Pakistan Petroleum Limited

E&P Opportunities

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Blocks Available for Farmout - Pakistan

Blocks Available for Farmout - International

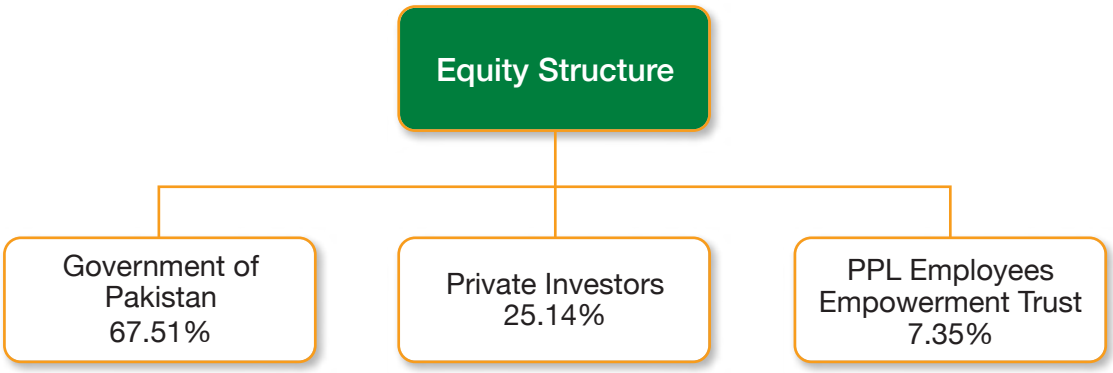
HF

Foreword

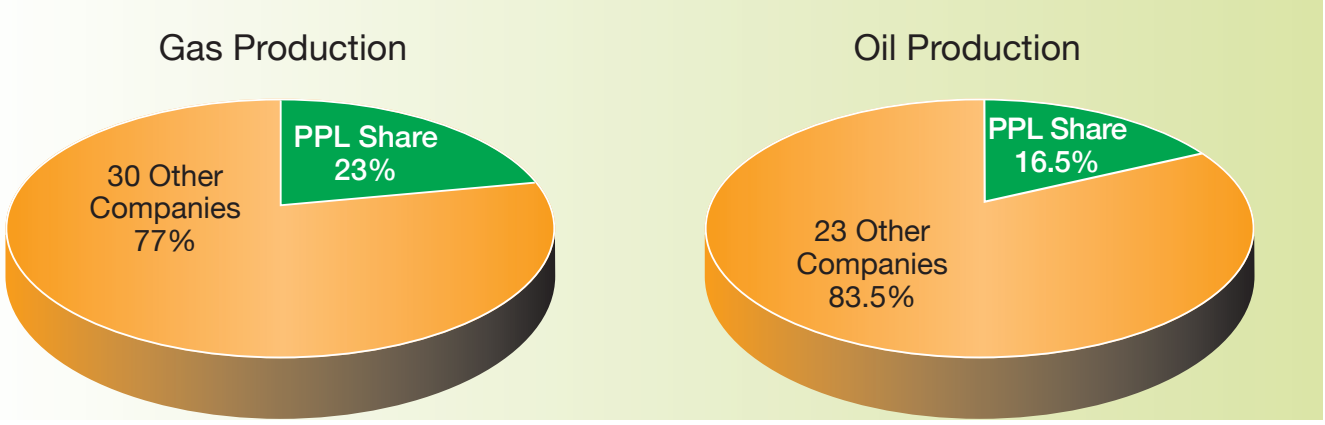
In Pakistan, energy demand and supply gap is continuously widening due to the increasing population and growing economy with stagnant supply. With a vision to achieve energy self-sufficiency for Pakistan by becoming the most successful and efficient discoverer and producer of oil and gas, PPL has been successfully following an aggressive exploration and production program.

The pioneer of natural gas industry in the country, Pakistan Petroleum Limited (PPL) has been a frontline player in the energy sector since the mid-1950s after Pakistan's largest gas field discovery at Sui in 1952. Over the years, PPL has made flagship discoveries in Adhi, Kandhkot, Mazarani, Adam, Gambat South, Naushahro Firoz and Dhok Sultan blocks to replenish its reserves. As a major supplier of natural gas, the Company supplies approximately 23% of the country's total natural gas in addition to producing substantial quantities of crude oil, natural gas liquids, liquified petroleum gas and baryte.

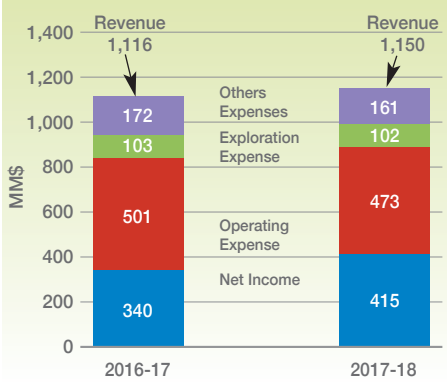
Company Snapshot



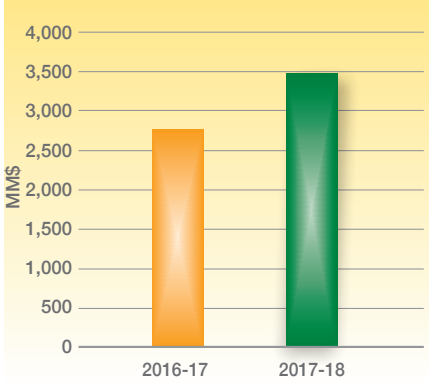
Market Share



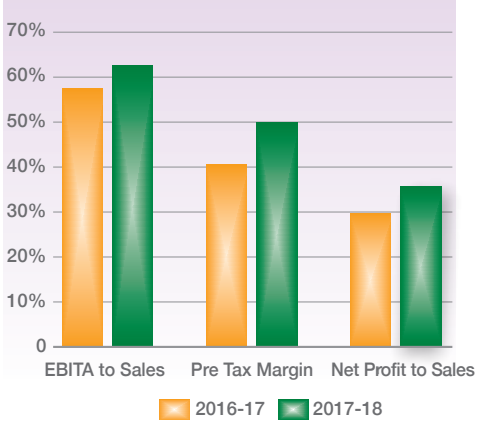
Revenue Break-up

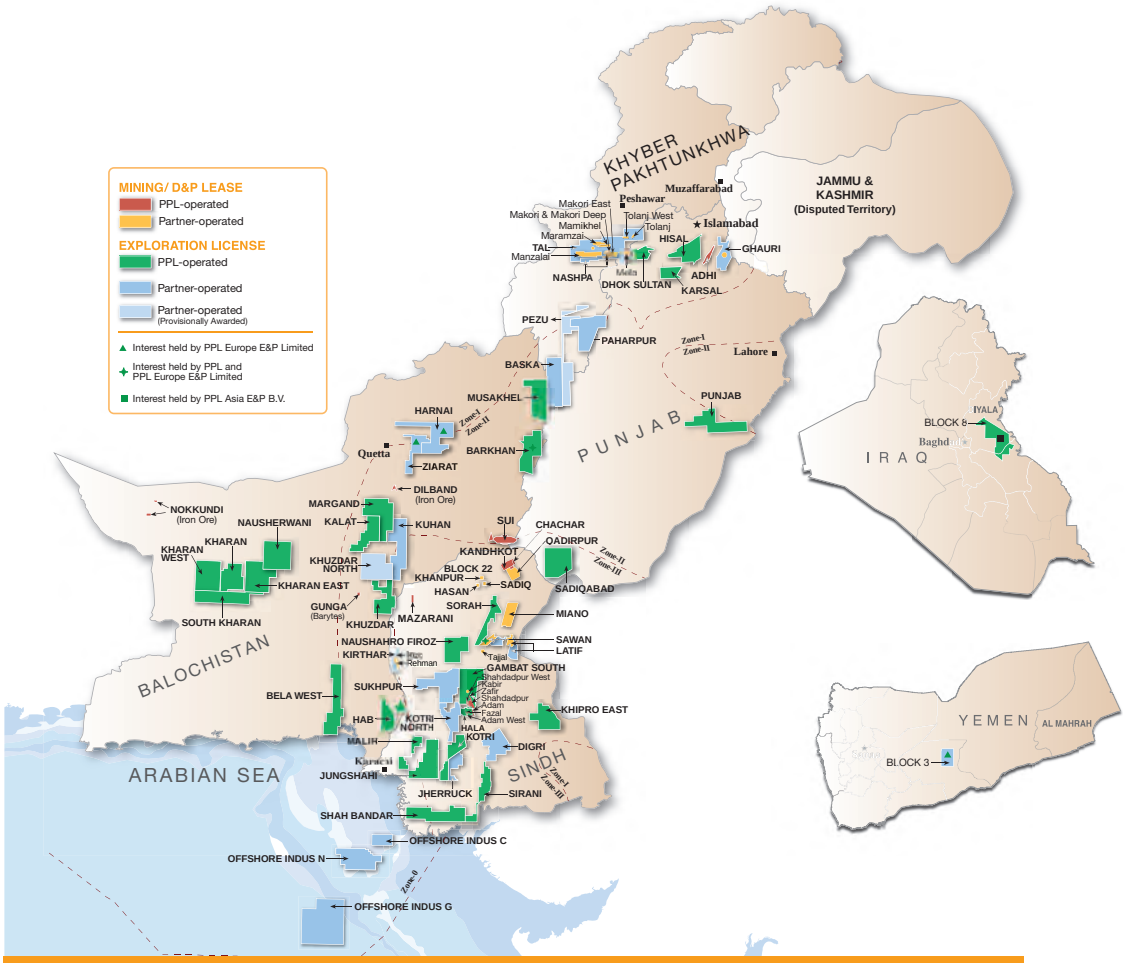


Market Capitalization



Financial Performance Ratios





PPL's Portfolio

Exploration Blocks	
PPL Operated	**28**
Partner Operated	**19**
Total Exploration Assets	**47**

Producing Assets and Discoveries	
PPL Operated	26
Partner Operated	31
Total Mining / D&PL Assets	**57**
Total PPL Operated Assets	**54**
Total Partner Operated Assets	**50**
Total Assets	**104**

As of August 2019

The company strategically holds a diversified exploratory portfolio with a mix of high-risk, high reward and low-risk, low / medium reward assets.

Key Accomplishments in 2017-18

Overall Production 988 MMscfd

Highest-ever daily production from Adhi Field: Crude oil (10,938 BOPD), Gas (80 MMscfd) and LPG (324 MT/D)

Acquired 2,422 line km 2D seismic in operated blocks

Highest-ever daily production of 262 MMscfd from Kandhkot Gas Field

11 exploration wells and 8 development wells drilled in PPL-operated areas

Overall 7 exploration wells and 7 development wells drilled in partner operated areas

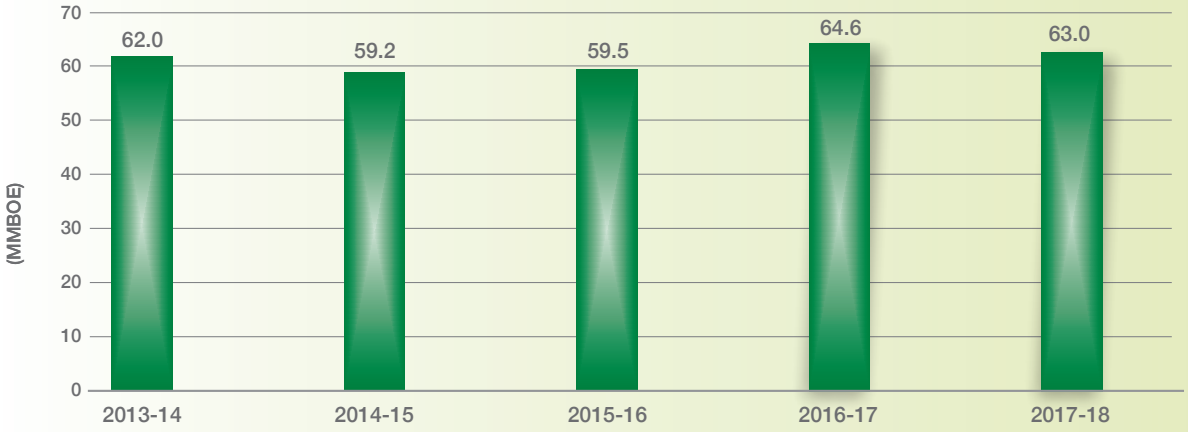
World Class Resources

- 2P RESERVES > 500 MMBOE
- OPERATIONAL PRESENCE ALL OVER COUNTRY
- INTERNATIONAL JV PARTNERS
- UNLEVERAGED YET FINANCIALLY SOUND
- HIGH CALIBER AND PROFESSIONAL STAFF
- WELL DEFINED AND DOCUMENTED POLICIES & PROCEDURES

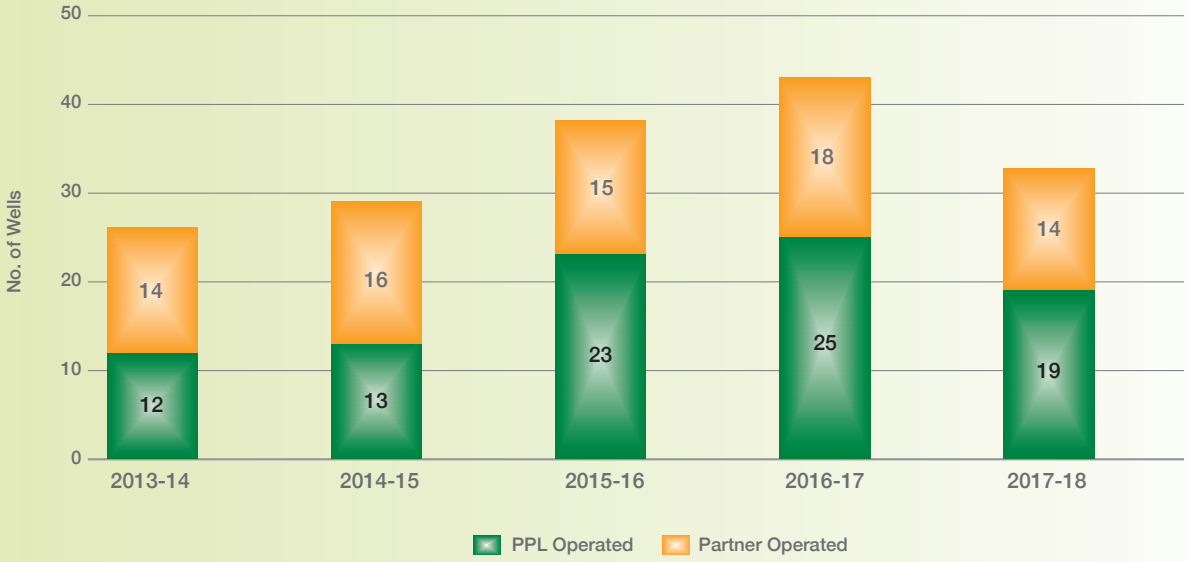
Exploration activities remain the corner stone of the Company's work program with emphasis on frontier areas and newer technologies to tap in vast resource potential. Results from recent drilling activities in Baluchistan have provided a new knowledge base of petroleum systems, unavailable previously due to low activity in the region. PPL has also setup a Research & Development (R&D) function to facilitate early development of unconventional plays.

Key PPL Metrics

PPL's 5 Year Production Summary

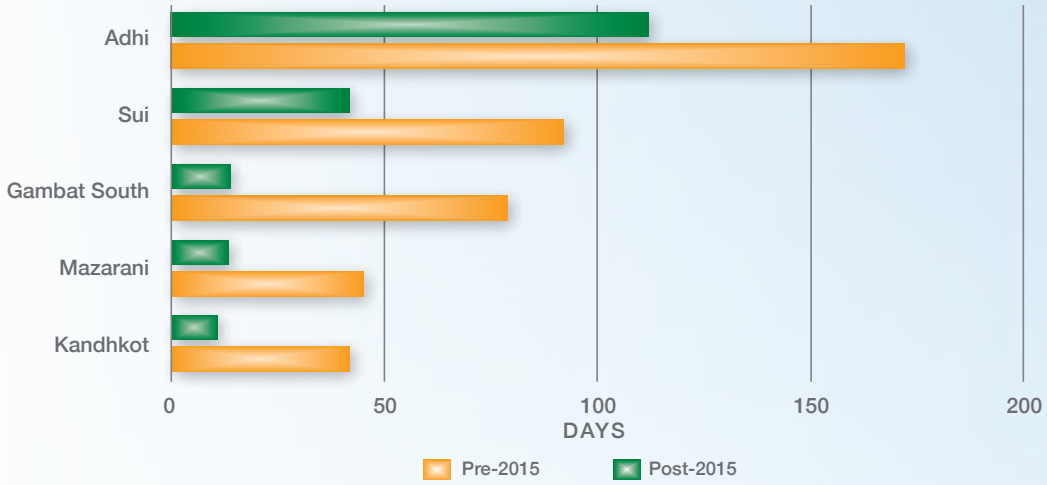


Wells Drilled-5 Year Summary



Excellence Through Technological Innovation

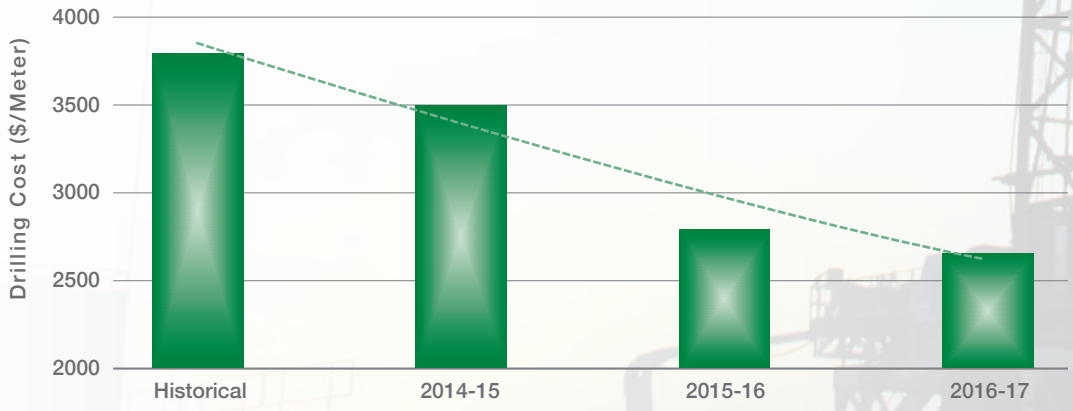
Drilling Improvement in days



The most challenging task in drilling optimization is timely drilling of cost-effective and safe wells. During the years, performance records were achieved in all PPL-operated block as evident from the figures, conclusively breaking fastest wells records in the company's drilling history.

This record performance was achieved by using state-of-the- art technology, optimized drilling operational procedures and vigilant monitoring, a trend the company is determined to continue in its current and future drilling plans.

Reduction in Drilling Cost



PPL's Strategic Partners

Awards

Pakistan Petroleum Limited has received numerous awards in recognition of its contribution on various fronts:

Karachi Stock Exchange Top 25 Companies — 2006, 2007, 2008, 2009, 2010, 2011, 2012 and 2013

Management Association of Pakistan Award — 2006, 2007, 2008 and 2009

Best Corporate Report Award — 2005, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014 and 2015

Large Tax Payers Unit Excellence Award — 2006 and 2008

Environment Excellence Award — 2006, 2007, 2009 and 2010

Corporate Philanthropy Award — 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015 and 2016

South Asian Federation of Accountants Award — 2009 and 2010

Occupational Safety, Health and Environment Best Practices Awards — 2012 and 2014

Living the United Nations Global Compact Business Excellence Award —2014, 2015, 2017 and 2018

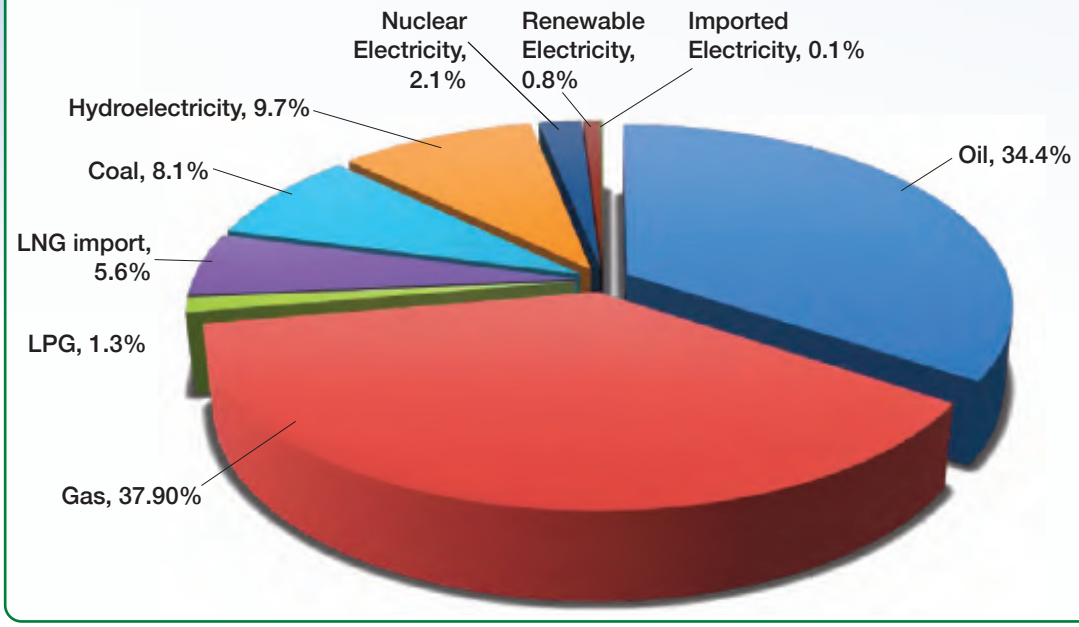
Employer of the Year Award — 2013 and 2015

Project Management Institute - Karachi Pakistan Chapter Corporate Excellence — 2014, 2015, 2016, 2017 and 2018

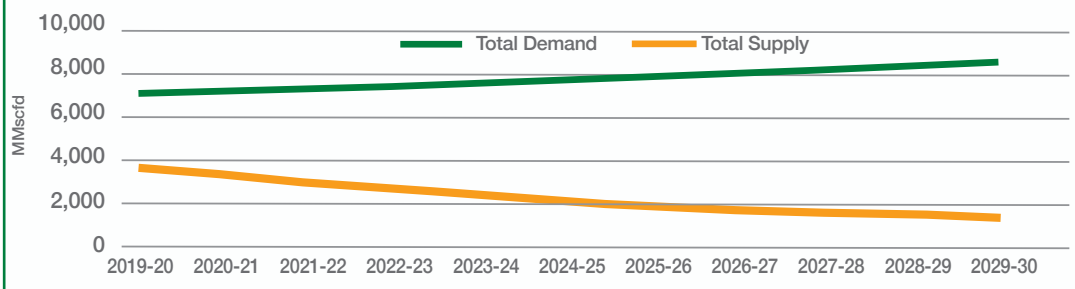
Pakistan At A Glance

- Challenge of energy shortages with the demand outweighing supply
- E&P sector contributes about 73.6% in the indigenous energy supply
- Current gap being largely met by importing oil
- For unconstraint scenario with cheaper indigenous production, a much higher demand is anticipated to contribute to economic growth.

Pakistan's Primary Energy Mix



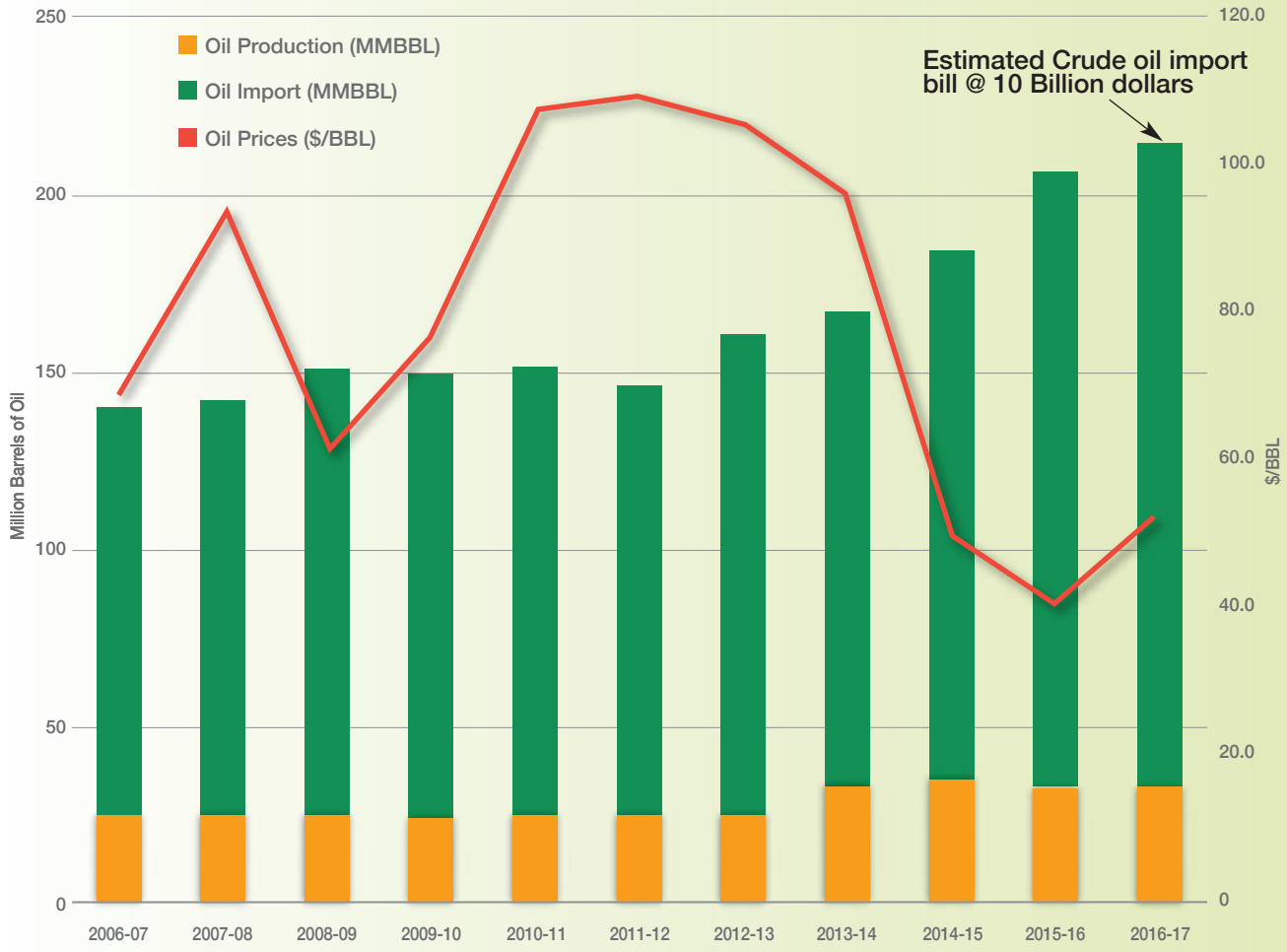
Gas Supply-Demand Scenario



State of the regulated petroleum industry 2016-17, OGRA

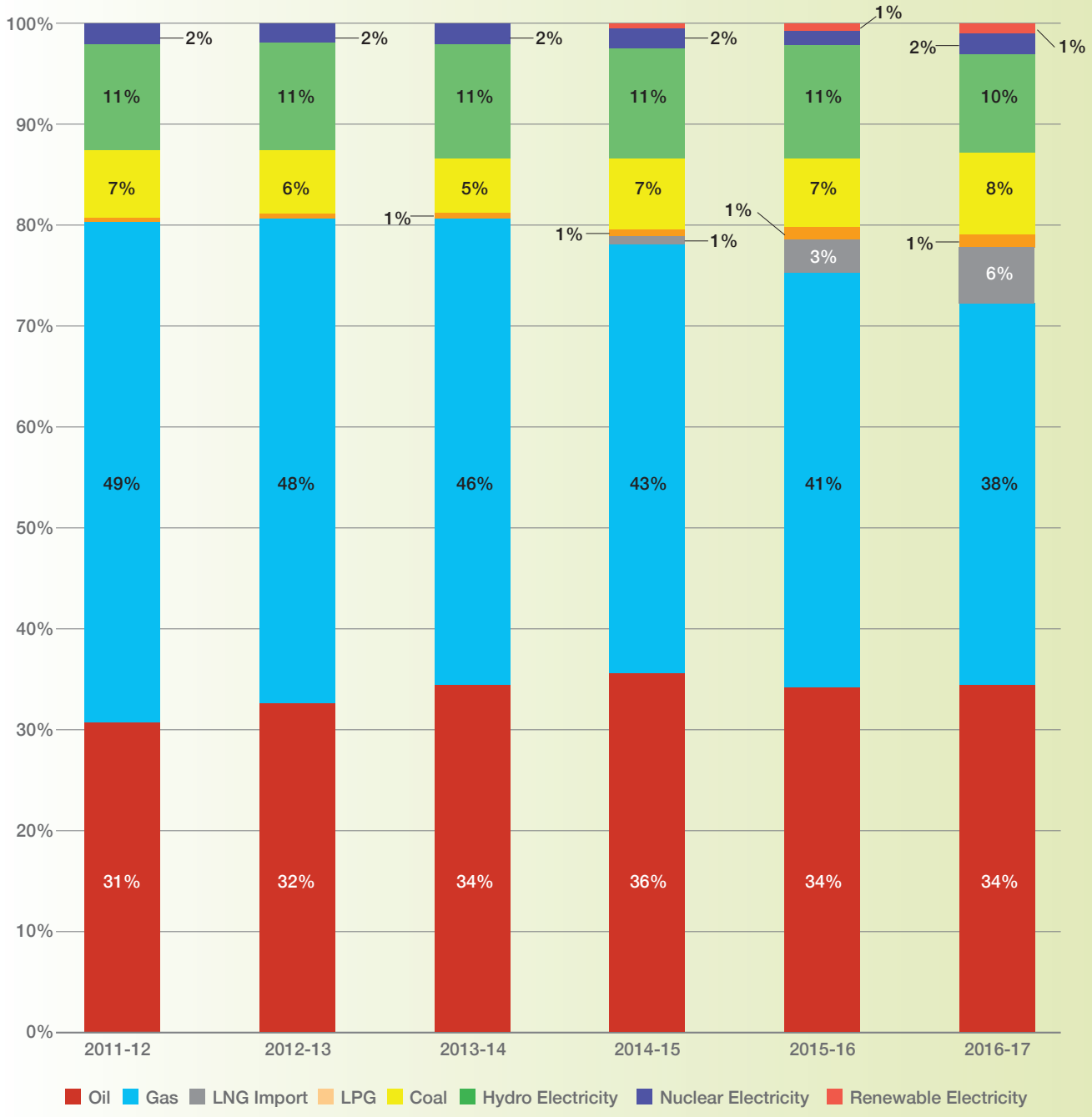
Pakistan At A Glance

Pakistan's Crude Oil Import Scenario



Source :Pakistan Energy Year Book, BP Statistical World Energy Review 2018

Pakistan's Primary Energy Mix-6 Years

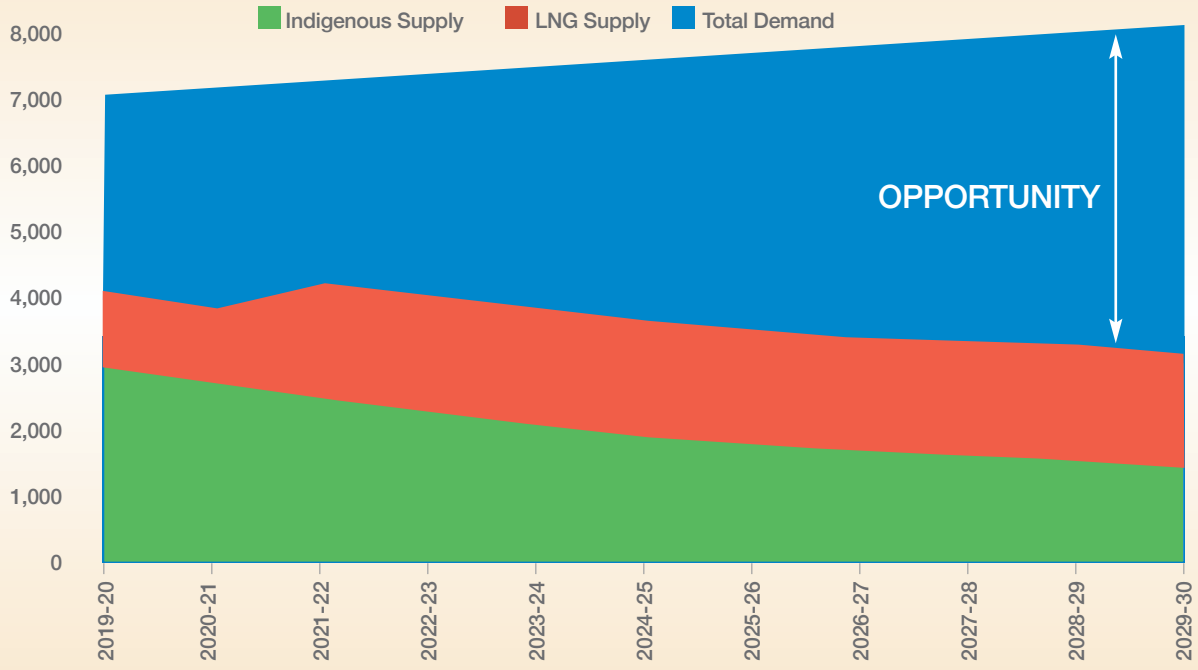


Source : Pakistan Energy Year Book 2017

Gas Supply-Demand Forecast

Pakistan's gas demand is expected to grow 15% in the next 11 Years. LNG supply is projected to absorb some of the gas demand, however, LNG import alone will not be enough to offset the increasing demand. This scenario provides an opportunity for E&P companies to capitalize on this shortfall by investing in exploratory acreages across different prospective basins

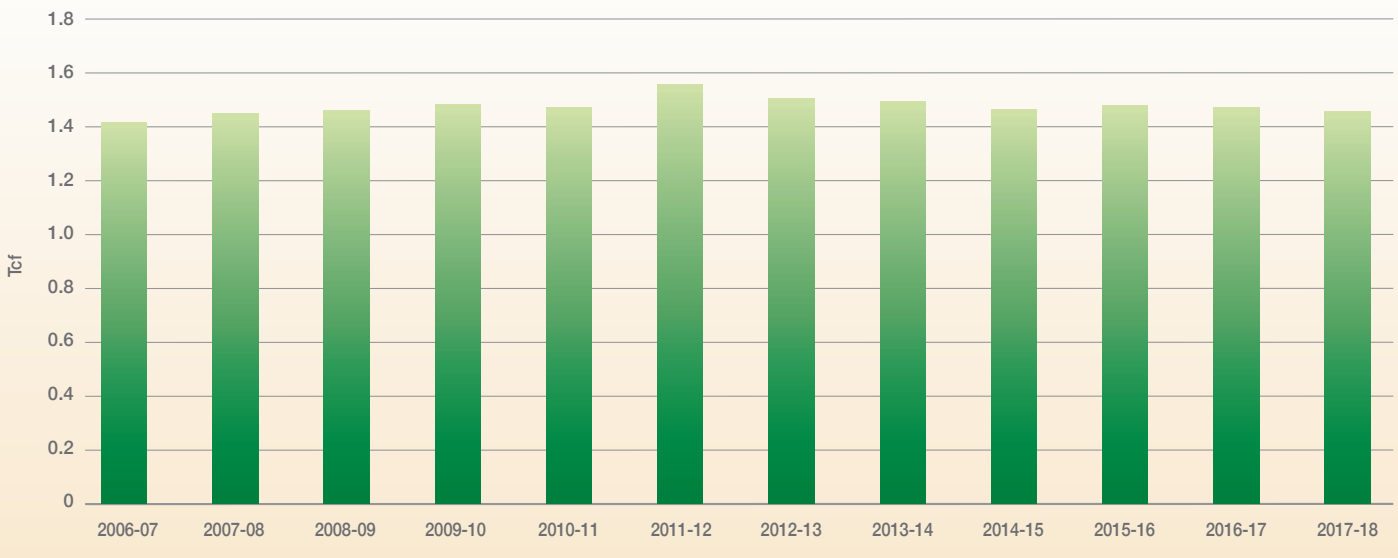
Gas Supply-Demand Scenario Forecast-LNG Scenario



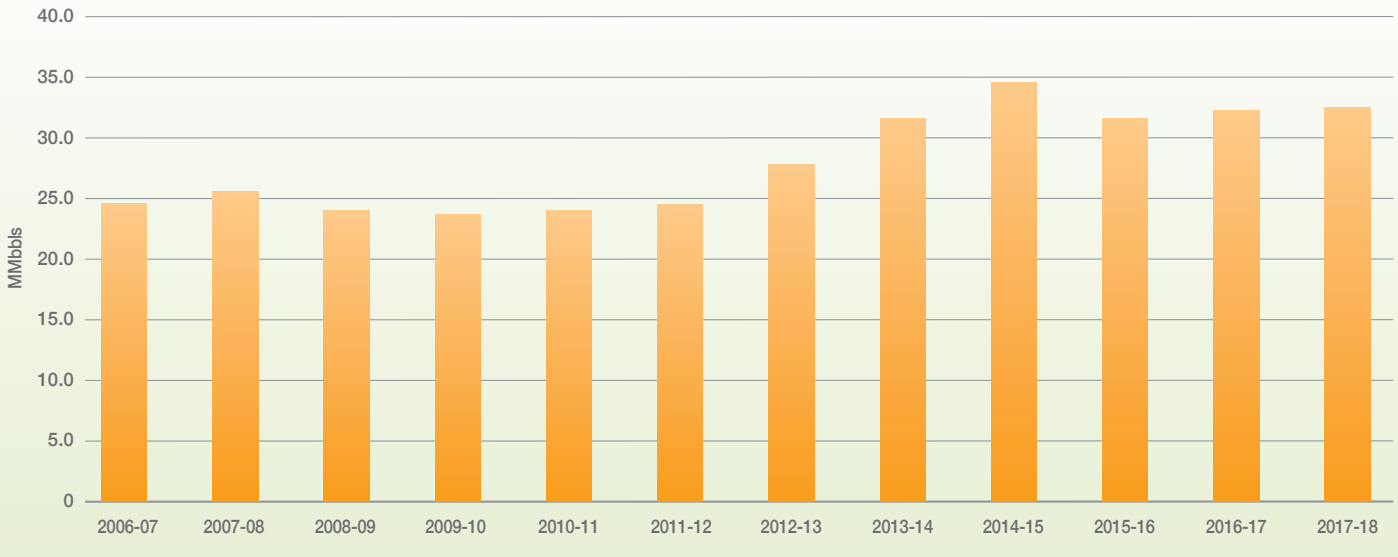
Source :State of the Regulated Petroleum Industry 2016-17-OGRA

Pakistan's Hydrocarbon Production Overview

Gas Production



Oil Production



Source : Pakistan Energy Year Book 2017

Pakistan's E&P Sector Overview

Exploration History

Exploration Well	1,104
Appraisal / Development Wells	1,467
Total	2,571

Overall Success Rate
36%

Sedimentary Area	827,268
Wells / 1,000 sq.kms	3
Total Discoveries	400

Exploration & Production Activity

Oil Production	85,321 BBL/d*
Gas Production	3,924 MMscfd*

Active Seismic	9
Crew Active Rigs	34

Oil & Gas Reserves

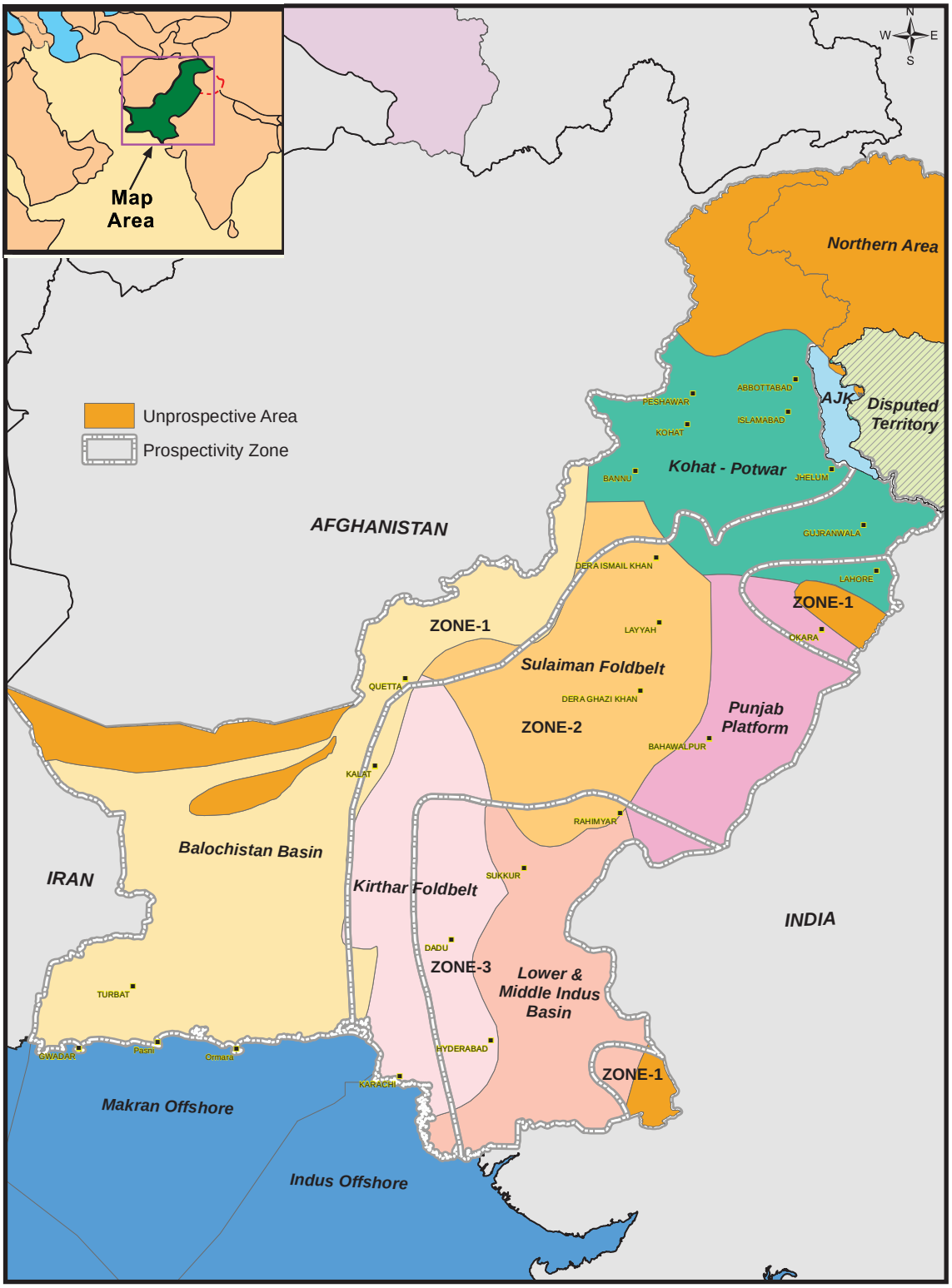
Oil Reserves (MMBBL)	
Original Recoverable	1,198
Cumulative Production	915
Balance recoverable	282

Gas Reserves (Tcf)	
Original Recoverable	61
Cumulative Production	39
Balance recoverable	22

As of July 2019 (PPIS)

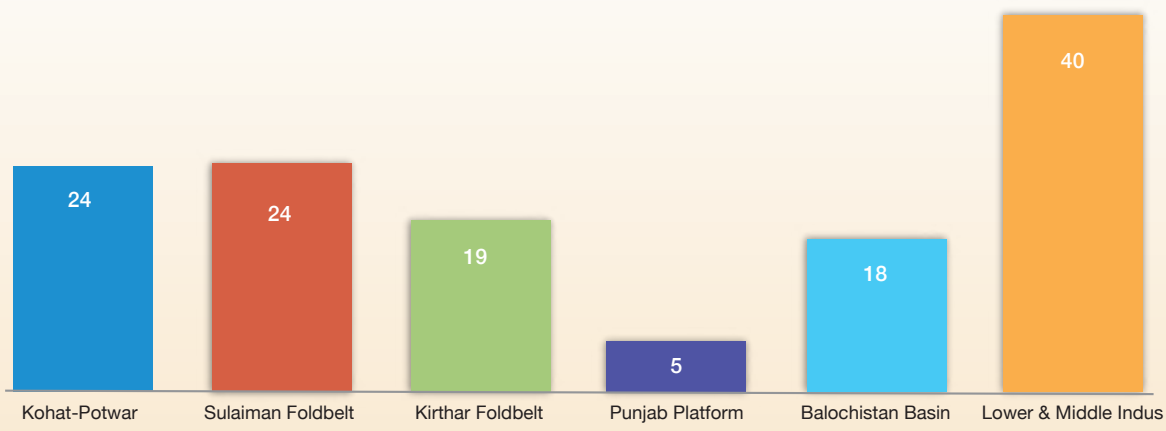
** Production as of June 2019*

Pakistan Sedimentary Basin

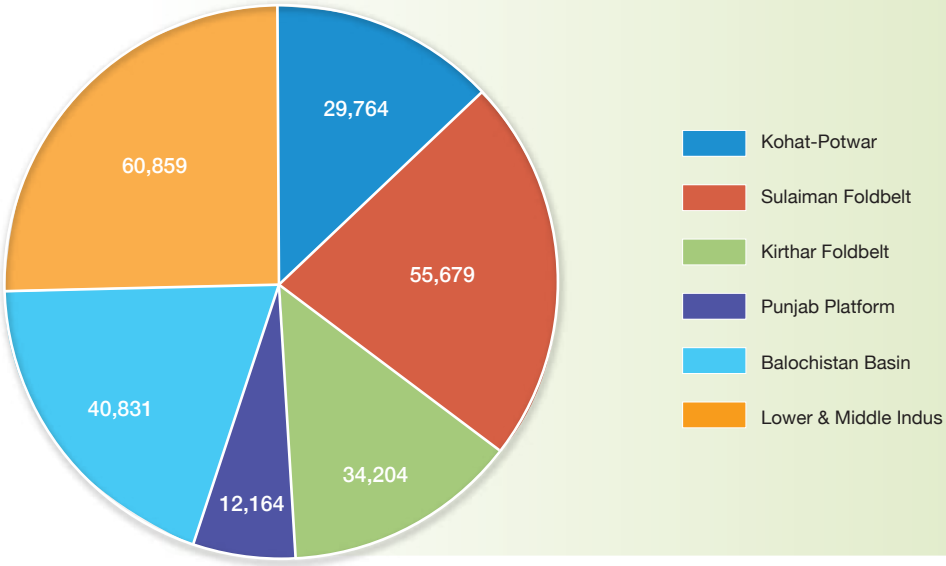


Basin Wise Active Concessions

Active Concessions - Basin-wise



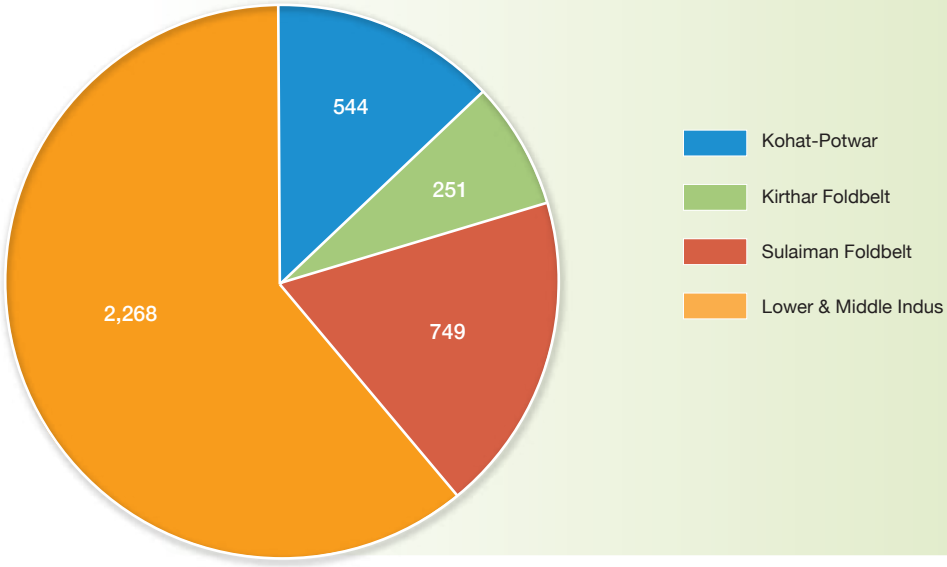
Total Onshore Exploratory Acreage (km^2)



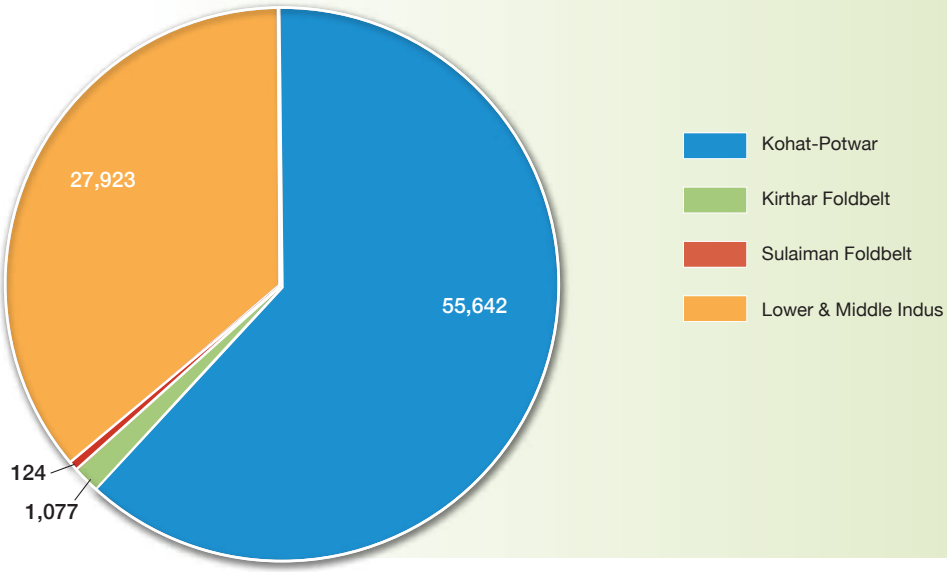
Source: PPIS acreage data for June 2019

Basin Wise Hydrocarbon Production

Gas Production-MMscfd



Oil production-BOPD



Source: PPIS production data for June 2019

Recent Developments In The E&P Sector

- Government of Pakistan concluded a bid round in November 2018 for grant of exploration acreages
- In total, 10 blocks were opened for bidding
  - Bids were received for all 10 blocks
  - Bid round 2018 was able to attract a minimum financial obligation of USD 66.3 million
  - Block award is expected soon
- Another bid round is expected shortly for further exploration acreages

Exploration And Production Policy 2012

Bidding

Bids invited based on criteria of highest work program determined on the basis of work units

Exploration license

Five years initial term (Phase I: 3 years, Phase II: 2 years) with two renewals of one year each

Appraisal phase

Maximum renewal for one year

Development and production lease

25 years with one renewal of 5 years (if field is still producing and renewal request is made 3 years in advance)

Sale of gas

90% of the gas through Government's nominated buyer. E&P companies have right to sell 10% to any buyer with prior consent of the Provincial Government

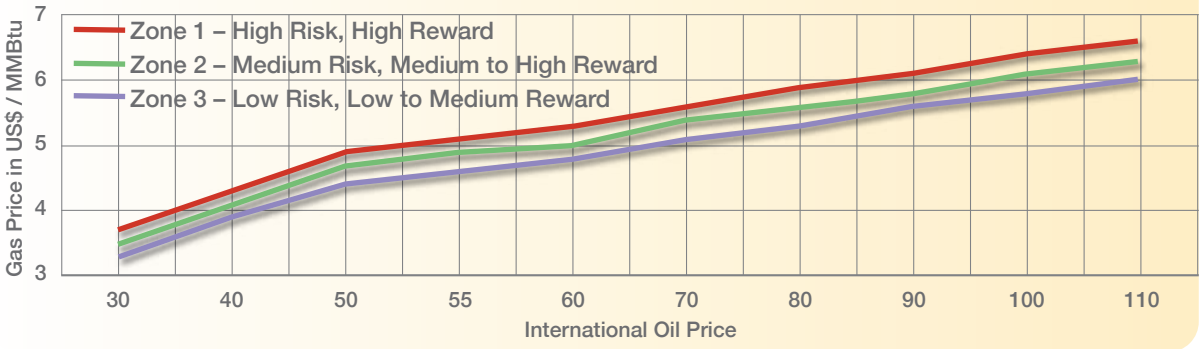
Applicability

For all new exploration efforts, gas price shall be determined using 2012 policy

Incentive for offshore discovery

A bonanza of US $ 1/MMBTU shall be given for first three discoveries in offshore area

Petroleum Policy 2012 - Pricing Regime



Why Invest In Pakistan

1. Dollarized economy (economic stability, low inflation)
2. Political, legal and tax stability
3. Developed infrastructure (new roads, ports, airports, energy generation, telecommunications, education, health, etc)
4. Human talent development, highly skilled workforce
5. Tax incentives

Incentives For E&P Sector

DRY HOLE EXPENSE

Dry holes will be expensed immediately upon commencement of commercial production or relinquishment whichever is earlier

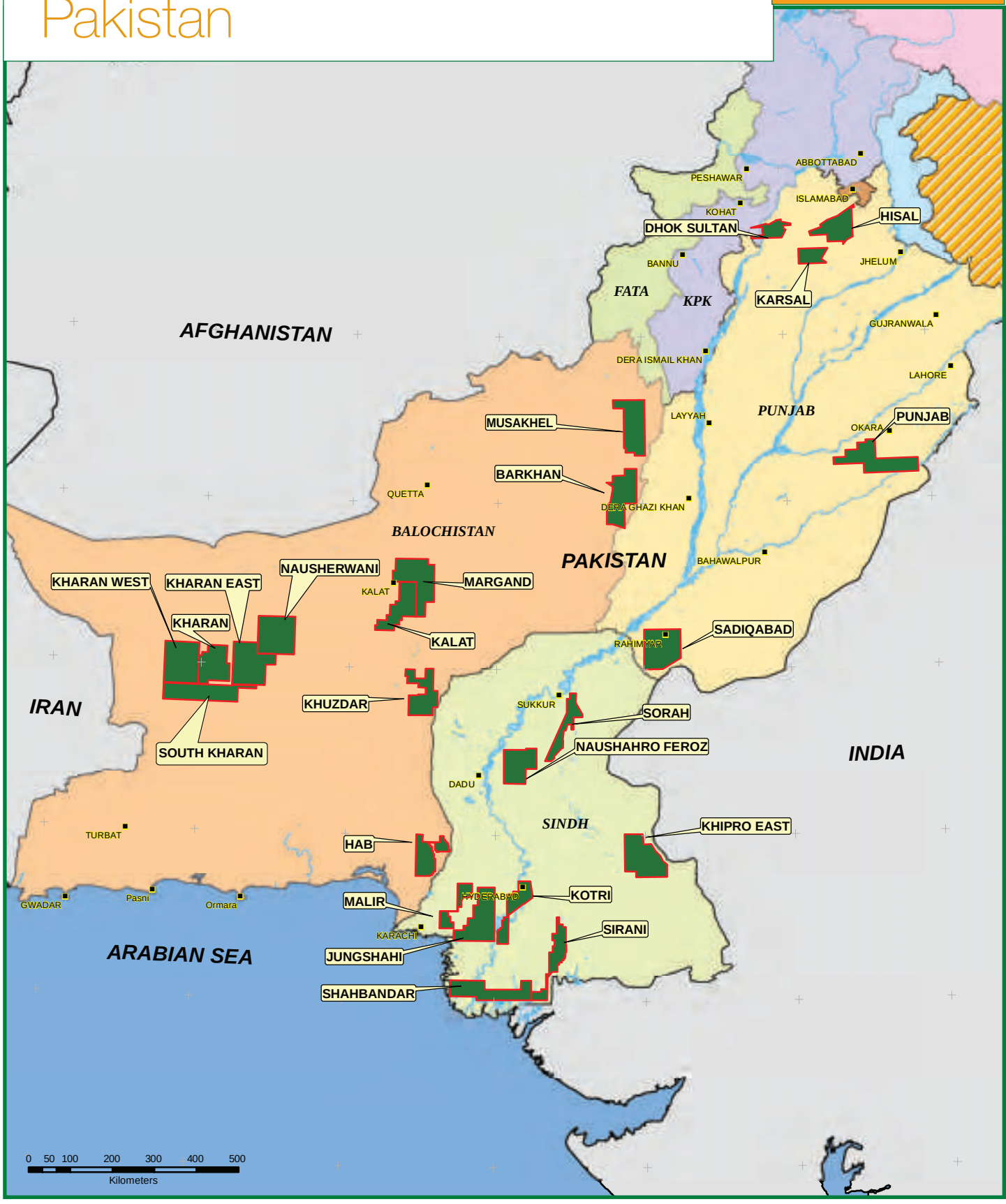
INCOME TAX

Corporate income tax is capped at 40% of profits and gains with royalty payments allowed as expense item

TRANSMISSION INCENTIVES

E&P companies are allowed transmission tariff for the gas pipeline connecting the field gate to the main transmission system, if such system is constructed and operated by them

Blocks Available For Farmout - Pakistan



Dhok Sultan EL
Western Potwar

420 Lkm
2D seismic acquisition in 2012 & 2017

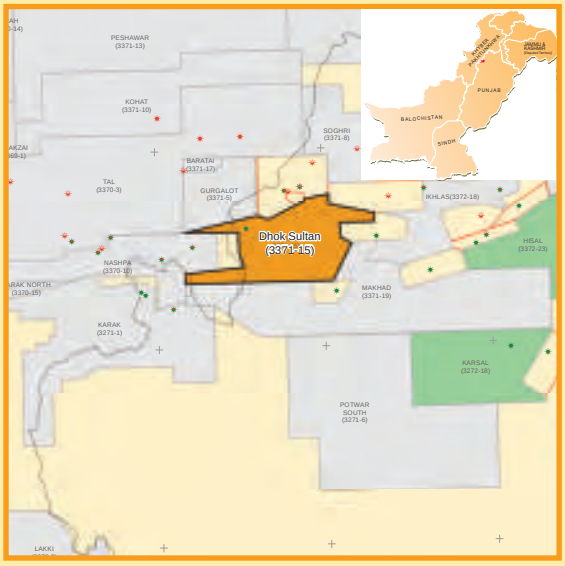
525 sqkm
3D seismic acquisition in 2017 & 2018

2 Exploratory wells
Dhok Sultan X-1: Oil discovery
Spud date: 2014, TD: 5827m
Dhok Sultan South X-1
Spud date: 2019, Drilling in progress

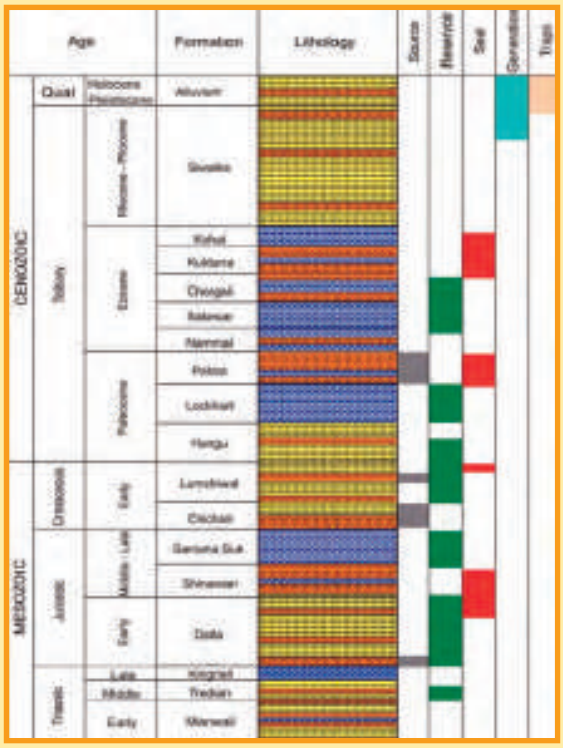
- Block located just east of Mela & Nashpa fields
- Dhok Sultan oil discovery inside the block
- Multiple reservoir plays to be targeted in single well
- Several leads / prospects identified on 2D/3D seismic
- Discovery area excluded

Grant Date	16 February, 2010
Area	703.23 sqkm
Working Interest	PPL 75%
JV Partners	GHPL 25%
Prospectivity Zone	I
Play Type	Structural
Expected Hydrocarbon	Oil
Expected HC In-place	150 - 300 MMboe
Work Commitment	505 WU (US$MM 5.05)
WU Discharged	1990

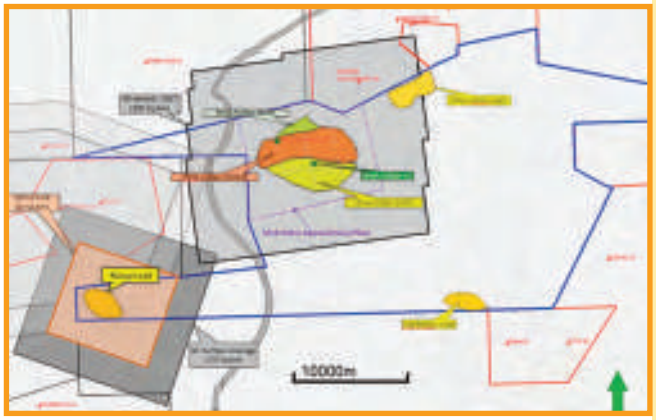
Location Map



Petroleum System



Lead/ Prospect Map



Past Cost (USD Million)

Seismic	19	Well	62
Other Costs	22		
Total Cost	**103**		

*cost as of June 2019

2010

Inhouse G&G data evaluation
509 Lkm reprocessing (PSTM)
Special depth processing 428 Lkm
Environmental studies

1st Licence Year

2nd Licence Year

Processing & interpretation of 160 Lkm, 263 Lkm KPSDM
RTM processing & interpretation

Drilled 1st exploratory well
2D seismic acquisition & processing

3rd Licence Year

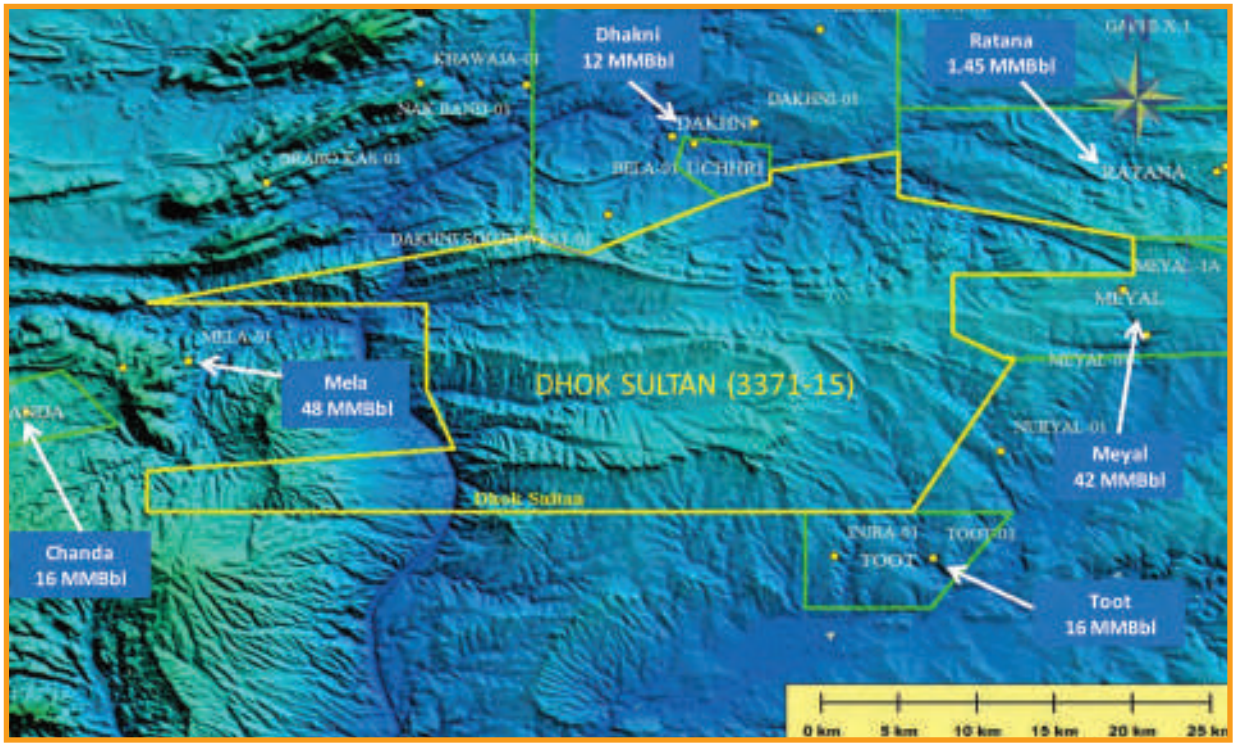
2018-19

Phase-II

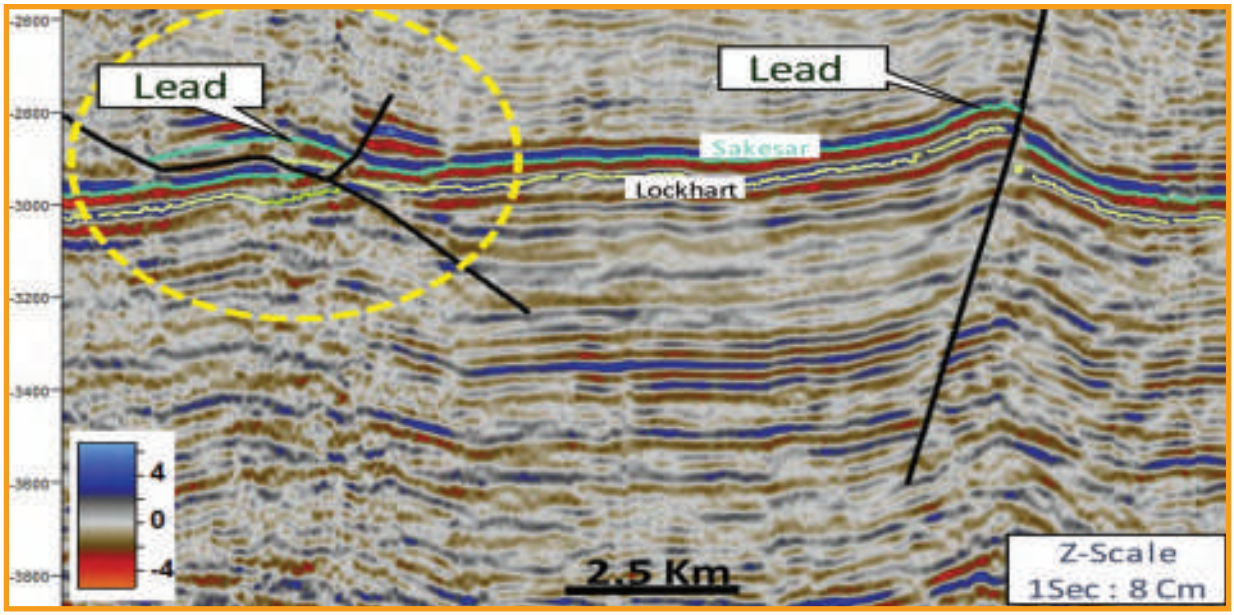
Drilling of 2nd exploratory well
175 sqkm 3D seismic acquisition

www.ppl.com.pk

Dhok Sultan EL surrounding discoveries and structuration style



Seismic line passing through lead



Hab EL
Kirthar Fold Belt

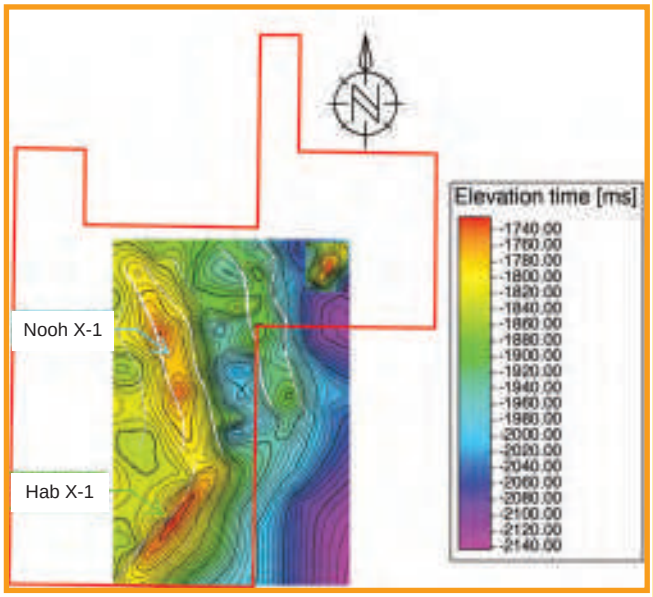
475 Lkm
2D seismic acquisition completed in 2016

Exploratory wells
Hab X-1: Tight gas discovery
Spud date: 2017, TD: 4555m
Nooh X-1
Spud date: 2018, drilling in progress
Ayub X-1
Spud date: 2018, TD: 2700m

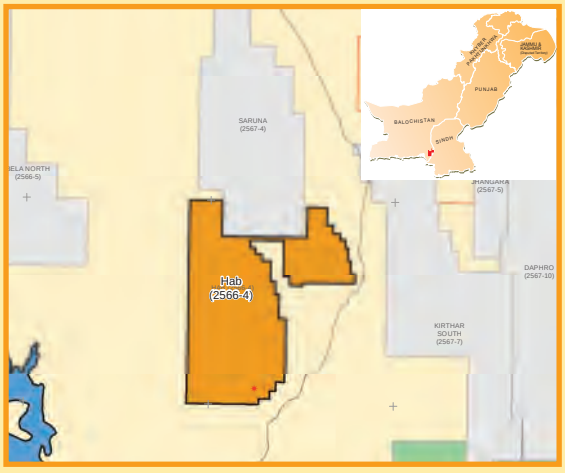
- Tight gas discovery from Goru formation in Hub X-1 well
- Block located just SW of Badhra field
- High risk, high reward block
- Multiple reservoir plays to be targeted in single well

Grant Date	21 February, 2014
Area	1,448.9 sqkm
Working Interest	PPL 99.85%
JV Partners	SEHPL 0.15%
Prospectivity Zone	II
Play Type	Structural
Expected Hydrocarbon	Gas
Expected HC In-place	400 – 900 Bcf
Work Commitment	413 WU (US$MM 4.13)
WU Discharged	~1300 WU

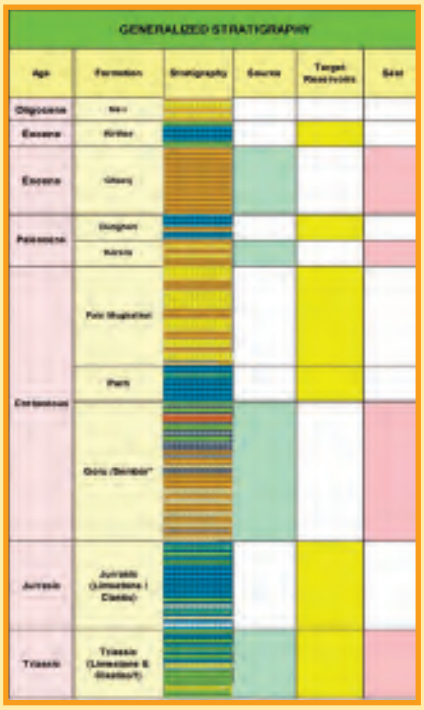
Lead/ Prospect Map



Location Map



Petroleum System



Past Cost (USD Million)

Seismic	11	Well	62
Other Costs	11		
Total Cost	**84**		

*cost as of June 2019

2014
- G&G data purchase and preliminary G&G evaluation
- Environment studies

1st Licence Year

2nd Licence Year
- Geological field work
- 2D seismic acquisition

- Processing & reprocessing of 2D seismic
- Interpretation and mapping over PSTM data 4G study

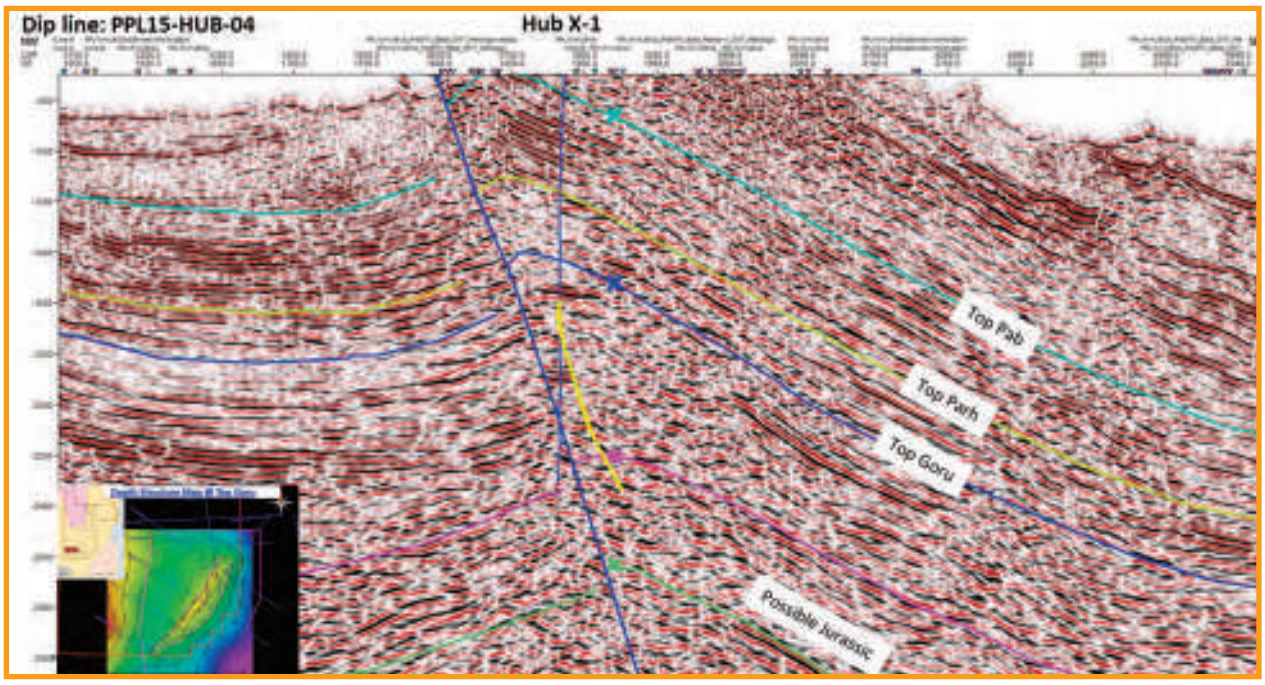
3rd Licence Year

Extension
- Drilled 1 exploratory well

2018-19
- Drilled 2 exploratory well
- Post well evaluation
- Evaluating deeper play potential

Phase II

Subsurface structural style



Hisal EL
Potwar Plateau

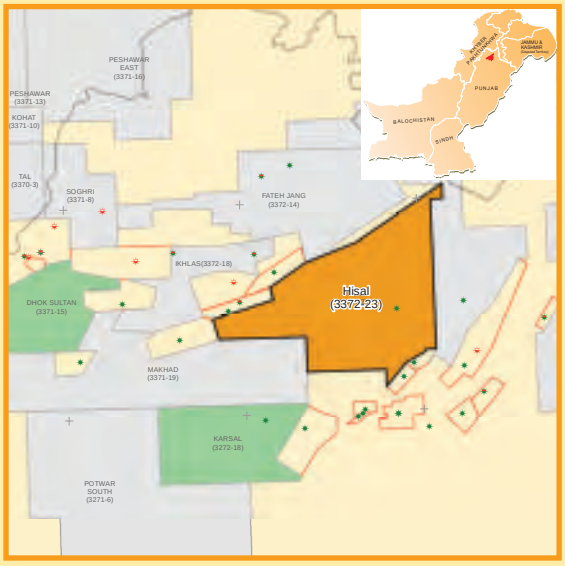
528 Lkm
2D seismic acquisition completed in 2017

1st Exploratory well
Misrial X-1: Suspended, tested gas from Eocene carbonate
Spud date: 2018, TD: 5167m

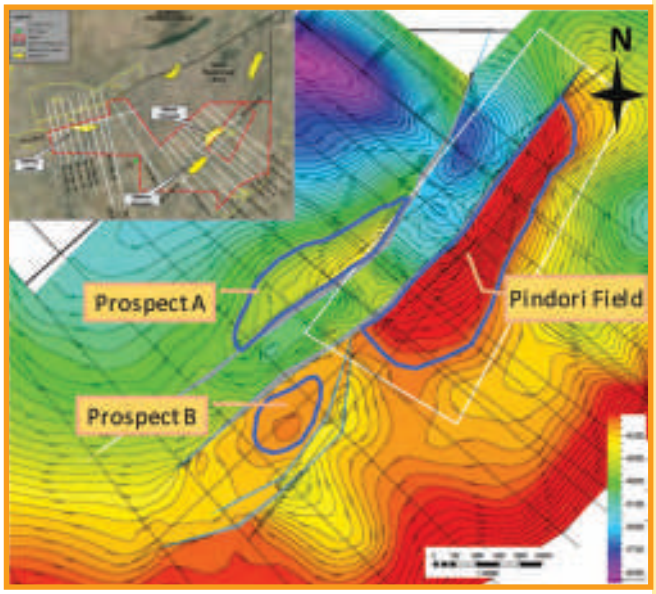
- EL is surrounded by oil/gas fields like Adhi, Pindori, Dhurnal
- Several leads identified on 2D seismic
- Well-developed oil and gas infrastructure
- Multiple reservoirs to be targeted in single well

Grant Date	21 February, 2014
Area	1419 sqkm
Working Interest	PPL 62.5%
JV Partners	POL 25% AOC 10% GHPL 2.5%
Prospectivity Zone	I
Play Type	Structural
Expected Hydrocarbon	Oil and gas
Expected HC In-place	80-130 MMboe
Work Commitment	757 WU (US$MM 7.57)
WU Discharged	1326 WU

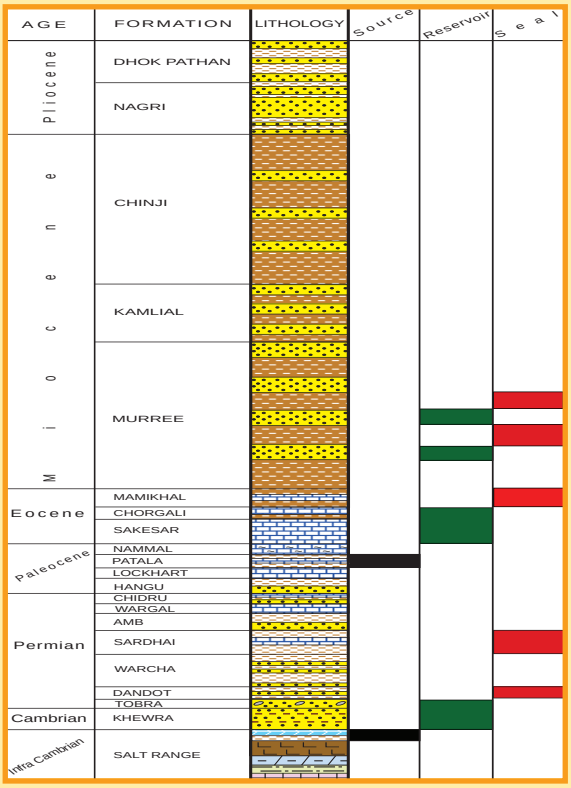
Location Map



Lead/ Prospect Map



Petroleum System



Past Cost (USD Million)

Seismic	5	Well	29
Other Costs	4		
Total Cost	**40**		

*cost as of June 2019

2014

Geological field Work
Environmental studies

1st Licence Year

2nd Licence Year

Seismic data processing & reprocessing

Acquisition, processing/ reprocessing & interpretation of 2D seismic data

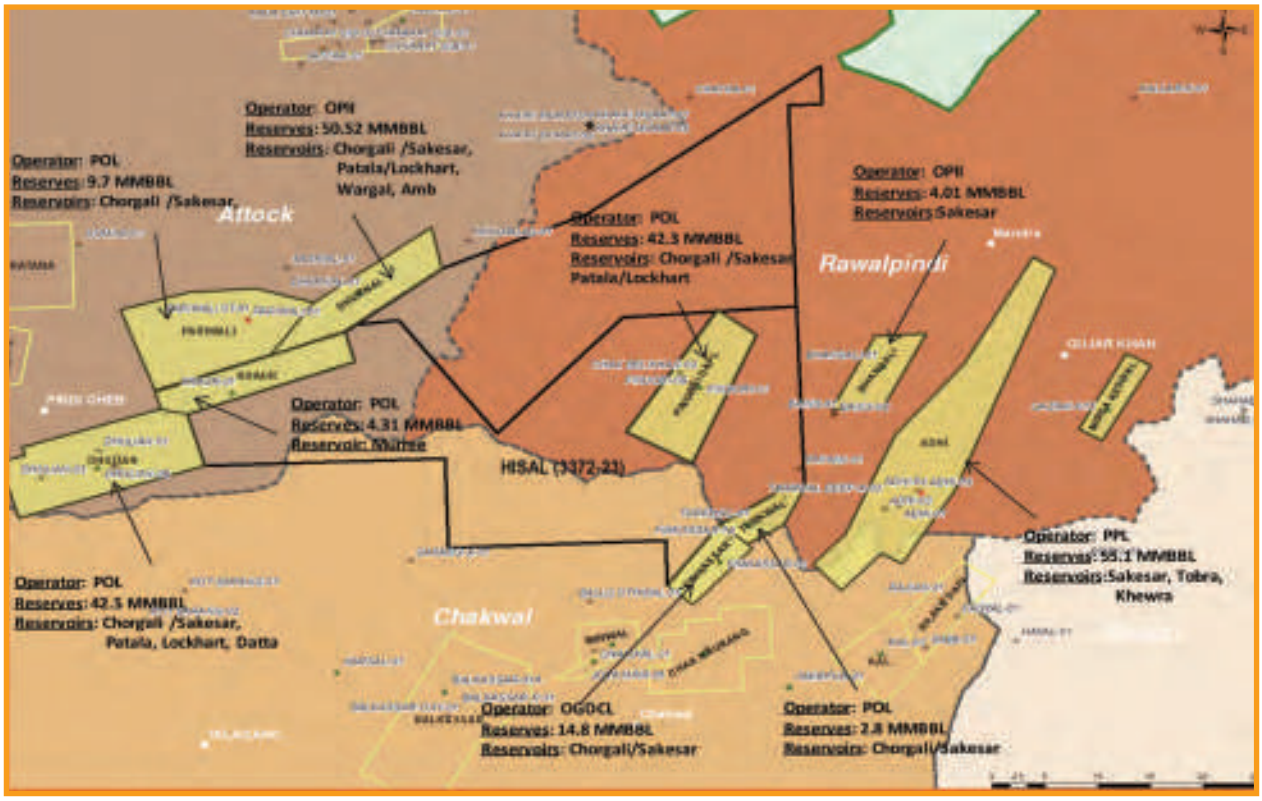
3rd Licence Year

Extension

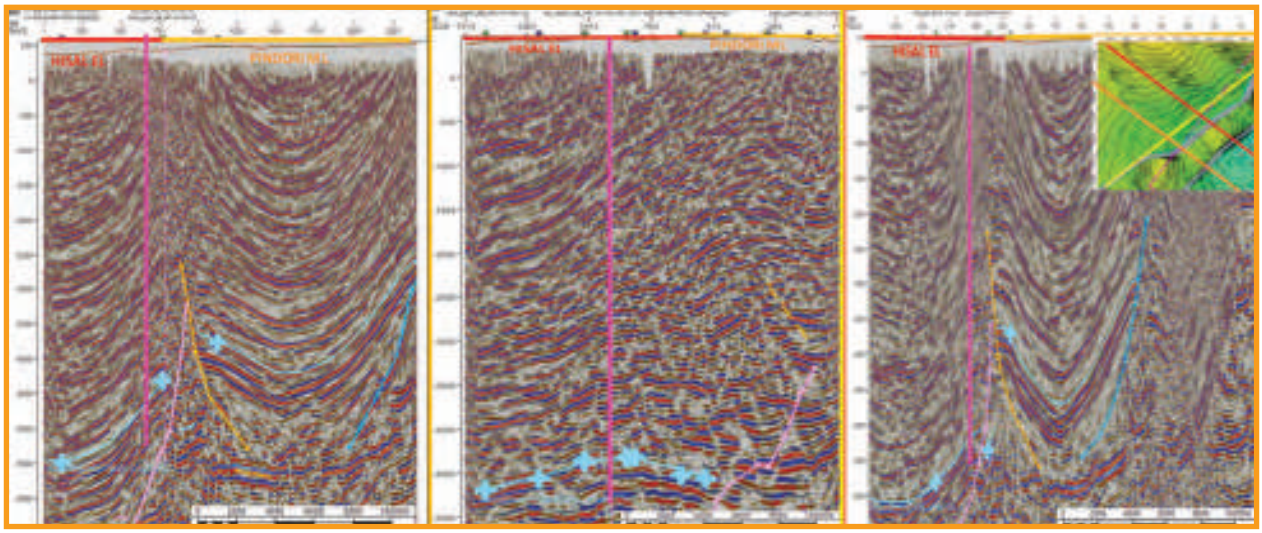
Drilled 1st exploratory well

2018-19

Hisal EL surrounding discoveries and fields



Structural style



Kalat EL
Kirthar Fold Belt

1000 Lkm + 2778 Lkm
Gravity / magnetic acquired in 2010 & 2018

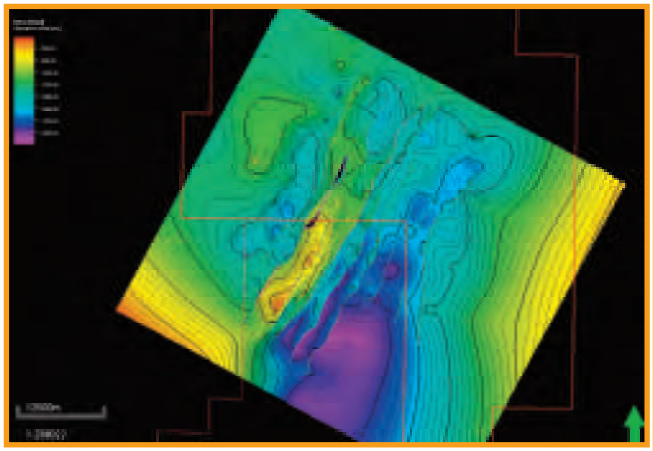
692 Lkm
2D seismic acquisition completed in Sep 2018

1st Exploratory well
Kalat X-1
Spud date: April 2017, TD: 3754m

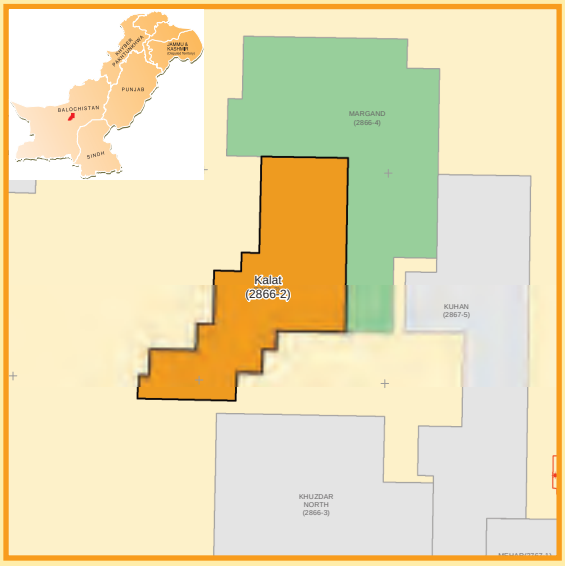
- Working petroleum system exist, proven by Kalat X-1
- Nearby oil and gas discoveries
- Multiple target reservoirs
- One prospect & two leads identified, possibility of large hydrocarbon discovery

Grant Date	22 March, 2005
Area	1,737.24 sqkm
Working Interest	PPL 100%
Prospectivity Zone	II
Play Type	Structural
Expected Hydrocarbon	Gas &/or Oil
Expected HC In-place	200 - 300 MMboe
Work Commitment	Gravity & magnetic survey, 200 Lkm 2D seismic, 1 exp. well (Phase-I & II)
WU Discharged	Gravity & magnetic survey, 692 Lkm 2D seismic and Kalat X-1 (Phase-I & II)

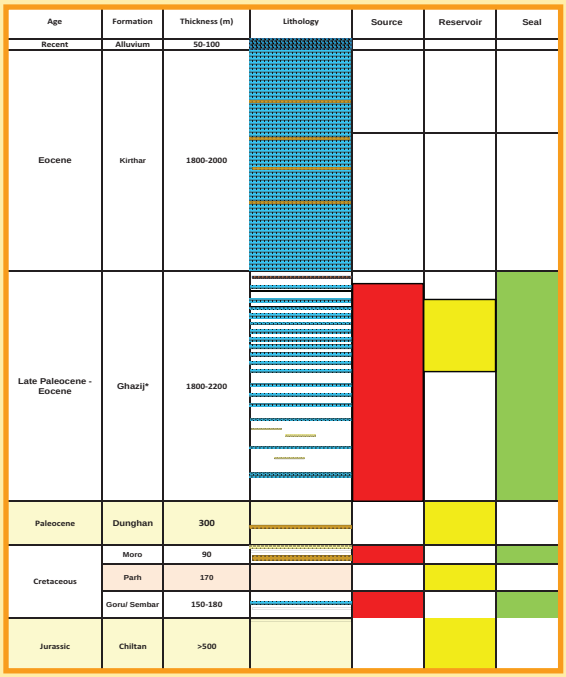
Lead/ Prospect Map



Location Map



Petroleum System



Past Cost (USD Million)

Seismic	17.5	Wells	17.5
Other Costs	19		
Total Cost	**54**		

*cost as of June 2019

2005

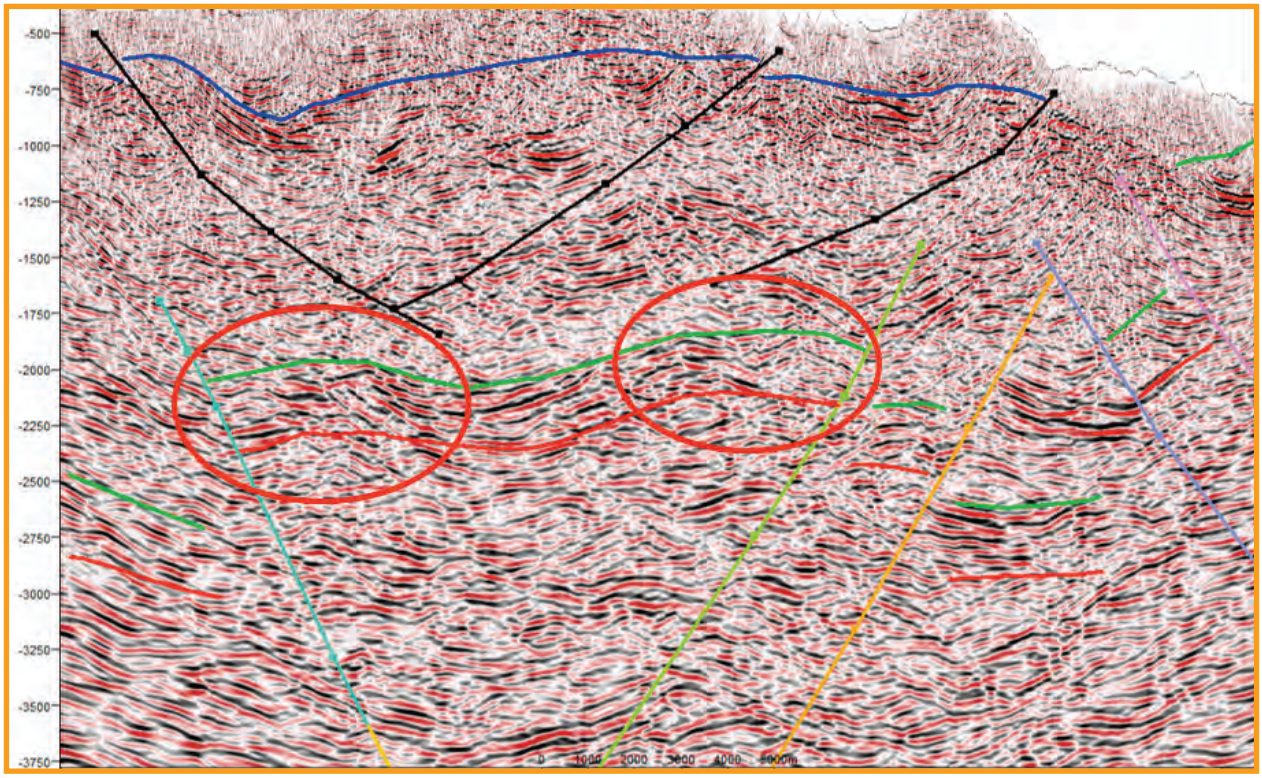
1st Licence Year
- G&G data purchase and preliminary evaluation
- Geological field work

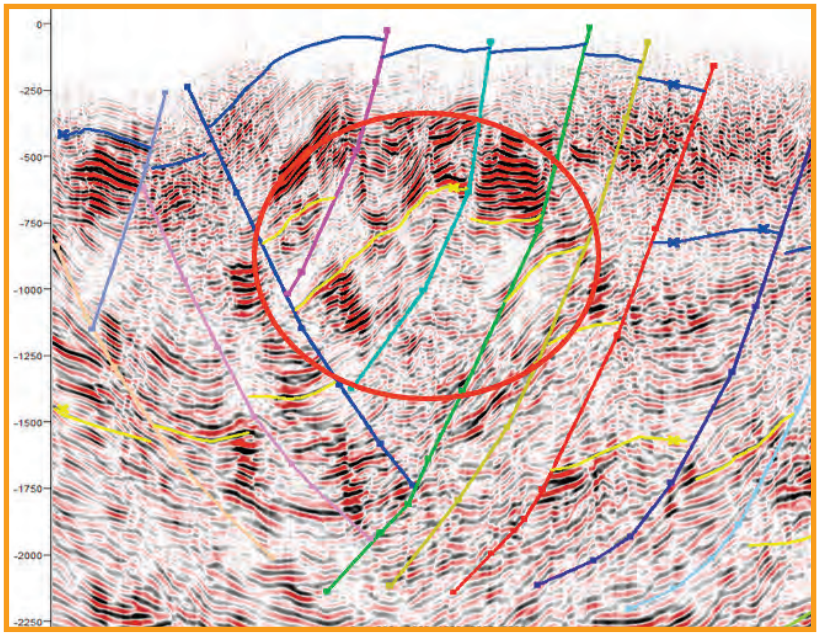
2nd Licence Year
- Remote sensing study
- Structural modelling by Dr. Bannert
- In-house basin modelling study

3rd Licence Year
- Geological field work
- PSTM & PSDM processing
- 2D seismic interpretation
- Structural modelling by Schelling

Extension & Phase II
2018-19
- Drilled 1st exploratory well (Kalat X-1)
- Preparation for drilling of 2nd exploratory well
- 2D seismic interpretation & processing

Kalat block: Subsurface structural style





Karsal EL
Potwar Plateau

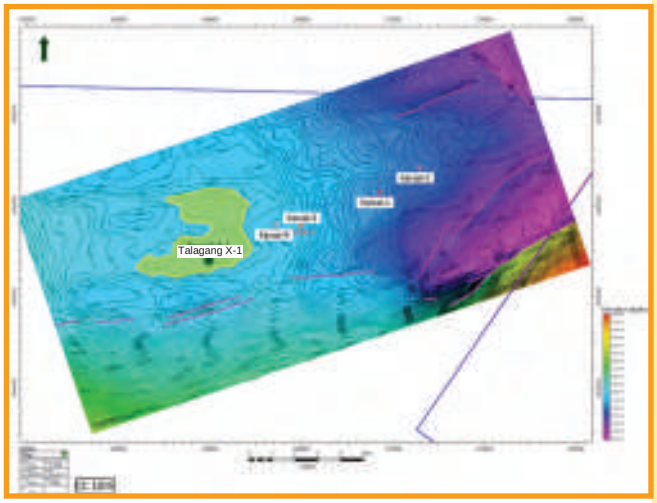
253 sqkm
3D seismic data acquisition

1st Exploratory well
Talagang X-1: Oil discovery in Eocene carbonates
Spud date: May 2018

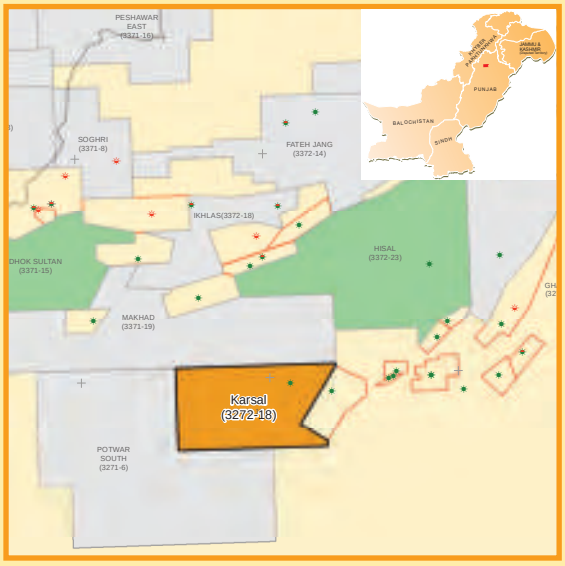
- Block located just south of Dhurnal and Khaur fields
- Multiple reservoir plays to be targeted in single well
- Karsal-1 and Karsal-3 produced oil
- Well-developed infrastructure in and around the block

Grant Date	10 February, 2014
Area	724.42 sqkm
Working Interest	PPL 100%
Prospectivity Zone	I
Play Type	Structural & stratigraphic
Expected Hydrocarbon	Oil
Expected HC In-place	50-80 MMboe
Work Commitment	813 WU (US$MM 8.13)
WU Discharged	1050 WU

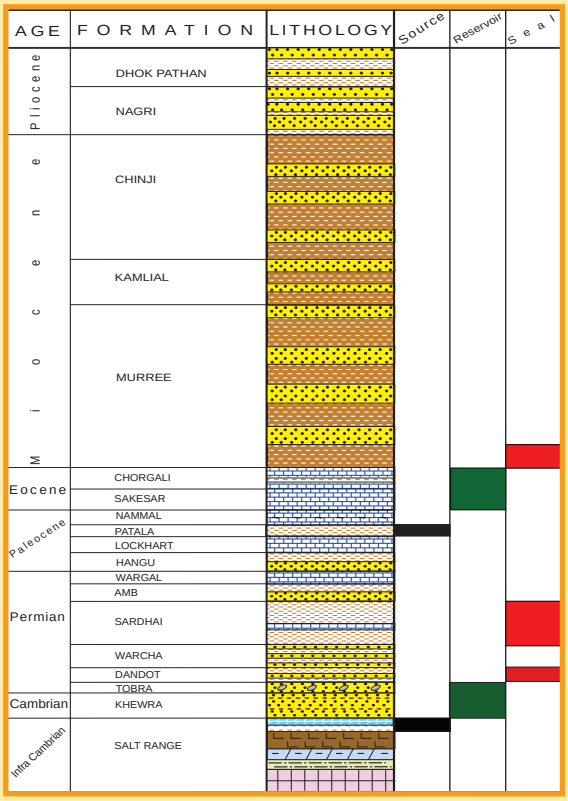
Lead/ Prospect Map



Location Map



Petroleum System



Past Cost (USD Million)

Seismic	10	Well	21
Other Costs	5		
Total Cost	**36**		

*cost as of June 2019

2014

1st Licence Year
- In-house G&G evaluation
- 2D seismic reprocessing
- 3D seismic data acquisition
- Environmental studies

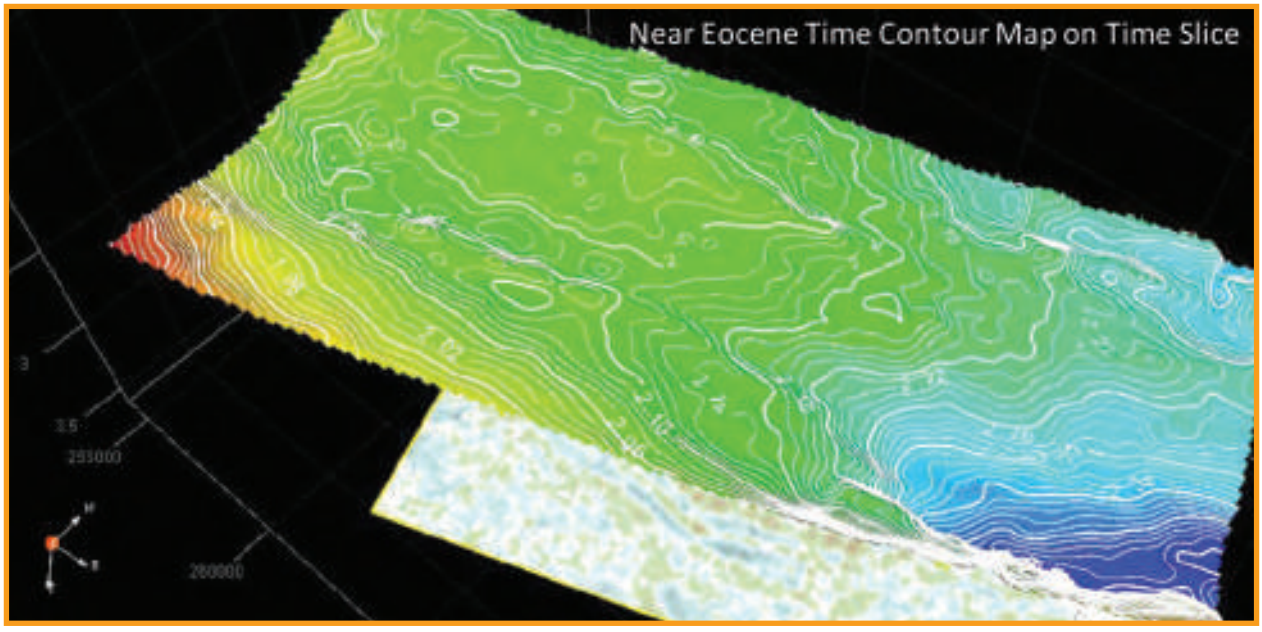
2nd Licence Year
- 3D seismic processing
- 2D / 3D seismic interpretation / mappng on processed / reprocessed data

3rd Licence Year
- Preparation of drilling of exploratory well

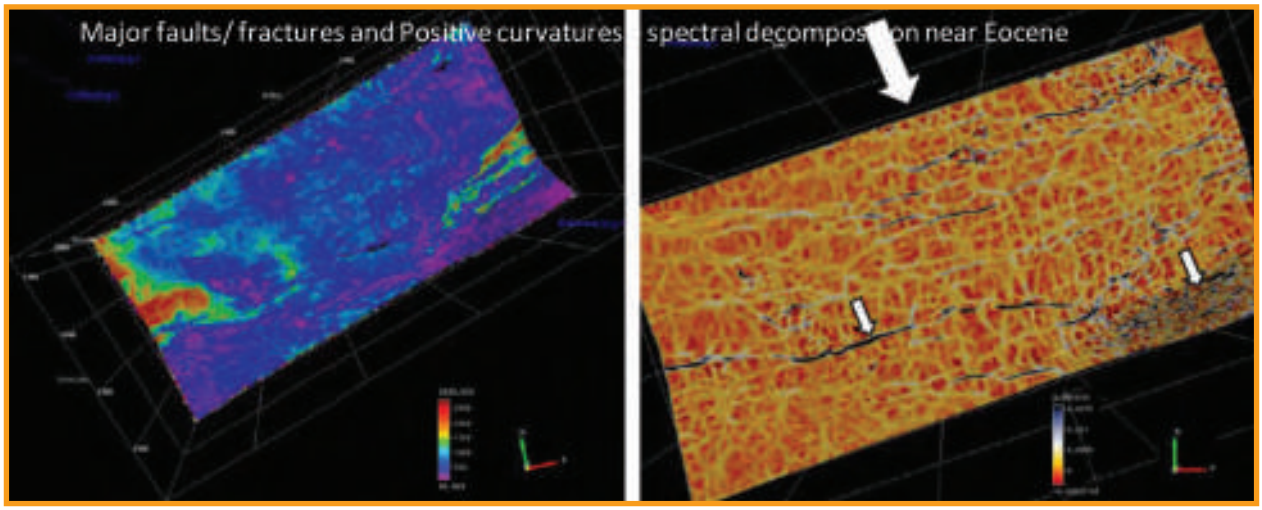
2018-19

Extension
- Drilled 1st exploratory well

Karsal 3D - Near Eocene time slice



Amplitude maps at near Eocene level



Kharan East, Kharan, Kharan West
Balochistan Basin

2100 Lkm
Stress field detection survey

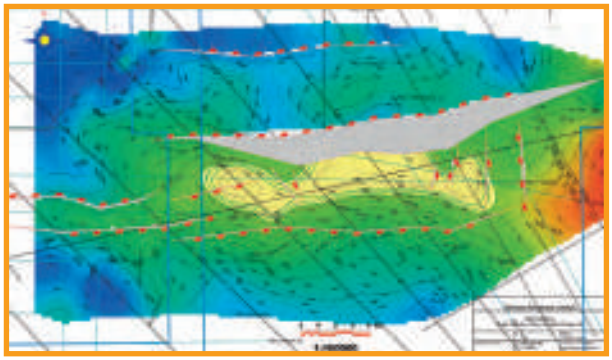
2698 Lkm
2D seismic acquisition completed in May 2013

Exploratory Well
Kharan X-1
Spud date: May 2017, TD: 4750m

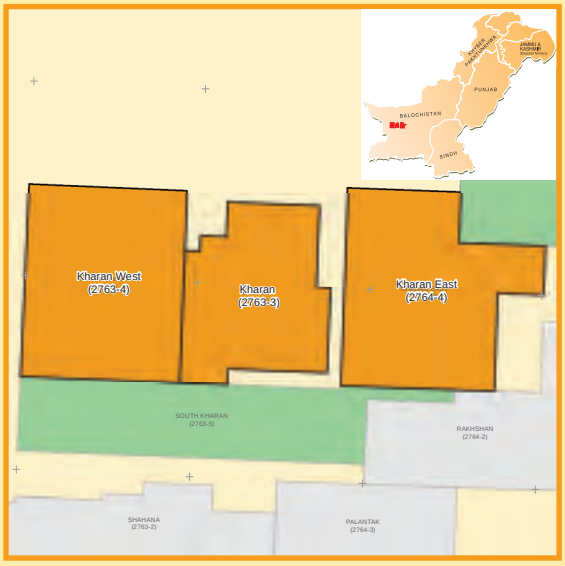
- Several leads/ potential prospects
- Multiple potential reservoirs and source
- Good shows observed in Kharan X-1 well, which proved working petroleum system

Grant Date	16 February, 2010 (KW) 21 January, 2010 (Kharan, KE)
Area	2489.67 sqkm (KE) 1736 sqkm (Kharan) 2487.37 (KW)
Working Interest	PPL 100%
Prospectivity Zone	I
Play Type	Structural
Expected Hydrocarbon	Gas
Reserves Exposure	3 – 4 Tcf
Work Commitment	161 WU (KE) 388 WU (Kharan) 139.1 WU (KW)
WU Discharged	335 WU (KE) 1216 WU (Kharan) 158.1 WU (KW)

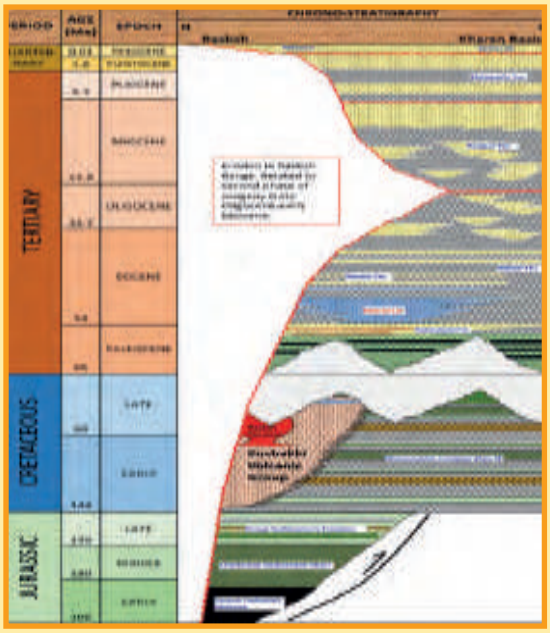
Lead/ Prospect Map



Location Map



Petroleum System



Combined Past Cost (USD Million)

Seismic	26	Wells	17
Other Costs	13		
Total Cost	**56**		

*cost as of June 2019

2010

1st Licence Year
G&G data purchase and preliminary evaluation
Geological field work

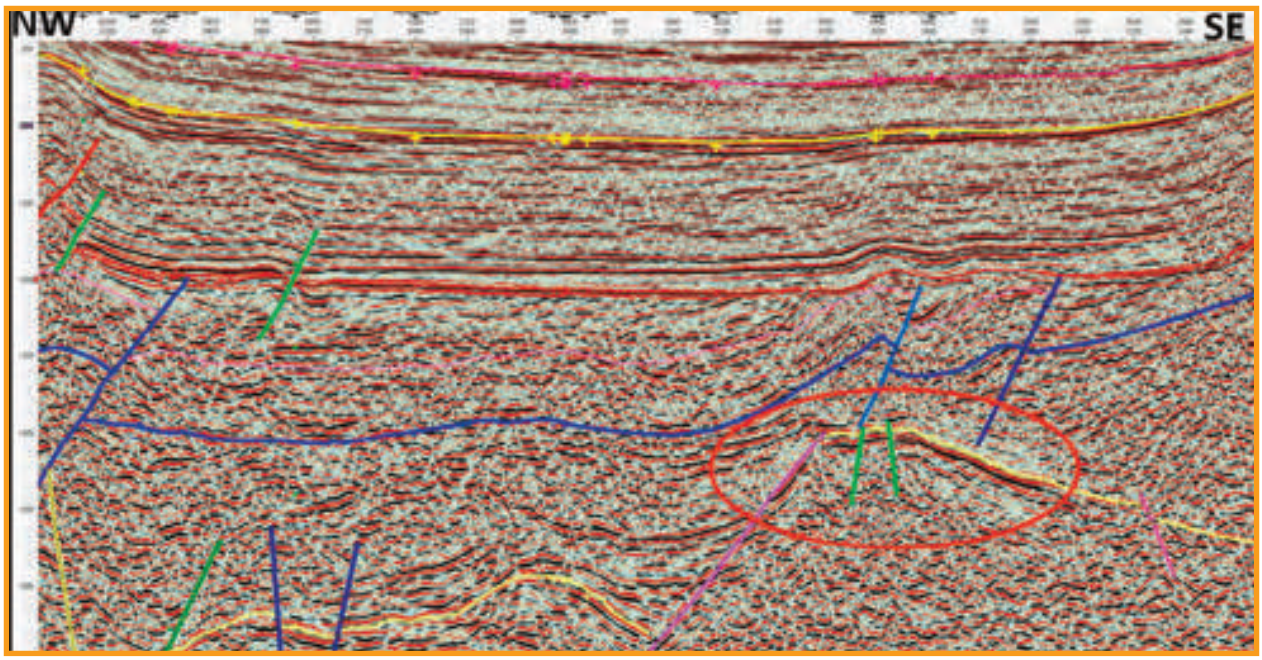
2nd Licence Year
Geochemical, biostratigraphic and sedimentological studies
2100 Lkm stress field detection (SFD)

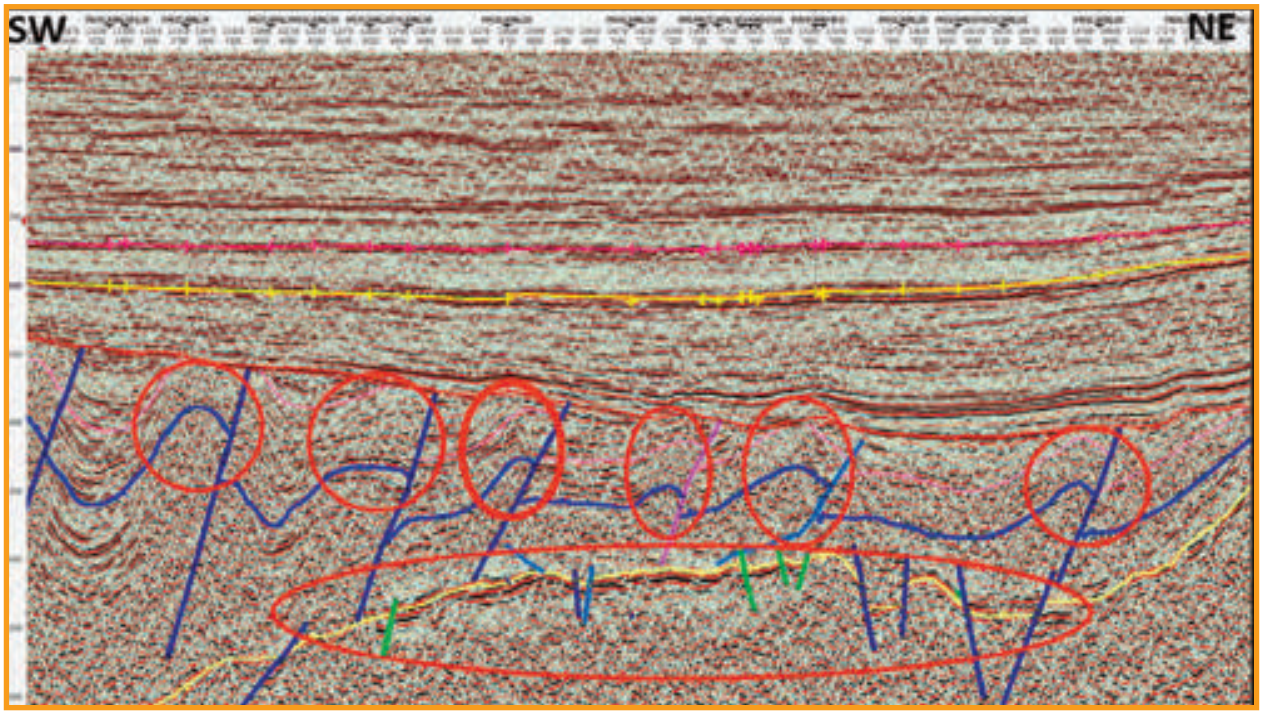
3rd Licence Year
2D seismic acquisition, processing and interpretation
2D infill seismic acquisition

Extension & Phase-II
Processing & reprocessing of 2D seismic
Drilling of 1st exploratory well
MGCE & 4G study

2018-19

Kharan deep prospect: Subsurface structural style and play concept





Khuzdar EL
Kirthar Fold Belt

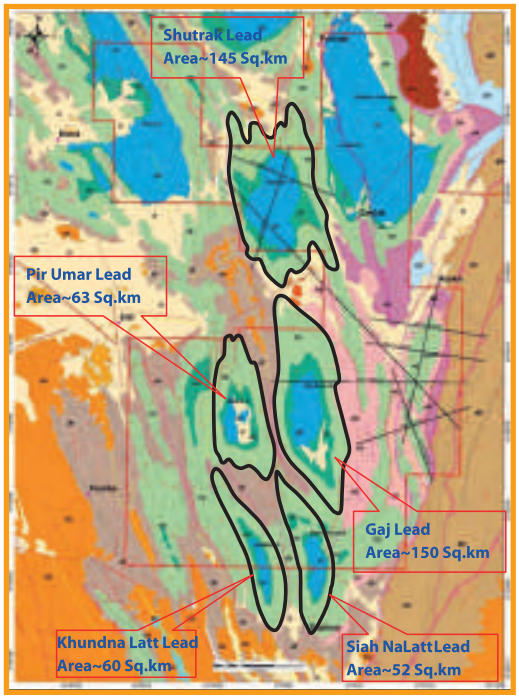
167 Lkm
2D seismic data acquisition

1st Exploratory well
Karkh X-1: Flared gas in Wulgai formation (Triassic)
Spud date: 2014, TD: 3010m

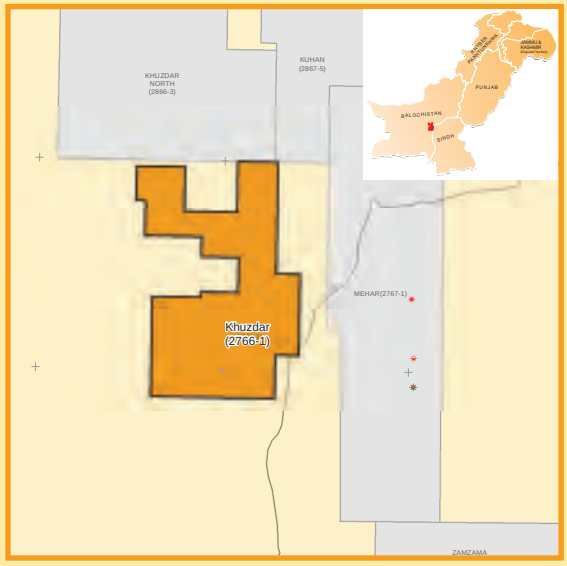
- Located in proven petroleum province
- Nearby fields include Mazrani & Mehar
- Several large surface anticline can be targeted
- Proven petroleum system – flared gas in Karkh X-1
- Sparse seismic coverage – room for value addition

Grant Date	9 March 2005
Area	1,750 sqkm
Working Interest	PPL 100%
Prospectivity Zone	II
Play Type	Structural
Expected Hydrocarbon	Gas
Expected HC In-place	500 MMboe
Work Commitment	167 Lkm (Phase-I) 1 well & 100 Lkm (Phase-II)
Commitment Fulfilled	167 Lkm (Phase-I) 1 exploratory well (Phase-II)

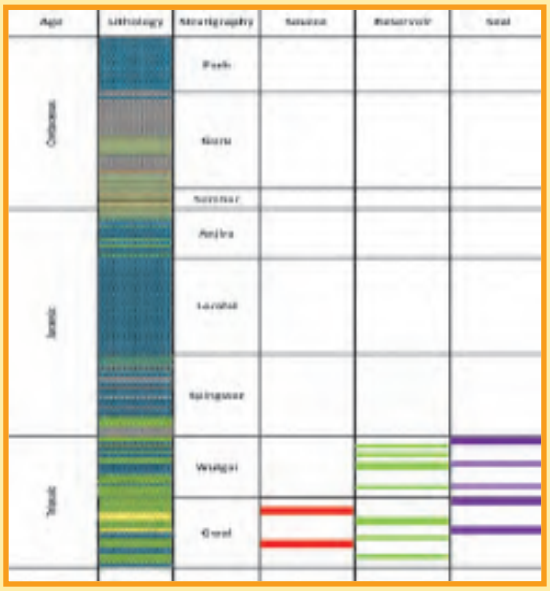
Surface Leads Map



Location Map



Petroleum System



Past Cost (USD Million)

Seismic	-	Well	36
Other Costs	14		
Total Cost	**50**		

*cost as of June 2019

2005

1st Licence Year
G&G data purchase and preliminary evaluation

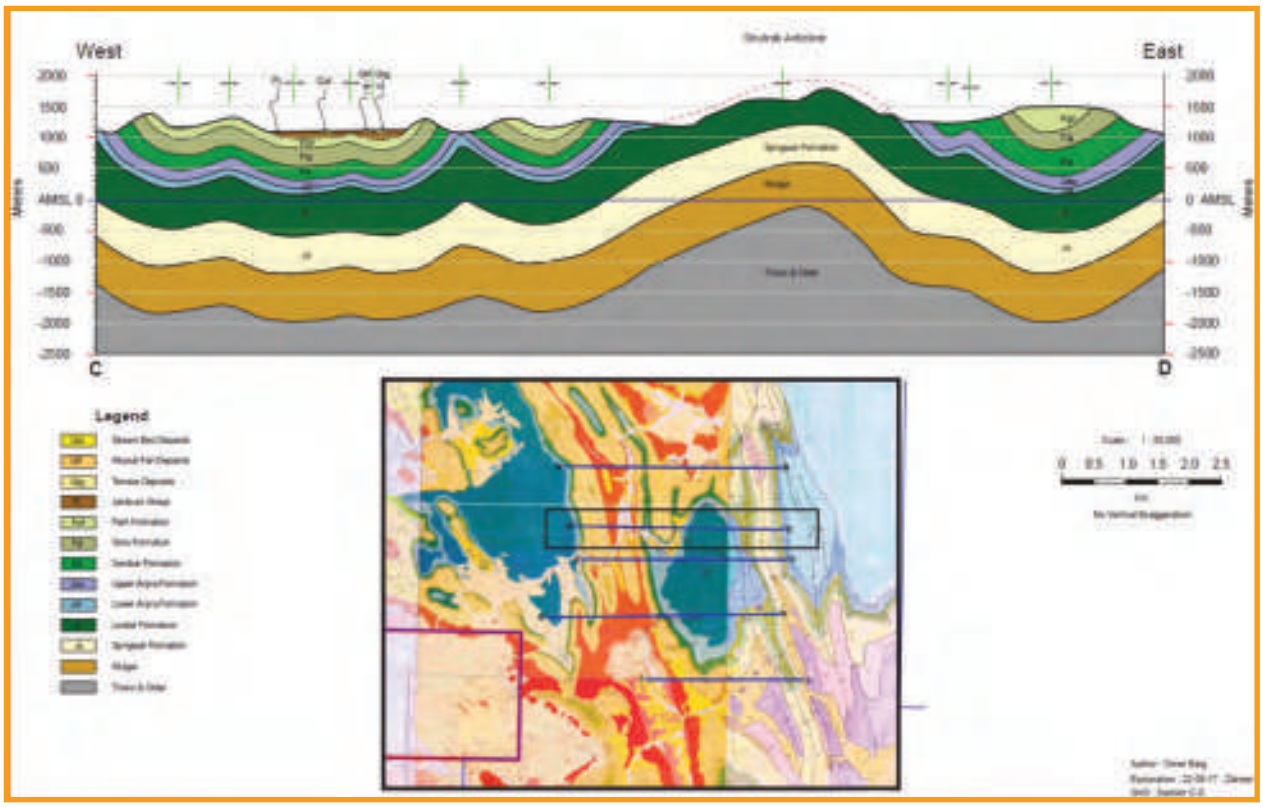
2nd Licence Year
Geological field work
Gravity & magnetic surveys

3rd Licence Year & Extension
Structural modelling by Dr. Bannert
Micro seep survey
Basin modelling study
Geological field work
2D seismic interpretation

Phase II
2D seismic acquisition

2018-19

Khuzdar block: Structural style and surface geology



Margand EL
Kirthar Fold Belt

2433.5 Lkm
Gravity / magnetic acquired in 2018

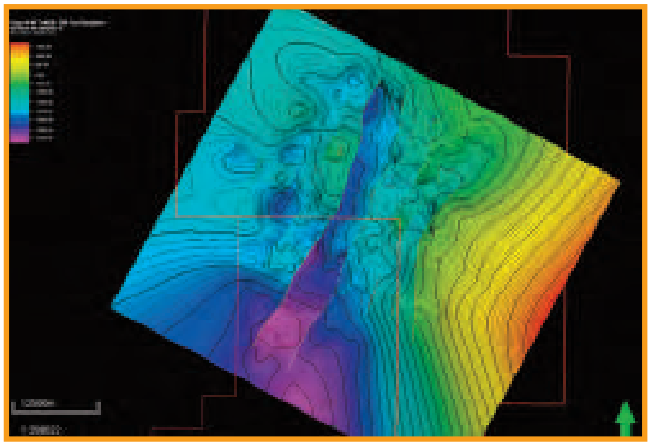
262 Lkm
2D seismic acquisition

1st Exploratory well
Margand X-1
Spud date: 2019, Drilling in progress

- Possibility of large discoveries
- Working petroleum system exist, proven by Kalat X-1
- Zarghun South, Ziarat & Bolan East are nearby discoveries
- Several structural leads identified on 2D seismic
- Potential reservoirs and source with several sub-plays

Grant Date	28 February, 2014
Area	2,484 sqkm
Working Interest	PPL 100%
Prospectivity Zone	II
Play Type	Structural
Expected Hydrocarbon	Gas & Oil
Expected HC In-place	200-500 MMboe
Work Commitment	313 WU (US$MM 3.13)
WU Discharged	321 WU

Lead/ Prospect Map

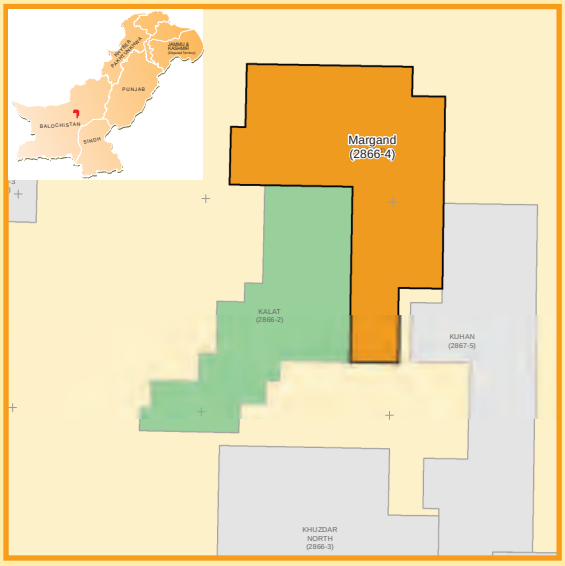


Past Cost (USD Million)

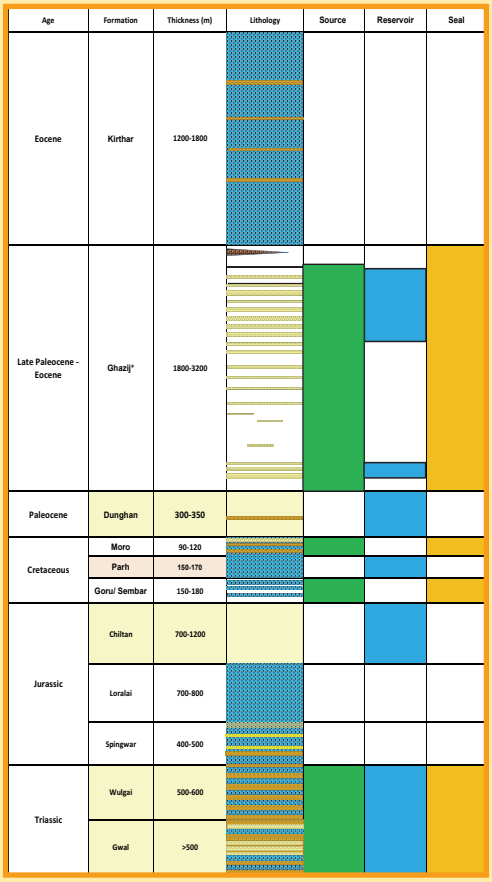
Seismic	7	Well	2
Other Costs	5		
Total Cost	**14**		

*cost as of June 2019

Location Map



Petroleum System



2014
- G&G data purchase and preliminary evaluation
- Geological field work

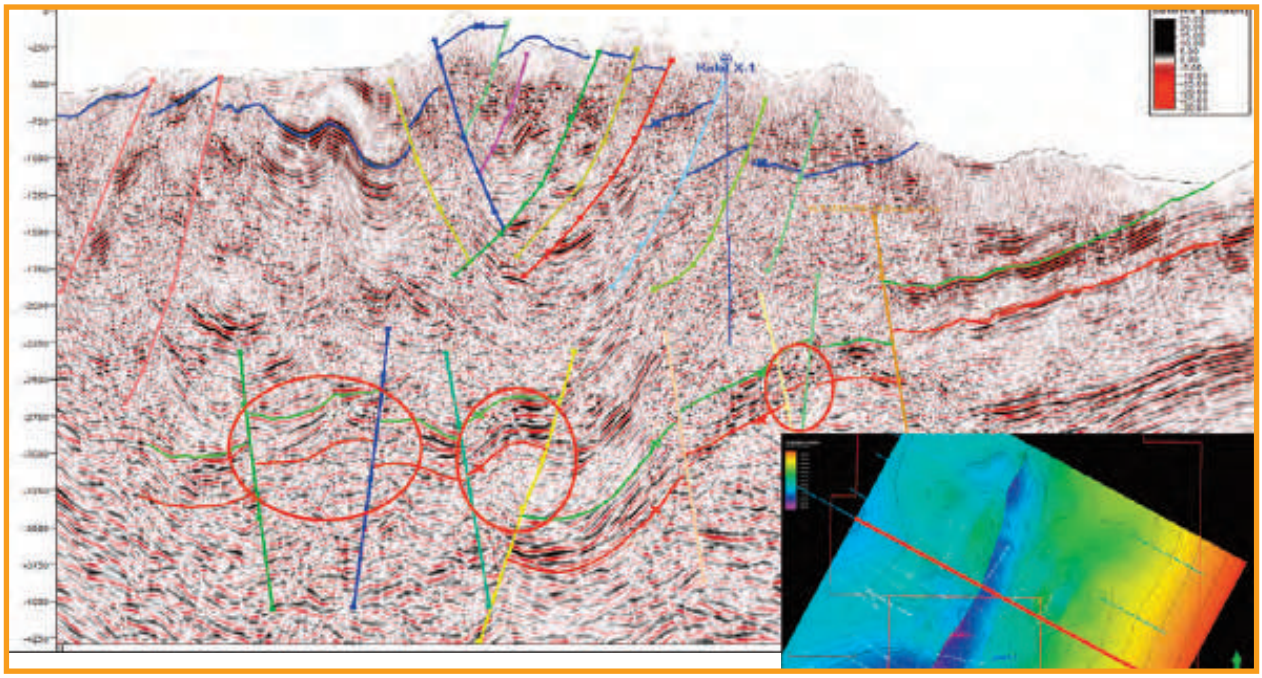
1st, 2nd & 3rd Licence Year

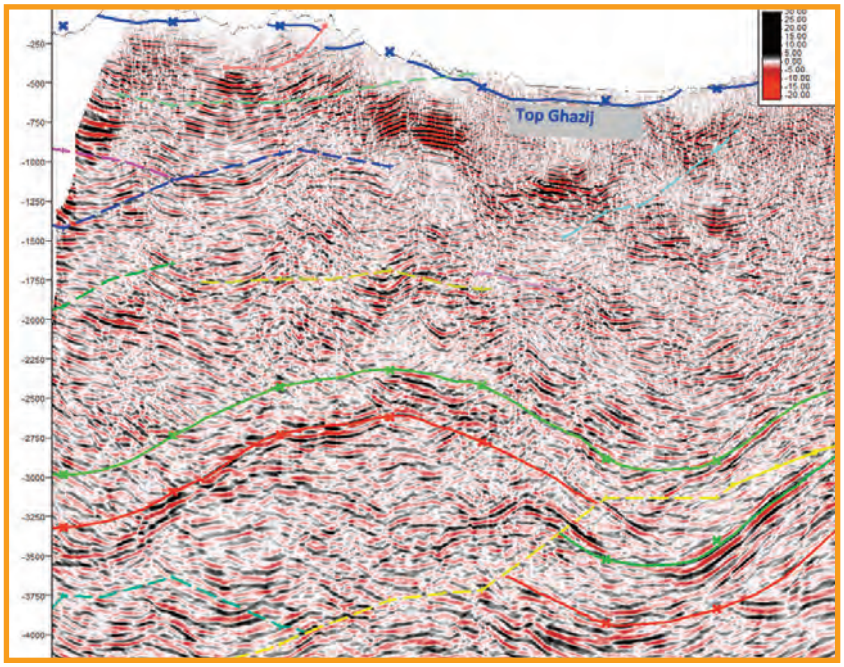
Phase-I
- 2D seismic acquisition & processing
- Gravity-magnetic surveys
- 2D seismic interpretation / mapping
- Intergrated G&G study

2018-19
- Drilling of 1st exploratory well in Phase II

Phase-II

Structural style





Sadiqabad EL
Middle Indus Basin

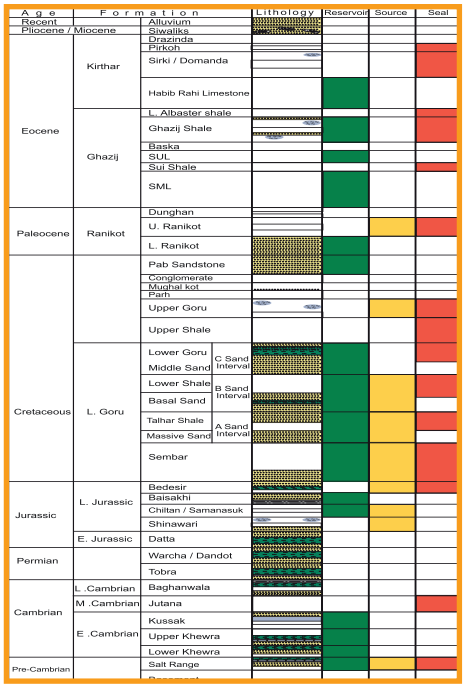
490 sqkm
3D seismic acquisition completed in 2016

Exploratory wells
Cholistan X-1
Spud date 2019. Drilling in progress
Sadiqabad X-1
Spud date: 2016, TD: 1040m
Sadiqabad X-2
Spud date: 2016, TD: 1038m

- Block located just northeast of Mari field
- Well developed infrastructure
- Multiple reservoirs to be targeted in single deep well
- Proven Eocene & Cretaceous petroleum system

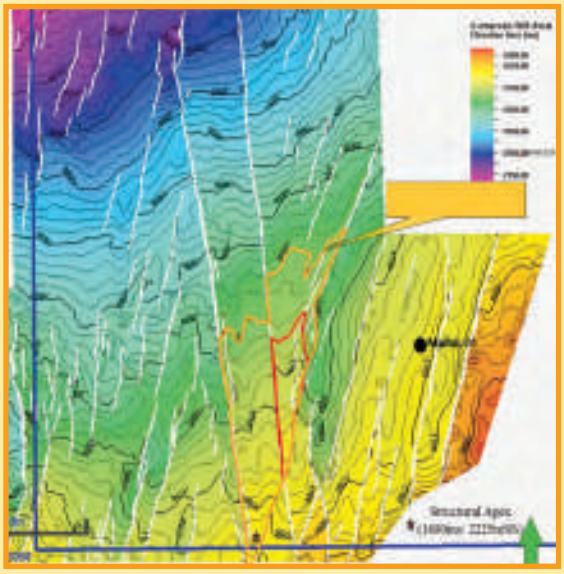
Grant Date	21 February, 2014
Area	2,430.85 sqkm
Working Interest	PPL 97.5%
JV Partners	GHPL 2.5%
Prospectivity Zone	III
Play Type	Structural
Expected Hydrocarbon	Gas
Expected HC In-place	150 - 350 MMboe
Work Commitment	723 WU (US$MM 7.23)
WU Discharged	723 WU (after completion of well)

Petroleum System



Location Map

Lead/ Prospect Map



Past Cost (USD Million)

Seismic	11	Well	4
Other Costs	5		
Total Cost	**20**		

*cost as of June 2019

2014

1st Licence Year
1650 Lkm 2D seismic reprocessing
In-house G&G evaluation
3D seismic design study

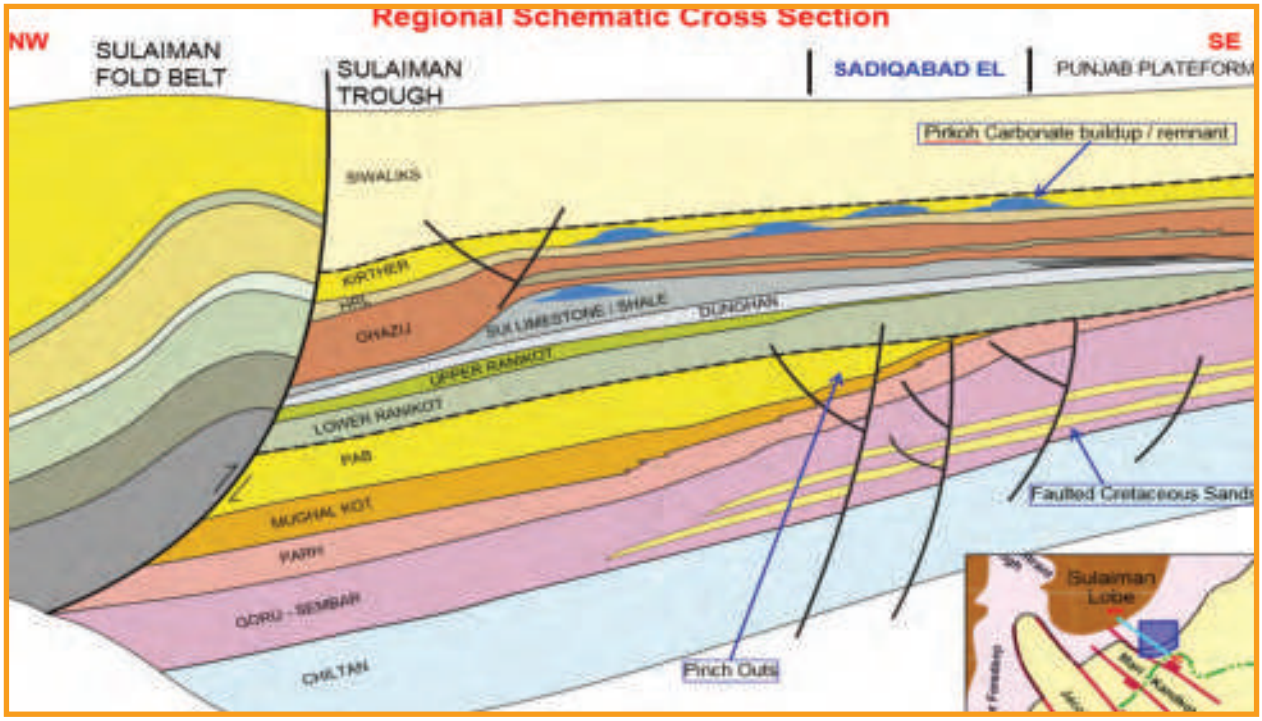
2nd Licence Year
3D seismic acquisition and processing

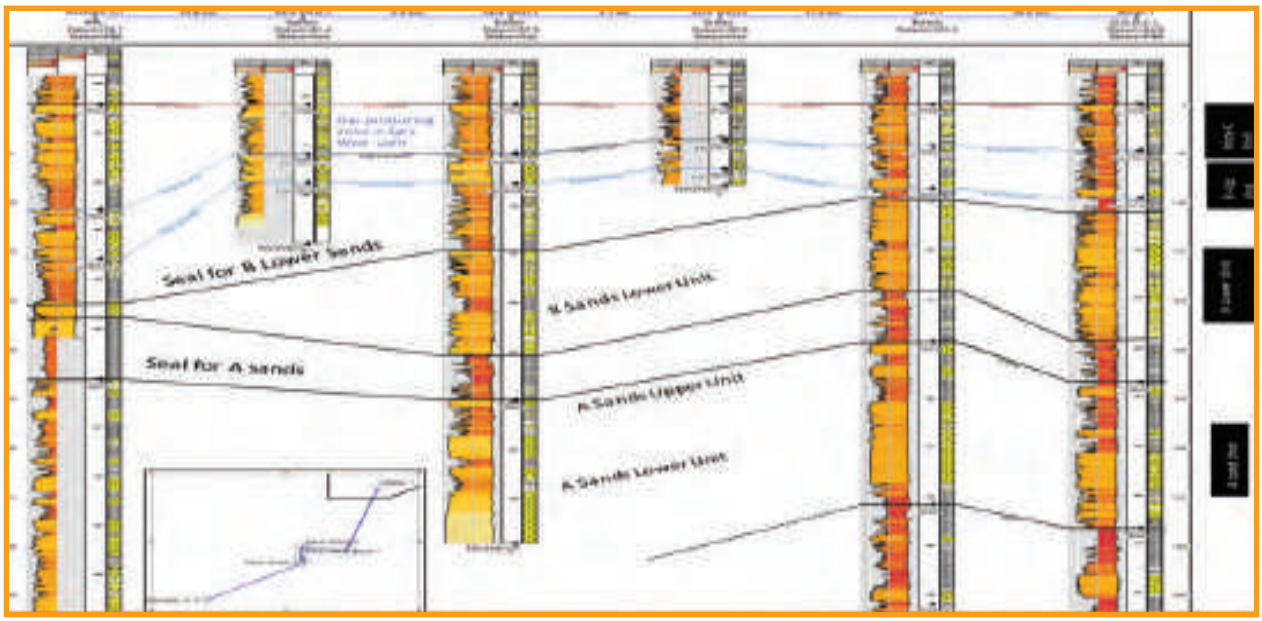
3rd Licence Year
PSDM processing of 3D seismic
High resolution sequence stratigraphic study
2 exploratory wells

Extension
Drilling of 3rd exploratory well
2D seismic data reprocessing

2018-19

Play concept





Shah Bandar EL
Lower Indus Basin

330 Lkm
2D seismic acquisition completed in 2015

372 sqkm
3D seismic acquisition completed in 2016

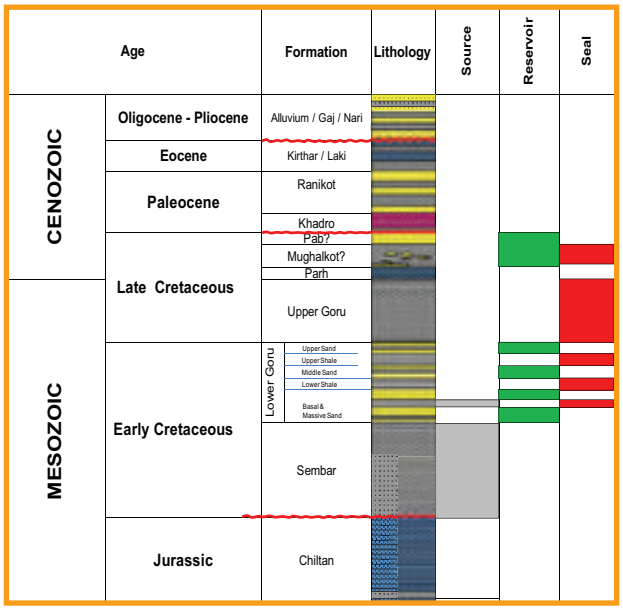
1st Exploratory Well
Benari X-1: Gas discovery
Spud date: May 2018

- Multiple reservoirs to be targeted in single well
- Conventional and un-conventional plays
- Several prospect/lead identified on newly acquired 2D and 3D seismic

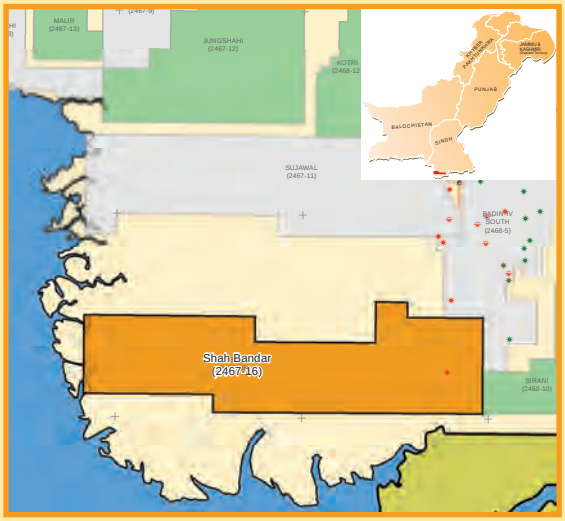
Grant Date	21 February, 2014
Area	2470.52 sqkm
Working Interest	PPL 63%
JV Partners	MPCL 32% SEHCL 2.5% *GHPL 2.5%
Prospectivity Zone	II
Play Type	Structural/ stratigraphic
Expected Hydrocarbon	Gas/ gas condensate
Expected HC In-place	150-250 Bcfe
Work Commitment	643 WU (US$MM 6.43)
WU Discharged	888.3 WU

**Assignment agreement under execution*

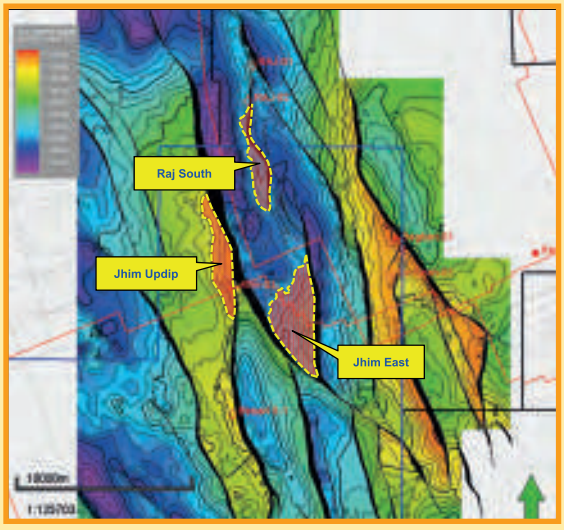
Petroleum System



Location Map



Leads/ Prospects Map



Past Cost (USD Million)

Seismic	22	Well	18
Other Costs	5		
Total Cost	**45**		

*cost as of June 2019

2014

1st Licence Year
In-house G&G data evaluation
Environmental studies

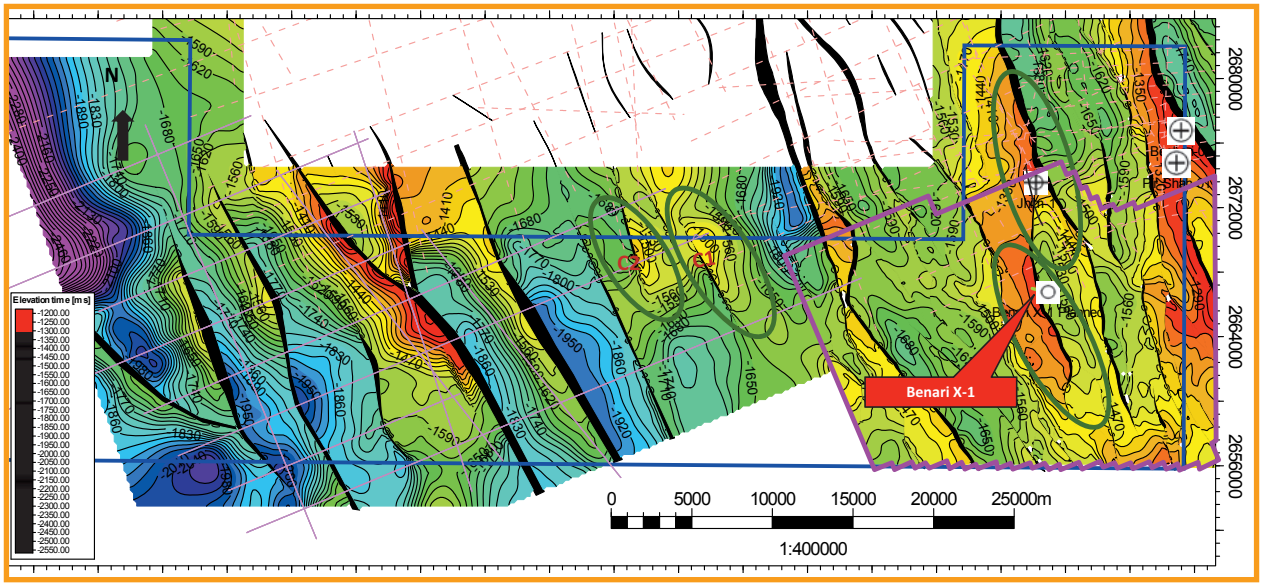
2nd Licence Year
2D & 3D seismic acquisition & processing

3rd Licence Year
PSTM & PSDM processing of 200 sqkm focused area
3D seismic interpretation / mapping

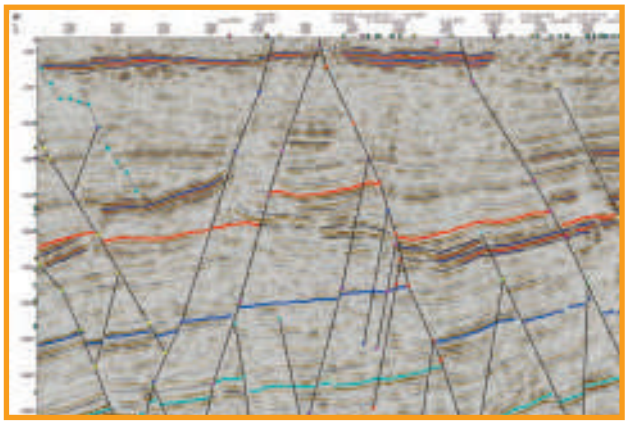
Extension
Drilling of 1st exploratory well
Seismic inversion study

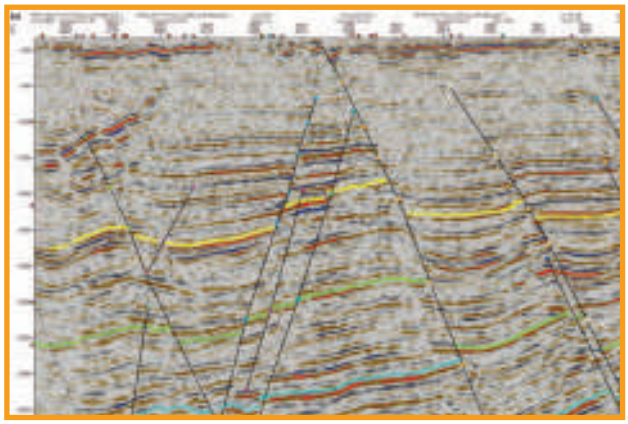
2018-19

2D seismic time structure map (Central part)



Subsurface structural style





Kotri EL
Lower Indus Basin

600 Lkm
2D seismic acquisition in 2011

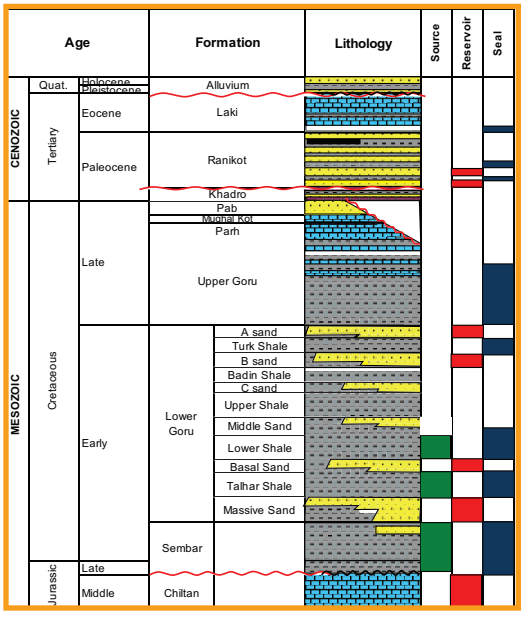
426 sqkm & 375 sqkm
3D seismic acquisition in 2016 & 2017

Exploratory Wells
Durab X-1: Spud date: 2019, TD: 2415m
Yasar X-1: Gas / cond discovery, Spud date: 2018, TD: 2720m
Kotri X-1: Tight gas discovery, Spud date: 2016, TD: 3892m
Rajab X-1: Spud date: 2018, TD: 4090m
Kotri X-2: Spud date: 2016, TD: 4060m

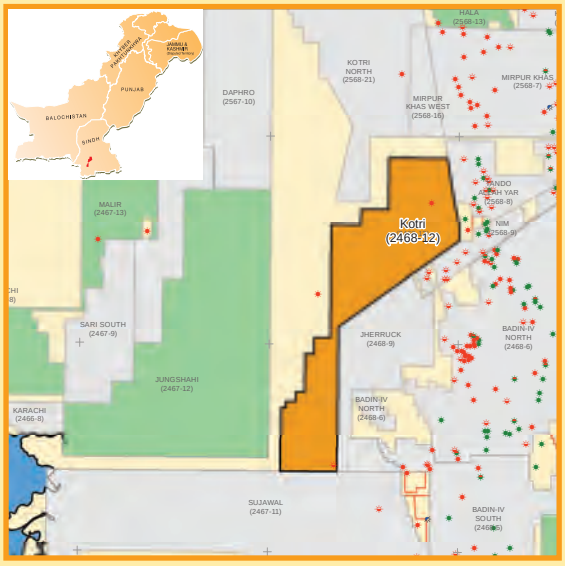
- Several prospect/leads identified on 3D seismic
- Multiple reservoirs to be targeted in single well
- Yasar X-1 gas condensate discovery
- Potential for tight gas development

Grant Date	29 April, 2010
Area	1,330.77 sqkm
Working Interest	PPL 100%
Prospectivity Zone	III
Play Type	Structural cum stratigraphic
Expected Hydrocarbon	Gas / condensate
Reserves Exposure	100-150 Bcf
Work Commitment	505 + 101 WU (Phase-I) 1 exploratory well (Phase-II) 1 exploratory well (1st renewal)
WU Discharged	606 WU (Phase-I) 3 exploratory well (Phase-II) 1 exploratory well (1st renewal)

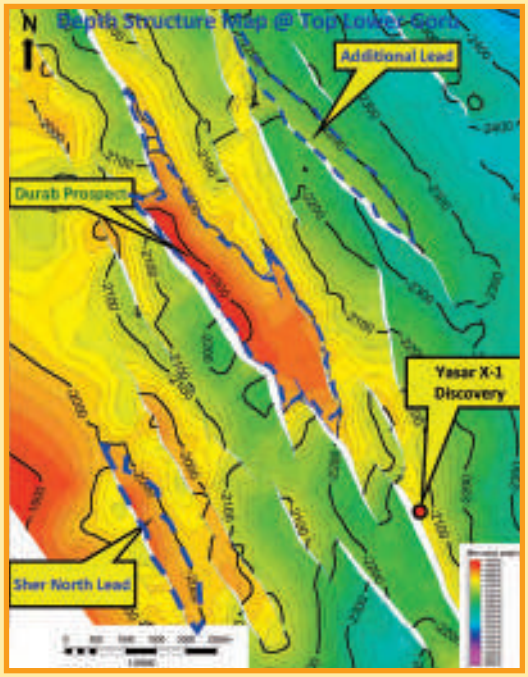
Petroleum System



Location Map



Lead/ Prospect Map



Past Cost (USD Million)

Seismic	22	Well	31
Other Cost	12		
Total Cost	**66**		

*cost as of June 2019

2010
G&G data purchase
Geological field work

1st Licence Year

2nd & 3rd Licence Year
Processing & reprocessing of 600 Lkm 2D seismic
Reservoir quality study 3D seismic acquisition & processing

Drilled 3 exploration wells
3D seismic acquisition, processing & interpretation

Phase II

1st Renewal
Drilled 2 exploratory wells

2018-19

PPL

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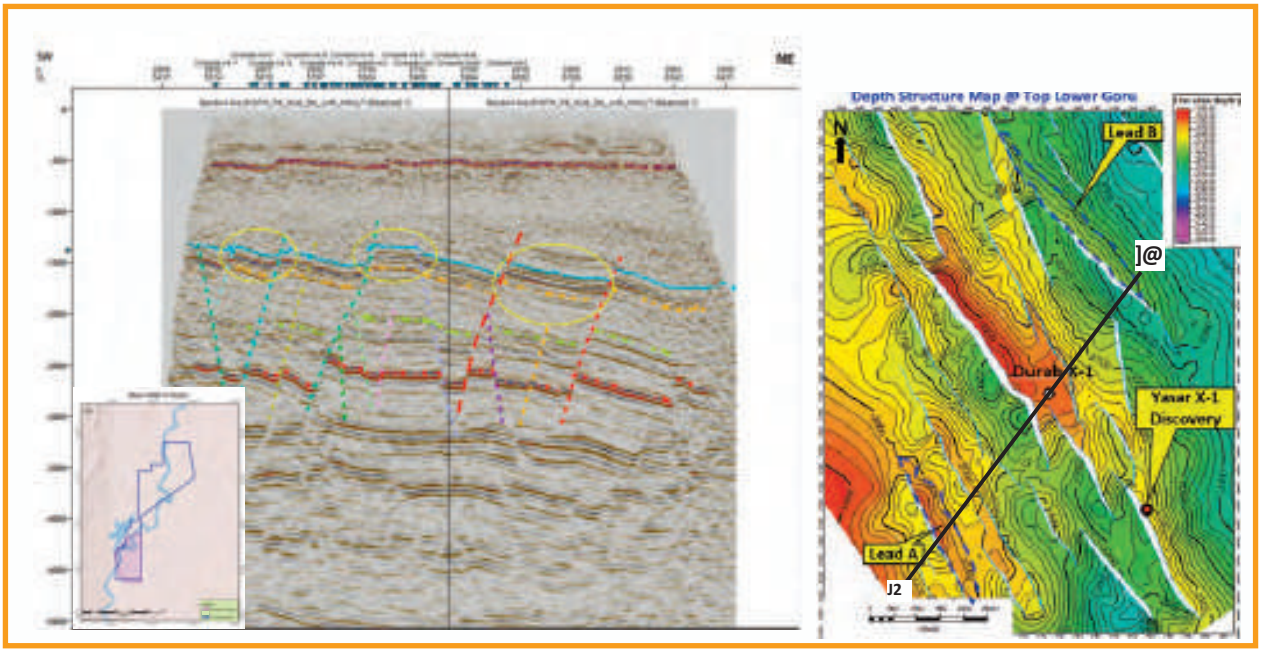
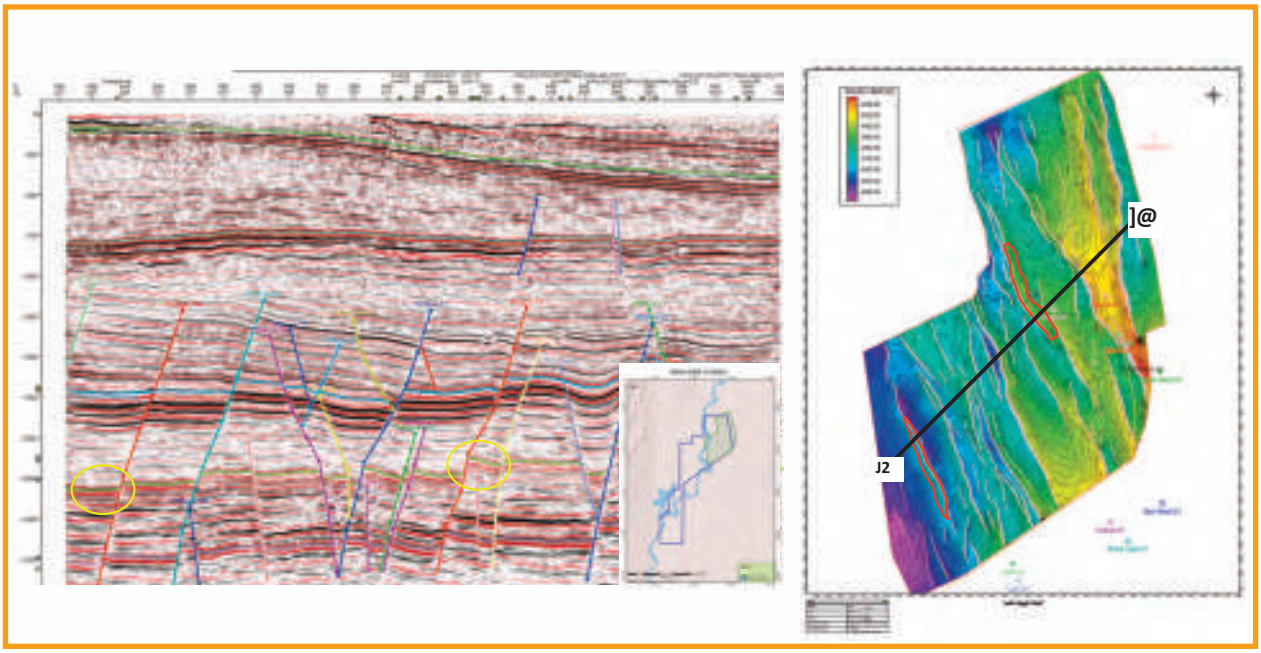
Subsurface Structural Style in Southern Part of the Block



Subsurface Structural Style in Northern Part of the Block



Nausherwani EL
Balochistan Basin

644 Lkm
2D seismic data acquisition completed in 2015

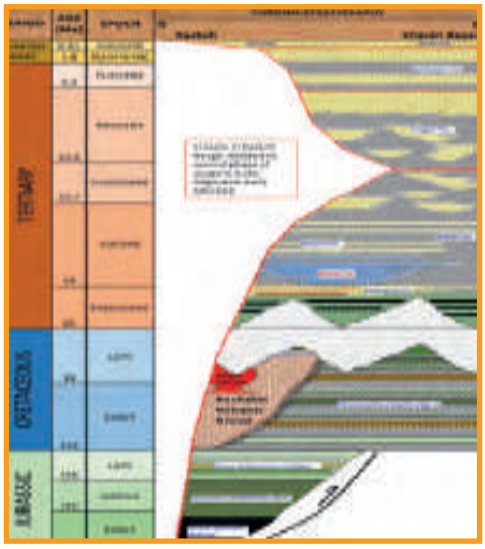
Exploratory Well
Nausherwani X-1
Spud date: 2018, TD: 4782m

- Possibility of medium to large size discoveries
- Nausherwani X-1 tested shallow strata
- Thick sedimentary section with possibility of several folded structures

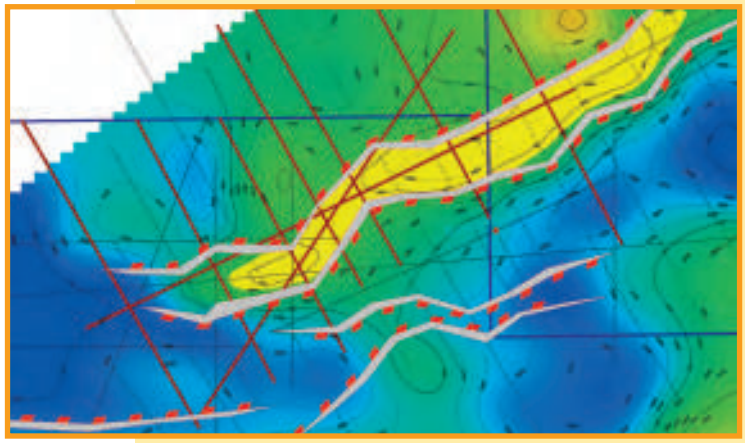
Grant Date	10 February, 2014
Area	2,470.83 sqkm
Working Interest	PPL 100%
Prospectivity Zone	I
Play Type	Structural
Expected Hydrocarbon	Gas
Expected HC In-place	1-2 Tcf
Work Commitment	553 WU
WU Discharged	1106 WU

Location Map

Petroleum System



Lead/ Prospect Map



Past Cost (USD Million)

Seismic	7	Well	19
Other Costs	3.5		
Total Cost	**29.5**		

*cost as of June 2019

2014
- Inhouse G&G evaluation
- Geological field work
- Geochemical and biostratigraphic study
- 2D seismic acquisition

1st Licence Year

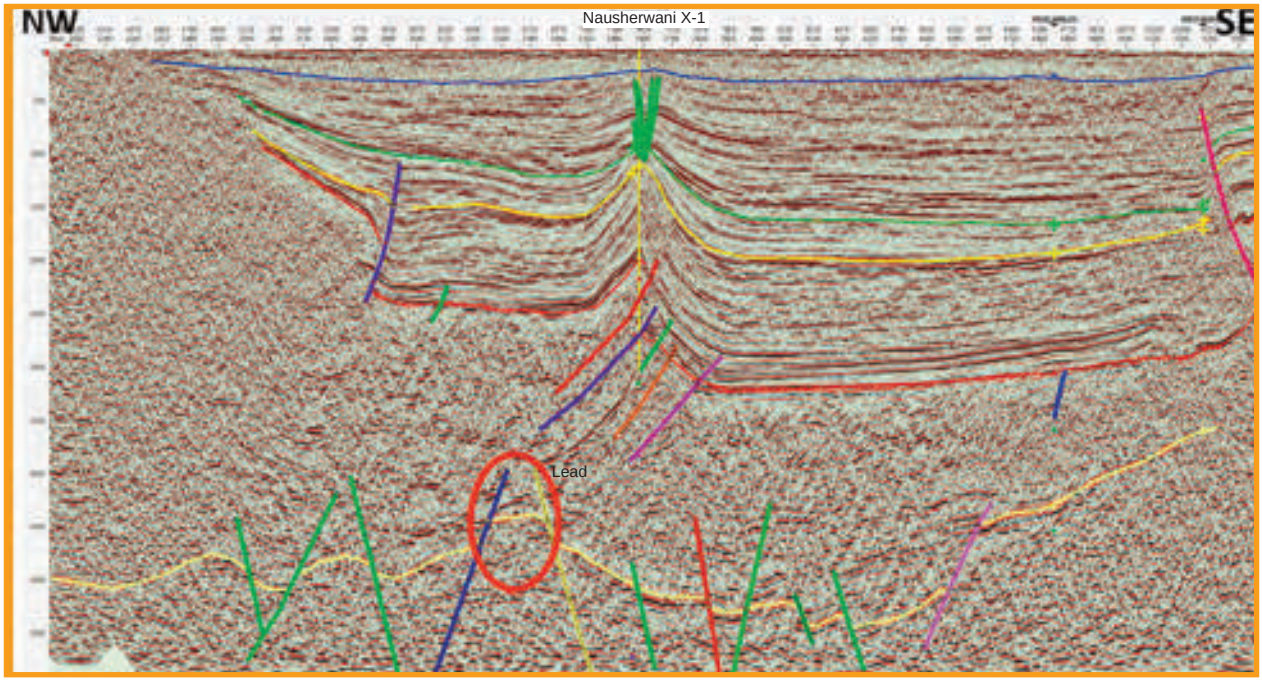
2nd Licence Year
Processing and interpretation of newly acquired & vintage 2D seismic

3rd Licence Year
Drilling of 1st exploratory well

2018-19

Extension
Post well studies
MGCE & 4G study

Nausherwani block: Schematic subsurface seismic stratigraphy and structural Style



Naushahro Feroz EL
Lower Indus Basin

647 Lkm & 194 Lkm
2D seismic acquisition in 2011 & 2012

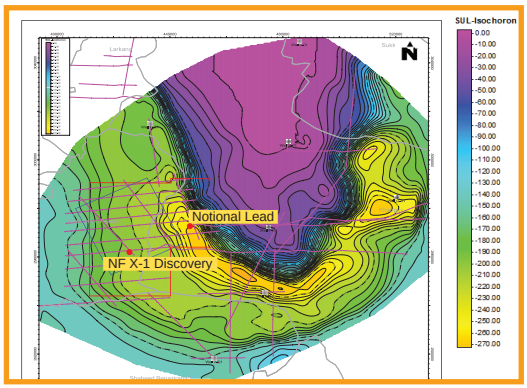
855 sqkm
3D seismic acquisition

Exploratory wells
NF X-1: Tight gas discovery, Spud date: 2013, TD: 3773m
Nusrat X-1: Spud date: 2018, TD: 4705m
Gohar X-1, Spud date: 2014, TD: 1629.5m

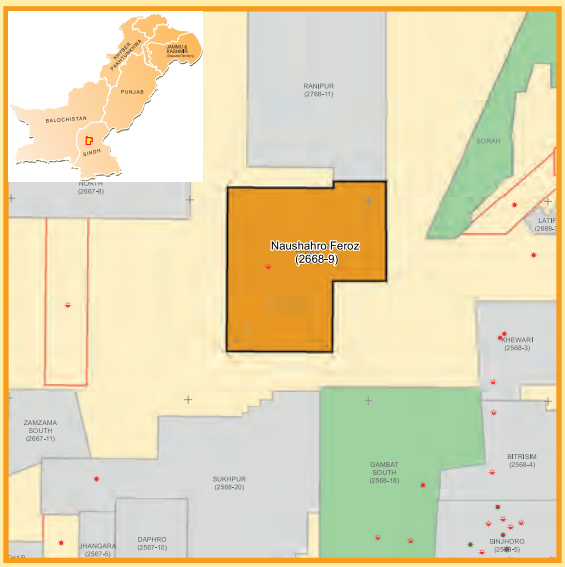
- Block located in prospective basin
- NF X-1 Tight gas discovery
- Potential for tight gas development

Grant Date	4 June, 2010
Area	1,746.82 sqkm
Working Interest	PPL 100%
Prospectivity Zone	III
Play Type	Structural
Expected Hydrocarbon	Gas
Reserves Exposure	286 Bcf
Work Commitment	805 + 161 WU (Phase-I) 1 exp Well (Phase-II)
WU Discharged	WU 1353 + 1 Exp Well

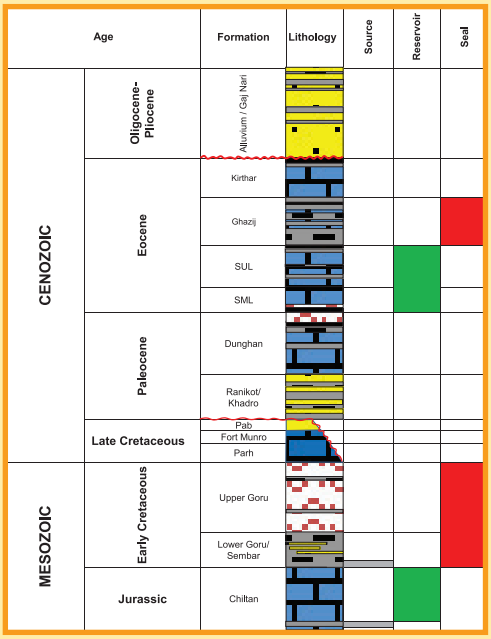
Lead/ Prospect Map



Location Map



Petroleum System



Past Cost (USD Million)

Seismic	25	Well	50
Other Costs	12		
Total Cost	**87**		

*cost as of June 2019

2010
G&G data purchase and preliminary G&G evaluation
2D seismic data acquisition
Processing, reprocessing & interpretation of seismic data

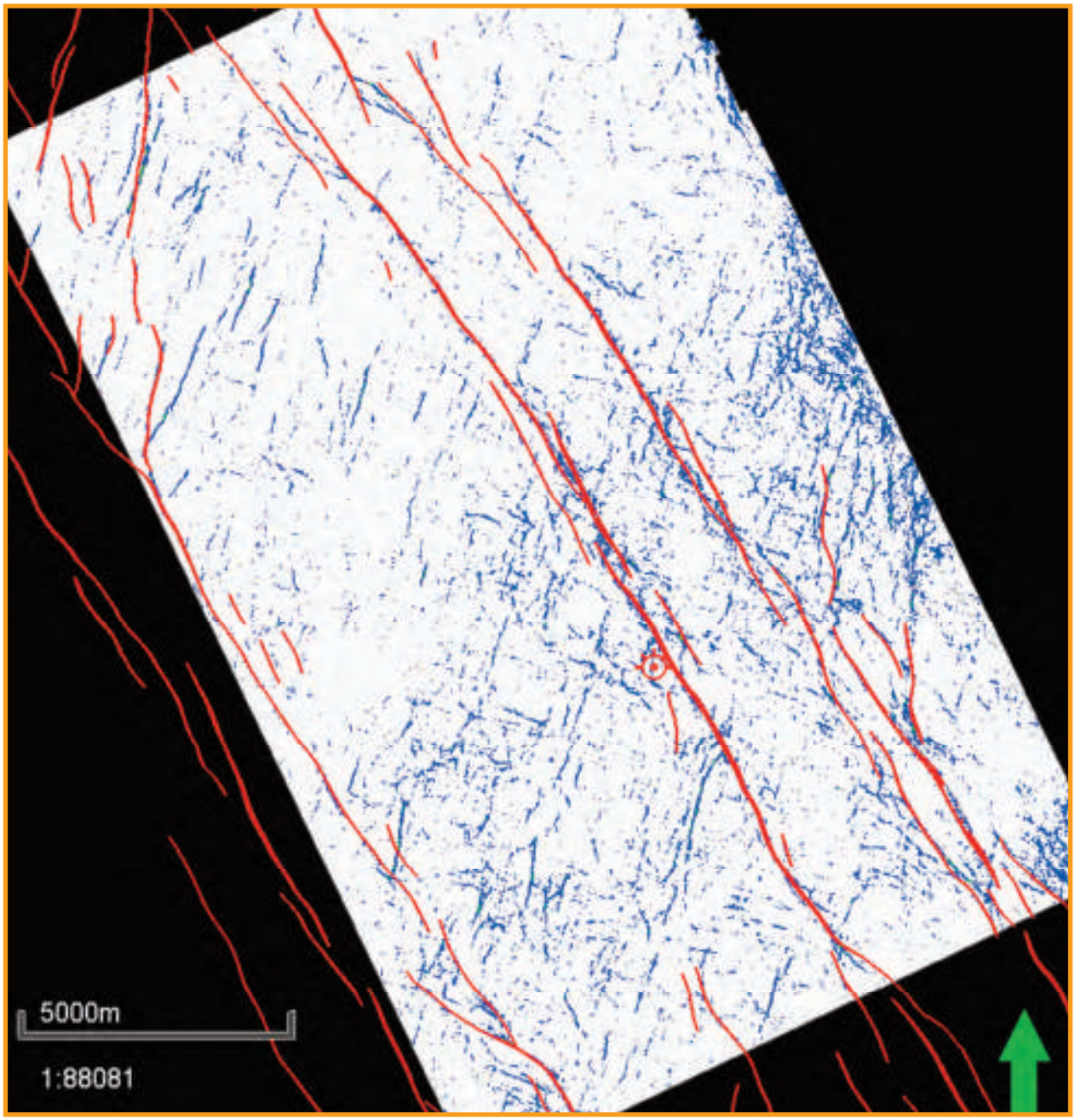
1st Licence Year

2nd Licence Year
2D seismic data processing, reprocessing & interpretation

3rd Licence Year & Extension
2D & 3D seismic acquisition
2 exploratory wells

Phase-II
2018-19
Drilled Nusrat X-1
Post well evaluation in progress

Seismic attribute: Ant tracking map showing fracture corridors



Jungshahi EL
Lower Indus Basin

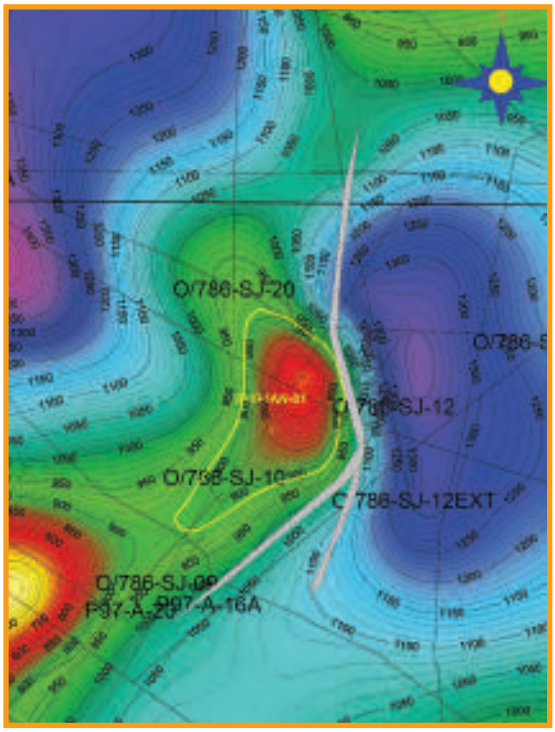
624 Lkm
2D seismic acquisition in 2010

1st Exploratory Well
Nooriabad X-1
Spud date: 2015, TD: 2025m

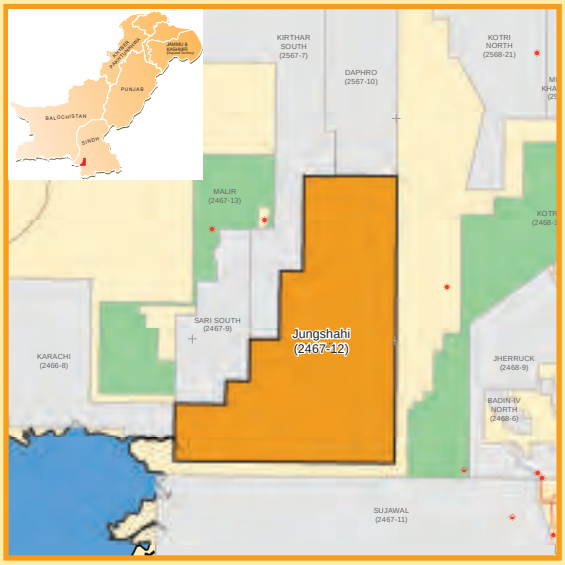
- Block is located just east of Sari and Hundi gas fields
- One prospect identified at proven reservoir levels
- Multiple reservoirs coupled with shallow drilling at 1200 – 1500m depth
- Easy production through EWT: SSGCL pipe line is passing through the block

Grant Date	24 December 2009
Area	2,459.26 sqkm
Working Interest PPL	100%
Prospectivity Zone	III
Play Type	Structural
Expected Hydrocarbon	Gas
Reserves Exposure	40-50 BCF
Work Commitment	505 WU (US$MM 5.05)
WU Discharged	267 WU

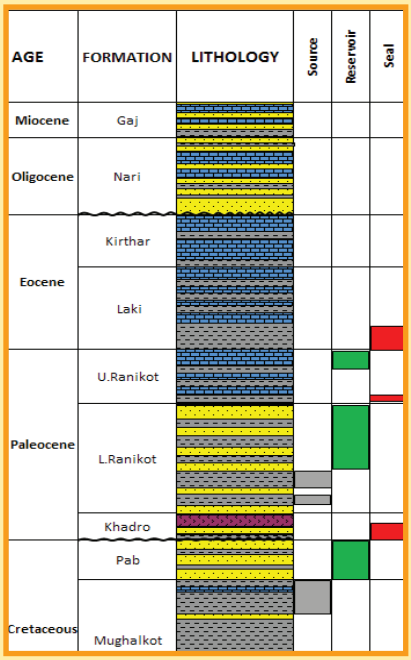
Lead/ Prospect Map



Location Map



Petroleum System



Past Cost (USD Million)

Seismic	7	Well	8
Other Costs	3		
Total Cost	**18**		

*cost as of June 2019

2009
Inhouse G&G data evaluation
Geological field work

1st Licence Year

2nd Licence Year
2D seismic acquisition, processing and interpretation

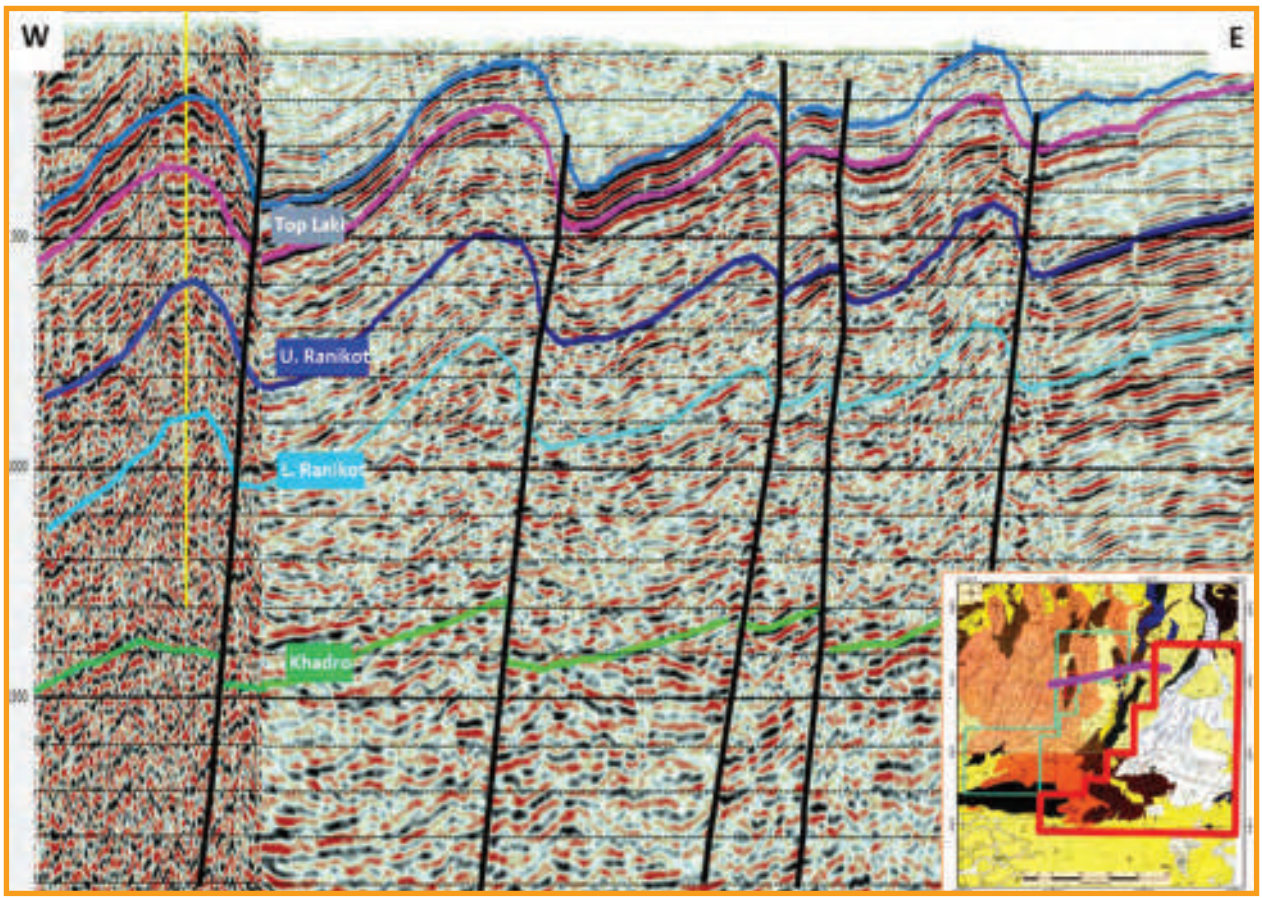
Drilling of 1st exploratory well

3rd Licence Year

Extension
Reprocessing of 2D vintage seismic data

2018-19

Structural style and play concept



Khipro East EL
Lower Indus Basin

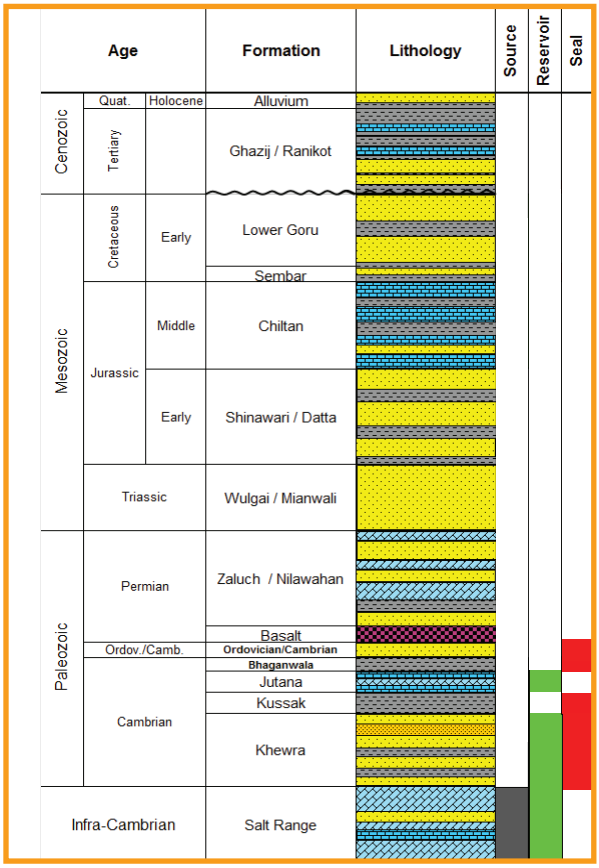
593 Lkm + 399 Lkm
2D seismic data acquisition in 2015 & 2018

105 Lkm + 111 Lkm
Infill 2D seismic acquisition in 2016 & 2018

- Identified one prospect (70 sqkm) and one lead (250 sqkm) at Infra Cambrian level

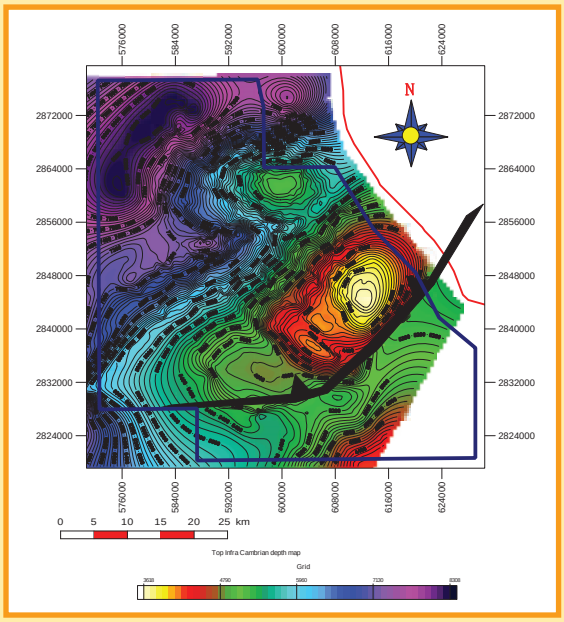
Grant Date	28 February, 2014
Area	2,376.85 sqkm
Working Interest	PPL 97.5%
JV Partners	SEHCL 2.5%
Prospectivity Zone	III
Play Type	Structural
Expected Hydrocarbon	Gas
Expected HC In-place	4-5 TCF
Work Commitment	257 WU (US$MM 2.57)
WU Discharged	275 WU

Petroleum System



Location Map

Lead/ Prospect Map



Past Cost (USD Million)

Seismic	10	Well	0.5
Other Costs	6		
Total Cost	**17**		

*cost as of June 2019

2009

1st Licence Year
Reprocessing of vintage 250 Lkm 2D seismic data

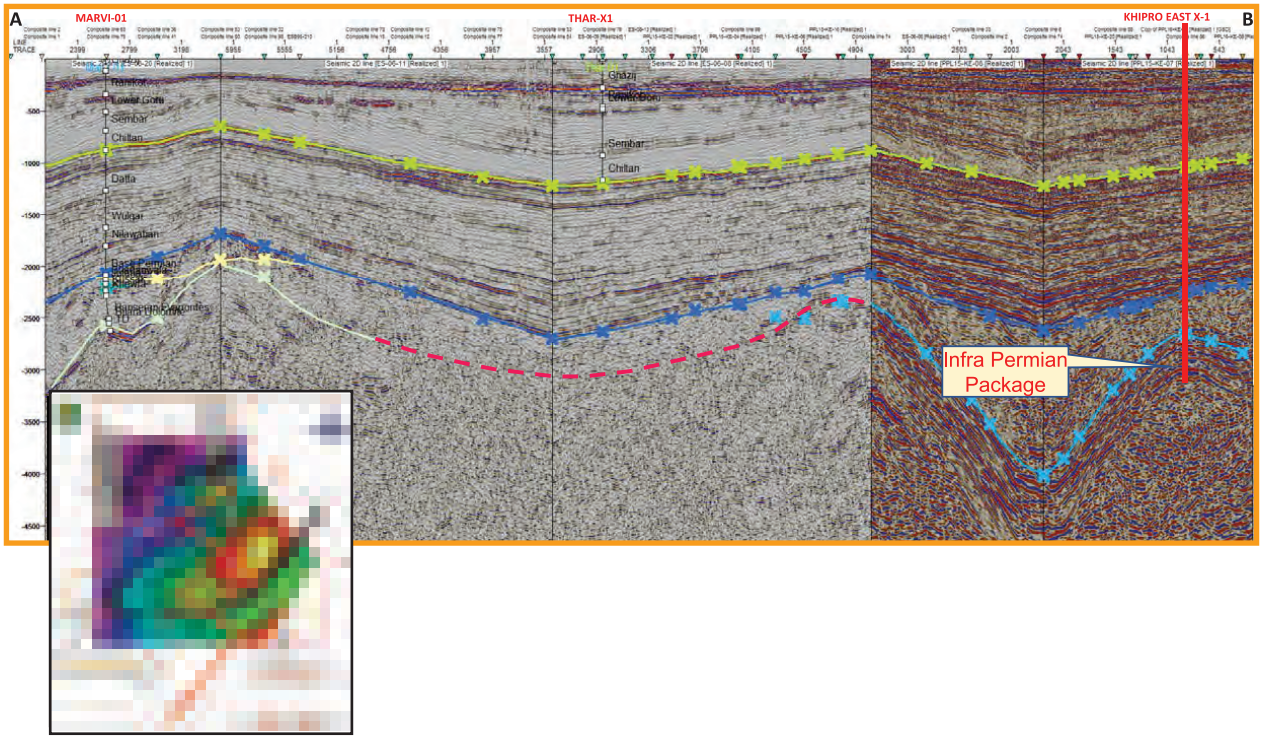
2nd Licence Year
~593 Lkm 2D seismic acquired
Processing and reprocessing of 2D seismic

3rd Licence Year
105+399 Lkm 2D seismic data acquired
2D processing & reprocessing

2018-19

Extension
Drilling of 1st exploratory well planned

Subsurface structural style and play concept



Malir EL
Lower Indus Basin

448 Lkm
2D seismic acquisition in 2014

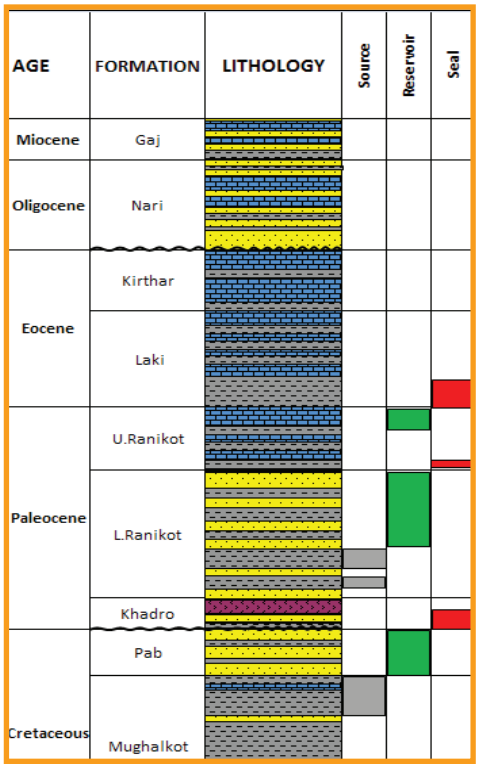
34 Lkm
Infill 2D seismic acquisition in 2016

1st Exploratory Well
Malir X-1
Spud date: 2016, TD: 3000m

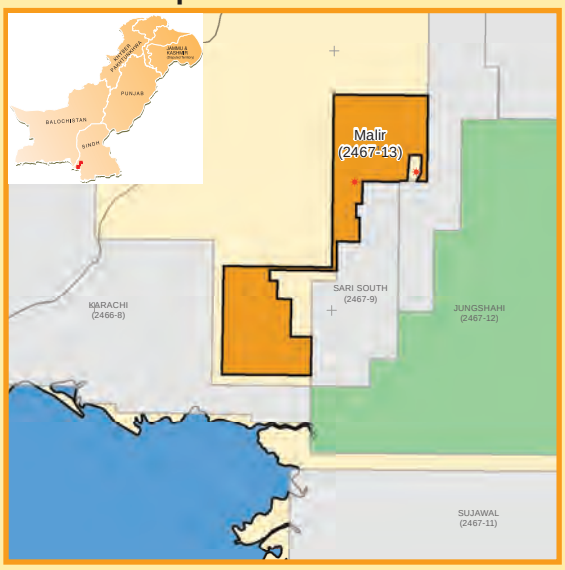
- Proven petroleum system
- Well developed gas infrastructure
- Adjacent to Sari and Hundi gas field
- Two prospects identified at proven reservoir levels

Grant Date	21 February, 2014
Area	764.01 sqkm
Working Interest	PPL 95%
JV Partners	SEHCL 2.5% GHPL 2.5%
Prospectivity Zone	II
Play Type	Structural
Expected Hydrocarbon	Gas
Reserves Exposure	50-100 BCF
Expected HC In-place	507 WU (US$MM 5.07)
WU Discharged	517 WU

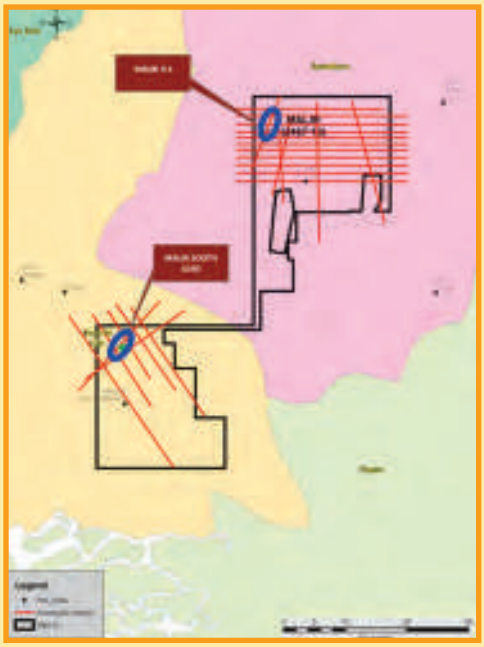
Petroleum System



Location Map



Lead/ Prospect Map



Past Cost (USD Million)

Seismic	5	Well	5.5
Other Costs	3.5		
Total Cost	**14**		

*cost as of June 2019

2014

1st Licence Year
Inhouse G&G evaluation
Interpretation of field processed 2D seismic data
~448 Lkm 2D seismic acquired

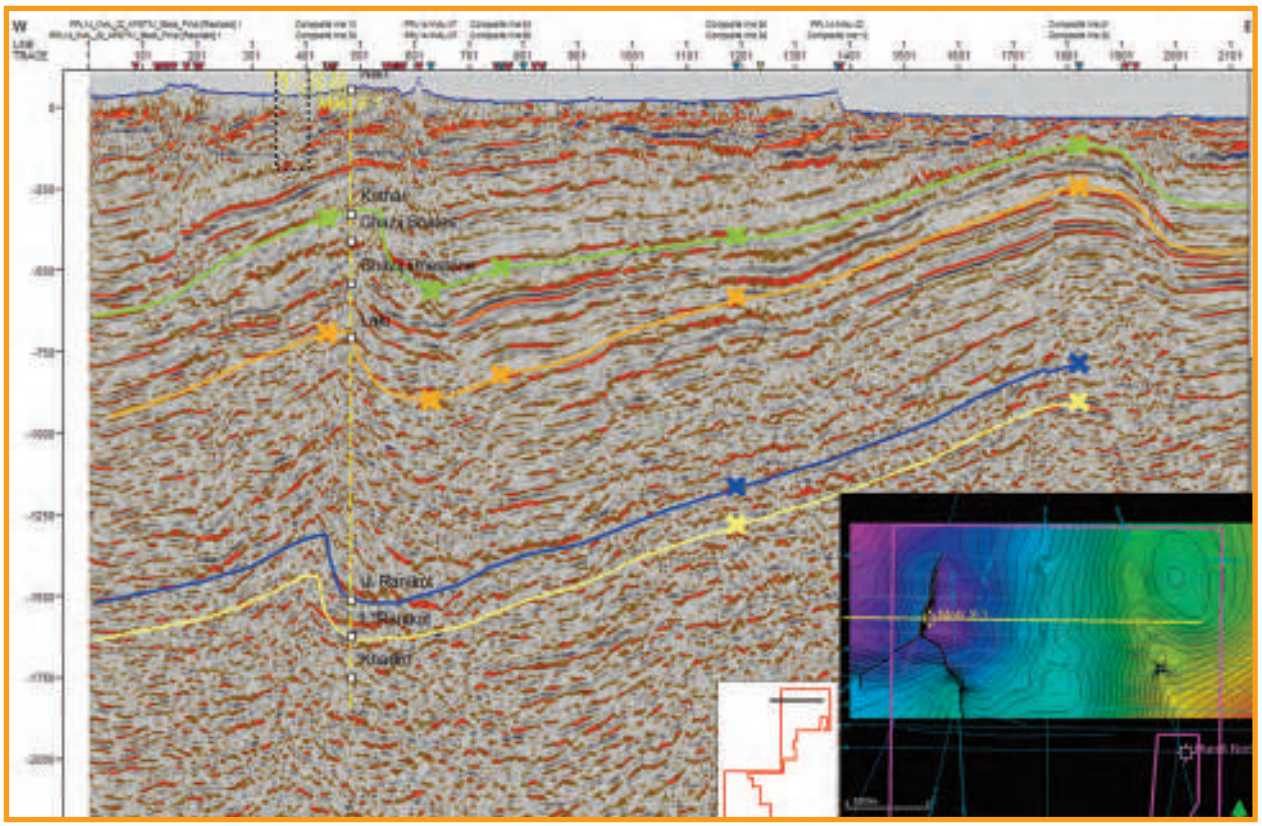
2nd Licence Year
Processing and interpretation of 2D seismic

3rd Licence Year
Drilled 1st exploratory well
34 Lkm infill 2D acquired
Processing / reprocessing of newly acquired 2D seismic over Malir South lead

Extension
2D seismic reprocessing as post well evaluation of Malir X-1

2018-19

Structural style



Sirani EL
Lower Indus Basin

589 Lkm & 289 Lkm
2D seismic acquisition in 2010 & 2013

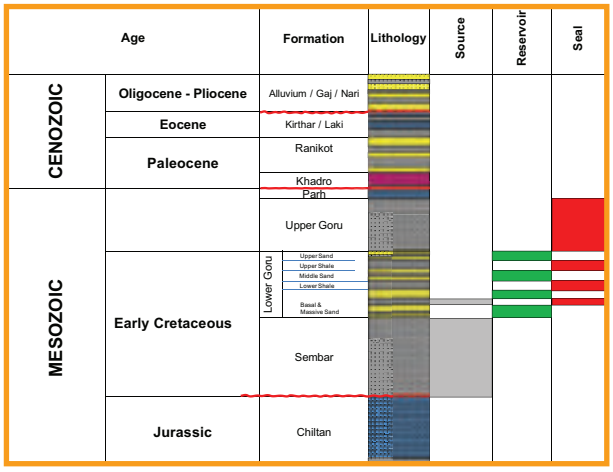
712 sqkm & 312 sqkm
3D seismic acquisition in 2013 & 2017

Exploratory Wells
Malki X-1
Spud date: 2013, TD: 3607m
Shadab X-1
Spud date: 2015, TD: 1291m

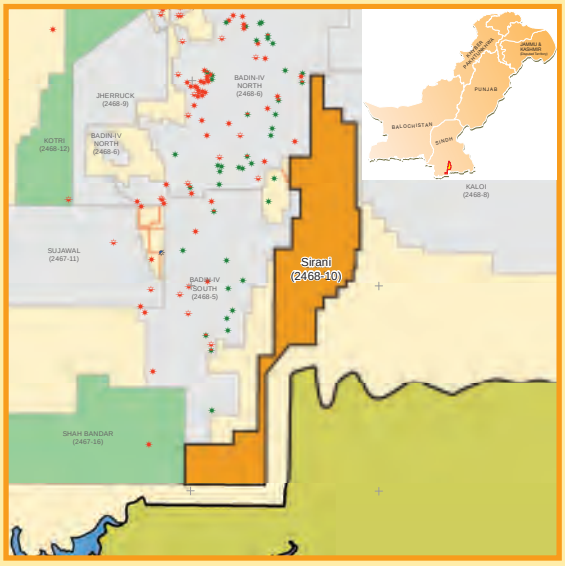
- Multiple plays to be targeted in single well
- Unexplored marshy area, operational challenges
- Producing fields located to the north of southern marshy area

Grant Date	29 April, 2010
Area	1,378.71 sqkm
Working Interest	PPL 75%
JV Partners	GHPL 25%
Prospectivity Zone	III
Play Type	Structural
Expected Hydrocarbon	Oil and Gas
Expected HC In-place	40 - 50 MMBOE
Work Commitment	1005 WU (Phase-I) 1 exp well (Phase-II) 220 sqkm 3D (Phase-II extension)
WU Discharged	1,135.4 WU (Phase-I) 1 exp well (Phase-II) 312 sqkm 3D (Phase-II extension)

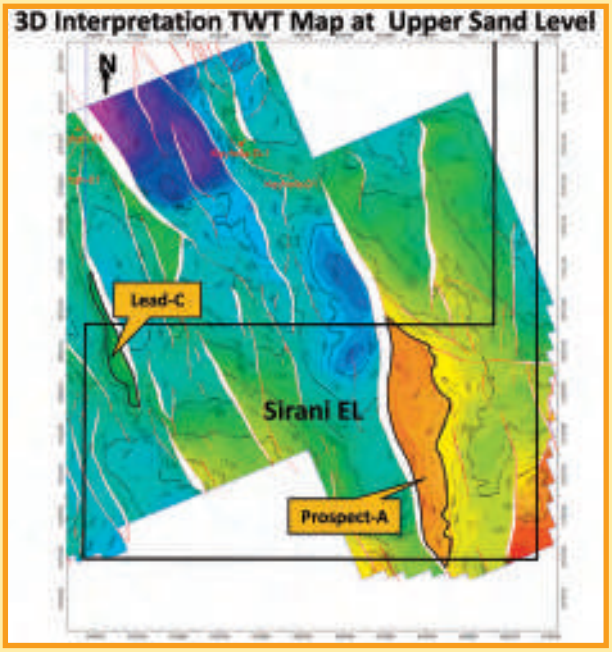
Petroleum System



Location Map



Lead/ Prospect Map



Past Cost (USD Million)

Seismic	38	Well	11
Other Costs	9		
Total Cost	**58**		

*cost as of June 2019

2010

1st & 2nd Licence Year
In-house G&G data evaluation
2D & 3D seismic acquisition, processing & interpretation

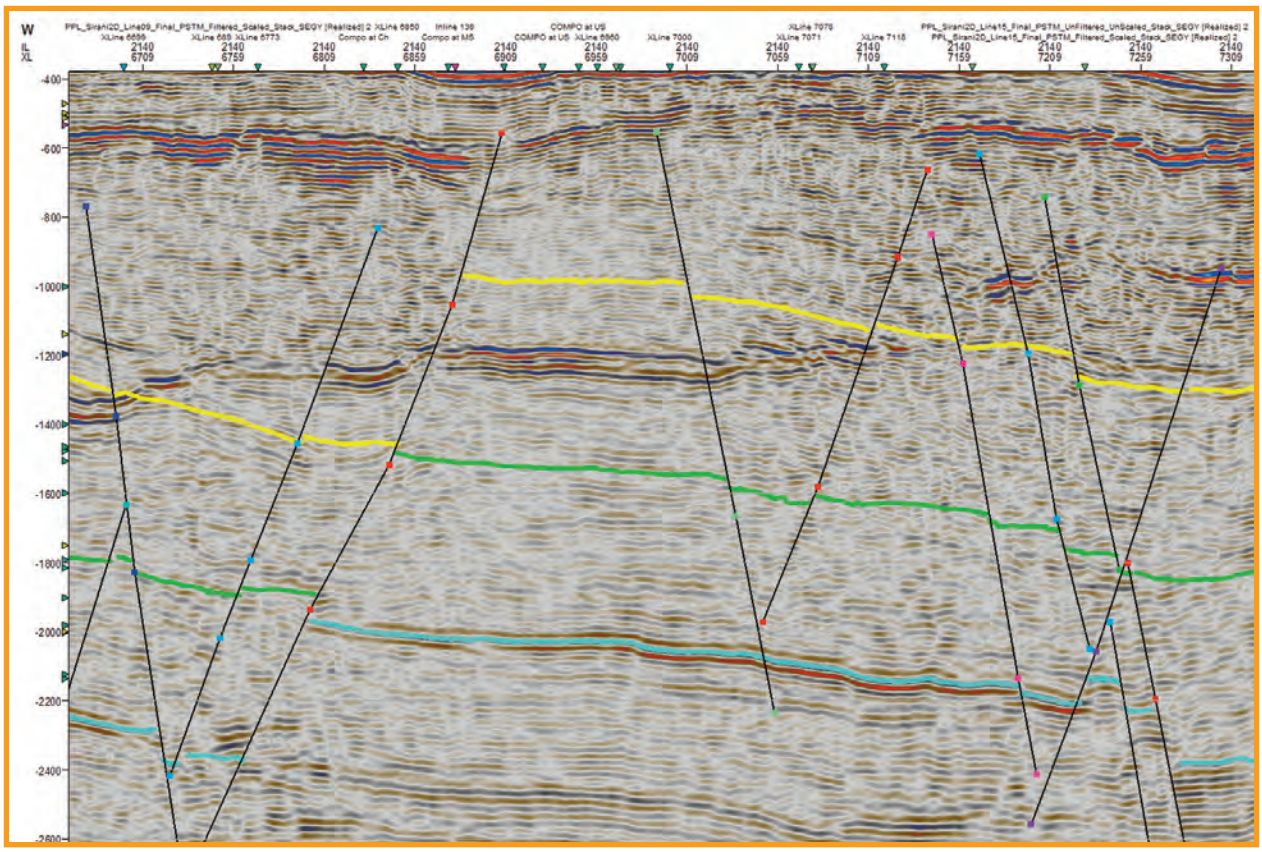
3rd Licence Year
1st exploratory well
Post well evaluation
Evaluation of remaining prospectivity of the block

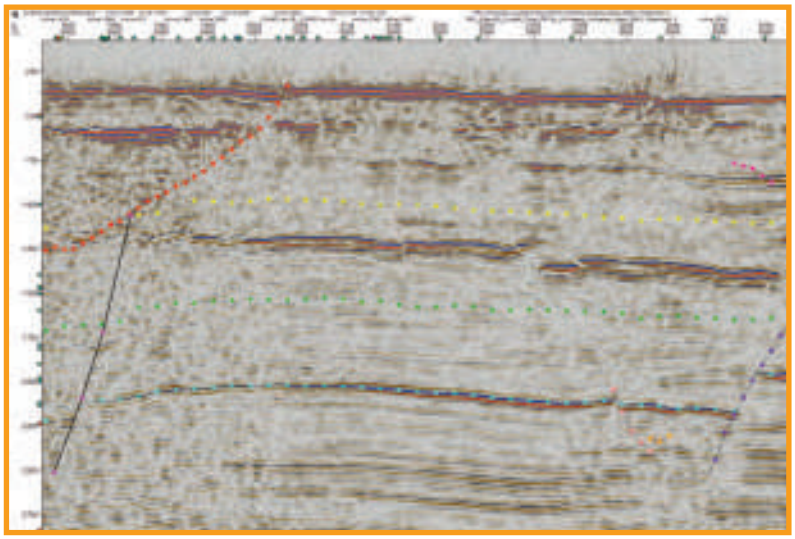
Phase II
2nd exploratory well
Post well analysis
3D seismic acquisition, processing & interpretation

2018-19

Extension
Planning to drill 3rd exploratory well

Structural style in southern marshy area





Barkhan EL
Sulaiman Fold Belt

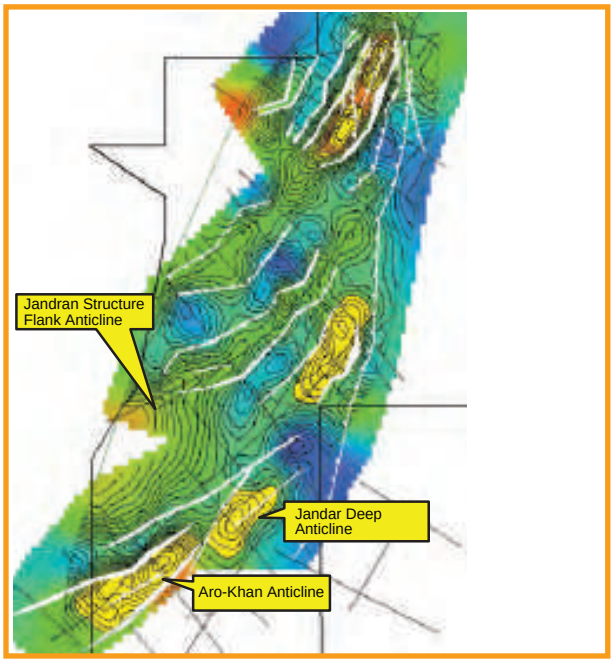
293 Lkm
2D seismic acquisition completed in 2010

Exploratory Wells
Miriwah East X-1
Spud date: 2016, TD: 3585m
Aro Khan X-1
Spud date: 2013, TD: 3000m

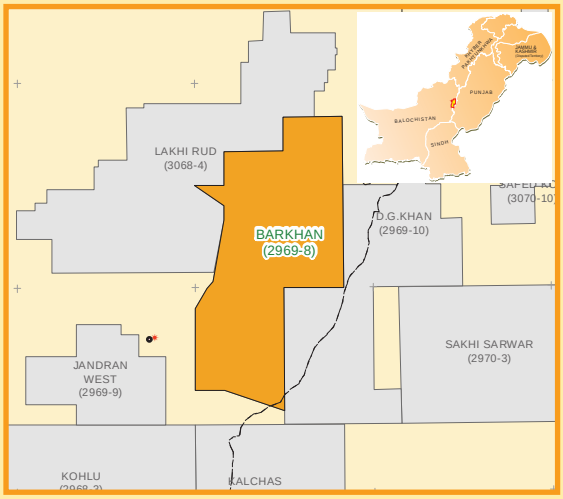
- Located within a hydrocarbon proven area
- Multiple proven reservoir targets
- Several structural leads identified within the block
- Possibility of new deeper plays

Grant Date	29 December, 2005
Area	2104.69 sqkm
Working Interest	PPL 35% PPL Europe 50%
JV Partners	UEPL 15%
Play Type	Structural
Expected Hydrocarbon	Gas
Expected HC In-place	100 – 150 MMboe
Work Commitment	200 Lkm 2D seismic One re-entry & 3 exploratory wells
WU Discharged	293 Lkm 2D seismic Two exploratory wells

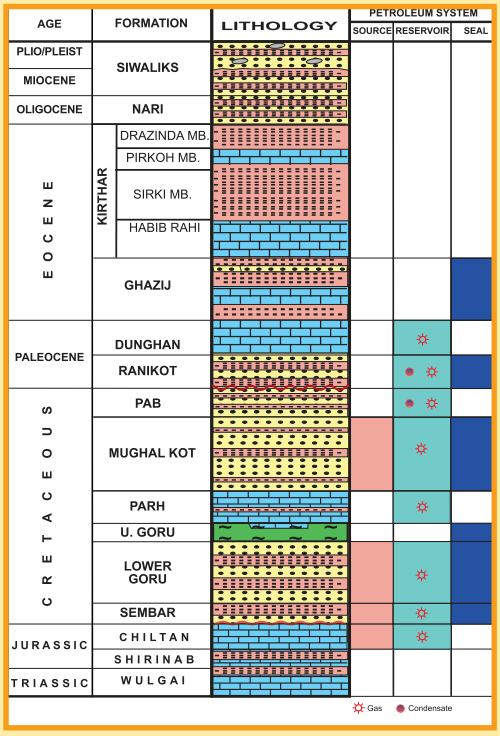
Lead/ Prospect Map



Location Map



Petroleum System



Past Cost (USD Million)

Seismic	9	Well	45.4
Other Costs	11.6		
Total Cost	**66**		

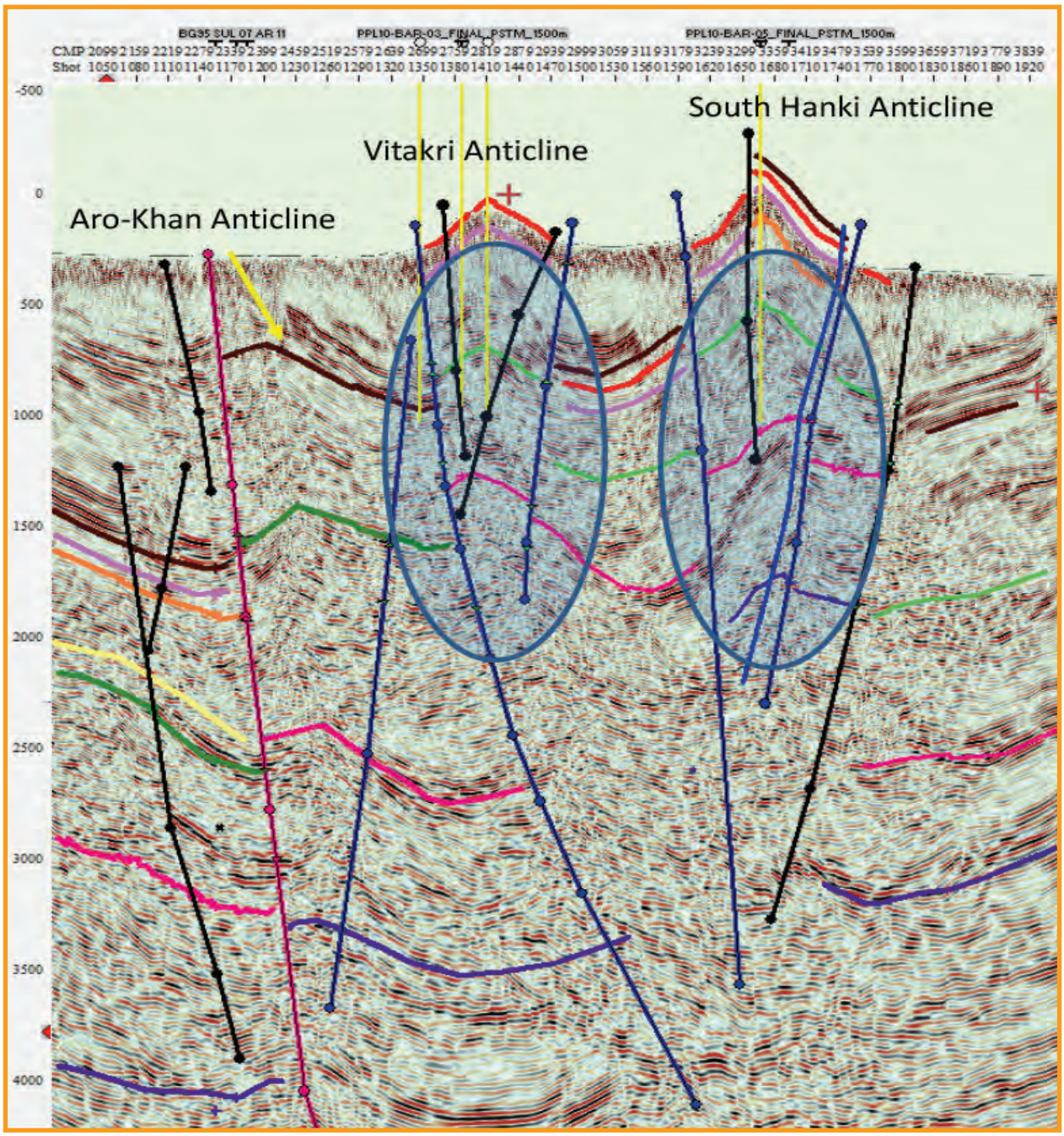
*cost as of June 2019

2005 – 1st Licence Year
G&G data purchase and preliminary G&G evaluation
Reprocessing of ~447 Lkm 2D
Geological field work

2nd Licence Year
2D seismic data acquisition, processing and reprocessing
Drilled 2 exploratory wells

2018-19 – 3rd Licence Year & Extension
Post well analysis
Regional petroleum hydrogeology study
Evaluation of deeper plays
In-house reprocessing of >700 Lkm 2D seismic

Subsurface structure style

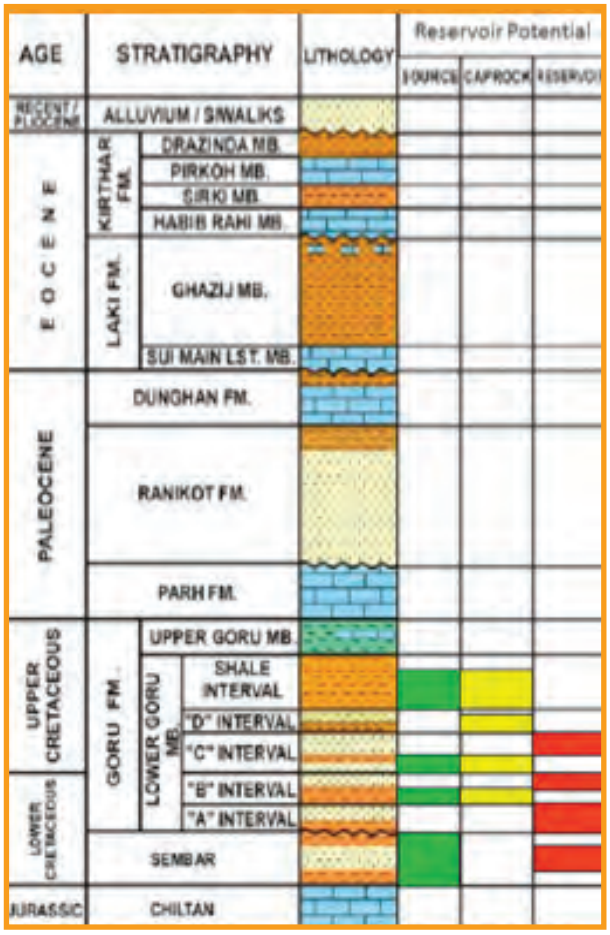


Sorah EL
Middle Indus Basin

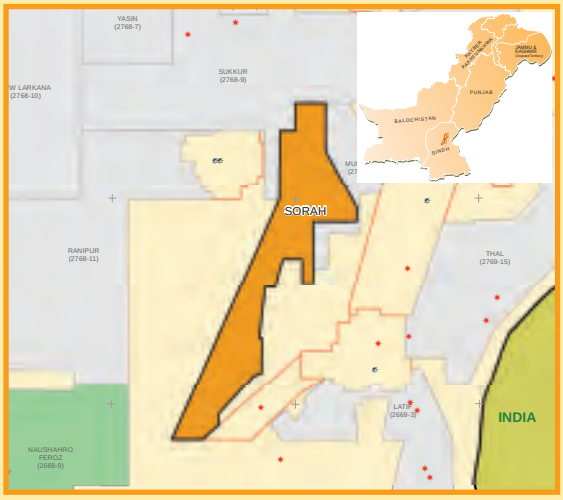
- Block located in prospective basin, surrounded by multi tcf gas fields
- Several leads identified within the block
- Well developed infrastructure nearby block

Grant Date	21 March, 2014
Area	1152 sqkm
Working Interest	PPL 100%
Prospectivity Zone	III
Play Type	Stratigraphic
Expected Hydrocarbon	Gas
Expected HC In-place	100 – 150 Bcf
Work Commitment	250 WU

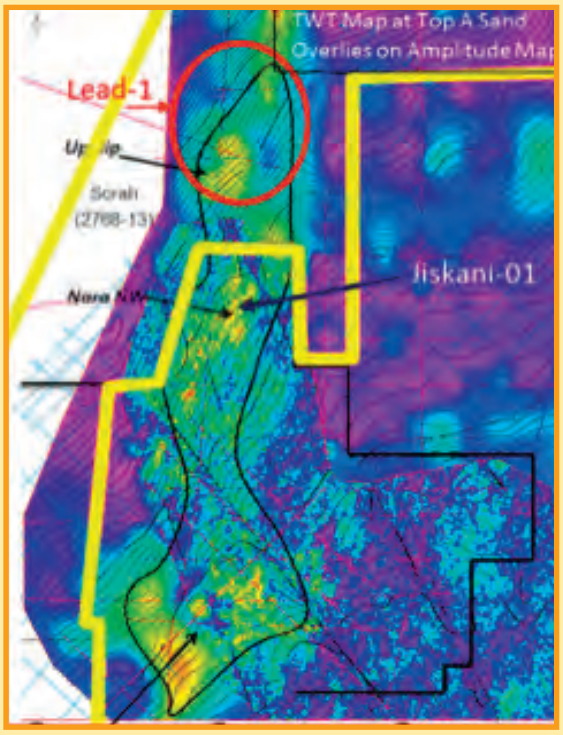
Petroleum System



Location Map



Lead/ Prospect Map



2019
- Data purchasing & review
- Preliminary G&G evaluation
- Seismic planning / designing

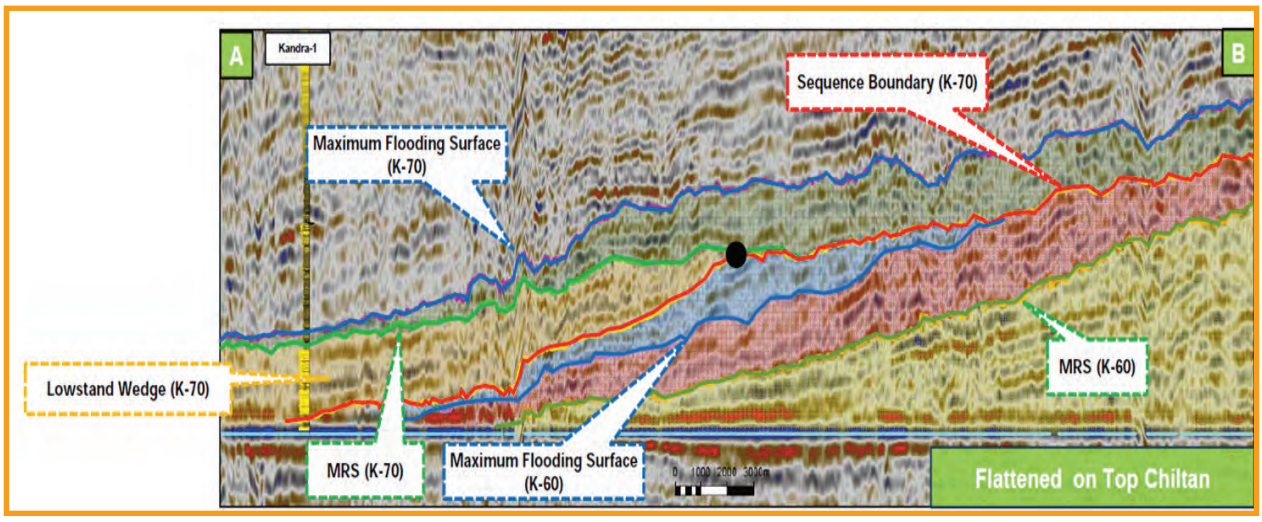
1st Licence Year

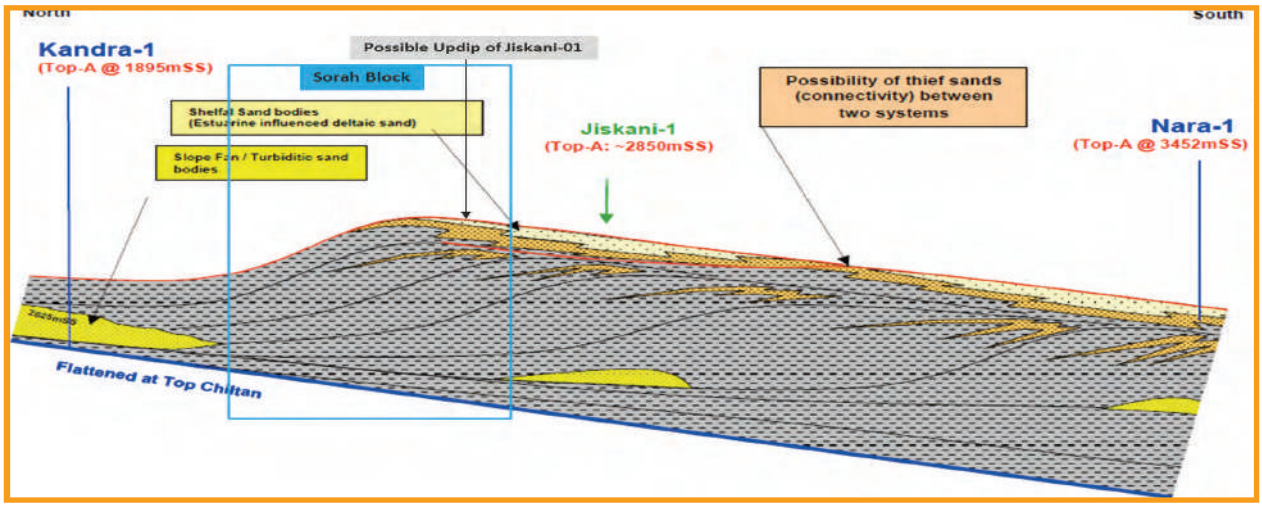
2nd Licence Year
- 3D seismic acquisition and processing

2021
- 3D seismic interpretation
- Drilling of exploratory well

3rd Licence Year

Play Concept





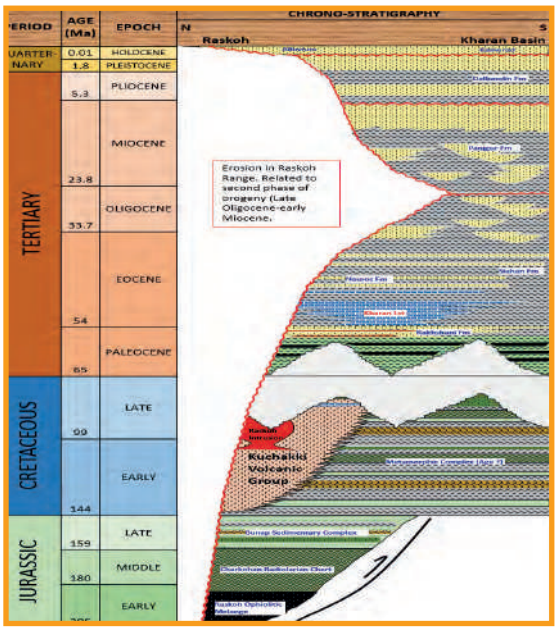
South Kharan EL
Balochistan Basin

775 Lkm
2D seismic data acquisition completed in 2015

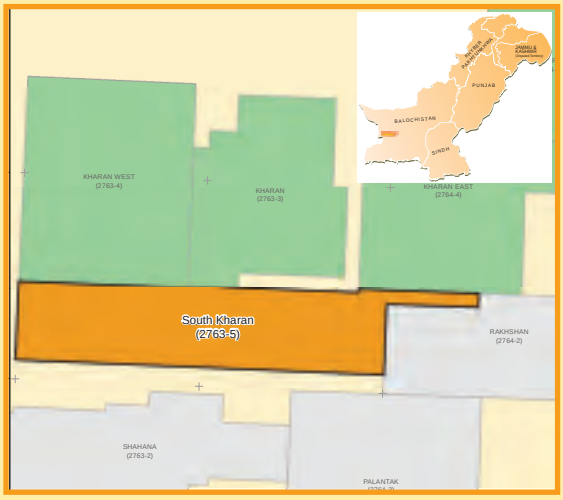
- Possibility of medium to large size discoveries
- Structural leads identified on 2D seismic
- Thick sedimentary section with possibility of several folded structures

Grant Date	21 March, 2014
Area	2204 sqkm
Working Interest	PPL 51%
JV Partners	OGDCL 49%
Prospectivity Zone	I
Play Type	Structural
Expected Hydrocarbon	Gas
Expected HC In-place	1-2 Tcf
Work Commitment	157 WU
WU Discharged	159 WU

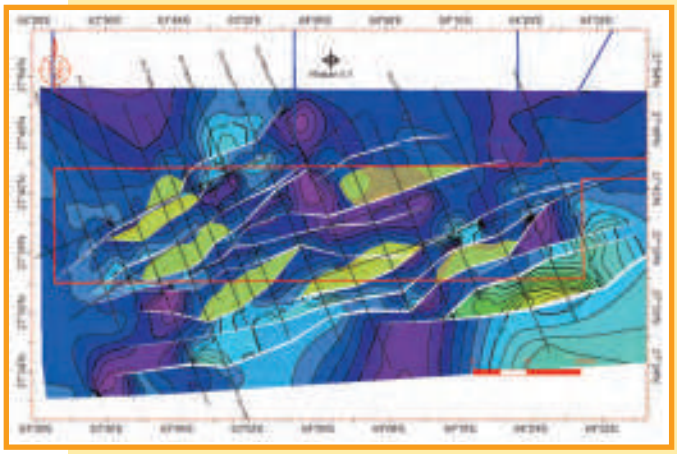
Petroleum System



Location Map



Lead/ Prospect Map



Past Cost (USD Million)

Seismic	7	Well	-
Other Costs	1.6		
Total Cost	**8.6**		

*cost as of June 2019

2014 — IEE Study

1st Licence Year

2nd Licence Year
Acquisiton, processing & reprocessing of newly acquired & vintage 2D seismic
Geological field work
MGCE & 4G survey

2018-19 — G&G data interpretation / integration
Interpretation of 2D seismic
4G integration underway

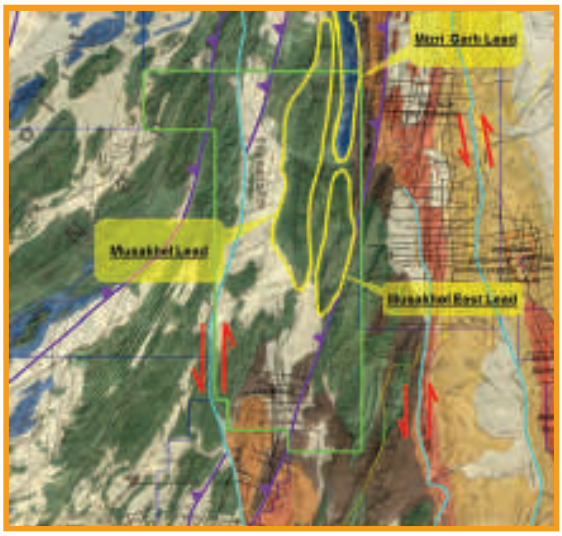
3rd Licence Year

Musakhel EL
Sulaiman Fold Belt

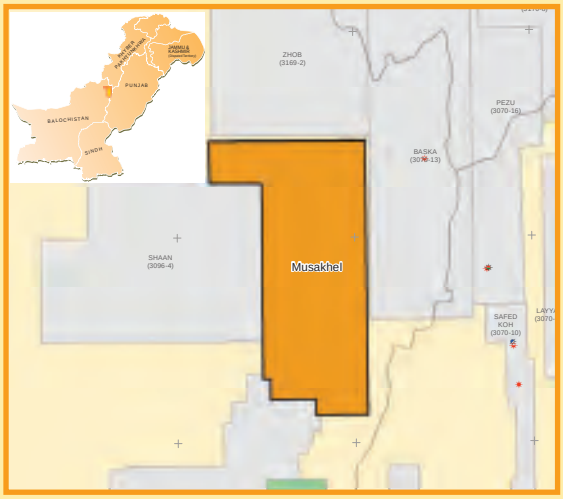
- Several structural leads identified within the block
- Multiple reservoir targets
- Possibility of new deeper plays

Grant Date	20 June, 2019
Area	2176.15 sqkm
Working Interest	PPL 51%
JV Partners	OGDCL 49%
Prospectivity Zone	II
Play Type	Structural
Expected Hydrocarbon	Gas
Expected HC In-place	500 - 700 Bcf
Work Commitment	601 WU

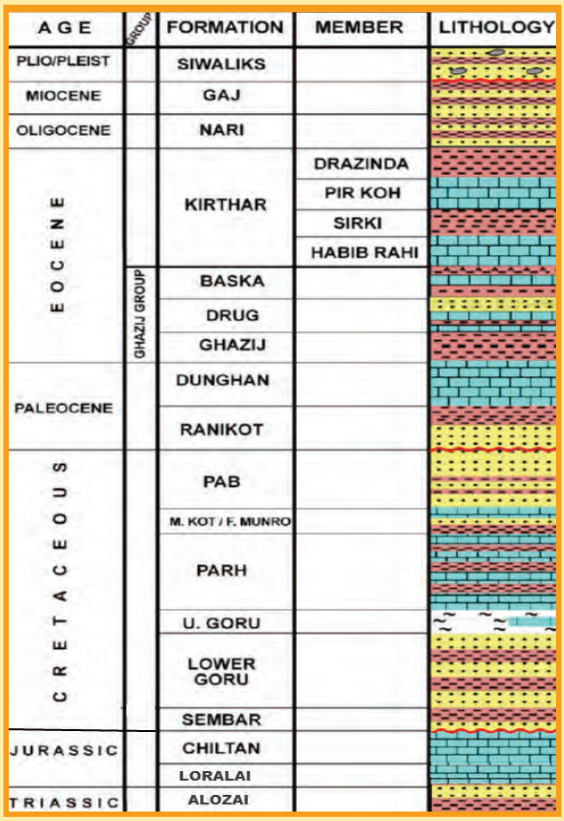
Lead/ Prospect Map



Location Map



Petroleum System



2019

1st Licence Year
- Data purchasing & review
- Preliminary G&G evaluation
- Reprocessing of vintage data
- Acquisition of Grav-Mag data

2nd Licence Year
- 2D seismic acquisition & processing

2021

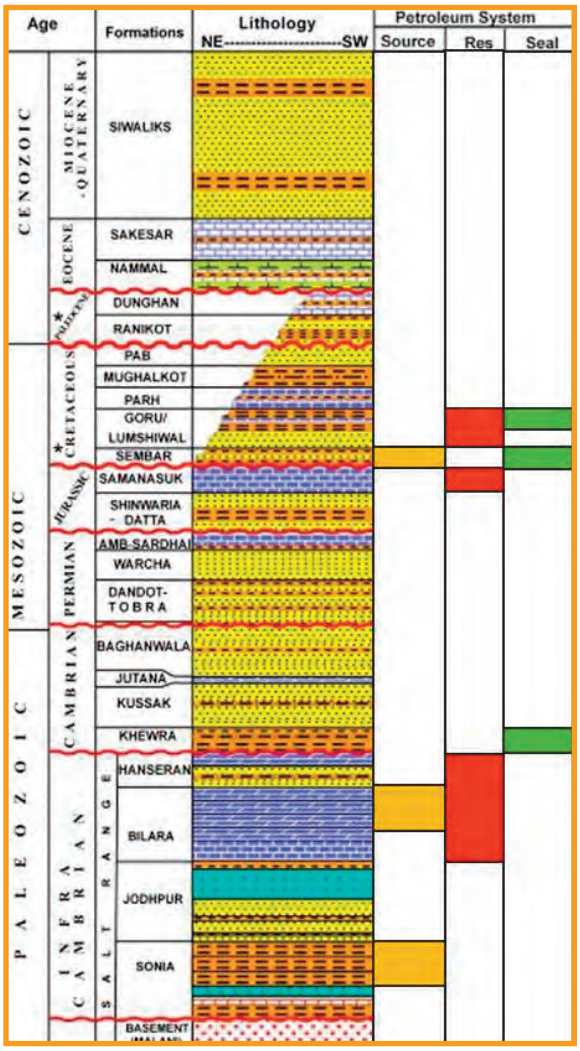
3rd Licence Year
- 2D seismic interpretation
- Drilling of exploratory well

Punjab EL
Punjab Platform

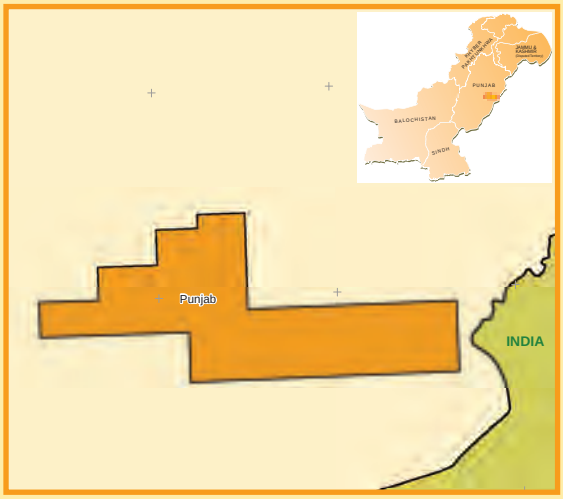
- Provisionally granted to PPL
- Possibility of small to medium size oil discoveries

Grant Date	Provisionally granted
Area	2411 sqkm
Working Interest	PPL 100%
Prospectivity Zone	I/II
Play Type	Structural
Expected Hydrocarbon	Oil
Expected HC In-place	20 - 50 MMboe
Work Commitment	120 WU

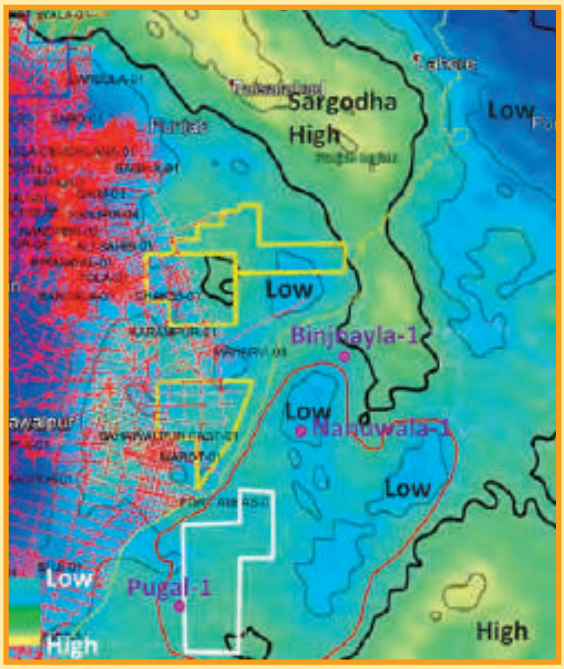
Petroleum System



Location Map



Gravity Map



2019
- Data purchasing & review
- Preliminary G&G evaluation
- Reprocessing of vintage data
- Acquisition of Grav-Mag data

1st Licence Year

2nd Licence Year
- 2D seismic acquisition & processing

2021
- 2D seismic interpretation

3rd Licence Year

Block Available For Farmout - International

Block-8
Iraq

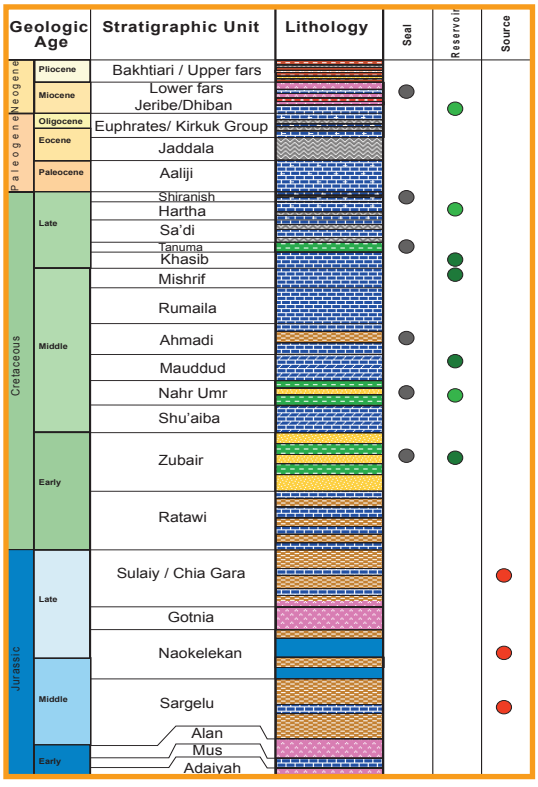
318 sqkm
3D seismic completed in 2017

1st Exploratory Well
Madain-1
Spud date: April 2019, drilling in progress

- Block located in vicinity of super giants like East Baghdad (9-12 BBO), Mansuriyah (3.28 Tcf), Ahdab (500-1,500 MMBoe), Balad, etc.
- Multiple reservoir plays to be targeted in single well
- Several leads/ prospects identified on 3D/ 2D seismic
- First exploratory well is being spud on April 2019

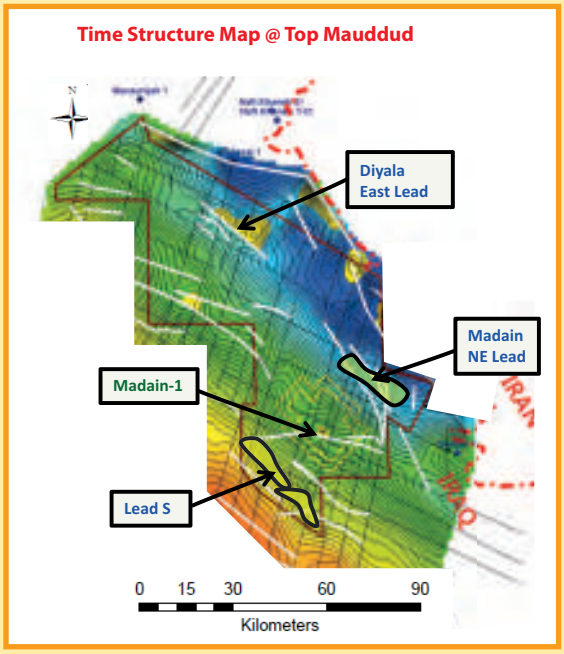
Grant Date	5 December, 2012
Area	6,000 sqkm
Working Interest	PPL-A's 100%
Play Type	Structural
Expected Hydrocarbon	Oil /Gas
Expected HC In-place	500 - 1000 MMboe
Work Commitment	51500 Lkm 2D or 300 sqkm 3D seismic acquisition One exploratory well
WU Discharged	318 sqkm 3D seismic

Petroleum System



Location Map

Lead/ Prospect Map



Past Cost (USD Million)

Seismic	11	Well	11
Other Costs	40		
Total Cost	**62**		

*cost as of June 2019

2012

Inhouse G&G data evaluation
IEE study

1st-3rd Year

4th Year

Acquisition of 3D seismic completed

Prospect "M" has been firmed up & is ready for drilling

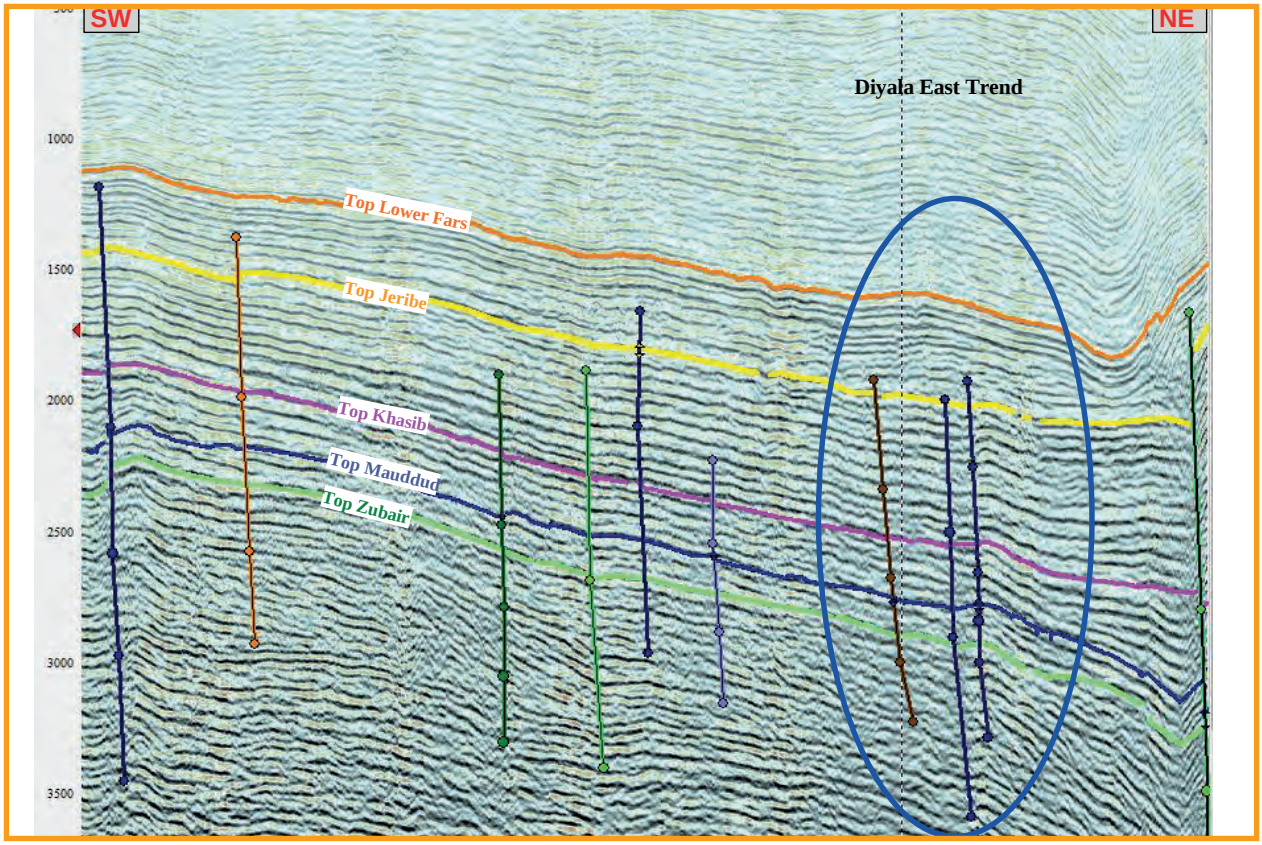
5th Year

6th Year

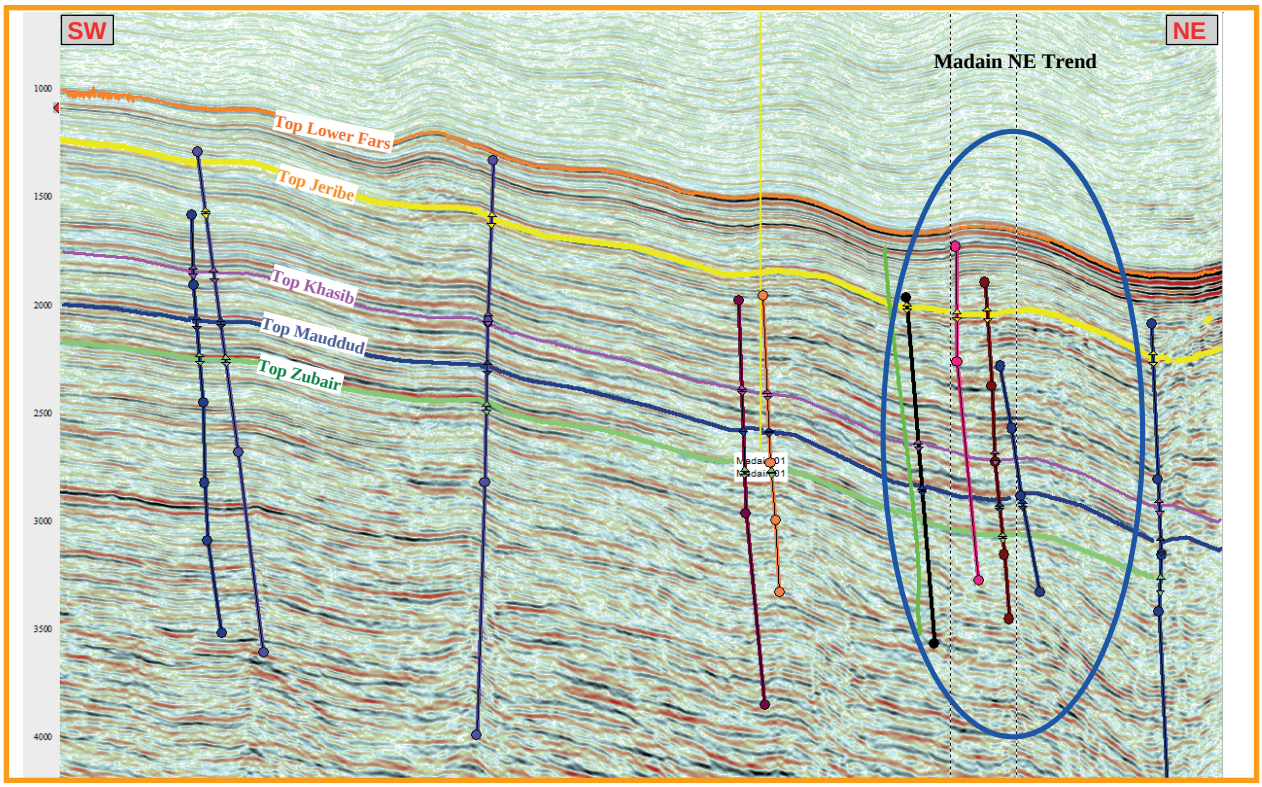
Drilling of 1st exploratory well

2018

Seismic section along Diyala East Lead



Madain NE Lead



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