

ONGC's approach to GHG Management

A K Hazarika

Director (Onshore), ONGC, India

Member, O&G Sub-committee, M2M Program

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Vision of ONGC

To be a World-Class Oil & Gas Co. Integrated in Energy Business with Dominant Indian Leadership and Global Presence

ONGC...

- World's no 1 E&P Company as per Platts Global E&P Companies List for the year 2008.
- Flagship energy company of India(25th Global Energy Major, As per Platt's List)
- Global presence in 18 countries and 38 projects
- O+OEG production of 61.8 MMTOE in 2007-08
- Reserve Replacement Ratio (RRR) of 1.32 in 2007-08.
- Discovered Thirteen New Hydrocarbon Prospects
- Biggest wealth creator in India

ONGC Group –Performance & Financial

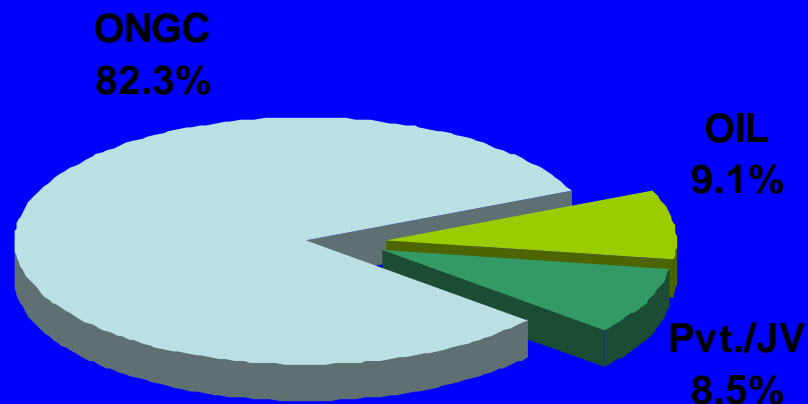
- **ONGC production (including JVs)**
 - **Oil** **27.838 MMT**
 - **Gas** **25.12 BCM**
- **OVL production**
 - **Oil** **6.84 MMT**
 - **Gas** **1.962 BCM**
- **Refines more than** **12 MMTPA (>260,000 bopd)**
- **Net Worth** **\$ 19.35 Billion**
- **Turnover** **\$ 25.46 Billion (2007-08)**
- **Net Profit after Tax** **\$ 4.96 Billion (2007-08)**
- **Ultimate reserves** **1.116BMT (O+ OEG)**

(1 US\$ = Rs 40/- during 2007-08)

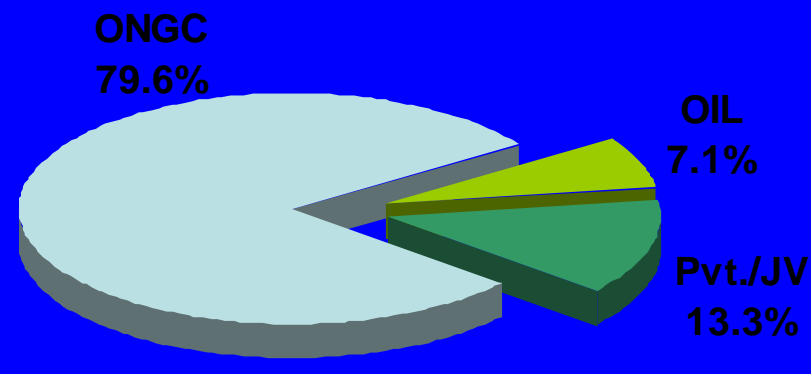
ONGC- an E&P company

ONGC accounts for more than 80% of Indian domestic oil & gas production

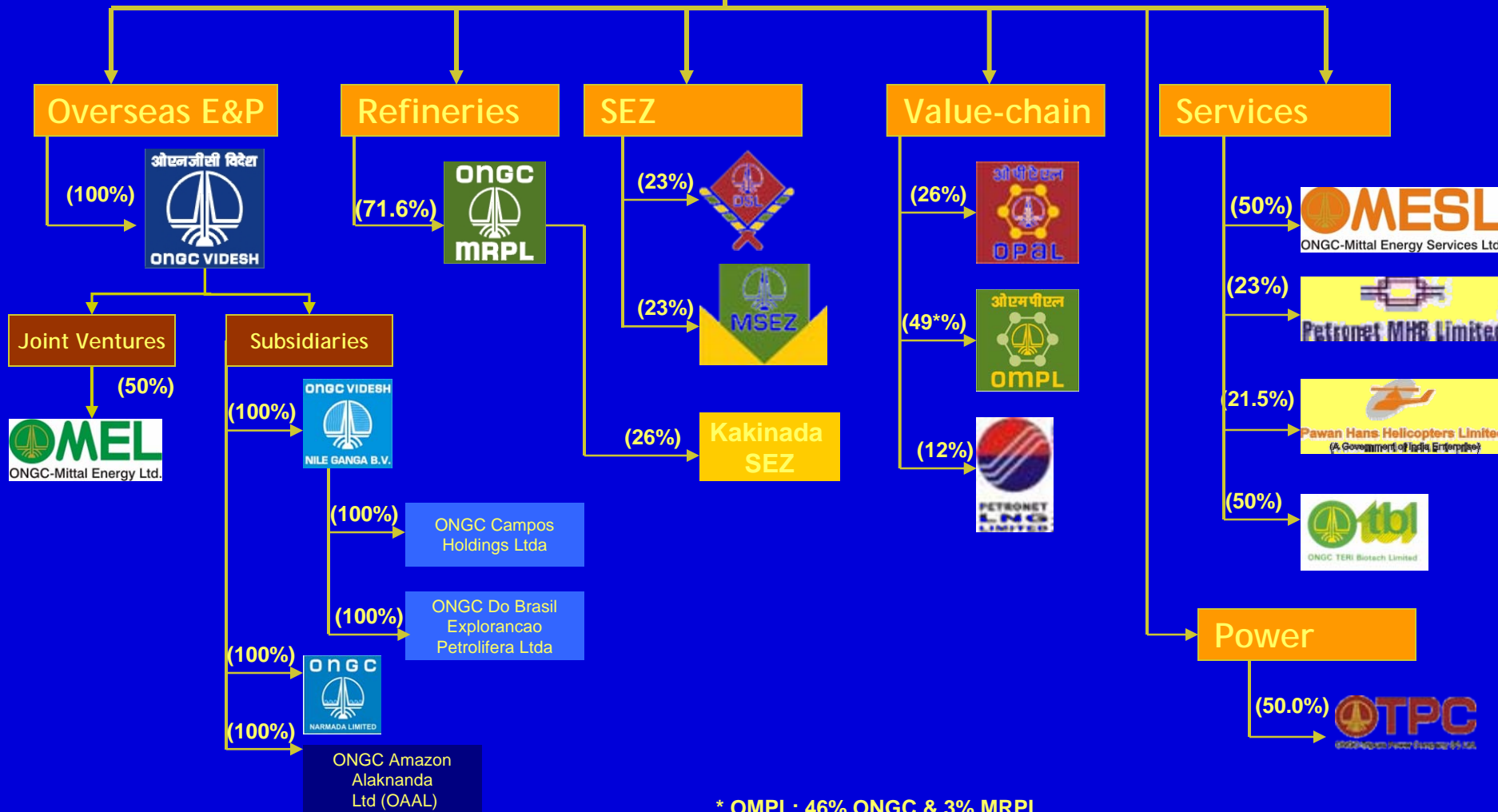
Domestic Crude Oil Prodn (2006-07)



Domestic Gas Prodn (2006-07)



Includes ONGC's share of production from Joint Venture/ PSCs



* OMPL: 46% ONGC & 3% MRPL

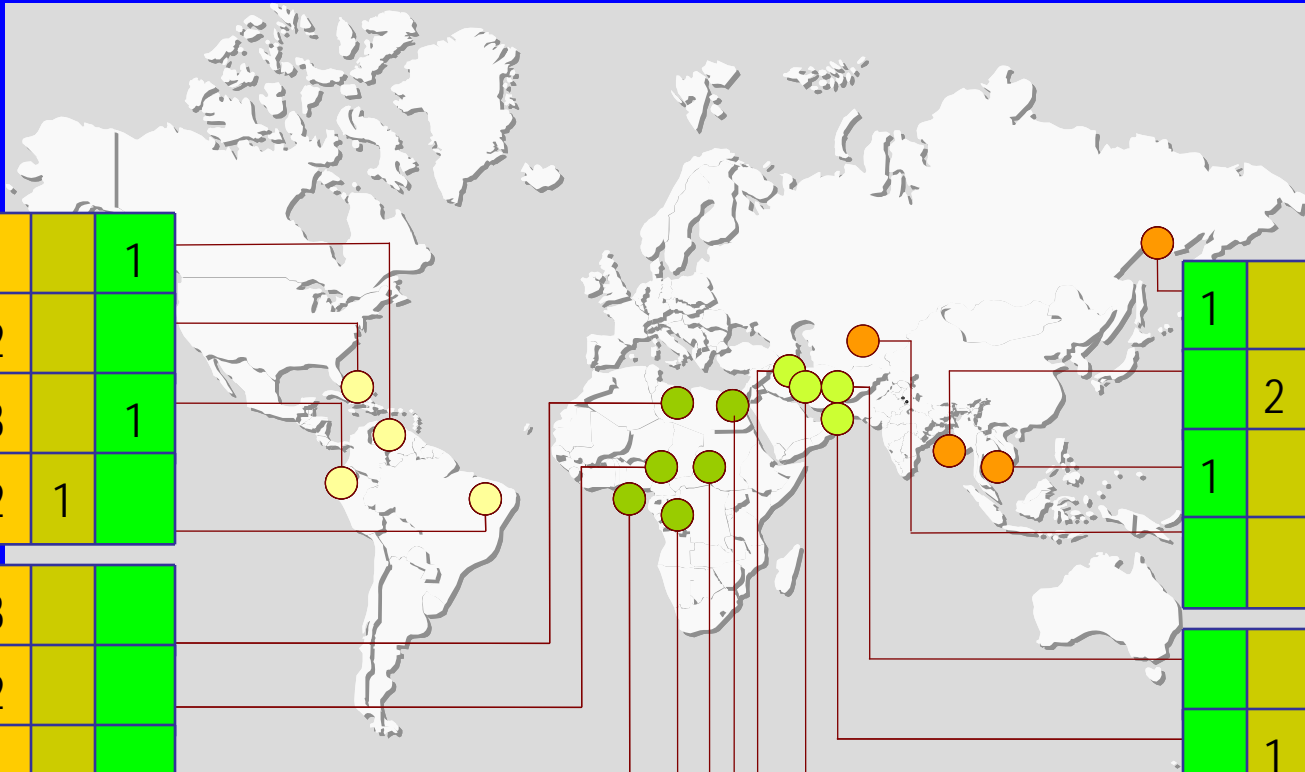
ONGC- E&P Global Footprints

38* Projects in 18 Countries

24 Exploration

6 Development

7 Producing



Venezuela			1
Cuba	2		
Colombia	3		1
Brazil	2	1	
Libya	3		
Nigeria	2		
Nigeria	1		
Congo Br	1		
Sudan	1		2

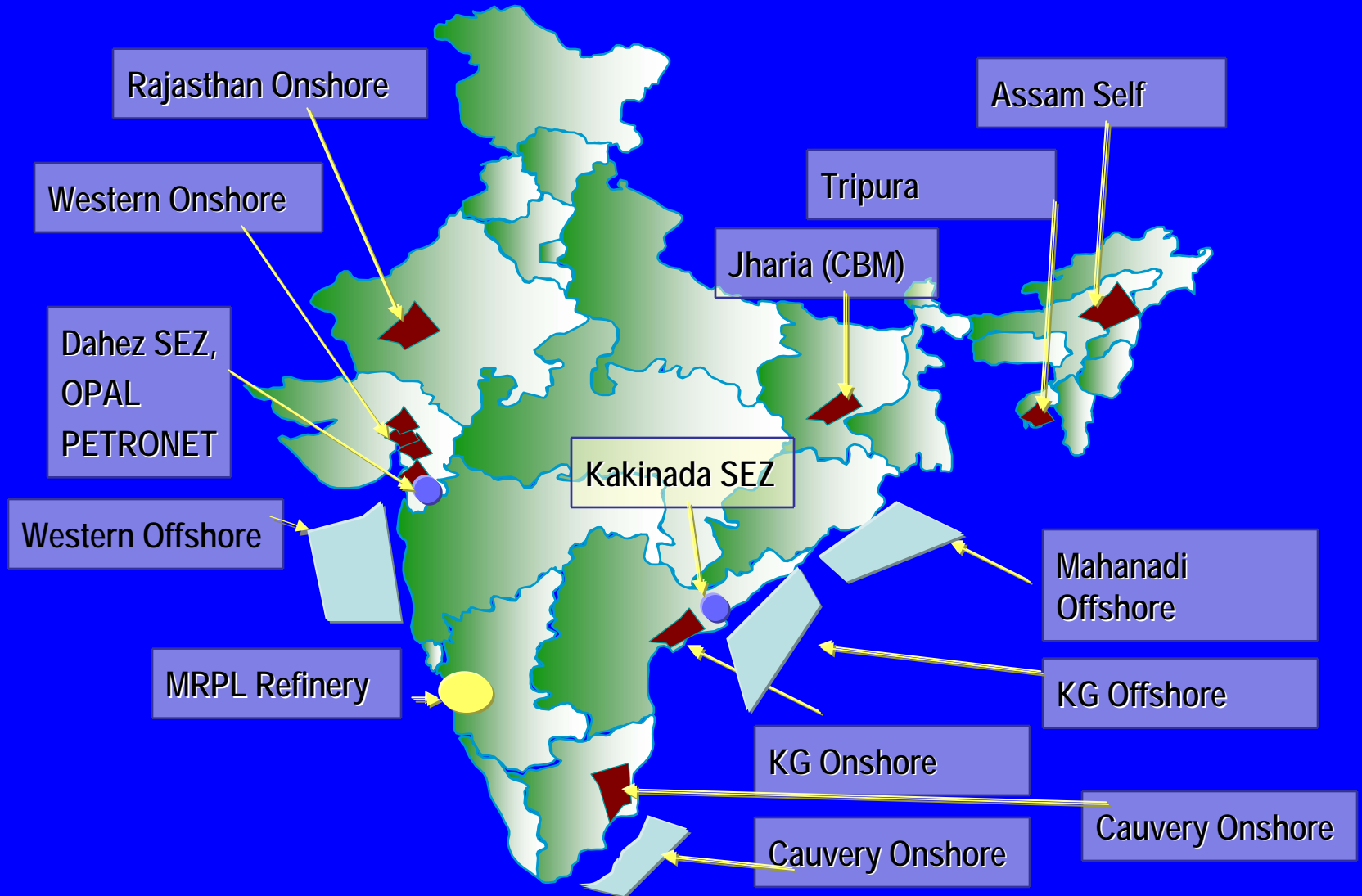
1			Russia
	2	3	Myanmar
1		2	Vietnam
		1	Turkmenistan
		1	Iran
	1		Qatar
		1	Iraq
1		1	Syria

Egypt		2	
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* 38th project is Sudan's 741 km long completed Pipeline

ONGC: Domestic Operations



Sustainable Development in ONGC– Mission

- ONGC aims to become Carbon Neutral
- Mission Statement: ***ONGC will continually strive to reduce CO2 emissions across its activity chain and work on the path of carbon neutrality.***
- Sustainable Development through Carbon Management

CMG in ONGC— Mandate

- Develop Green House Gases (GHG) inventory, GHG accounting and information system of ONGC
- Identify and develop GHG programs and projects
- Monitor the existing/ ongoing registered CDM Projects
- Carbon disclosure in the company balance sheet
- Develop climate protection strategy and policy
- Strategic management of Climate Change and business opportunity thereof
- Develop sustainability reporting

CMG in ONGC-- Activities

- Developed Corporate policy on Climate Change and sustainability
- CDM project development
- GHG mitigation programs for ONGC
- GHG accounting for ONGC facilities
- Joined 'Carbon Disclosure Project' of UK
- Sustainability Reporting in progress
- Consultancy to ONGC JVCs on CDM Projects
- M2M (Methane to Markets) Program

GHG mitigation : Plan & programme

- GHG Accounting corporate wide
- Benchmarking of operations
- Developing possible CDM projects
- Corporate wide zero flaring norm
- Investment in renewables
- Emphasis on energy efficiency
- Arresting fugitive methane emission(M2M Program)
- CCS for EOR

GHG mitigation : Plan & programme contd... CDM Experience

- Registered CDM Projects 04
- Accruable CERs per annum 1,20,000 for 10 years
- Projects under validation 05 (2 at advance stage)
- Expected CER per annum 3,50,000
- New methodology for VCBM
- Projects under development 10

Registered CDM Projects

- o Waste Heat Recovery and using the recovered heat for heating Oil (Location: Mumbai High, CER: 5320)
- o Up-Gradation of Gas Turbines(GT1) & Gas Turbines (GT2) (Location: Hazira, CER: 7802)
- o Flare Gas recovery project at Uran (Location: Uran, CER: 97,740)
- o Flare Gas recovery project at Hazira (Location: Uran, CER: 8793)

M2M in ONGC

- 1st non North American oil company to join (Aug 07)
- 8th Global oil major to join the programme
- 4 technology transfer workshops in Dec 2007
- 7 pre feasibility(table top analysis) study
- 4 pilot measurement studies in May 2008
- Presentation to ONGC Board in Sept 2008
- ONGC's action plan being readied

Major outcomes of the measurement study— Fugitive emission inventory

- Total 16.3 Million M3 of fugitive methane
 - Heera Platform - 4.061 Million M3 of methane
 - Uran Plant – 8.522 Million M3 of methane
 - Ahmedabd (Kalol Production Complex) – 0.426 Million M3 of methane
 - Assam (Geleki Production Complex) – 3.272 Million M3 of methane
- 3 major sources identified
 - Vents 10.07 Million M3
 - Compressor with wet seal degassing 5.994 Million M3
 - Leakage 0.439 Million M3

Managing Methane emission– USEPA suggestion

- Vents-- Use of VRU and VRT
- Compressor seals– Replacement of wet seals by dry seals
- Leakage-- Directed Inspection & Maintenance (DI&M) practices

Action Plan– A pan company approach

- Short term– For studied facilities
- Long term– For other facilities

Short term action plan

- Implementation of the pilot study
 - Facility wise feasibility study planned for Installation of VRUs and VRTs at oil tanks where feasible
 - Replacing wet seals by dry seals where feasible
 - Implementation of regular DI&M practices
- Expected period of implementation by end 2009
- Develop suitable CDM Project
- Formation of M2M team

Long term action plan-- Study

- Inhouse capacity building -December 2010
- Development of measurement team – Oct 2009
- Procurement of measuring equipments-- Sept 2009
- Training of the measurement team members– Sept 2009
- Fugitive emission mapping of other facilities- April 2011
- Creating ONGC fugitive emission inventory– Oct 2011

Long term action plan --Implementation

- Feasibility study– facility wise
- Implementation of feasible interventions
- Assessment of emission reduction
- Ongoing reduction assessment & setting targets
- Capacity building
- Transmitting expertise to ONGC JVs

Collaboration

- Hands down training of the measurement team
 - Measurement
 - Recording
 - Reporting
- Sharing ONGC experience through Natural Gas Star International Program
- Representing in various NGS forums
- Propagating M2M message

Achievement so far

- M2M team formed
- Suggestions at Heera platform under implementation
- Suggestions at Assam Asset under implementation
- Instruments under procurement

Conclusion

- M2M : A positive step towards Sustainable Development

Thank you

Email:
dir_onshore@ongc.co.in