Defining the Upstream Oil and Gas Sector:
Exploration, Production, and Natural Gas
Gathering and Processing

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- [O&G GHG Reporting Protocol project webpage](https://example.com)
Oil and Gas “Upstream” sources & activities

Figure 1—Major Emission Sources for an Integrated Oil Company

Geographic Scope and Source Types addressed in developing work on Upstream Reporting Protocols to date

- North America
- All O&G source activities upstream of:
  - Oil refineries (GHG reporting covered by ARB regulation)
  - Gas sale pipeline transfer points (CCAR/WRI/TCR protocol)
- Types of O&G E&P
  - Conventional Oil & Gas
  - Unconventional Gas
    - Tight Sands Gas
    - Gas Shale
    - Coalbed Methane Gas
    - Oil Sands
  - Oil
    - Offshore
    - Enhanced Oil Recovery
    - Oil Sands
Emissions Inventory Sources addressed in Protocol work to date

• Gas Processing Plants
• Compressor Stations
• Wellhead Compressor Engines
• CBM Pump Engines
• Miscellaneous/Exempt Engines
• Drilling/Workover Rigs
• Salt-water Disposal Engines
• Artificial Lift Engines (Pumpjacks)
• Vapor Recovery Units (VRUs)
• Oil/Gas Well Heaters
• Hydrocarbon Liquid Storage Tanks

• Well Completions
• Fugitive Emissions
• Completion Venting
• Well Blowdowns
• Dehydration Units
• Amine Units
• Hydrocarbon Liquid Loading
• Landfarms
• Water Treatment/Injection
• Flaring
• Pneumatic Devices
• Produced Water Tanks
• Crude Oil Transportation
Sources included/not included in the Upstream O&G sector

• Includes all emissions sources in the:
  – Exploration and production (E&P) sector of oil & natural gas, as well as:
    • Gas gathering, collection, and processing - through to the “tailgate” of Natural Gas Processing Plants
    • Crude Oil Transportation (including pipelines, trains, trucks, and marine vessels) to the “entry gate” of Oil Refineries

• **Does not include:**
  – Oil refining and downstream distribution of petroleum products
  – Transmission, storage and distribution of natural gas downstream of the processing plant

• Includes *all* companies involved in any way in E&P, natural gas processing, and/or crude oil transportation, including:
  – Oil and Gas leaseholders
  – Support services contractors (e.g., drilling contractors)
Oil Industry Sector

Upstream O&G Protocols do not address oil operations shown in the shaded area.
Natural Gas Industry Sector

Upstream O&G Protocols do not address natural gas operations shown in the shaded area.
Facility Issue Addressed in Protocol work to date

• Definition of a facility/Aggregation of emissions:
  – **Proposed Solution:** Dispersed emission sources to be aggregated, at a minimum, to “production field” level:
    – *Production field is a well understood, broadly accepted concept within the industry*
    – *Production fields are precisely defined by state, province, or country*
  – Reporters are given the option of aggregating multiple fields together (particularly useful, e.g., for infrastructure common to more than one field)
  – Emissions from sources corresponding to standard definition of a facility (e.g., natural gas processing plants) must be reported by facility
Questions -