
E&P Data Management from Regulatory Perspective

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SUPERINTENDING ENGINEER(IT)

DIRECTORATE GENERAL OF HYDROCARBONS, DGH

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Directorate General of Hydrocarbons

Established through a Government of India resolution on 8th April 1993



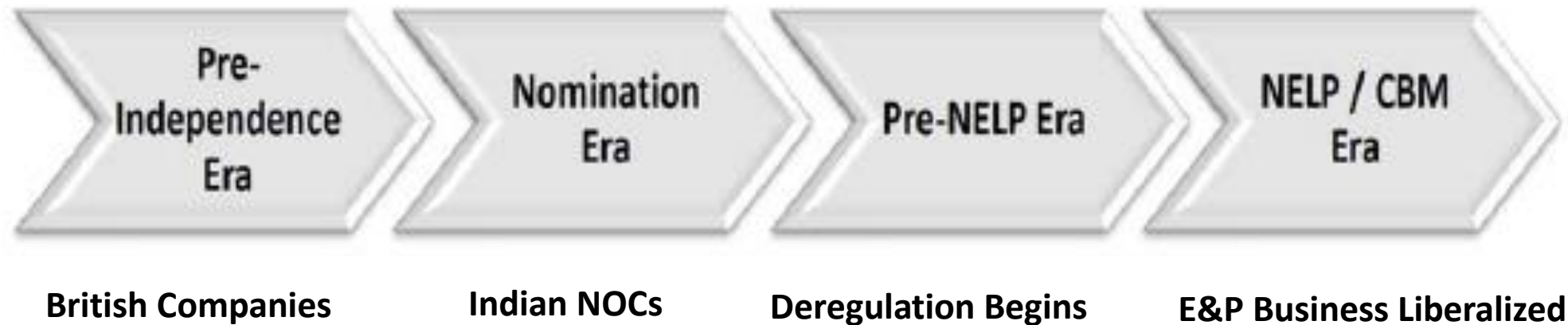
Directorate General of Hydrocarbons

- Functions under administrative control of MoPNG, Gov of India
- Provides technical advice to the Ministry of Petroleum and Natural Gas
- Reviews the exploration programmes under NELP
- Advises the Government on the offering of acreage
- Mandated to regulate the preservation, upkeep and storage of data and samples pertaining to petroleum exploration

Roadmap

- ❑ Evolution of India's E&P Regime
- ❑ Brief account of current E&P activity in India under PSC regime
- ❑ Typical PSC business process at DGH
- ❑ Data classes needed to be handled
- ❑ National Data Repository (NDR)
- ❑ E&P Data management challenges and expectations

Evolution of India's E&P Regime



Brief account of current E&P activity

Explorations:

- Total no of blocks offered during Pre-NELP : 28
- Total no of NELP rounds held : 9
- Total no of blocks offered during NELP : 360
- Total no of exploration blocks awarded : 282

Brief account of current E&P activity

Discoveries:

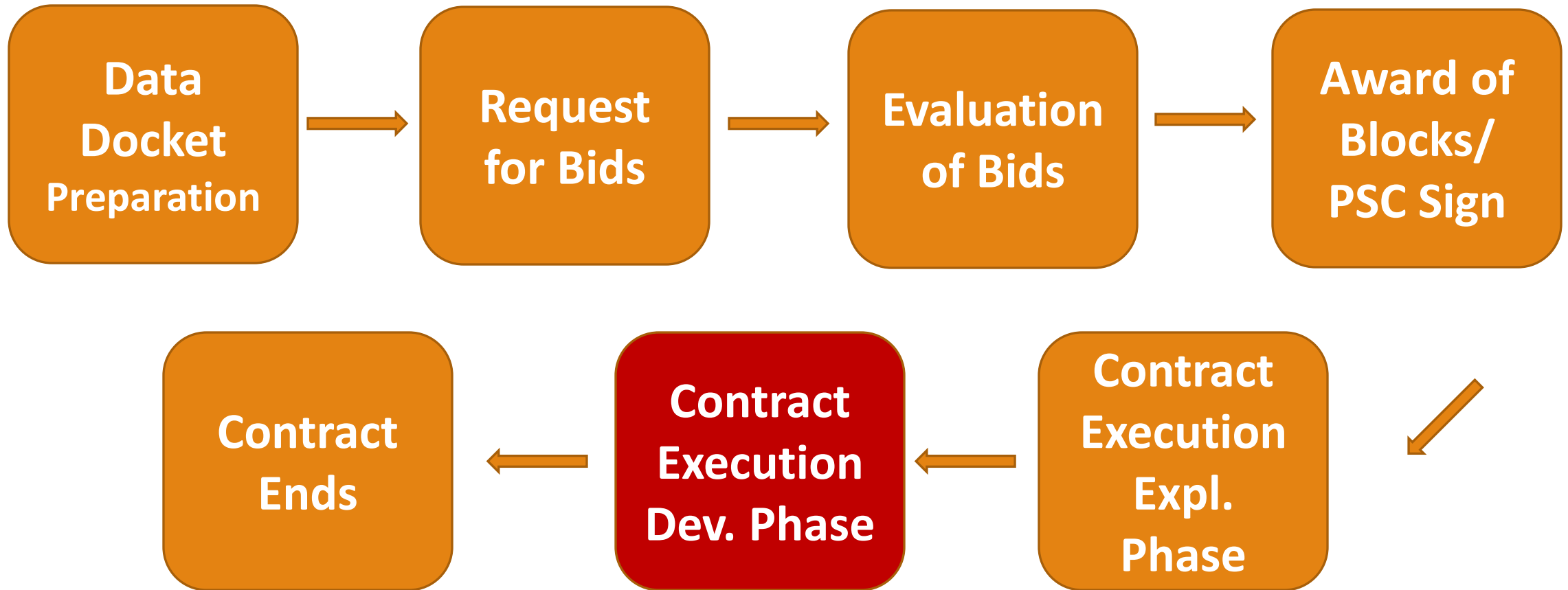
- Total discoveries so far : 810
- Oil Discoveries : 550
- Gas Discoveries : 260
- Discoveries by NOCs : 610
- Discoveries by Pvt. and JV Companies: 200
- Discoveries during NELP regimes: 200

Brief account of current E&P activity

Coal Bed Methane (CBM):

- Total CBM bidding rounds : 4 + (one nomination)
- Total CBM blocks awarded : 33
- CBM blocks under production : 3

Typical PSC business process at DGH



Typical PSC business process at DGH

Stake holders and parties involved

- Various central ministries (MoEF, MoD, Law etc.)
- Various state ministries
- E&P Operators
- Different institutions
- General public

Data Classes Handled

NELP Bid Docket Preparation

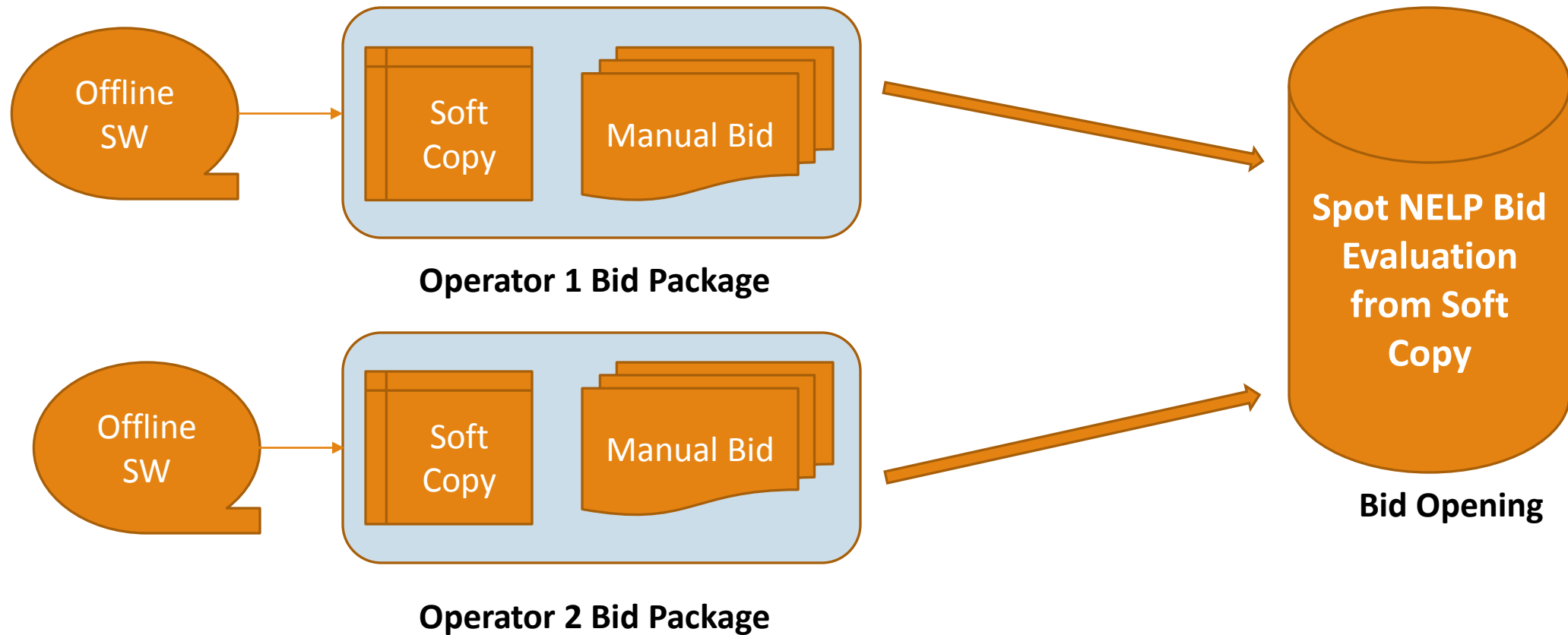
- Seismic data
- Log data
- Well data
- Previous well completion report
- Any available technical report/data

Data Classes Handled

Bid Evaluation

- Company & consortium information
- Technical capability
- Offered work program
- Fiscal package
- Physical bids and contract copies

On the spot bid evaluation





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NELP-IX Bid Evaluation

[Home](#)[Master](#)[Fiscal Package](#)[Upload Data](#)[Run Processes](#)[Reports](#)[Ad-Hoc Reports](#)[Log Out](#)

NPV

Block Bidder

S.No.	Scenario	NPV	Weighted Average	select
1	Low Price - Low Reserve	108.294970	6.2377902720	Detail
2	Low Price - Med Reserve	120.434870	15.0302717760	Detail
3	Low Price - High Reserve	133.195880	7.6720826880	Detail
4	Med Price - Low Reserve	340.720220	42.5218834560	Detail
5	Med Price - Med Reserve	378.2513	102.27915152	Detail
6	Med Price - High Reserve	416.464670	51.9747908160	Detail
7	High Price - Low Reserve	626.9045	36.10969920	Detail
8	High Price - Med Reserve	688.874860	85.9715825280	Detail
9	High Price - High Reserve	751.514480	43.2872340480	Detail

Total Weighted Average : 391.084486304

[PRINT](#)



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NELP-IX Bid Evaluation



Home Master Fiscal Package Upload Data Run Processes Reports Ad-Hoc Reports Log Out

Block Wise Detail Marks

Block Name : * MB-DWN-2010/1

Technical Capability (Deep Water)

Position	Bidder Name	I	II	III	IV	V	VI	VII	Total
1	BGEPIL50-BHPB50	1.36541	3	4	3.8176	4	2	4	22.18301
2	ONGC35-OIL35-GAIL30	3	3	0.34628	0	3.03712	2	0	11.3834

Work Programme Evaluation

Position	Bidder Name	2D Point	3D Point	Well Point	Total
1	BGEPIL50-BHPB50	2.89947	8	13	23.89947
2	ONGC35-OIL35-GAIL30	4	0	0	4

Fiscal Evaluation

Position	Bidder Name	Fiscal Point
1	BGEPIL50-BHPB50	50
2	ONGC35-OIL35-GAIL30	6.19161

Summary

Position	Bidder Name	Technical Capability	Work Programmes	Fiscal	Total
1	BGEPIL50-BHPB50	22.18301	23.89947	50	96.08248
2	ONGC35-OIL35-GAIL30	11.3834	4	6.19161	21.57501

Data Classes Handled: PSC Execution

Structured Data

- Work program budget
- Bank guarantee
- Minimum work program (MWP) 2D(API), 3D(API), Wells
- Discovery data
- Actual work progress data
- Production data
- Financial figures etc.

Data Classes Handled: PSC Execution

Semi-Structured Data

- Field development program (FDP)
- Declaration of commerciality (DOC) report
- Format A, B while declaring discovery
- Various G&G test results etc.
- Clearances data/record from various ministries/agencies

Data Classes Handled: PSC Execution

Unstructured Data

- Numerous correspondences
- Various workflow related data
- Various G&G reports/documents
- Well completion reports
- Business reports like audited accounts
- Legal data like arbitration reports
- RTI, parliamentary query reports etc.



DASHBOARD

PSC BLOCKS ▾

PSC FIELDS ▾

DISCOVERIES ▾

CBM BLOCKS ▾

PRODUCTION ▾

OTHERS ▾

India's E & P Activity Dashboard

Summary

PSC Blocks

PSC Fields

Discoveries

CBM Blocks

Expenditure/Revenue

Production

EC

Shale Oil/Gas

Overall PSC (Blocks/Fields) Summary

Current Status	Total Nos.
OPERATIONAL	152
PROPOSED FOR RELINQUISHMENT	19
PEL AWAITED	9
RELINQUISHED	131
Total	311

[View Details](#)Effective Operational Exploration Blocks(**116**)=Operational(**152**) -Fields(**27**)-Blocks Fully Converted to Fields(**9**)

Work Program Budget Status for Operational Exploration Blocks for 2014 - 2015

WP Budget Status	No. Of Blocks
MC REVIEWED	89
MC SCHEDULED	6
NOT APPLICABLE	14
NOT SUBMITTED	2

Bank Guarantee Submission Summary for Operational Exploration Blocks for 2014 - 2015

Bank Guarantee Status	No. Of Blocks
BG NOT REQUIRED	42
BG SUBMITTED	72
Total	114

[View Details](#)

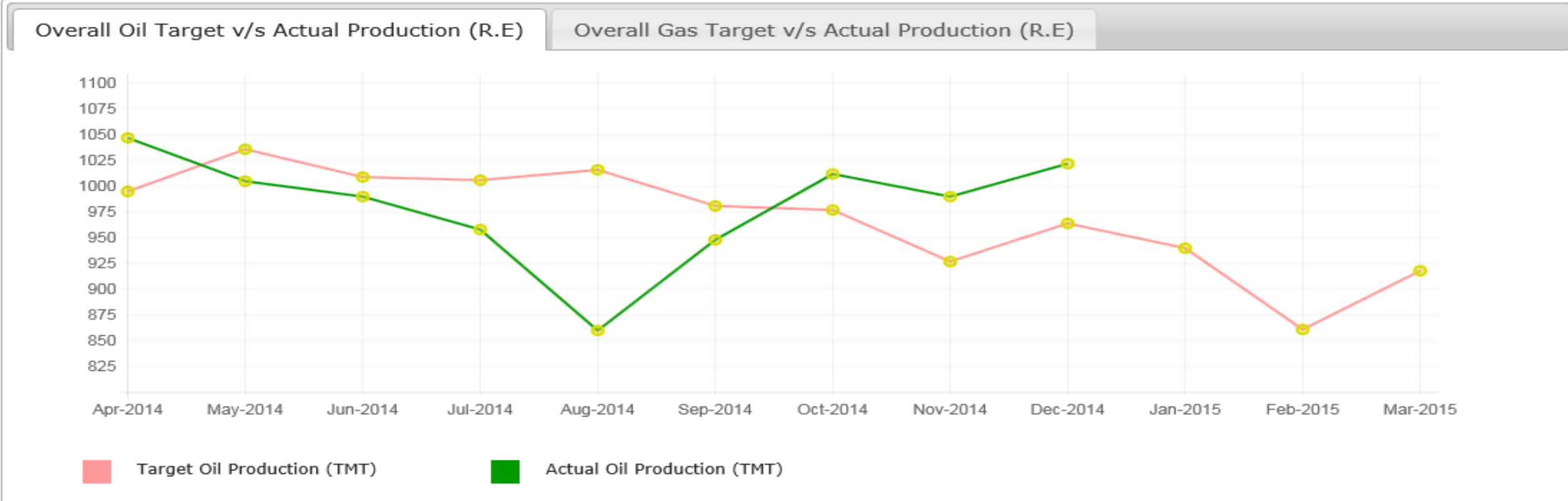


Overall R.E Target vs Actual Production

As on December, 2014

--Select Financial Year--

Showing Overall R.E. Production Target v/s Actual for FY 14-15



Month	Oil Target(TMT)	Actual Oil Production (TMT)	Gas Target(MMSCM)	Actual Gas Production (MMSCM)
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Data Classes Handled: PSC Execution

Core G&G Data (NELP IX Clause 26.1):

NELP IX 26.1::The Contractor shall, promptly after they become available in India, provide the Government, free of cost, with all data obtained as a result of Petroleum Operations under the Contract including, but not limited to, geological, geophysical, geochemical, petrophysical, engineering, Well logs, maps, magnetic tapes, cores, cuttings and production data as well as all interpretative and derivative data, including reports, analyses, interpretations and evaluation prepared in respect of Petroleum Operations (hereinafter referred to as “Data”). Data shall be the property of the Government, provided, however, that the Contractor shall have the right to make use of such Data, free of cost, for the purpose of Petroleum Operations under this Contract as provided herein.

Data Classes Handled: PSC Execution

Core G&G Data

- Seismic raw, processed
- Well logs
- Interpreted Projects
- Geophysical, petrophysical, geochemical reports etc.

Meta data/Inventory Database



Welcome CHANDAN KUMAR
BARMAN

DIRECTORATE GENERAL OF HYDROCARBONS

Tape Library Information System



1/29/2015 3:41:22 PM

[HomePage](#)[Master Screen](#)[Data Details](#)[Transaction](#)[Reports](#)[Other](#)[LogOut](#)

Report :: Basin

Basin:	<input type="text" value="CAMBAY"/>	▼
<input type="button" value="Summary"/>		<input type="button" value="Details"/>

Report CAMBAY			
Survey	Data Type	Archival ID	Block
AMBE_3D_CAIRN	2D PROCESSED	PC0016	CB-OS/2
AMBE_3D_CAIRN	3D PROCESSED	NA	CB-OS/2
AMBE_3D_CAIRN	3D PROCESSED	PC0016	CB-OS/2
AMBE_3D_CAIRN	3D RAW	NA	CB-OS/2
AMBE_3D_CAIRN	NAV	NA	CB-OS/2
AMBE_3D_CAIRN	REPORT	NA	CB-OS/2
CAMBAY_2D_CAIRN	2D PROCESSED	PC0016	CB-OS/2
CAMBAY_2D_CAIRN	2D RAW	NA	CB-OS/2
CAMBAY_2D_CAIRN	SUPPORT DATA	PC0016	CB-OS/2
CAMBAY_2D_ONGC	2D PROCESSED	PC0016	CB-ONN-2000/1
CAMBAY_2D_ONGC	2D PROCESSED	PC0016	CB-ONN-2000/2
CAMBAY_2D_ONGC	2D PROCESSED	PC0016	CB-ONN-2001/1
CAMBAY_2D_ONGC	NAV	PC0016	CB-ONN-2000/1
CAMBAY_2D_ONGC	NAV	PC0016	CB-ONN-2000/2
CAMBAY_3D_ONGC	2D PROCESSED	NA	CB-ONN-2000/1
CAMBAY_3D_ONGC	3D RAW	NA	CB-ONN-2000/1
CAMBAY_3D_ONGC	3D RE_PROC	NA	CB-ONN-2000/1
CBONN2005_DATA_IOCL	2D RAW	NA	CB-ONN-2005/2

Indian National Data Repository



ndrdgh.gov.in (proposed)

Indian National Data Repository

It is a government sponsored data bank to preserve and disseminate upstream oil and gas information and data in order to promote and regulate hydrocarbon exploration and development activities in the country.

Indian National Data Repository

Purpose:

- To preserve national data treasure in upstream hydrocarbon sector
- To promote E&P activities
- To support national policies on hydrocarbon explorations
- To improve world visibility of exploration opportunity

Indian National Data Repository

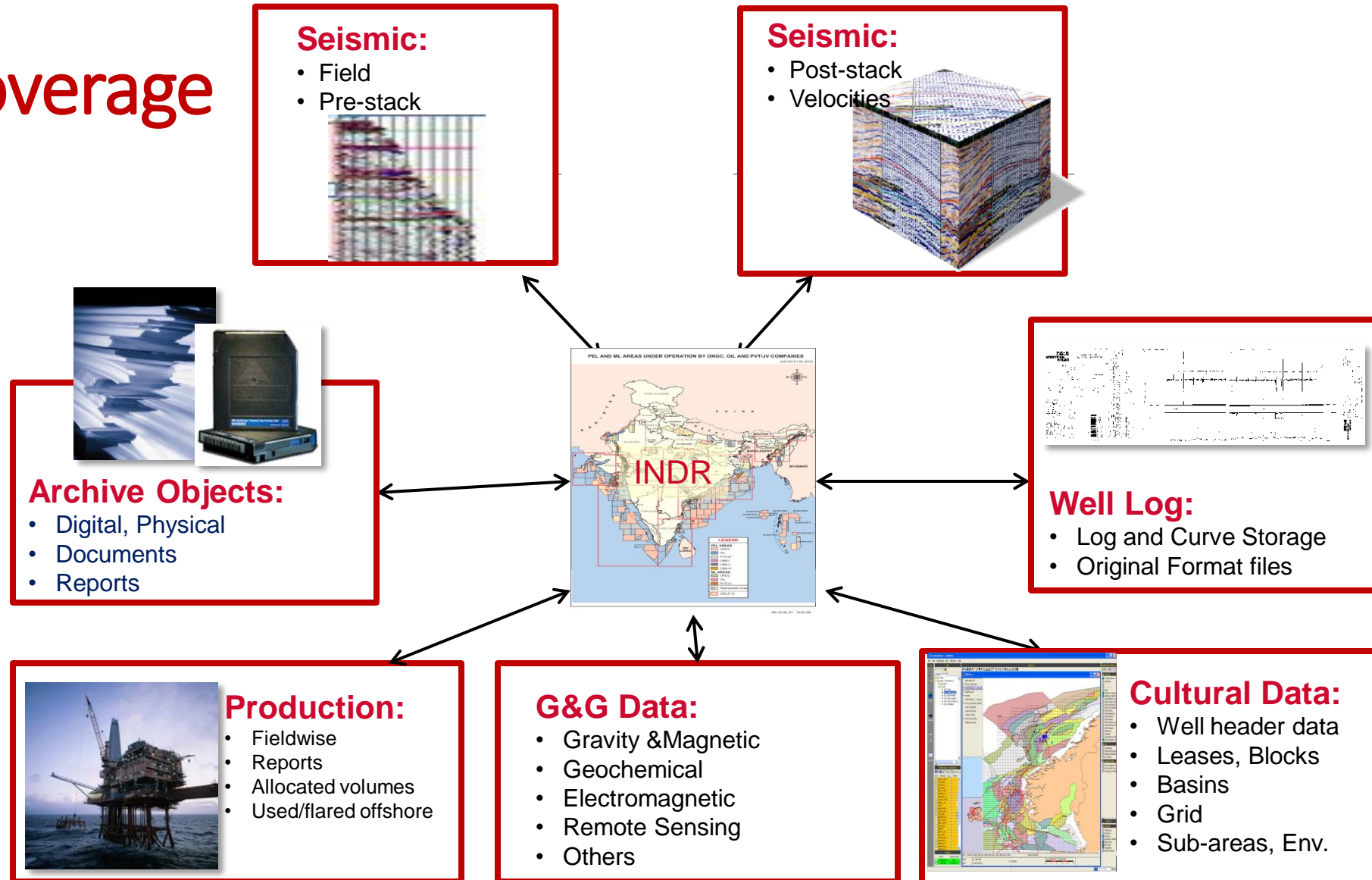
Salient Features:

- Standardized and quality controlled upstream E&P data of India
- Fully owned by Gov. of India at DGH's premise in OIDB Bhawan, Noida
- Contractor would operate for 6 years (extensible by +2 years)
- Multi client data hosting
- Role based multi-level authorization
- Web based/GIS based data viewing and ordering
- DR infrastructure provisioned
- Contractor is M/s Halliburton

Regulations with regard to E&P data submission and disclosure in INDR

Rules	Regime	Non-proprietary	Proprietary
PNG (Amendment) Rules, 2006	Data earlier obtained or to be obtained	Prompt submission of all data obtained as a result of Petroleum Operations under the license or lease, free of cost.	
		Disclose at any time	5 years
PSC Article 26.1	NELP I-IX	Prompt submission of all data obtained as a result of Petroleum Operations under the Contract, free of cost.	
PSC Article 26.8	NELP I-IX	Original and copies of data to be handed over within one year from the date of relinquishment or surrender	
PSC Article 26.8	NELP VI-IX	Disclose at any time	3 years

Data Coverage



Indian National Data Repository

Current Status:

- Engineers India Limited (EIL) was appointed as project consultant
- NDR contract awarded to M/s Halliburton on 28 Feb 2014
- Data Centre civil works completed
- HW, SW Installation configuration completed
- Pilot data loading/testing completed
- Initial data population is going on
- Would soon be accessible via url ***ndrdgh.gov.in (applied for)***

Data for loading to NDR			Total Volume of data in first 6 years contract (60 months)								
			Total Volume of Initial Population Phase (12 months)			Total Volume of Operation Phase (48 months)			Total Volume		
Seismic Data			No. of Surveys	No. of Lines	LKM/ SKM	No. of Surveys	No. of Lines	LKM/ SKM	No. of Surveys	No. of Lines	LKM/ SKM
2D	Processed	On-shore	48	960	28,800	480	9,600	288,000	528	10,560	316,800
		Off-Shore	96	2,880	345,600	384	11,520	921,600	480	14,400	1,267,200
		Total	144	3,840	374,400	864	21,120	1,209,600	1,008	24,960	1,584,000
	Field		72	1,920	187,200	288	7,200	384,000	360	9,120	792,000
3D	Processed	On-shore	48		24,000	192		96,000	240		120,000
		Off-Shore	96		96,000	192		192,000	288		288,000
		Total	144		120,000	384		288,000	528		408,000
	Field		144		120,000	384		288,000	528		408,000
Well and Log Data			1,200 wells			7,200 wells			8,400 wells		
Spatial Data			As related to E&P Objects			As related to E&P Objects			As related to E&P Objects		
Well Reports			2,400			14,400			16,800		
Seismic Reports			504			1,920			2,424		
Scanned Logs			4,800			28,800			33,600		
Other Reports			480			3,840			4,320		
Production Data			On regular basis			On regular basis			On regular basis		

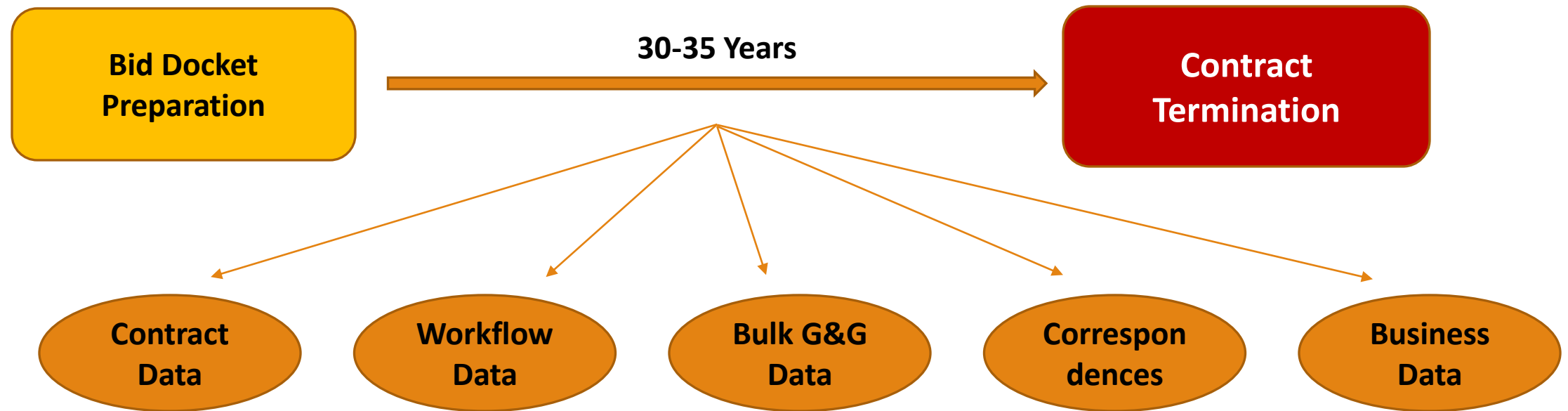
Digital Data currently held by DGH

Media			Field Data		Processed Data		Total	
Type	Capacity		No. of cartridges	Data in GB	No. of cartridges	Data in GB	No. of cartridges	Data in GB
3590	10/20	GB	7,000	105,000	1,000	15,000	8,000	120,000
8mm/4mm	5/20	GB	70	700	30	300	100	1,000
3592	500	GB	480	192,000	20	4,000	500	196,000
LTO-4	400	GB	20	7,000	5	500	25	7,500
HDD	250/500	GB			30	3,000	30	3,000
All								327,500

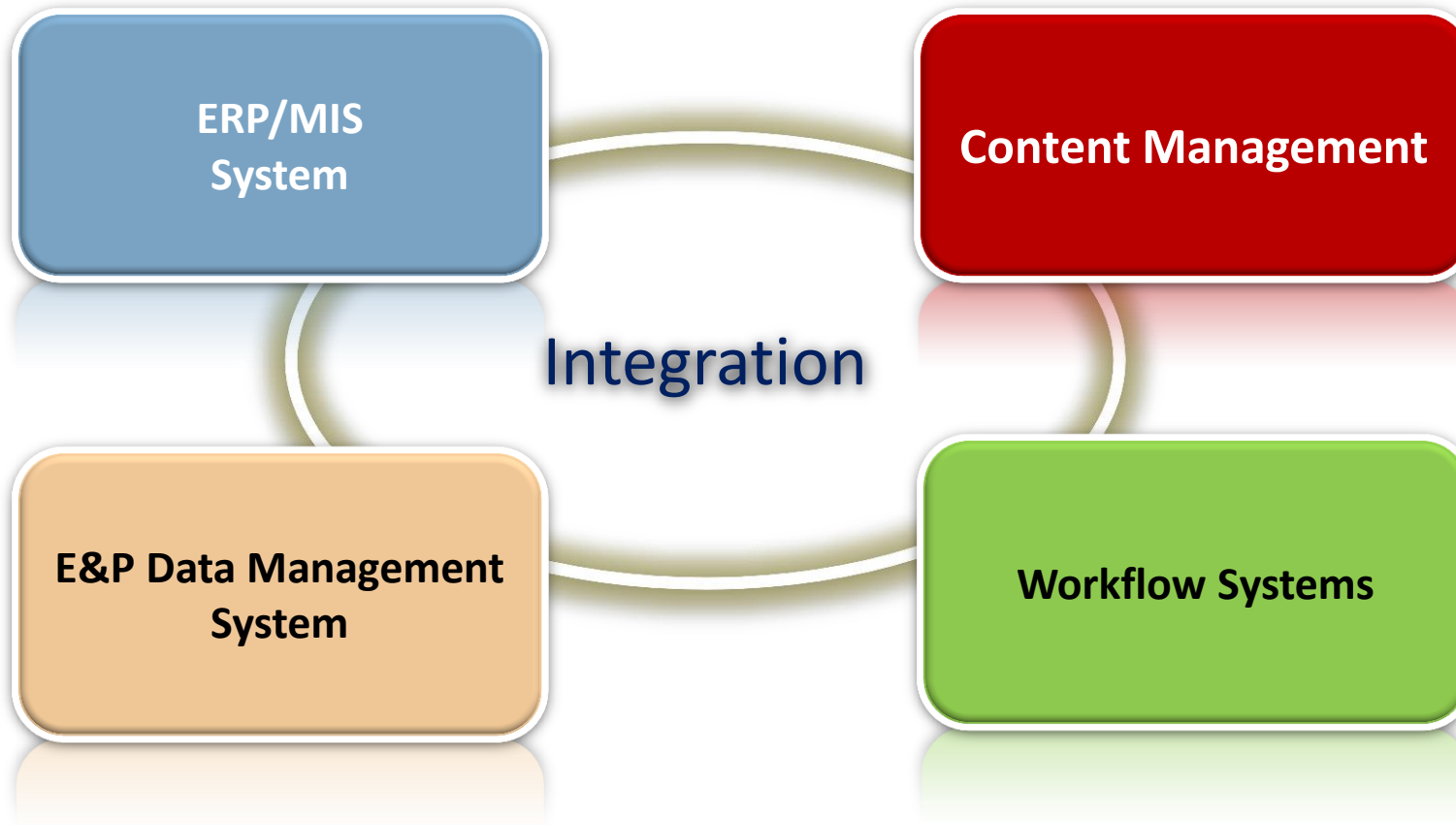
PDC IT Infrastructure - INDR

- NDR Software: Landmark's PetroBank, Recall, Power Explorer, TWS
- Solution architecture is built on Vmware's ESXi virtualized environment
- OS: Linux 5.x, Windows 2008 R2
- Database Oracle 11.2
- Server : Xeon 8 Core HP BL460c Gen8 Blades
- SAN: HP 3PAR 7000 Series with 120 TB Under RAID 5
- Tape Library: MSL 6480 with 4 FC LTO6Drives(240 Slots)
- Backup: HP Data Protector 8.x
- Internet Bandwidth: 20 Mbps (1:1) by AirCel

E&P Data management challenges and expectations



E&P Data management challenges and expectations



Thanks.