

TERMS OF REFERENCE

UPU-2018.007 – UNCONVENTIONALS AIR (GHG) MANAGEMENT

BAC/FAC:	BAC: Upstream Unconventionals (Groundbirch and Aera)	
Sponsor:	Greg Guidry	EVP Unconventionals
Auditee(s):	Carmen Cuartin	VP S&E Unconventionals
		Note: Groundbirch and Aera are the selected test samples. Rejean Tetrault (GM Groundbirch) and Dan Whitney (JV Manager Aera, as accountable for the assets, will provide support to the Auditee for the respective sample locations.
Audit Manager:	Azaria Azene	
Lead Auditor:	Carol Theilen	
Audit Team:	Bob Burkhalter, Becky Poon, Hani Bulushi, Charbel Moussa	
Locations to be covered:	Groundbirch and Aera	
Period of Audit:	30 July 2018 to 21 August 2018	
		Note to Sponsor/Auditee: <ol style="list-style-type: none"> As per the SIA Methodology, the Terms of Reference should be agreed at least 8 weeks before the audit start date above. The audit team will typically engage with the auditee and key staff 2 months in advance of the above dates for detailed audit planning. Walkthroughs and some selected interviews may be scheduled in advance of the actual field work period.
Date Issued:	June 28, 2018	

BACKGROUND

Climate change is a key risk factor for Shell, with evolving Greenhouse Gas (GHG) regulations, increased activism, and the physical effects of a changing climate all presenting unique challenges.

Government regulations to address GHG emissions are rapidly evolving. In North America alone, California utilizes a carbon dioxide (CO₂) cap and trade program, Canada has proposed a national carbon pricing system, and the United States Environmental Protection Agency is actively reviewing rules governing methane emissions.

Shell has publicly stated aims to reduce its overall carbon footprint by around 20% by 2035, with an aspiration to be top quartile on GHG intensity in most asset classes by 2025. As part of this aspiration, each line of business is responsible for identifying cost-effective ways to manage and reduce GHG emissions.

Within Shell Unconventionals (UPU), the Onshore Operating Principles establish the framework for managing impacts to air quality from operating activities. These include guidance that assets should protect air quality by monitoring for fugitive emissions, designing systems to reduce venting, and maintaining GHG energy management plans.

Shell has also joined the Environmental Partnership with other United States gas and oil producers to voluntarily accelerate reductions in methane emissions.

This audit will assess the controls supporting the management of Air (GHG) in UPU. This scope includes assessing CO2 business plans, GHG and Energy Management plans (EMP), regulatory compliance, and advocacy in the following assets:

- Groundbirch
- Aera Energy (Non-Operated)

BUSINESS OBJECTIVES

Shell's aspired future includes an objective to reduce the overall CO2e intensity. The goal includes to be in the top quartile for intensity in most asset classes by 2025 and to have a Well to Wire CO2e intensity close to energy system average by 2050. Shell expects to meet these goals by mitigating CO2e in the current portfolio, minimizing CO2e in future portfolio, and delivering low CO2e solutions. The overall CO2e strategy includes three objectives:

- To minimize risk to Shell's Assets and activities
- To maximize CO2e related opportunities for Shell
- To build new CO2e management competencies

2025 TQ GHG Intensities:

- Gas Asset Class: 0.10 T_{CO2}/T_{HC}
- Oil Asset Class: 0.16 T_{CO2}/T_{HC}

Groundbirch is in the Gas Asset Class while Aera is in the Oil Asset Class.

KEY RISKS AND ASSURANCE QUESTIONS

The following key risks will be covered by this audit:

- Unable to achieve global and/or business specific target GHG emissions due to ineffective detection, measurement, and/or mitigation
- Increased costs for compliance due to changes in GHG regulations
- Ineffective advocacy and stakeholder management impacts public perception and leads to increased restrictions to market access

The key assurance questions that this audit will seek to address are the following:

- Are GHG emissions forecasts and abatement options credible and are the CO2 business plans designed to enable effective portfolio evaluation/choice?
- Are GHG emissions appropriately measured, with mitigations in place to reduce them to as reasonably practicable?

AUDIT SCOPE

This audit forms part of the Shell Internal Audit Plan for 2018. We will audit the risk-based control framework related to the business objectives for UPU GHG management as summarized above and detailed in Appendix 1.

The Audit Scope will include but not be limited to:

1. Review of prior audit action closure
2. Governance & Organization
 - Governance structure including Roles and Responsibilities
 - Internal Interface Management including but not limited to: common NTR awareness, UPU HSE Leadership team, Assets, External Relations, Government Relations, and Group CO2.
 - External Stakeholder Management including but not limited to: communication alignment, participation in Voluntary Programs, Regulatory Agencies, and eNGOs.
 - Compliance with applicable regulatory requirements
3. Greenhouse Gas Emission & Energy Management
 - CO2 Business Plan incorporating future GHG emission quantities, abatement options and portfolio choices
 - GHG and EMP linked to the CO2 Business Plan for roll up into the Business Plan/portfolio evaluation.
 - Execution of assurance processes as part of the overall GHG & EMP and CO2 business plan delivery process
4. Greenhouse Gas Measurement and Mitigation
 - Measurement of CO2 and Methane emissions
 - Leak detection for hydrocarbon sources
 - Effectiveness of applied GHG mitigation options

The audit will cover the period from 01-01-2017 to 30-07-2018.

POLICIES, STANDARDS AND REFERENCE DOCUMENTATION

The audit will consider the processes in place to ensure compliance with:

- Applicable Group Policies, Standards and Guidelines (see http://www.shell.com/home/shell/policies_standards.html).
- Applicable Business Policies, Standards and Guidelines
- Applicable Business Unit Policies, Standards and Guidelines
- Laws and regulations of the host country
- Relevant documentation provided by the Auditee (including 'local' policies, standards, guidelines, procedure

REPORTING AND TIMETABLE**Event**

Start of Plan 1

Plan Date

6 June 2018

Opening Meeting	30 July 2018
Field Work Start	30 July 2018
Field Work End	21 August 2018
Independent Review	17 August 2018
Close Out Meeting	21 August 2018
Draft Report Issued	Within 7 days of Close-Out Meeting
Report Agreed with Auditee	Within 14 days of Draft Report Issued
Final Audit Report	On or before 19 September 2018
Stakeholder Feedback Received	Within 14 days of Final Audit Report Issue

DELIVERABLES

The final Audit Report will be issued no later than 30 days after the Close-Out meeting. A draft Audit Report will be provided to the Auditee no later than 7 days after the Close-Out meeting. The Auditee will then have a maximum of 14 days from receipt of the Draft Report to agree the content of the report with the Lead Auditor.

INDEPENDENCE

All Audit Team members have confirmed that they comply with the independence guidance as set out in the SIA Methodology.

INFORMATION REQUESTED IN ADVANCE

The Auditee is responsible for providing the information as set out in Appendix II to the Lead Auditor by 30 June 2018.

SIA METHODOLOGY AND GENERAL TERMS

This Audit will be conducted in accordance with the Shell Internal Audit Methodology and the Shell Internal Audit General Terms. The SIA Methodology is available on our website: <http://sww.shell.com/audit> and the SIA General Terms including the Summary of the Shell Internal Audit Methodology for Sponsors, Auditees and Business Assurance Committees' can be found at this [LINK](#).

APPENDIX I: DESCRIPTION OF BUSINESS OBJECTIVES

The objectives of the business or function form the basis for risk identification and assessment and will be used in rating the Audit Findings and forming the Audit Opinion. These include long term and short term, implicit and explicit objectives (as relevant to the audit scope areas). Implicit objectives will usually include the effectiveness of basic processes and controls that form the foundations of the day-to-day business operations. These are rarely explicitly documented as "Objectives", but failures in this area would impact the overall business performance and the achievement of the Business Objectives.

The following explicit Business Objectives have been provided by the Auditee and agreed with the Audit Team for the purposes of this audit:

Overall Shell Strategy:



Shell Unconventionals Strategy:

Shell Unconventionals (UPU) is committed to living up to our Onshore Operating Principles – and to conducting our operations in a safe and environmentally responsible manner that protects people and the communities in which we operate. We will continue to proactively manage technical and non-technical risks associated with emissions and energy efficiency in order to enhance our license to operate and minimize impact to delivering the business plan as compared to our peers.

In UPU, we will aim to (as appropriate or reasonably practicable):

- Understand and improve on the quality of our emissions profile – understand our emission data and loss rate;
- Engage in dialogue and studies to understand the science and leverage peer-reviewed science to inform related policy;
- Deliver emission compliance (at a minimum) and seek material emission reductions consistent with our voluntary commitments through continuous improvement that is reasonable and practicable;
- Engage with regulators to ensure an appropriate and cost effective regulatory environment;

- Take a leadership position within industry and regulatory bodies to influence and guide future regulation and voluntary programs in an effort to reduce emissions and level the playing field with little to no impact to the business; and
- Advocate the Shell strategy to secure stakeholder support/acceptance

Shell's aspired future includes an objective to reduce the overall CO2e intensity. The goal includes to be in the top quartile for intensity in most asset classes by 2025 and to have a Well to Wire CO2e intensity close to energy system average by 2050. Shell expects to meet these goals by mitigating CO2e in the current portfolio, minimizing CO2e in future portfolio, and delivering low CO2e solutions. The overall CO2e strategy includes three objectives:

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APPENDIX II**LIST OF REQUIRED INFORMATION**

The following information is required as per the date stated in the Terms of Reference. If available, the information should be submitted in an electronic format.

GENERAL INFORMATION

Central UPU HSSE Organization:

- Current and previous organization chart (within the audit period) including roles & responsibilities for staff who have a GHG accountability and/or responsibility (including liaising with regulators).
- 2017/2018 GHG Assurance reports
- Summaries of key GHG business initiatives, projects, significant areas of management concern.
- Charter and minutes of the Upstream/UPU GHG/CO2 Steering Group
- Latest CO2 business plan and scorecard together with management information on progress against plan.
- Report-out of Critical Review Process specific for GHG emissions.
- Training records for GHG/CO2 training.

Sampled Locations:

- Current and previous HSSE organization chart (within the audit period) including roles & responsibilities for staff who have a GHG accountability and/or responsibility (including those staff who have a role in PMR and staff who liaises with regulators on GHG regulation).
- CO2 business plans for 2017 and 2018.
- GHG and Energy Management Plans for 2017 and 2018, including abatement options
- PMR submittals on GHG.
- Reports-out on GHG data checks.
- GHG emission calculations
- Leak detection (i.e. LDAR) reports
- External Stakeholder Management Plan in regards to GHG.

AUDIT SPECIFIC INFORMATION

During our audit, detailed test work will be performed on selected data. In due course, you will be informed as to which data is required. The date when the information is required will be agreed with the Auditee/Focal Points during the execution of the fieldwork.