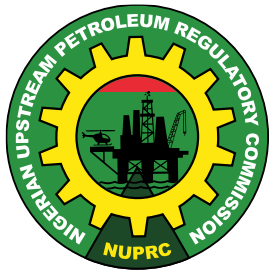


NIGERIAN UPSTREAM PETROLEUM REGULATORY COMMISSION (NUPRC)

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TEMPLATE FOR GREENHOUSE GAS EMISSIONS MANAGEMENT PLAN (GHGEMP)



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Preface

This Greenhouse Gas and Methane Emissions Management Plan (GHGEMP) template provides guidance to upstream operators with a structured approach for managing, monitoring, and reducing methane and other greenhouse gas emissions in line with Section 2.2 of *the Guidelines for the Management of Fugitive Methane and Greenhouse Gas Emissions in Upstream Oil and Gas 2022*. It aims to support the integration and implementation of practical mitigation measures and transparent, verifiable measurement, monitoring and reporting consistent with regulatory and international best practices

1. Executive Summary

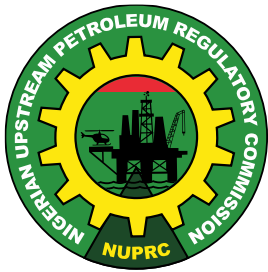
Provide a high-level overview of the entire plan. This should summarize the key elements, including the scope of operations, total baseline emissions, emission reduction targets, and key abatement strategies.

2. Introduction

- Provide a brief overview of assets/facilities, operations, or project scope covered by the plan.
- Objective and purpose of the GHGEMP.
- Legal Frameworks; outline the relevant legal and regulatory frameworks governing GHG emissions for the operations.
- Describe the corporate climate change policies, aspirations, commitments and policy statement on GHG emission management (e.g., net-zero goals, methane reduction pledges)

3. Greenhouse Gas Emissions Inventory Overview and Assessment

- Provide a detailed inventory of all sources of greenhouse gas emissions from the drilling, well testing (including extended well test), project development, facility operations, identifying:



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- **Scope 1:** Direct emissions from operated assets
- **Scope 2:** Indirect emissions from purchased energy
- **Scope 3:** Material emission specifically those linked to product transport, evacuation systems, or other material upstream categories
- GHG emission profile detailing scope of emissions and emission-intensive processes e.g flaring, fuel combustion.
- Include historical emissions data and trends from previous years to establish context.
- Establish and maintain a verifiable GHG baseline emission inventory data based on historical profiles against which emission reductions will be measured and reduction target are set. The Baseline inventory shall be prepared in accordance with IPCC Tier 2 or Tier 3 methodologies (Covering, Scope 1, 2 and Material Scope 3)
- Provide the activity data and emission factors used for calculations (e.g., fuel consumed, gas flared/vented, raw material usage)
- Describe the quantification methods used to estimate emissions assumptions and uncertainty.
- Uncertainty assessment and data quality rating (High, Medium, Low) for all major emission sources, consistent with IPCC Tier 2/3 methodologies, ISO 14064-1:2018 requirements.
- Provide an inventory of key emitting equipment (e.g., turbines, compressors, pneumatic devices, engines, flare stacks, tanks), detailing the industry segment, facility type, terrain, and field.

4. Greenhouse Gas (GHG) Risk and Materiality Assessment

- Emission Source "Hotspot" Analysis: Provide a table ranking all significant emission sources from highest to lowest in terms of annual



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emissions. This should clearly identify the most material sources that will be focus on in the plan.

- Define the threshold for prioritizing abatement efforts (e.g., focusing on sources that constitute at least the top 80% of total emissions).
- Present a qualitative risk assessment for the top emission sources, evaluating them against factors such as:
 - Regulatory & financial risk (e.g., potential penalties, carbon taxes).
 - Reputational risk.
 - Safety and operational risk (e.g., product loss, energy inefficiency).

Complement the qualitative risk matrix with a quantitative risk scoring system (Probability × Impact) to better prioritize emission mitigation actions.

5. Greenhouse Gas (GHG) Emission Reduction Targets/Goals

- Establish greenhouse gas emissions reduction goals for the facilities/operations, detailing short-term and long-term strategies to reduce emissions. This shall show emission trends/baselines and plan to achieve % yearly reductions over 5 period.
- Set methane specific reduction targets and flare reduction goals consistent with Nigeria's Nationally Determined Contribution (NDC 3.0) and other commitments such as the Global Methane Pledge.
- Identify specific targets and timelines for achieving the goals.
- Explain how these goals align with broader company commitments and national policies such as Energy Transition Plan, LT-LEDS, NDC 3.0 etc.
- Detail plans and targets to reduce the energy and emissions intensity of the operations.



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6. Greenhouse Gas Emission Abatement Strategies

- Describe the specific mitigation measures and projects that will be implemented to reduce emissions. This should include, but is not limited to:
 - Gas flare or venting elimination strategies/projects.
 - Leak Detection and Repair (LDAR) strategies and technology in line with provisions of the guidelines and industry best practices.
 - Phasing of natural gas driven pneumatic devices in alignment with 5-year timeline set by the Methane and GHG Guidelines 2022, as well as compressor maintenance, and continuous methane monitoring strategies.
 - Phasing out diesel power systems in favour of cleaner fuels (e.g., gas, renewables).
 - Detail of timeline to replace single cycle turbines with combine cycle in line with NDC mitigation targets.
 - Other approaches to capture or eliminate emissions (e.g., Vapor Recovery Units, electrification).
 - Nature based Carbon-removal solutions including reforestation and mangrove restoration, where applicable.
- Define the abatement project prioritization framework, for the identified mitigation measures, provide an evaluation based on the following criteria:
 - GHG Abatement Potential (tonnes of CO₂/year).
 - Marginal Abatement Cost.
 - Technical feasibility & payback period.



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- Provide the implementation roadmap, with a Gantt chart or timeline detailing the implementation schedule for the selected abatement projects over the next 5 years.
- Identify potential technical, financial, or regulatory barriers to implementation and describe the strategies to address them.
- Describe procedures to be adopted in addressing any non-conformances with the implementation plan.
- Describe how the performance and effectiveness of these reduction strategies will be monitored and evaluated.

Operators at exploration stage such as the PPL awardees shall develop GHG Emission Management strategies, and mandatorily report exploration-specific GHG inventory data including but not limited to:

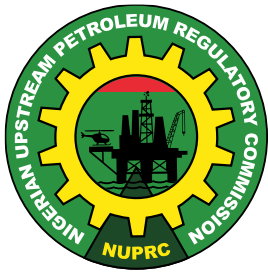
- Diesel/fuel combustion (rigs, generators, vessels, compressors)
- Well test flaring and blowdown
- Fugitive releases from wellheads, valves, hoses, temporary flowlines and mud gas separators
- venting and emergency depressurization
- Temporary power systems
- Logistics emissions (marine & land transport)

Operators shall at the transition stage from exploration to appraisal/development, update the management plan and to reflect the development stage.

Operators shall implement enhanced monitoring and reporting protocols during decommissioning and abandonment (D&A), and post D & A.

7. GHGEMP Governance and Accountability Framework

- Provide an organizational chart or description that clearly defines the roles and responsibilities for GHG management, from senior leadership to facility-level personnel.
- Define and assign accountability for data collection, project execution, monitoring, and reporting to specific roles or departments.



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8. Monitoring and Reporting Emissions

- Describe the detailed monitoring plan for GHG emissions across all identified sources for the activities (exploration, development drilling & completion, decommissioning & abandonment) productions and facilities operations, or other projects.
- Describe a comprehensive Monitoring, Reporting and Verification (MRV) system for all greenhouse gas (GHG) and methane emissions across operations, which shall ensure consistency, accuracy, completeness, transparency, and comparability in accordance with IPCC and other international standards.
- Describe timelines to progress from lower accuracy emission estimations/quantification such as IPCC Tier1 to measurement-based methods, prioritizing Tier 2 and Tier 3 methods and OGMP Level 4/5 approaches for methane emissions.
- Detail the procedures for Quality Assurance/Quality Control (QA/QC), verification and validation of emissions data before reporting.
- Identify the Key Performance Indicators (KPIs) that will be used to measure progress towards reduction goals (e.g., flare gas volume, methane intensity, energy intensity).
- State commitment to submission of quarterly GHG Emission Inventory as part of the Measurement, Monitoring, Reporting and Verification (MMRV) framework.
- Plan for third-party verification of GHG data and independent assurance in line with international best practice such as ISO 14064-3 standards etc.
- Commitment to Reporting of Lead Detection and Repair (LDAR) survey in line with the Methane and GHG Guidelines 2022.



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9. Management of Change and Plan Review

- State the frequency and process for how this plan will be reviewed, evaluated, and updated. The GHGEMP shall be formally reviewed and updated based on, but not limited to, the following triggers:
 - Introduction of a new process or activity that could significantly alter GHG emissions.
 - Outcomes of technical studies and investigations into new GHG emission reduction or energy efficiency technologies.
 - Changes in relevant regulations or national policies.
 - A review and assessment of the effectiveness of existing mitigation measures.
 - The adoption of new technologies and innovations.
- Identify opportunities and processes for continuous improvement in GHG emissions management.
- Describe how lessons learned from implementation will be documented and incorporated into future planning cycles.

10. Conclusion

- Summarize the key mitigation actions of the greenhouse gas emissions management plan.
- Explain how the plan aligns with company values, goals and commitment to sustainable operations in Nigeria.

11. Appendix

Any other information

References