**

- Marketing and roadshow Sep-Nov 2019**
- Next Bidding round Dec 2019 – Feb 2020**

Blocks available for bidding

S#	Block Name	Area Sq.Kms	Districts
01	3069-9 (Suleiman)	2,175.26	Musakhel, Zhob & Loralai
02	3068-6 (Killa Saifullah)	2,421.96	Loralai, Zhob & Qilla Saifullah
03	3068-8 (South Pishin)	2,498.24	Zhob Killa Saifullah
04	3167-3 (Tanishpa)	2,447.79	Zhob Killa Saifullah
05	3168-2 (Shaigalu)	2,483.49	Zhob Killa Saifullah
06	3372-25 (Abbotabad)	2,298.67	Mansehra & Abbotabad
07	3170.11 (D.I.Khan West)	311.55	D.I.Khan, F.R. D.I.Khan
08	3471-1 (Nowshera)	1,711.06	Charsada, Mardan, Nowshera & Swabi
09	3269-2 (Miran)	1,037.33	North Waziristan & Kurram
10	3273-5 (Jhelum)	2,474.59	Jhelum, Gujrat & Mandi Bahauddin
11	3372-25 (North Dhurnal)	85.14	Attock
12	3372-26 (Hazro)	653.74	Haripur, Swabi & Attock
13	3072-7 (Okara)	2,492.48	Sahiwal, Okara & Toba Tek Singh
14	3171-2 (Nurpur)	1,941.62	Khushab, Mianwali, Bhakkar
15	3272-16 (Lilla)	2,361.12	Chakwal & Jhelum
16	2972-5 (Vehari)	2,487.28	Bahawalpur, Vehari & Lodhran
17	2972-2 (Sutlej)	2,312.56	Bahawalnagar, Bahawalpur, Vehari & Khanewal
18	2770-3 (Islamgarh)	2,229.51	Bahawalpur, Rahimyarkhan

Shale Gas/Oil Resource Assessment Findings

Pakistan is blessed with huge shale gas and oil resources in mid-lower Indus basin alone



Free Gas	Ghazij	Ranikot	Lower Goru	Sembar	Total
Free Gas In-Place, GIP (TCF)	186	14	1,664	1,914	3,778
Technically Recoverable Free Gas (TCF)	9	1	79	99	188
Riskd Recoverable Free Gas (TCF)	1	0.07	41	52	95

Adsorbed Gas	Ghazij	Ranikot	Lower Goru	Sembar	Total
Adsorbed Gas In-Place, GIP (TCF)	57	8	3,702	2,614	6,381

Shale Oil	Ghazij	Ranikot	Lower Goru	Sembar	Total
Oil In-Place, OIP (BSTB)	450	154	910	809	2,323
Technically Recoverable OIP (BSTB)	11	4	22	21	58
Riskd Recoverable OIP (BSTB)	1	0.2	6.5	6	14