

ONGC's approach to GHG Management System

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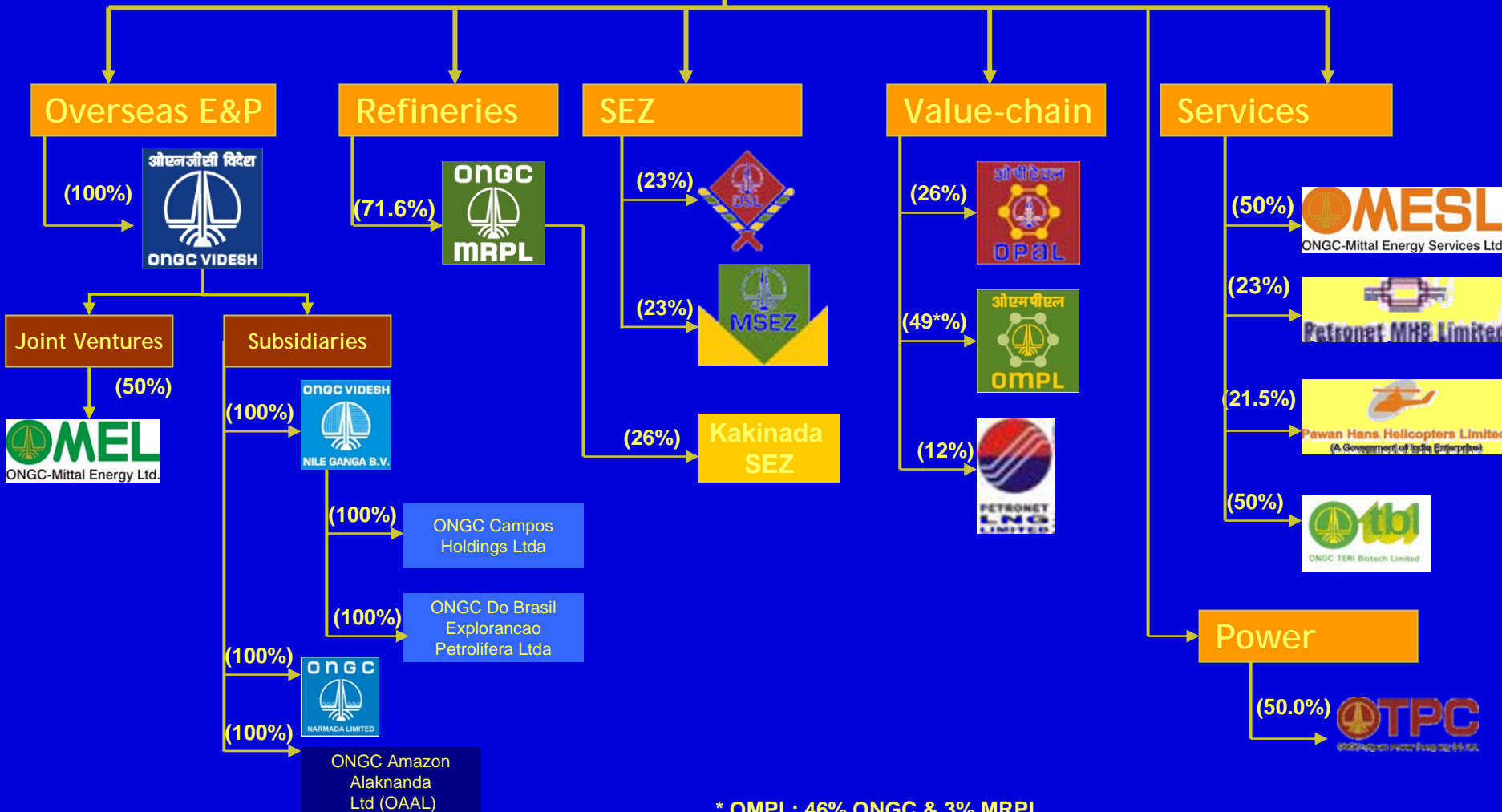
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A Brief about ONGC

- Flagship energy company of India(23rd Global Energy Major, As per Platt's List)
- Asia's biggest E&P as per Platts 250 Global Energy Companies List for the year 2007.
- 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

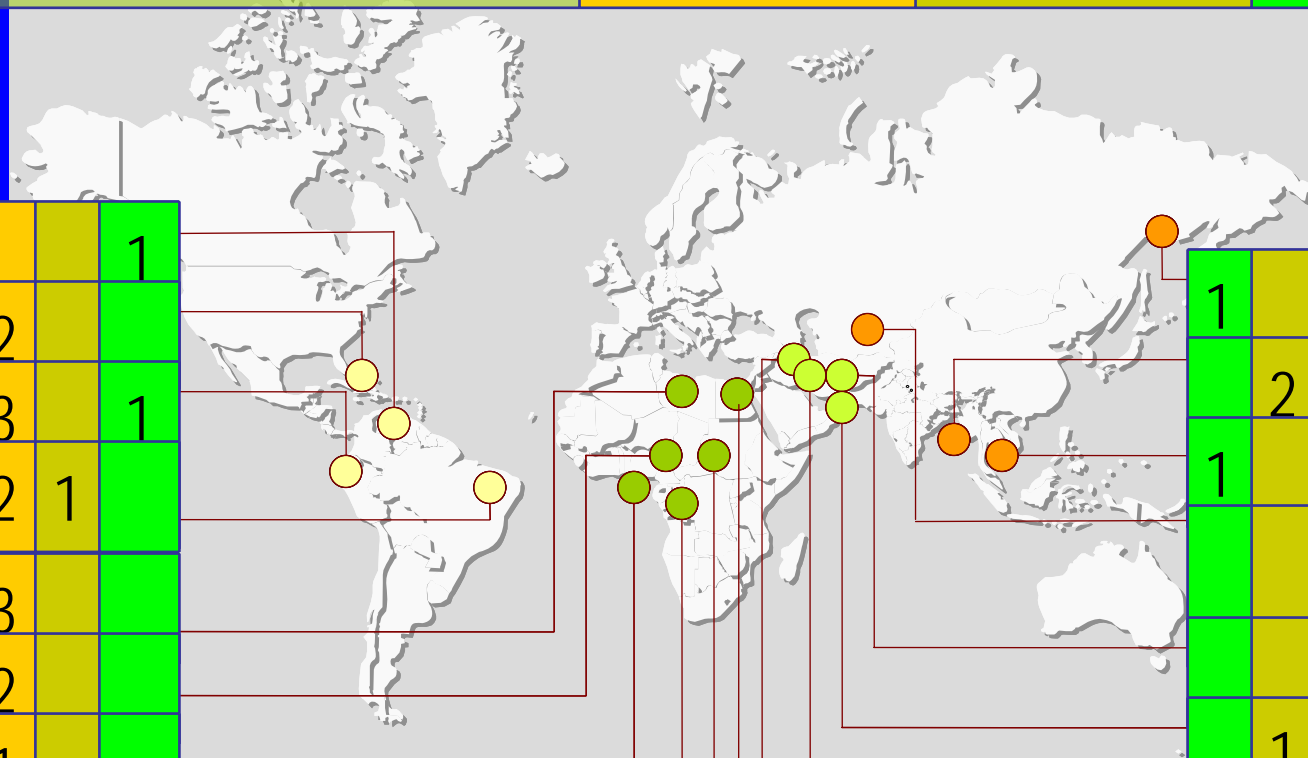
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ONGC



* OMPL: 46% ONGC & 3% MRPL

ONGC- E&P Global Footprints

38* Projects in 18 Countries	24 Exploration	6 Development	7 Producing
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Venezuela			1
Cuba	2		
Colombia	3		1
Brazil	2	1	
Libya	3		
Nigeria	2		
Nigeria	1		
Congo	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

CMG in ONGC—Mandate

- Develop Green House Gases (GHG) inventory, 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 programmes for ONGC
- GHG accounting for ONGC facilities
- Joined Carbon Disclosure Project
- 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
- 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)

Projects under validation

Total 5 Projects, Expected CER over 350000

- o 50 MW wind power projects
- o Green building projects, Mumbai & Delhi
- o GFR Project: by integration of isolated installations in Nambar and Khoraghat fields
- o Pilot CBM Project at Parbatpur, Bokaro
- o Energy saving in Amine circulation pump, Hazira

Policy on CC & SD

- Committed to enhance contribution to SD through a greater integration of economic, environmental and social dimensions.
- Endeavor for GHG emission mitigation from our operations and participate in Kyoto and other protocol where India is a signatory. We shall aim to achieve quantifiable milestones in these aspects.
- Partner with sustainability advocacy organizations where our strengths are complementary and also actively propagate the idea of GHG mitigation at national and international operations where we are business partners.
- Develop and invest in advanced low carbon technologies to meet growing demand for affordable energy products while improving security of supply and reducing environmental impacts.
- Our aim shall be to achieve competitive business advantage from GHG abatement programmes, particularly through process efficiency, besides improving environmental performance.
- Endeavour to develop new business opportunities through investment in climate change.
- Try to adopt triple bottom-line accounting and reporting to raise awareness of the true cost and benefits.
- Above all, we shall make sustainability a foundation of our business strategy.

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
 - 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 2010
- Develop suitable CDM Project

Long term action plan-- Study

- Inhouse capacity building
- Development of measurement team
- Procurement of measuring equipments
- Training of the measurement team members
- Fugitive emission mapping of other facilities
- Creating ONGC fugitive emission inventory

Long term action plan --Implementation

- Feasibility study– facility wise
- Implementation
- Measurement of emission reduction
- Ongoing reduction assessment for setting targets
- Infusing knowledge gain
- Transmitting expertise to ONGC JVs

Collaboration

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

M2M O&G Subcommittee

- A K Hazarika: Director (Onshore), ONGC has been nominated by GOI to the Oil & Gas Sub-committee under M2M
- A positive move towards M2M Partnership & program implementation

Conclusion

- M2M : A positive step towards Sustainable Development
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Thank you