



DEPARTMENT OF
PETROLEUM RESOURCES
....Petroleum Regulatory Agency Of Nigeria

Applicable to all Oil & Gas Operators

GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT &
REPORTING OBLIGATIONS

Code: DPR Guide 0005 - 2020

Revision Date: 1st August 2020

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ISSUED BY

DEPARTMENT OF PETROLEUM RESOURCES

2020



TABLE OF CONTENTS

1. SCOPE.....	4
2. OBJECTIVE	4
3. PREAMBLE	5
4. DATA MEASUREMENT AND ACCOUNTING	7
5. REPORTING PROCEDURES	21
6. DATA RECONCILIATION AND RESOLUTION	22
7. NON-COMPLIANCE.....	23
8. GLOSSARY	24
9. SCHEDULE A	36
10. Table 1: METER INSTALLATION POINTS	36
11. SCHEDULE B	38
12. Table 2: REPORTS AND LOGS FORMAT	38



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1. SCOPE

These Guidelines are issued pursuant to the provisions of Paragraph 35 (b) of the First Schedule to the Petroleum Act, 1969; Paragraph 44 of the Petroleum (Drilling and Production) Regulations, 1969; Paragraph 47 of the Petroleum Refining Regulations, 1974; and the Flare Gas (Prevention of Waste and Pollution) Regulations, 2018.

These Guidelines stipulate the general procedures for putting in place a gas flaring and venting accountability system in Nigeria which includes, amongst others, data measurement, accounting, registration and reporting.

2. OBJECTIVE

The objective of these Guidelines is to lay out the criteria, general requirements and obligations of Producers and Permit Holders with respect to Flare Gas measurement, data management and reporting obligations to ensure compliance with the Flare Gas (Prevention of Pollution and Waste) Regulations, 2018, as well as to introduce new Flare Gas measurement, data management and reporting obligations for all Processing Facilities.

These Guidelines address metering and data management aspects of the Metering and Data Collection Standards as stipulated in Paragraph 20 (2) of the Flare Gas (Prevention of Waste and Pollution) Regulations, 2018.

Flare Gas measurement and production data management is necessary to obtain, monitor, report and validate (audit) data of produced, utilised and flared/vented natural gas with the objective of, amongst others, generating Flare Site Data to identify and quantify the environmental impact and the opportunities to commercialise Flare Gas.

	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

3. PREAMBLE

- 3.1 In accordance with Paragraph 4 (2) of the Flare Gas (Prevention of Waste and Pollution) Regulations, 2018, the Department of Petroleum Resources may request a Producer to provide Flare Gas Data and the Producer shall provide such data in the format required within 30 calendar days of the date of request.
- 3.2 A Producer, or any person acting on behalf of the Producer, who supplies inaccurate or incomplete Flare Gas Data to the Department of Petroleum Resources shall be liable to the penalty stipulated in Paragraphs 5 and 21 of Flare Gas (Prevention of Waste and Pollution) Regulations, 2018.
- 3.3 A Producer shall maintain a daily log of flaring and venting of natural gas produced in association with Crude Oil and/or Condensate and shall submit the logs to the Department of Petroleum Resources within twenty-one (21) days following the end of each month.
- 3.4 A Permit Holder shall maintain a daily log of each occurrence of the flaring and venting of natural gas within its facilities, which shall be submitted to the Department of Petroleum Resources within twenty-one (21) days following the end of each month.
- 3.5 All flaring logs shall be based on data retrieved from metering equipment that shall be installed by the Permit Holder and by the Producer in their respective facilities and shall include the date, time, duration, rates, volumes, and gas source or type, (such as sour inlet gas or acid gas), for each flaring event.
- 3.6 The format and manner of all logs shall be in conformity to the Metering and Data Collection Standards as provided for in Schedule B of these Guidelines.

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

- 3.7 Each Producer and Permit Holder shall keep copies of logs in safe custody for no less than thirty-six (36) months, as stipulated in Paragraph 15 of the Flare Gas (Prevention of Waste and Pollution) Regulations, 2018.
- 3.8 Each Producer shall maintain a daily record of all natural gas produced in association with Crude Oil and/or Condensate from the Oil Mining Lease or the Marginal Field on a field-by-field basis.
- 3.9 Each Producer shall submit the record gathered in respect of all natural gas produced in association with Crude Oil and/or Condensate from the Oil Mining Lease or the Marginal Field within twenty-one (21) days following the end of each month to the Department of Petroleum Resources.
- 3.10 A Producer shall prepare and submit to the Department of Petroleum Resources an annual report, which shall be submitted each year by March 31 for the previous year as stipulated in Paragraph 17 (1) of the Flare Gas (Prevention of Waste and Pollution) Regulations, 2018.
- 3.11 The annual report referred to in Section 3.10 above shall include:
- a. all Flare Gas Data with respect to each Flare Site in the format required by the Department of Petroleum Resources, and
 - b. a list identifying all Flare Sites for which the Producer has not yet executed a Connection Agreement in relation to such sites.
- 3.12 A Permit Holder shall prepare and submit an annual report to the Department of Petroleum Resources, which shall be submitted each year by March 31 for the previous year as stipulated in Paragraph 18 (1) of the Flare Gas (Prevention of Waste and Pollution) Regulations, 2018.
- 3.13 The annual report referred to in Section 3.12 above shall include:
- a. information regarding the volume of Associated Gas that would have been flared at the Flare Site but has been delivered to and utilised by the Permit Holder,

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<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

- b. the volume of all such Flare Gas flared by the Permit Holder; and
- c. the volume of all such Flare Gas vented by the Permit Holder.

3.14 Metering and Safety Standards:

- a. The metering equipment used for measuring natural gas produced, used, flared and vented in associated with production of Crude Oil and/or Condensate shall be manufactured, calibrated, inspected and operated in conformity to the Metering and Data Collection Standards as provided in these Guidelines, the “Procedure Guide for the Determination of Quantity and Quality of Petroleum and Petroleum Products in Nigeria” and the “Procedure Guides for the Determination of Quantity and Quality of Gas and Gas Derivatives at Custody Transfer Points”, issued by the Department of Petroleum Resources pursuant to the provisions of Paragraph 8 (1) (a) of the Petroleum Act, 1969, and Paragraph 52 of the Petroleum (Drilling and Production) Regulations, 1969 (LFN CAP 10, 2004).
- b. The metering equipment used for measuring gas produced, used, flared and vented in association with Crude Oil and/or Condensate shall have an accuracy in conformity to the Metering and Data Collection Standards as provided in Section 4.6 of these Guidelines.

4. DATA MEASUREMENT AND ACCOUNTING

- 4.1 The requirements for the selection of Flare Gas metering system shall comply with the provisions of the “Procedure Guides for the Determination of Quantity and Quality of Gas and Gas Derivatives at Custody Transfer Points” issued by the Department of Petroleum Resources pursuant to the provisions of Paragraph 8 (1) (a) of the Petroleum Act, 1969, and Paragraph 52 of the Petroleum (Drilling and Production) Regulations, 1969 (LFN CAP 10, 2004).

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

4.2 Producers, Permit Holders and all Processing Facility operators flaring natural gas shall measure the following data set and report the data corrected to a standard temperature of 60°F and a pressure of 14.73 psi.

a. Producers

1. Associated Gas Production per Flare Site and per Oil Field
2. Associated Gas utilisation
 - i. Associated Gas delivered for Own Consumption
 - ii. Associated Gas delivered for Existing Offtake Commitments. Associated Gas delivered by a Producer as a fuel or feedstock to a power generation plant owned by the Producer or its subsidiary that delivers electric power not intended for Own Consumption to a third party, and petrochemical or any other facility that uses Associated Gas and that is owned by the Producer or its subsidiary are not deemed to be Own Consumption but an Existing Offtake Commitment.
 - iii. Liquids extracted from Associated Gas
3. Flare Gas
 - i. Producer's Approved Flare Out Project
 - ii. Third Party Flare Gas Commercialisation Project
 - iii. Flare Gas going to a Flare Stack or Incinerator per Flare Site and per Oil Field

b. Third Party Flare Gas Commercialisation Project and Producer's Approved Flare Out Project, on behalf of a company incorporated in Nigeria, provided that such company shall

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

not be a Producer, as stipulated in Paragraph 8 (3) of the Flare Gas (Prevention of Waste and Pollution) Regulations, 2018; both referred to as Permit Holders:

1. Flare Gas consumption
2. Flare Gas volumes vented or flared in the Project (if applicable)

c. Refineries and other Processing Facilities

1. Flare Gas volumes vented or flared

4.3 Composition

a. The Producer shall monthly report the composition of the following gas streams:

1. Low pressure gas from tanks or surge vessels
2. Flare Gas in the Flare Gas Header
3. Flare Gas at the Delivery Point (if different from Flare Gas in the Flare Gas Header)

b. The Producer shall provide the composition of the natural gas using online Chromatograph, regular sampling and laboratory analysis, or any other methods approved by the Department of Petroleum Resources.

c. The composition data provided by the Producer shall cover the range of C1 to a minimum of C7 and significant contaminants including, but not limited to, H₂S, Hg, CO₂ and N₂.

d. Where a Producer decides to use regular sampling and laboratory analysis, the gas shall be analysed in a laboratory and using a procedure, both of which have been approved by the Department of Petroleum Resources.

e. Sampling should conform to industry acceptable standard, such as API MPMS 14.1 June 2001 or equivalent.

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

4.4 Operating Conditions

The Producers shall report the operating temperature and pressure of produced natural gas and Flare Gas.

4.5 Computed Associated Gas and Flare Gas data

The Producer is required to calculate and report per Oil Field and Flare Site:

- a. Gas-to-Oil Ratio (GOR) in scf of Associated Gas produced per bbl of Crude Oil and/or Condensate produced
- b. Associated Gas Utilisation Factor (AGUF)
- c. Routine and Non-Routine Flaring quantities

4.6 Metering

The following provisions shall apply to the Producer and, where applicable, to the Permit Holder as provided in Section 4.6 (d) (2) and to Processing Facilities as provided in Section 4.6 (d) (3):

a. Gas Measurements to obtain accurate and accredited data

1. The parameters/requirements listed below are determining factors in selection of the type of meter to be installed for the purpose of gas measurements and production data management:
 - i. Composition of the gas
 - ii. Required accuracy / margin of error
 - iii. Measurement intervals / duration / range
 - iv. Calibration frequency and procedures
 - v. Data storage and retrieval process

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

2. Meter selection shall be subject to the approval of the Department of Petroleum Resources

b. Type of Gas Meters

1. **Production Meters:** Requirements for selection of Production Meters shall include the following:
 - i. Meter accuracy: +/- 3.0%
 - ii. Operating range (pressure, flow and composition) shall be set by the anticipated range of measurement
 - iii. Category of Production meters: Orifice meters, Coriolis meter, ultrasonic meters or any other meter that meets criteria (i) and (ii) above, subject to approval of the Department of Petroleum Resources.
 - iv. Standards that govern the production meter:
 - a) Orifice meters- API MPMS 14.3. Part 1 and 2; AGA 3; ISO 5167
 - b) Coriolis meters- API MPMS 5.6, 14.9; AGA 7, 11; ISO10790
 - c) Ultrasonic meters- API MPMS 5.8, 14.1; AGA 7, 9, 10; and
 - d) Any other reputable industry standards, acceptable to the Department of Petroleum Resources
2. **Fiscal Meter:** Requirements for selection of Flare Payment Fiscal Meters and Flare Gas Sales Fiscal Meters shall include the following:
 - i. Accuracy: +/- 3.0%
 - ii. Operating range (pressure, flow and composition) shall be set by the anticipated range of measurements

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

iii. Category of meters: Orifice meters, Coriolis meters, ultrasonic meters or any other meters approved by the Department of Petroleum Resources

iv. Standards that govern the Flare Payment Fiscal Meter and Flare Gas Sales Fiscal Meter are the same as those described in Section 4.6(b) (1) (iv):

- a) API, ISO as above and AGA No. 7 for Turbine meters; and
- b) Any other reputable industry standards, acceptable to the Department of Petroleum Resources

3. **Allocation Meters and meters used by Processing Facilities:** Requirements for selection of Allocation Meters and meters used by Processing Facilities shall include the following:

i. Accuracy: +/- 5.0%

ii. Operating range (pressure, flow and composition) shall be set by the anticipated range of measurements

iii. Type of meters: Orifice meters, Coriolis meters, turbine meters, ultrasonic meters or any other meters approved by the Department of Petroleum Resources

iv. Standards: API, ISO as stated above in Section 4.6 (b) (1) (iv) and for turbine meters AGA 7 & API MPMS 20.1 and any other reputable industry standards, approved by the Department of Petroleum Resources

c. Other applicable metering standards

Other applicable standards relevant to the metering system designs and operations shall include the following:

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

1. “Collecting and Handling of Natural Gas Samples for Custody Transfer” in API 14.1
2. API 14.2 or AGA 8 for gas compressibility calculations
3. “Converting Mass of Natural Gas Liquids & Vapours to Equivalent Liquid Volumes” in API 14.4

d. Metering Applications

1. The following data shall be metered by the Producer:
 - i. Production: Gas Production Meter as specified in Section 4.6 (b) (1) above shall be deployed for the measurement of the following production data:
 - a) High-pressure Associated Gas quantities
 - b) Medium-pressure Associated Gas quantities
 - c) Low-pressure Associated Gas quantities
 - d) Any other Associated Gas sources as applicable
 - ii. Own Consumption: A gas Allocation Meter as specified in Section 4.6 (b) (3) above shall be deployed for the measurement of the following:
 - a) Quantity of gas used for power generation
 - b) Quantity of gas used by mechanical driven compressors
 - c) Quantity of gas used by mechanical driven pumps
 - d) Quantity of gas used by heaters
 - e) Quantity of gas for re-injection
 - f) Quantity of gas lift make-up gas

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

e) Quantity of gas used by any other equipment using gas as fuel

iii. Liquids

Production Meters shall be installed to measure the recovered liquids such as condensate and LPGs, and to determine the equivalent quantity of Associated Gas

iv. Flare Gas

A Fiscal Meter as specified in Section 4.6 (b) (2) above shall be deployed for the following Associated Gas and Flare Gas quantities that generate a payment:

- a) Flare Gas delivered to Producer's Approved Flare Out Project
- b) Flare Gas to the Flare Stack or Incinerator

2. The Permit Holder shall deploy Fiscal Meters as specified in Section 4.6 (b) (2) as follows:

- i. Delivery Point of Flare Gas delivered to Third Party Flare Commercialisation Project
 - ii. Header where Project gas is directed to the Flare Stack or Incinerator
3. Other Processing Facilities shall deploy meters as specified in Section 4.6 (b) (3) to meter natural gas flow to the Flare Stack, Incinerator or vent stack.

4.7 Producers' Unaccounted Flare Gas

The Unaccounted Flare Gas quantities are calculated as follows:

Unaccounted Flare Gas quantities = (A*B) - C - D - E - F - G - H,

where:

	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

A= Associated Gas Production quantities

B = 1 - Shrinkage Factor

C= Own Consumption quantities

D= Gas quantities delivered under Existing Offtake Commitments

E= Liquids extracted from Associated Gas (if metered or accounted for)

F= Flare Gas delivered to Third Party Flare Commercialisation Project

G= Flare Gas delivered for Producer’s Approved Flare Out Project

H= Measured or accounted Flare Gas quantities going to the Flare Stack

In all cases, Unaccounted Flare Gas quantity includes Vented Gas. For the Flare Payment Amount calculation, all negative results from the use of the material balance shall be deemed to be “zero”.

The Unaccounted Flare Gas data shall be corrected to a standard temperature of 60°F and a pressure of 14.73 psi.

4.8 Producers Compounded Flare Gas Quantity

The Compounded Flare Gas Quantity is used as the basis for calculating the Flare Payment Amount. During the Transition Period described in Section 4.9 of these Guidelines, the Compounded Flare Gas Quantity is equal to the Accounted Flare Gas Quantity defined in Section 4.9 (d). Once the metering equipment has been installed as per these Guidelines, the Compounded Flare Gas Quantity is equal to:

Compounded Flare Gas Quantity = Flare Gas quantity going to the Flare Stack + Unaccounted Flare Gas quantities

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

4.9 Transition Period

For the purpose of the metering application described in Section 4.8, a transition period of 24 months shall be granted to Producers and Processing Facilities to comply with the provisions of these Guidelines. Where, during the Transition Period, meters are not installed or are not in compliance with Section 4.6 (b), Producers shall be required to apply the accounting methods described below:

a. Accounted Associated Gas Production

The Associated Gas Production is calculated as follows: Quantities of Crude Oil and/or Condensate produced related to the Flare Site multiplied by the GOR applicable to the Flare Site based on the latest well test results.

b. Accounted Own Consumption

The Own Consumption quantity shall be derived from fuel consumption values provided in the data sheets of the original equipment manufacturers and, where applicable, re-injected Associated Gas volumes reported by the Producer. The Own Consumption of each equipment shall be computed using the following variables as input:

1. Capacity, efficiency (at full load and partial load), derating curve, and any other relevant parameter
2. Time equipment was in active service over the reporting period
3. Actual operating capacity for the period under consideration
4. Calculated energy output using applicable data from (1) to (3) above
5. Gas consumption in Mscf/d as a function of energy output calculated in (4), data sheet input identified in (1) from the original equipment manufacturers, and the heating value of the gas based on the gas analysis described in Section 4.3 of these Guidelines.

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

c. Accounted liquids extracted from Associated Gas

In the event that the Producer does not measure the Associated Gas quantities going in and out of the Associated Gas processing unit (extracting liquids from Associated Gas) the equivalent Associated Gas quantities may be computed from metered liquid production.

d. Accounted Flare Gas

The Accounted Flare Gas quantities are calculated as follows:

Accounted Flare Gas quantities = (A* B) - C - D - E - F - G,

where:

A = Associated Gas Production quantities (metered or accounted)

B = 1 - Shrinkage Factor

C = Own Consumption quantities (metered or accounted)

D = Gas for Existing Offtake Commitments (metered)

E = Liquids extracted from Associated Gas (if metered or accounted for)

F = Flare Gas delivered to Third Party Flare Commercialisation Projects (metered)

G = Flare Gas delivered for Producers' Approved Flare Out Projects (metered).

The Producer shall indicate which data are metered and which are accounted for in the reporting template provided by the Department of Petroleum Resources.

4.10 Unaccounted Project Flare Gas

Unaccounted Project Flare Gas refers to Flare Gas quantities that the Permit Holder cannot account for with respect to the Flare Gas quantities delivered to the Project, Project Flare Gas

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

Flared, the Flare Gas-to-Market Product quantities and own consumption, whichever is applicable.

4.11 Meter Malfunctioning and Unavailability

a. Producers, Permit Holders and Processing Facilities shall ensure that all meters specified in these Guidelines are in good operating condition and calibrated in a timely manner as defined in Section 4.12 of these Guidelines. In the event of a malfunctioning of a meter, the party shall log all incidences of meter malfunction and reflect this in its monthly reports, described in Section 5.1, to the Department of Petroleum Resources.

b. In the event of a meter malfunctioning, or in the event that one or more meters are out of service and there is no built-in redundancy to compensate their outages, the following shall apply:

1. Flare Gas meter: During the period in which the meter is malfunctioning, the Producer and the Permit holder shall account for the data as per Section 4.9 of these Guidelines. To determine the Flare Payment Amount, the Department of Petroleum Resources shall use the higher of:
 - i. Accounted data
 - ii. Highest value recorded by the meter over a 12-month period prior to the malfunctioning being identified and reported.
2. Associated Gas Production: During the period in which the production meter(s) is malfunctioning, the Producer shall account for the data as per Section 4.9 of these Guidelines. To determine the Flare Payment Amount, the DPR shall use the higher of:
 - i. Accounted data

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

- ii. Highest value recorded by the meter over a 12-month period prior to the malfunctioning being identified and reported.
3. Associated Gas Own Consumption: During the period in which the allocation meter(s) is malfunctioning, the Producer will account for the data as per Section 4.9 of these Guidelines. To determine the Flare Payment Amount, the DPR will use the lower of:
 - i. Accounted data
 - ii. Lowest value recorded by the meter over a 12-month period prior to the malfunctioning being identified and reported.

4.12 Meter Calibration

- a. Production Meters, Flare Payment and Flare Gas Sales Fiscal Meters and Allocation Meters shall follow calibration procedures as defined in the “Procedure Guide for the Determination of Quantity and Quality of Petroleum and Petroleum Products” and the “Procedure Guides for the Determination of Quantity and Quality of Gas and Gas Derivatives at Custody Transfer Points” issued by the Department of Petroleum Resources (“The Procedure Guides”).
- b. The Department of Petroleum Resources may at any time direct a Producer, Permit Holder or Processing Facility to carry out a non-routine calibration of specific meters.

4.13 Meter Malfunctioning and Calibration Cure Period

- a. Producers:
 1. A Producer will be allowed 90 calendar days to repair any malfunctioning meter referred to in these Guidelines.

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

2. Unless otherwise defined in the Procedure Guides, the Producer will be granted 90 calendar days to conclude the calibration process and put back in service any such meter referred to in these Guidelines.
 3. Failure by the Producer to meet the obligations laid out in Section 4.13 (a) (1) and (2) of these Guidelines will constitute a breach of his obligations as laid out in Paragraph 21 (1) (b) and (f) of the Flare Gas (Prevention of Waste and Pollution) Regulations, 2018.
- b. Permit Holder:
1. A Permit Holder will be allowed 90 calendar days to repair any malfunctioning meter referred to in these Guidelines.
 2. Unless otherwise defined in the Procedure Guides, the Permit Holder will be granted 90 calendar days to conclude the calibration process and put back in service any such meter referred to in these Guidelines.
 3. In the event of failure by the Permit Holder to meet the obligations laid out in Section 4.13 (b) (1) and (2) of these Guidelines, the Department of Petroleum Resources may instruct the Permit Holder to shut down operations until the Permit Holder has met its obligations laid out in Section 4.13 (b) (1) and (2) of these Guidelines.
- c. Processing Facility:
1. A Processing Facility will be allowed 90 calendar days to repair any malfunctioning meter referred to in these Guidelines.
 2. Unless otherwise defined in the Procedure Guides, the Processing Facility will be granted 90 calendar days to conclude the calibration process and put back in service any such meter referred to in these Guidelines.

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

3. In the event of failure by the Processing Facility to meet the obligations laid out in Section 4.13 (c) (1) and (2) of these Guidelines, the Department of Petroleum Resources shall take necessary action in accordance with the Petroleum Act to enforce compliance.

4.14 Greenfield Projects

The Transition Period does not apply to Greenfield Projects. These projects shall have meters installed and operational as at the commencement date of operations and in accordance with these Guidelines.

5. REPORTING PROCEDURES

5.1 Types of Report

a. Producers shall in a timely manner prepare and submit the following reports to the Department of Petroleum Resources:

1. Annual Reports

- i. Producer Historic Production Report (refer to Schedule B 1.1.1)
- ii. Producer Historic Gas Accounting (refer to Schedule B 1.1.2)
- iii. Producer AG and Flare Gas Related Forecast (refer to Schedule B 1.3.1)
- iv. Producer Annual Report (refer to Schedule B 1.4.1)

2. Monthly Reports

- i. Producer Associated Gas Accounting Report (refer to Schedule B 1.2.1)
- ii. Producer Own (Energy) Consumption Report (refer to Schedule B 1.2.2)
- iii. Gas Meter(s) Inventory Report (refer to Schedule B 1.2.3)
- iv. Vented Gas Report, list of non-fugitive venting points (refer to Schedule B 1.2.4)

b. Permit Holders shall in a timely manner prepare and submit the following reports to the Department of Petroleum Resources:

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

1. **Annual Reports:** Permit Holder Annual Report (refer to Schedule B 2.2.1)
 2. **Monthly Reports:** Project Flare Gas Accounting Report (refer to Schedule B 2.1.1)
- c. Processing Facilities shall in a timely manner prepare and submit the following report to the Department of Petroleum Resources:
1. **Monthly Reports:** Natural gas flow to the Flare Stack, Incinerator or vent stack (refer to Schedule B 3.1)
- d. The **Department of Petroleum Resources** shall in a timely manner prepare the following reports:
1. **Annual Reports** Published on DPR Website no later than June 30th each year (refer to Schedule B 4.3.1)
 2. **Monthly Reports**
 - i. AG and Flare Gas Accounting (refer to Schedule B 4.1.1)
 - ii. Producer Performance Ranking (refer to Schedule B 4.2.1)

5.2 Reporting and Log Format

Details of the reporting and log format are highlighted in Table 1 of Schedule B of these Guidelines.

6. DATA RECONCILIATION AND RESOLUTION

All data on gas production, utilisation and flaring shall be subject to quarterly and annual reconciliation as follows:

- a. Producers shall meet with the Department of Petroleum Resources on a quarterly basis to reconcile all oil and gas production volumes. The meeting will be scheduled by the Department of Petroleum Resources with minimum notice of 5 (five) Business Days.
- b. Permit Holders shall meet with the Department of Petroleum Resources on an annual basis to reconcile accounted Flare Gas volumes. The meeting will be scheduled by the Department of Petroleum Resources with minimum notice of 5 (five) Business Days.

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

c. Production Facilities shall meet with the Department of Petroleum Resources on an annual basis to review accounted Flare Gas volumes. The meeting will be scheduled by the Department of Petroleum Resources with minimum notice of 5 (five) Business Days.

d. Where data is not reconciled within a period of 30 Business Days after the first reconciliation meeting, the decision on the final volume will be made by the Department of Petroleum Resources.

7. NON-COMPLIANCE

7.1 Producer Non-Compliance

For non-compliance by the Producer, provisions of Paragraphs 5 and 21 of Flare Gas (Prevention of Waste and Pollution) Regulations, 2018, shall apply.

7.2 Permit Holder Non-Compliance

For non-compliance by the Permit Holder, provisions of Paragraph 22 of Flare Gas (Prevention of Waste and Pollution) Regulations, 2018, shall apply.

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

8. GLOSSARY

<p>Accounted Flare Gas</p>	<p>The Accounted Flare Gas quantities are calculated as follows: Accounted Flare Gas quantities = (A* B) - C - D - E - F - G, where: A= Associated Gas Production quantities (metered or accounted) B= 1 - Shrinkage Factor C= Own Consumption quantities (metered or accounted) D= Gas for Existing Offtake Commitments (metered) E= Liquids extracted from Associated Gas (if metered or accounted for) F= Flare Gas delivered to Third Party Flare Commercialisation Projects (metered) G= Flare Gas delivered for Producer’s Approved Flare Out Projects (metered).</p> <p>During the Transition Period, the Accounted Flare Gas quantity will be used as the basis for calculating the Flare Payment Amount.</p>
<p>AG</p>	<p>Associated Gas</p>
<p>AG and Flare Gas Accounting Report</p>	<p>Report prepared by the DPR as defined in Schedule B 3.1.1 of the Guidelines for Flare Gas Measurement, Data Management and Reporting Obligations</p>
<p>AGUF</p>	<p>Associated Gas Utilisation Factor</p>
<p>Allocation Meter</p>	<p>A device used by the Producer to meter and register the quantities of gas used for Own Consumption and other gas volumes as specified in the Guidelines for Flare Gas Measurement, Data Management & Reporting Obligation 2018</p>
<p>Associated Gas (AG)</p>	<p>Gas associated with Crude Oil and/or Condensate production</p>
<p>Associated Gas Production</p>	<p>Associated Gas quantities produced</p>
<p>Associated Gas Utilisation Factor</p>	<p>The volume of Associated Gas utilised (not flared or vented) as a function of the total Associated Gas production quantities</p>

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

(AGUF)	
Auction	Competitive bid process conducted by the Federal Government of Nigeria to take Flare Gas on its behalf at any Flare Site as set forth in the Regulations
BOPD or bopd	Barrels of oil per day
Business Day	Any Day other than a Saturday, Sunday, or a public holiday declared by the Federal Government of Nigeria on which commercial banks in Nigeria are legally permitted to be closed for business
BWPD	Barrels of Water per Day
Chargeable Flare Gas Quantity	The Flare Gas quantity used for calculating the Flare Payment to be paid by the Producer as defined in the Guidelines for Flare Payments
Chromatograph	A gas chromatograph capable of measuring online gas compositions up to and including C7 and the main non-hydrocarbon constituents of the gas
Commercial Operations Date	Date upon which the Flare Gas Buyer declares start of commercial operations or the date upon which it starts delivering its Flare Gas-to-Market Product(s) to its Off-Taker(s), whichever comes earlier
Compounded Flare Gas Quantities	The sum of the Flare Gas quantities and Unaccounted Flare Gas quantities
Condensates	A low-density, high-API gravity liquid hydrocarbon phase that generally occurs in association with natural gas
Connection Agreement	An agreement conforming substantially to the template issued as part of the tender documentation by the Department of Petroleum Resources and appended to the document during the request for proposal stage under the Programme, which is entered into by a Producer and a Flare Gas Buyer with respect to the connection of the respective facilities of the Producer and the Flare Gas Buyer through the Gas Connection Assets

 <p>DEPARTMENT OF PETROLEUM RESOURCESPetroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

Contracted Flare Gas Delivery Shortfall	Any Contracted Flare Gas Quantities under the Gas Sales Agreement that, upon request by the Flare Gas Buyer, the Seller was unable to deliver to the Flare Gas Buyer
Contracted Flare Gas Price	The Flare Gas Price to be paid by the Flare Gas Buyer to the Seller for Contracted Flare Gas Quantity as defined in the Gas Sales Agreement
Contracted Flare Gas Quantity	The sum of Contracted Guaranteed Flare Gas and Contracted Non-Guaranteed Flare Gas
Contracted Guaranteed Flare Gas Buyer Shortfall	Contracted Guaranteed Flare Gas that was made available by the Producer under the Deliver or Pay Agreement which the Flare Gas Buyer did not take
Contracted Guaranteed Flare Gas	The Guaranteed Flare Gas quantity contracted by the Flare Gas Buyer under the Gas Sales Agreement and for which Flare Gas Buyer has entered into a Deliver or Pay Agreement with the Producer
Contracted Non-Guaranteed Flare Gas	The Non-Guaranteed Flare Gas quantity contracted by the Flare Gas Buyer under the Gas Sales Agreement
Crude Oil	Oil in its natural state before it has been refined or treated (excluding water and other foreign substances)
Deliver or Pay Agreement	An agreement that the Producer may sign with the Flare Gas Buyer under which the Producer guarantees to supply an agreed quantity of Flare Gas to the Flare Gas Buyer
Deliver or Pay Shortfall	Gas delivery shortfall by the Producer under the Deliver or Pay Agreement
Deliver or Pay Quantity	Flare Gas quantity under the Deliver-or-Pay Agreement which is equal to the Contracted Guaranteed Flare Gas Quantity under the Gas Sales Agreement
Delivery Point	Point within the Metering Station at which the title to the Flare Gas passes from the Seller to the Flare Gas Buyer

	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

<p>Department of Petroleum Resources (DPR)</p>	<p>The Department of Petroleum Resources of the Federal Ministry of Petroleum Resources, or any successor entity that has statutory responsibility for ensuring compliance with petroleum laws, regulations and guidelines related to the oil and gas industry in Nigeria</p>
<p>DPR Annual Report</p>	<p>Report prepared by the DPR as defined in Schedule B 3.3.1 of the Guidelines for Flare Gas Measurement, Data Management and Reporting Obligations</p>
<p>Emission Credit</p>	<p>A generic term for any tradable certificate or permit representing the right to emit a metric ton of carbon dioxide or the mass of another greenhouse gas converted to a ton of carbon dioxide equivalent (tCO₂e)</p>
<p>Existing Offtake Commitment</p>	<p>Gas delivery commitment that the Producer had in place with a third party for the delivery of Associated Gas to a third party or a Producer Entity prior to the Regulations becoming effective. This includes off-take commitments for a Producer’s Associated Gas Utilisation Project for Commercialisation</p>
<p>Fiscal Meter</p>	<p>Flare Payment Fiscal Meters and Flare Gas Sales Fiscal Meters used to meter and register any gas volumes with a payment associated, as stipulated in the Guidelines for Flare Gas Measurement, Data Management & Reporting Obligation 2018</p>
<p>Flare Gas</p>	<p>Any natural gas produced in association with Crude Oil and/or Condensate by a Producer and finally diverted toward a Flare Site by the Producer with the intent of flaring the natural gas so diverted, including any such natural gas from a Greenfield Project</p>
<p>Flare Gas Buyer</p>	<p>The entity which, after having executed the final commercial agreements and having been granted the Permit to Access Flare Gas, will purchase Flare Gas from the Seller through the Gas Sales Agreement</p>
<p>Flare Gas Data</p>	<p>The dynamic pressure, volume and temperature data, and other logs and records generated in the course of day-to-day production</p>

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

	<p>activities, submitted to the Department of Petroleum Resources as stipulated in the Regulations</p>
<p>Flare Gas Flared</p>	<p>Flare Gas volumes flared at a Flare Stack</p>
<p>Flare Gas Forecast Quantity</p>	<p>Flare Gas volume forecast on an annual basis provided by the Producer and subsequently validated by DPR. These Flare Gas quantities are reserved for competitive bid processes conducted by the Federal Government Nigeria to take Flare Gas at any Flare Site on its behalf.</p>
<p>Flare Gas Header</p>	<p>The gas facility or facilities within the Producer’s existing infrastructure from where Associated Gas is directed to the Flare Stack (Flare Gas Connection Point may or may not be at the Flare Gas Header)</p>
<p>Flare Gas (Prevention of Waste and Pollution) Regulations 2018</p>	<p>The Regulations by this name that were signed into effect on the 5th of July 2018, also referred to as the Regulations in the Guidelines</p>
<p>Flare Gas Price</p>	<p>The price of a unit of Flare Gas in US\$/Mscf, which shall either be the Contracted Flare Gas Price or the Excess Flare Gas Price, as applicable</p>
<p>Flare Gas-to-Market Product</p>	<p>A product delivered by the Project to an Off-Taker after having been processed and/or transported by the Flare Gas-to-Market Technology</p>
<p>Flare Gas-to-Market Technology</p>	<p>A technology that will convert Flare Gas into a Flare Gas-to-Market Product or infrastructure that will transport Flare Gas to market</p>
<p>Flare Payment</p>	<p>Payment made by the Producer in U.S. dollars for each Mscf of Flare Gas flared or vented as defined in the Regulations. This is the flare payment rate.</p>
<p>Flare Payment Amount</p>	<p>The payment made by the Producer to the Federal Government of Nigeria as stipulated in the Flare Gas (Prevention of Waste and Pollution) Regulation, 2018, based on the Flare Payment and the</p>

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

	Chargeable Flare Gas quantity
Flare Site	As defined in the Regulations, a location where natural gas produced in association with Crude Oil and/or Condensate is flared, commencing at a Flare Gas Header and going to the point of the flare within an Oil Mining Lease or Marginal Field area or within an oil terminal or refinery. A Producer may consolidate operations for more than one production area into one or more Flare Sites. Flare Stacks connected to different Flare Gas Headers are considered to be separate Flare Sites.
Flare Site Data	The data, including Flare Gas Data and Flare Gas Forecast Quantities, for specified Flare Sites that Producers and Processing Facilities provide to the Department of Petroleum Resources for its review and validation
Flare Stack	Gas combustion device used at the Flare Site or at the Project to burn Flare Gas
Gas Meter Inventory Report	Report prepared by the Producer as defined in Schedule B 1.2.3 of the Guidelines for Flare Gas Measurement, Data Management and Reporting Obligations
Gas-to-Oil Ratio (GOR)	The ratio of the volume of Associated Gas produced to the volume of Crude Oil and/or Condensate produced at standard conditions, and is generally expressed in standard cubic feet per barrel (scf/bbl)
Gas Sales Agreement	An agreement, conforming substantially to the template appended to the request for proposal by the Federal government of Nigeria in the Programme, whereby Flare Gas is sold by the Seller to the Flare Gas Buyer
Greenfield Project	Any project to develop new oil or natural gas production from an Oil Mining Lease or Marginal Field after the effective date of the Flare Gas (Prevention of Pollution and Waste) Regulations 2018
Incinerator	A furnace in which natural gas is burned
Marginal Field	As defined in the Regulations, an oil field within an Oil Mining

	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

	<p>Lease area awarded to an applicant in relation to a field identified as a marginal field by the President of the Federal Republic of Nigeria</p>
<p>Metering and Data Collection Standards</p>	<p>The Associated Gas and Flare Gas metering and data collection standards and requirements, including the Guidelines for Flare Gas Measurement, Data Management and Reporting Obligations, issued by the Department of Petroleum Resources</p>
<p>Minister</p>	<p>Minister of Petroleum Resources</p>
<p>MRV</p>	<p>Monitoring, reporting and verification (of greenhouse gas emissions)</p>
<p>Mscf</p>	<p>Thousand standard cubic feet</p>
<p>Natural Gas Liquid (NGL)</p>	<p>Components of natural gas that are separated from the gaseous state in the form of liquids. This separation occurs in a field facility or in a gas processing plant through absorption, condensation or other method.</p>
<p>Non-Associated Gas</p>	<p>Free natural gas not in contact with, or dissolved in, Crude Oil in the reservoir. There may or may not be condensate production together with the gas.</p>
<p>Non-Routine Flaring</p>	<p>As defined in the Regulations, all flaring other than Routine Flaring. Non-routine flaring is typically intermittent and of short duration and either planned or unplanned. This includes:</p> <ol style="list-style-type: none"> I. Subject to prudent operations and prompt action by the Producer, temporary (partial) failure of equipment that handles the gas during normal operations until their repair or replacement, e.g. failure of compressors, pipeline, instrumentation, controls; II. Temporary failure of facilities that prevents receipt of Associated Gas; III. Safety Flaring; IV. Initial plant or field start-up before the process reaches steady operating conditions;

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

	<ul style="list-style-type: none"> V. Start-up following facility shutdowns; VI. Scheduled preventive maintenance and inspections subject to it being carried out in a prompt manner and following prudent industry standards; VII. Construction activities, such as tie-ins, abrupt change of operating conditions, plant design modifications; VIII. Process upsets when process parameters fall outside the allowable operating or design limits and flaring is required to stabilise the process again; IX. Reservoir or well maintenance activities such as acidification, wire line interventions; X. Exploration, appraisal, or production-well testing or clean-up following drilling or well work-over
Off-Taker	An entity that receives or purchases the Flare Gas-to-Market Product from a Permit Holder
Oil Field	A geographic area under which an oil reservoir lies and/or a tract of land used for extracting petroleum, otherwise known as Crude Oil and Condensate, from the ground
Oil Mining Lease	A lease granted by the Minister to a company incorporated in Nigeria, which allows such company to search for, win, work, carry away, and dispose of oil
Own Consumption	Associated Gas quantity consumed by the Producer in the process of production of Crude Oil and/or Condensate (for power generation, heating, artificial lift, re-injection, etc.)
Permit Holder	A company that has, pursuant to the Regulations, been granted a Permit to Access Flare Gas by the Minister
Permit to Access Flare Gas	As defined in the Regulations, a permit granted to a Permit Holder by the Minister to take Flare Gas on an exclusive basis from one or more Flare Sites as designated in the permit on behalf of the Federal Government of Nigeria
Permit Holder Annual Report	Report prepared by the Permit Holder as defined in Schedule B 2.2.1 of the Guidelines for Flare Gas Measurement, Data Management and Reporting Obligations
Procedure Guides	The “Procedure Guide for the Determination of Quantity and

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

	<p>Quality of Petroleum and Petroleum Products in Nigeria” and the “Procedure Guides for the Determination of Quantity and Quality of Gas and Gas Derivatives at Custody Transfer Points”, issued by the Department of Petroleum Resources</p>
<p>Processing Facility</p>	<p>A Production Facility or any other facility where natural gas or Crude Oil is processed. Power plants are not considered to be processing facilities.</p>
<p>Producer</p>	<p>A holder of Oil Mining Lease or allottee of a Marginal Field or a contractor under a Production Sharing Contract or any other related contractual arrangement</p>
<p>Producer AG and Flare Gas Related Forecast</p>	<p>Report prepared by the Producer as defined in Schedule B 1.3.1 of the Guidelines for Flare Gas Measurement, Data Management and Reporting Obligations</p>
<p>Producer Annual Report</p>	<p>Report prepared by the Producer as defined in Schedule B 1.4.1 of the Guidelines for Flare Gas Measurement, Data Management and Reporting Obligations</p>
<p>Producer Associated Gas Accounting Report</p>	<p>Report prepared by the Producer as defined in Schedule B 1.2.1 of the Guidelines for Flare Gas Measurement, Data Management and Reporting Obligations</p>
<p>Production Facility</p>	<p>Facility where the Producer processes fluids separating and handling Crude Oil, Condensate, water and Associated Gas</p>
<p>Producer Historic Gas Accounting</p>	<p>Report prepared by the Producer as defined in Schedule B 1.1.2 of the Guidelines for Flare Gas Measurement, Data Management and Reporting Obligations</p>
<p>Producer Historic Production Report</p>	<p>Report prepared by the Producer as defined in Schedule B 1.1.1 of the Guidelines for Flare Gas Measurement, Data Management and Reporting Obligations</p>
<p>Producer Own (Energy) Consumption Report</p>	<p>Report prepared by the Producer as defined in Schedule B 1.2.2 of the Guidelines for Flare Gas Measurement, Data Management and Reporting Obligations</p>
<p>Producer Performance Ranking Report</p>	<p>Report prepared by DPR as defined in Schedule B 3.2.1 of the Guidelines for Flare Gas Measurement, Data Management and Reporting Obligations</p>
<p>Producer Reserved Gas for Existing Offtake Commitment</p>	<p>Associated Gas the Producer has committed to supply to a third party under a gas supply agreement entered into prior to the effective date of the Flare Gas (Prevention of Pollution and Waste) Regulations 2018</p>
<p>Producer Reserved Gas</p>	<p>Associated Gas volumes the Producer forecasts to be needed for</p>

	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

<p>for Own Consumption</p>	<p>Own Consumption as approved by the Department of Petroleum Resources</p>
<p>Producer’s Approved Flare Out Project</p>	<p>As defined in the Regulations, a Flare Gas Commercialisation project intended to be developed by a Producer, which is not already operating commercially, that meets the following criteria as validated and approved by the Department of Petroleum Resources:</p> <ul style="list-style-type: none"> i. received all required permits / licenses necessary for its operation; ii. executed all material commercial agreements necessary for the implementation of the project; iii. achieved financial closing; iv. has demonstrated the viability of achieving commercial operations by no later than 1 January 2020; and v. the Producer has provided a financial guarantee to the Federal Government of Nigeria to underpin its commitment to milestones for the implementation of the Project
<p>Producer Reserved Flare Gas for Producer’s Approved Flare Out Project</p>	<p>Flare Gas to be used in a Producer’s Approved Flare Out Project in respect of which the Producer will sign a Milestone Development Agreement</p>
<p>Producer’s Associated Gas Utilisation Project for Commercialisation</p>	<p>Project that was under development by the Producer with the intent to commercialise Associated Gas (either through own or third-party funding) that had not reached the Commercial Operation Date prior to the Flare Gas (Prevention of Waste and Pollution) Regulations, 2018, becoming effective. These projects are exempted from a bidding process and from having to pay to the Federal Government of Nigeria for the gas that is provided as fuel or feedstock to the project. The Producer must have demonstrated to the Department of Petroleum Resources that the project is part of an approved Field Development Plan, has concluded the Front End Engineering Design (FEED), achieved the Final Investment Decision (FID) prior to January 2017, and that it will reach the Commercial Operations Date prior to January 2020.</p>

 <p>DEPARTMENT OF PETROLEUM RESOURCESPetroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

Production Meter	A device used by the Producer to meter and register the quantities of Associated Gas produced and other gas volumes as specified and regulated in the Guidelines for Flare Gas Measurement, Data Management & Reporting Obligation 2018
Programme	The Nigerian Gas Flare Commercialisation Programme or any other programme to take Flare Gas at any Flare Site on behalf of the Federal Government of Nigeria through a competitive bid process and/or through authorisation of Producers' Approved Flare Out Projects.
Project	A technically and commercially viable and sustainable Flare Gas utilisation project developed by the Flare Gas Buyer either as a Third Party Flare Commercialisation Project or as a Producer's Approved Flare Out Project
Project Flare Gas Accounting Report	Report prepared by the Permit Holder as defined in Schedule B 2.1.1 of the Guidelines for Flare Gas Measurement, Data Management and Reporting Obligations
Project Flare Gas Flared	Flare Gas flared at the Producer's Flare Stack attributable to Contracted Guaranteed Flare Gas Buyer Shortfall and/or vented or flared at the Flare Stack at a Project
Routine Flaring	Flaring of natural gas produced in association with Crude Oil and/or Condensate during normal oil production operations in the absence of sufficient facilities or amenable geology to re-inject the produced gas, utilise it on site, or dispatch it to a market. Routine Flaring does not include safety flaring even when continuous.
scf	Standard cubic feet
Shrinkage Factor	0.30%, which is the estimated percentage of the Associated Gas Production quantity that, due to pressure and temperature variations prior to any metering downstream of the Crude Oil Separators, will transform from gas to liquid phase
Take or Pay Quantity	The quantity of Flare Gas for each contract year during the contract period and from each Flare Site all as specified in its Gas Sales Agreement that a Flare Gas Buyer agrees to take or pay for
Third Party Flare Gas Commercialisation Project	A Project awarded under any competitive bid process under the Programme conducted by the Federal Government of Nigeria to take Flare Gas on its behalf any Flare Site as set forth in the Regulations
Transition Period	24-month period from the date of issuance of the Guidelines for

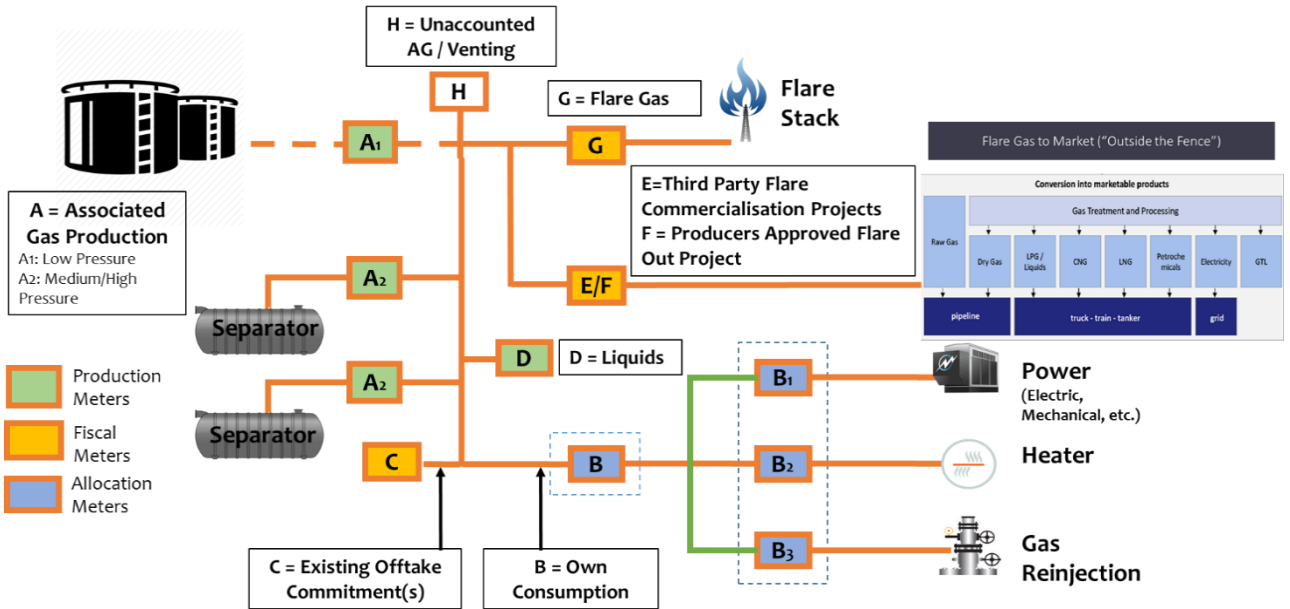
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<p>GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT & REPORTING OBLIGATIONS</p>	<p>Code: DPR Guide 0005 - 2020 Revision Date: 1st August 2020</p>

	<p>Flare Gas Measurement, Data Management and Reporting Obligations during which the Producers and Processing Facility operators shall install the metering systems as laid out in the Guidelines for Flare Gas Measurement Data Management and Reporting Obligations</p>
<p>Unaccounted Flare Gas</p>	<p>Flare Gas quantities that Producers cannot account for, calculated as $(A*B) - C - D - E - F - G - H$, where: A= Associated Gas Production quantities B= 1 - Shrinkage Factor C= Own Consumption quantities D= gas quantities delivered under Existing Offtake Commitments E= Liquids extracted from Associated Gas (if metered or accounted for) F= Flare Gas delivered to Third Party Flare Commercialisation Project G= Flare Gas delivered for Producers Approved Flare Out Project H= measured or accounted Flare Gas quantities going to the Flare Stack</p>
<p>Unaccounted Project Flare Gas</p>	<p>Flare Gas quantities that the Permit Holder cannot account for with respect to the Flare Gas quantities and composition delivered to the Project, own consumption and the Flare Gas-to-Market Product quantities</p>
<p>Vented Gas</p>	<p>Gas that is released into the environment without being combusted</p>
<p>Vented Gas Quantity</p>	<p>The quantity of Flare Gas vented either by a Producer, a Permit Holder or a Processing Facility operator</p>
<p>Vented Gas Report</p>	<p>Report prepared by the Producer as defined in Schedule B 1.2.4 of the Guidelines for Flare Gas Measurement, Data Management and Reporting Obligations</p>



9. SCHEDULE A

Measurement Points for Producers and Permit Holders



10. Table 1: METER INSTALLATION POINTS

ENTITY	WHAT	WHERE
Producers	Associated Gas Production per Flare Site	In the flowlines immediately downstream of where Crude Oil, water and Associated Gas are separated (A1 and A2 above)
Producers	Producers Associated Gas volume for Own Consumption	In the flowlines delivering gas to the consumption points (B above)
Producers	Sales to Existing Offtake Commitments (including Producers’ Associated Gas Utilisation Projects for Commercialisation)	At the corresponding delivery point (C above)
Producers	Flare Gas sales to Producer’s Approved Flare Out Project	At the corresponding delivery point (F above)
Producers	Flare Gas volume going to Flare Stack per Flare Site and per Field	In the Flare Gas Header downstream of all possible Flare Gas Header junctions. No Flare Gas is allowed to by-pass the Flare Gas meter while being directed to the Flare Stack (G above). In the event that the Producer has a knock out drum installed in the Flare Gas Header, the Flare Gas meter should be installed downstream



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...Petroleum Regulatory Agency Of Nigeria

Applicable to all Oil & Gas Operators

**GUIDELINES FOR FLARE GAS MEASUREMENT, DATA MANAGEMENT &
REPORTING OBLIGATIONS**

Code: DPR Guide 0005 - 2020

Revision Date: 1st August 2020

ENTITY	WHAT	WHERE
		of the drum.
Producers	Gas volume removed as NGLs	On the line where NGLs exit the liquid extraction facility (D above).
Producer	Gas composition	On the gas outlet line, immediately downstream of the separator, where Crude Oil, water and Associated Gas are separated
Producer	Pressure and temperature of the Associated Gas and Flare Gas	At all metering points
Third Party Flare Gas Commercialisation Project	Flare Gas consumption	At the corresponding Delivery Point
Third Party Flare Gas Commercialisation Project	Flare Gas volumes vented or flared at the Project	upstream of the flare stack
Producer's Approved Flare Out Project and Producer's Associated Gas Utilisation Project for Commercialisation	Flare Gas consumption	In the pipeline at the corresponding Delivery Point
Producer's Approved Flare Out Project and Producer's Associated Gas Utilisation Project for Commercialisation	Flare gas volumes vented or flared at the Project flare (if applicable)	Upstream of the flare stack

 <p>DEPARTMENT OF PETROLEUM RESOURCES ...Petroleum Regulatory Agency Of Nigeria DPR</p>	<p>Applicable to all Oil & Gas Operators</p>
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11. SCHEDULE B

12. Table 2: REPORTS AND LOGS FORMAT

NAME OF THE REPORT	CONTENT OF THE REPORT	FREQUENCY AND WHEN SUCH REPORT SHOULD BE PREPARED AND SUBMITTED
1 PRODUCERS		
1.1 Historic Data		
1.1.1 Producer Historic Production Report	Annual production data per Flare Site for the two previous calendar years: <ol style="list-style-type: none"> a. Crude Oil production in BOPD b. Condensate production in BOPD c. Water production BWPD d. GOR, AG volume / (Crude Oil+Condensate production), in scf/bbl e. Brief description of how each volume has been measured 	Annual and upon request from the DPR
1.1.2 Producer Historic Gas Accounting	Annual data per Flare Site (Mscf/d) for the two previous calendar years: <ol style="list-style-type: none"> a. Non-Associated Gas production b. Associated Gas Production quantity c. Own Consumption quantity d. Existing Offtake Commitment quantity e. Flare Gas Flared quantity f. Vented Gas Quantity g. Brief description of how each volume has been measured 	Annual and upon request from the DPR
1.2 Current Data		
1.2.1 Producer Associated Gas Accounting	Daily data per Flare Site: <ol style="list-style-type: none"> a. Crude Oil Production in BOPD b. NGL production in Mscf/d equivalent c. Water production in BWPD d. GOR in scf/bbl e. Associated Gas Production quantity in Mscf/d <ol style="list-style-type: none"> i. High pressure (volume, composition, temperature and pressure) ii. Medium pressure (volume, composition, temperature and pressure) iii. Low pressure (volume, composition, temperature and pressure) 	Daily reports feed into the reconciled Monthly report



	<ul style="list-style-type: none"> f. Composition of produced Associated Gas and Flare Gas g. Own Consumption quantity in Mscf/d <ul style="list-style-type: none"> i. Power (electrical and mechanical drive) ii. Heat iii. Re-injection iv. Gas-lift (make-up gas) v. Any other (describe) h. AG Existing Offtake Commitment quantity in Mscf/d: <ul style="list-style-type: none"> i. Export ii. Domestic market i. AG Existing Offtake Commitment delivery in Mscf/d <ul style="list-style-type: none"> i. Export ii. Domestic market j. Flare Gas to Producer's Approved Flare Out Project quantity in Mscf/d k. Flare Gas to Third Party Flare Commercialisation Project in Mscf/d l. Producer Flare Gas Flared quantity in Mscf/d <ul style="list-style-type: none"> i. Routine Flaring ii. Non-Routine Flaring m. Producer Vented Gas Quantity in Mscf/d n. Unaccounted Flare Gas quantity (in most cases AG that is vented) in Mscf/d o. Deliver or Pay Shortfall quantity in Mscf/d (Producer was not able to deliver) p. Contracted Guaranteed Flare Gas Buyer Shortfall quantity in Mscf/d (Permit Holder was not able to take) q. Force majeure events (start/end and duration) 	
1.2.2 Producer Own (Energy) Consumption	<ul style="list-style-type: none"> a. Electric energy consumption in kWh (per month) generated with own source(s) <ul style="list-style-type: none"> i. Type of fuel used ii. Fuel consumption b. Electric energy consumption in kWh (per month) purchased from the grid or any other third party c. Mechanical power use in HP (compression for re-injection, gas lift, etc. and pumps for water re-injection and oil shipping) d. Heat usage in BTU/hr (per month) e. Gasoline, diesel or any other fuel used for vehicles 	Monthly
1.2.3 Gas Meter Inventory:	<ul style="list-style-type: none"> a. Log of all meters: <ul style="list-style-type: none"> i. Where it is located ii. Type of meter iii. Calibration log 	Monthly
1.2.4 Venting Points	Log indicating where there is Vented Gas for reporting	Monthly




	<p>in the Vented Gas Report</p> <ol style="list-style-type: none"> a. Sources of fugitive venting b. Sources of non-fugitive venting 	
1.3 Forecast Data		
1.3.1 Producer AG and Flare Gas Related Forecast (10 years)	<ol style="list-style-type: none"> a. Crude Oil production in BOPD b. Water production in BWPD c. GOR in scf/bbl d. AG production in Mscf/d e. Producer Reserved Gas for Own Consumption in Mscf/d f. Producer Reserved Gas for Existing Offtake Commitment in Mscf/d: <ol style="list-style-type: none"> i. Producer reserved AG for projects that are operational ii. Flare Gas reserved for Producer's Associated Gas Utilisation Project for Commercialisation in Mscf/d g. Producer Reserved Flare Gas for Producer's Approved Flare Out Project in Mscf/d h. Flare Gas reserved for Third Party Flare Gas Commercialisation Project in Mscf/d i. Flare Gas Forecast Quantity in MScf/d: <ol style="list-style-type: none"> i. Total flaring ii. Routine Flaring 	Annual and upon request of the DPR
1.4 Annual Report	7.3	
1.4.1 Producer Annual Report	<ul style="list-style-type: none"> • All Flare Gas Data with respect to each Flare Site in the format required by the Department of Petroleum Resources, and • List identifying all Flare Sites for which the Producer has not yet executed a Connection Agreement in relation to such sites 	Annual
2 PERMIT HOLDERS		
2.1 Accounting Report		
2.1.1 Project Flare Gas Accounting	<p>Data per Third Party Flare Commercialisation Project or Producer's Approved Flare Out Project:</p> <ol style="list-style-type: none"> j. Contracted Flare Gas Quantity (under the Gas Sales Agreement) <ol style="list-style-type: none"> o Contracted Guaranteed Flare Gas Quantity o Contracted Non-Guaranteed Flare Gas Quantity k. Take or Pay Quantity l. Deliver or Pay Quantity (if applicable) m. Delivery or Pay Shortfall in Mscf/d n. Flare Gas supplied at the Delivery Point o. Contracted Flare Gas Delivery Shortfall in Mscf/d p. Contracted Guaranteed Flare Gas Buyer Shortfall (in Mscf/d) 	Monthly



	<ul style="list-style-type: none"> q. Flare Gas flared and vented in Mscf/d r. Unaccounted Project Flare Gas in Mscf/d s. Flare Gas-to-Market Products production quantities (by each product type) t. Force majeure events (start/end and duration) 	
2.2 Annual Report		
2.2.1 Permit Holder Annual Report	<ul style="list-style-type: none"> • Flare Gas utilised in Mscf/d, • Flare Gas flared in Mscf/d • Unaccounted Project Flare Gas volumes (this includes gas vented) in Mscf/d 	Annual
3 PROCESSING FACILITIES		
3.1 Processing Facility Monthly Report	<ul style="list-style-type: none"> • Natural gas flow to the Flare Stack, Incinerator or vent stack in Mscf/d 	Monthly
4 DEPARTMENT OF PETROLEUM RESOURCES		
4.1 Accounting		
4.1.1 AG and Flare Gas Accounting	<p>Data per Producer and per Flare Site</p> <ul style="list-style-type: none"> • AG Production quantities • Own Consumption quantities • AG Existing Offtake Commitment Delivery quantities • Flare Gas delivered to Producer's Approved Flare Out Project quantities • Flare Gas delivered to Third Party Flare Commercialisation Project quantities • Producer Flare Gas Flared quantity <ul style="list-style-type: none"> - Routine Flaring - Non-Routine Flaring • Producer Flare Gas Vented quantity • AGUF • Flare Payment Amounts due • Flare Payment Amounts paid 	Monthly (internal)
4.2 Performance		
4.2.1 Producer Performance Ranking	<ul style="list-style-type: none"> • Ranking by AGUF (last 2 years) • Ranking by Flare Gas quantities (last 2 years): <ul style="list-style-type: none"> - Routine Flaring - Non-Routine Flaring 	Monthly (internal)
4.3 Annual		
4.3.1 DPR Annual Report	<ul style="list-style-type: none"> • Flaring and venting by Producers, including the total volume of Flare Gas and the volume of Flare Gas as a percentage of all Associated Gas produced for each of the two prior years; • Associated Gas produced in association with Crude 	Annual (external)



	<p>Oil and Condensate;</p> <ul style="list-style-type: none"> • Associated Gas consumed by the Producer for Own Consumption for each of the two prior years; • A comparison of flaring and venting performance by Producers against data from previous years, if available; • A ranking of Producers by the Associated Gas Utilisation Factor; • The volume of Flare Gas utilised and gas flared and vented by Permit Holders; • A comparison of volume of Flare Gas utilised and gas flared and vented by Permit Holders against data from previous years, if available; and • The payments received in relation to the flaring of natural gas produced in association with Crude Oil and/or Condensate by each Producer. 	
5 GAS SELLER		
5.1 Accounting		
5.1.1 Gas Sales Agreement Data	<p>Data per Third Party Flare Commercialisation Project and Producer's Approved Flare Out Project</p> <ul style="list-style-type: none"> • Contracted Flare Gas Quantities • Contracted Flare Gas Price • Flare Gas delivered at the Delivery Point • Flare Gas-to-Market Products production quantities 	Monthly
6 DEPARTMENT OF PETROLEUM RESOURCES HEALTH, SAFETY AND ENVIRONMENT IN CHARGE OF CLIMATE CHANGE		
6.1 Emission Accounting		
6.1.1 Emission Accounting (MRV) Credit Data	<ul style="list-style-type: none"> • Flare Gas delivered at the Delivery Point • Flare Gas-to-Market Products production quantities (by product) • Emission Credit in tons CO₂e 	Monthly

Approved by	
<p>Engr. Sarki Auwalu, MNSE (Director/CEO, Department of Petroleum Resources)</p>	
	<p>Date 1st August 2020</p>