ONGC’s approach to GHG Management System

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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
ONGC- E&P Global Footprints

38* Projects in 18 Countries

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<th>Exploration</th>
<th>Development</th>
<th>Producing</th>
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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

- Waste Heat Recovery and using the recovered heat for heating Oil (Location: Mumbai High, CER: 5320)

- Up-Gradation of Gas Turbines (GT1) & Gas Turbines (GT2) (Location: Hazira, CER: 7802)

- Flare Gas recovery project at Uran (Location: Uran, CER: 97,740)

- Flare Gas recovery project at Hazira (Location: Uran, CER: 8793)
Projects under validation

Total 5 Projects, Expected CER over 350000
- 50 MW wind power projects
- Green building projects, Mumbai & Delhi
- GFR Project: by integration of isolated installations in Nambar and Khoraghat fields
- Pilot CBM Project at Parbatpur, Bokaro
- 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
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