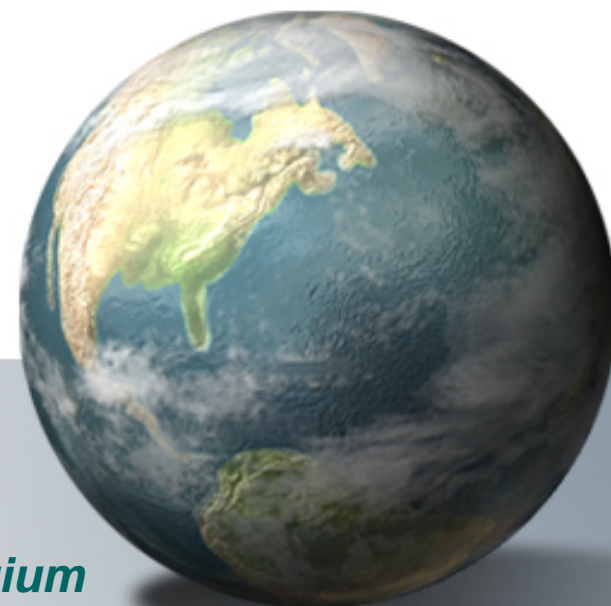


*2<sup>nd</sup> International Workshop on Uncertainty in GHG Inventories  
27-28 September 2007, IIASA, Laxenburg, Austria*

## ADDRESSING UNCERTAINTY AND ACCURACY IN GREENHOUSE GAS (GHG) EMISSION INVENTORIES BY THE GLOBAL OIL AND GAS INDUSTRY



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# Outline



- **Importance of addressing uncertainty**
- **Approach taken by the oil and gas industry**
- **Workshop goals, highlights and actions**

# Importance of Addressing GHG Inventories Uncertainty



- **Climate change is important for industry and society**
- **Data reliability is important for companies, market participants, regulators and society**
- **GHG data has inherent limitations as to its accuracy**
- **How accurate is accurate? At what costs?**

# What Have We Done So Far? And Industry Activities



- **Developing guidance for GHG emissions estimation:**
  - guidelines for entity inventories
  - compendium of estimation methodologies
  - guidelines for GHG reduction projects
  - lead authors and expert reviewers of IPCC 2006 Guidelines;
  - participants in the development of ISO 14064
- **Convene workshop to address data quality**

# Uncertainty Workshop Goals



- 1. understand factors that contribute to uncertainty and accuracy**
- 2. discuss techniques to assess uncertainty and accuracy**
- 3. identify emission sources where efforts are needed to improve accuracy and reduce uncertainty**
- 4. prioritise uncertainty reduction efforts**

# Factors Contributing to Uncertainty



- **Emission factors are primarily derived under average conditions**
- **Average fuel and flare gas composition is assumed**
- **The largest uncertainties are sometimes associated with sources that contribute minimally to the overall inventory**
- **Accounting for emissions from many small dispersed installations is a challenge**
- **Accounting for indirect emissions is difficult**

# Approaches to Assessing Uncertainty and Accuracy



- **Different approaches apply to:**
  - ‘top-down’ national inventories and ‘bottoms-up’ entity estimates
- **The IPCC ‘Best-Practice’ guidelines recommended**
- **The EU-ETS compliance framework includes permits, monitoring, reporting, verification and accreditation**
- **National inventories need to assess non-energy fossil fuels use**



## Priority Issues: *Measurement Methods*

- **Sampling and analysis issues**
- **Maintenance and calibration of meters and analyzers**
- **Temperature and pressure corrections**
- **Flow measurement devices**
- **Flaring, venting and fugitive emissions**
- **Process emissions**





## Priority Issues: *Computational Methods*

- **Relative contribution of individual sources to overall inventory**
- **Assessment of mass based emission factors vs. heating value based factors**
- **Frequency of sampling and calibration**
- **Tools for error propagation analysis**
- **Applicability of statistical simulations**

# Next Steps



- **Publish Workshop report**
- **Participate in on-going stakeholder dialogues**
- **Pursue areas of improvement and incorporate findings into updated industry guidance**