

OGMP 2.0

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OGMP Implementation Plan, TGD's and the Uncertainty and Reconciliation Process.

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OGMP Requirements and Data Disclosure

OGMP requirements

- Define & disclose **2025 methane reduction target**
- Submit **implementation plan** on pathway to **Gold Standard**
- **Report annually** on methane emissions from **operated and non-operated assets**

Publicly reported data

- Declared methane **reduction targets** of companies
- Company total emissions (**aggregated** by core source and by level (1-5) & distinct operated and non-operated ventures) + **progress towards targets**
- Members have reasonable opportunity to review company fact sheet before publication.
- **Confidential asset level data and/or country level emissions data will not be publicly disclosed.**

2025 Company Target

- Companies can adopt different targets either absolute or intensity
- In case of variable gas production / conveyed volume intensity is an option, the denominator value is crucial.
- In case of absolute target the base year is important.
- **UNEP** recommends:
 - The adoption of an ambitious target that matches what the company is already doing and is aligned with publicly communicated targets
 - That the numerator is informed by measurements

Materiality Analysis

Type of Asset	Name of the Asset	L3 Estimated Emission [kt CH ₄]	Sub-Total [kt CH ₄]	Percent Company Emissions
LNG Terminals (Regasification)	LNG Terminal 1	4.7	12.3	39.4%
	LNG Terminal 2	3.6		
	LNG Terminal 3	4.0		
Transmission Networks	Trans. Netw. 1	4.1	7.9	25.5%
	Trans. Netw. 2	3.1		
	Trans. Netw. 3	0.8		
UGS	UGS <Name>	3.1	3.1	9.9%
Compressors	Compressor 1	2.4	4.7	15.20%
	Compressor 2	1.8		
	Compressor 3	0.5		

Recommended steps for the materiality analysis

- Using the OGMP 2.0 Materiality Analysis considering 90% of sources as material.
- The first step is to generate a complete L3 estimated inventory of the company assets and sources.
- Once estimated, the emissions starting from the bigger emitting sources were ranked and the 90% selected
- Of the 90% selected, the sources were added by asset and the materiality list was as follows.

Commitment to reach L4/L5 reporting in 3 years for operated assets

Implementation Plan to reach level 4/5 for operated assets						
Asset Name/Venture	Reporting Levels					
	Y0	Y1	Y2	Y3	Y4	Y5
LNG Terminals						
LNG Terminal 1 << Name 1 >>	L3	L4	L4	L4/L5	L4/L5	L4/L5
LNG Terminal 2 << Name 2 >>	L3	L3	L4	L4/L5	L4/L5	L4/L5
LNG Terminal 3 << Name 3 >>	L3	L3	L4	L4/L5	L4/L5	L4/L5
Transmission Networks						
Transmission Network 1 << Name 1 >>	L2	L2	L3	L4/L5	L4/L5	L4/L5
Transmission Network 2 << Name 2 >>	L1	L1	L3	L4/L5	L4/L5	L4/L5
Transmission Network 2 << Name 2 >>	L1	L1	L3	L4/L5	L4/L5	L4/L5
UGS						
UGS 1 << Name 1 >>	L3	L3	L4	L4/L5	L4/L5	L4/L5
Compressors						
Compressor 1 << Name 1 >>	L3	L3	L4	L4/L5	L4/L5	L4/L5
Compressor 2 << Name 2 >>	L3	L3	L4	L4/L5	L4/L5	L4/L5
Compressor 3 << Name 3 >>	L3	L3	L4	L4/L5	L4/L5	L4/L5

The table shows that the company plans to achieve the GS, aiming to report all material emissions at level L4/L5 in year 3.

Staged approach: e.g. having assets reported at L4/5 prior to the deadline

Explanation of staged approach:

The company may add a note about the methodology used for the staged approach, (e.g:)

- * Clustering of similar assets.
- * Staged approach starting with assets with bigger complexity.
- * Consider the ranked volume of gas produced/conveyed.

Credible and explicit path for operated assets

Staged approach	Explanation of staged approach
Indication of possible technologies/methodologies currently being used or planned.	Identification of most material sources within the portfolio of assets.

Venture / Asset Name	Operated / Not Operated	Levels						Technology Description	Materiality
		Y0	Y1	Y2	Y3	Y4	Y5		
		L3	L3	L4	L4/L5	L4/L5	L4/L5		
LNG Terminals	operated		Testing L5 Technologies					See Annex A: LNG Terminals staged approach to achieve GS.	39.4%
Transmission Networks	operated			L4				See Annex B: Transmission Networks staged approach to achieve GS.	29.5%
UGS	operated			Testing L5 Technologies				See Annex C: UGS staged approach to achieve GS.	12.9%
Compressor	operated			L4				See Annex D: Compressors staged approach to achieve GS.	18.2%

Level 4/5 reconciliation considerations

- Companies are encouraged to share high-level considerations on how they plan to tackle reconciliation.
 - Thinking process regarding their sampling plan, justification for choosing a certain mix of methods, etc.
- The detailed approach will be included in the annual report

The table shows that the company plans to achieve the GS, aiming to report all material emissions at level L4/L5 in year 5.

Implementation Plan to reach level 4/5 for non-operated assets						Levels				
Asset Name/Venture	% Equity	Operator	Location		Comment/Additional Information	2021	2022	2023	2024	2025
			Country	Lat / Lon						
Distribution Network										
<<Asset Name 1>> NOp_DN	45%	Company XYZ	Rep. of XXXX	98°13' 12" E, 31°25'07" N	It is operated by the company XYZ, they are not part of OGMP	L1	L2	L2	L3	L4/L5
<<Asset Name 2>> NOp_DN	35%	Company ABC	Kingdom of X	28°13' 12" W, 25°25'07" S	The Company XYZ has joined the OGMP Initiative and hence, Annual Report will be submitted to OGMP.	L2	L3	L3	L4/L5	L4/L5

Credible and explicit path for non-operated assets

- The company is already engaged in discussions with their NOJV’s partners to explain the benefits of the OGMP 2.0 initiative.
- The company is organizing workshops with associated companies, where quantification methodologies at levels L3, L4 and L5 are explained.
- In the next few years, the company plans to help associates build their L4 inventories. To achieve this goal, the Company X will:
 - * Prioritize super emitter leak management, true regular LDAR campaigns.
 - * Develop of strategic investments on the most emissive Transmission networks. –
 - * Strive to repair leaks in a shorter time than that imposed by the Regulatory Entity.
- In the case of a LNG terminal co-owned with several partners, Company X is proposing their partners start with L4 measurements by latest 2024 and L5 for 2025. The company is encouraging their NOJV's partners to adopt the same methodology and technologies there are using into their own assets.


1. Technical Guidance Documents

- TGDs provide guidance on how to meet OGMP 2.0 reporting requirements for most common material sources
- Developed by TGD Task force, integrating inputs from all companies through the mirror groups
- Approved by Steering Group by consensus after 2 week no-objection period
- All TGDs were approved and are available on the OGMP 2.0 website: <https://www.ogmpartnership.com/templates-guidance>

Natural gas driven pneumatic controllers, pumps and measurement devices	Glycol dehydrators	Gas well hydraulic fracture completion venting/flaring	Incidents, emergency stops and malfunctions <i>(under SG approval)</i>
Fugitive component and equipment leaks	Un-stabilized liquid storage tanks	Flare efficiency	Level 1 and 2 reporting
Centrifugal compressor shaft seals (wet and dry seals)	Gas well liquids unloading	Incomplete combustion	Permeation
Reciprocating compressors	Oil well casinghead venting/flaring	Purging and venting, starts and stops and other process and maintenance vents <i>(under SG approval)</i>	General TGD

TGD example: Flare Efficiency

TGD – Flare Efficiency



Approved by the Steering Group 24 June 2021

OGMP Technical Guidance Document - Flare Efficiency

***DISCLAIMER:** The OGMP Technical Guidance Documents (TGD) describe the practice for methane emissions quantification, following the different OGMP levels, at the time of their publication, to the best knowledge of the authors. These are living documents and will be updated as practices evolve, and new data or technologies become available.*

The Framework (section 4.4) acknowledges that 'there may be challenges outside of an OGMP company's control, which prevent reporting at levels 4 or 5 for both operated or non-operated ventures within these timeframes (e.g. should an emerging technology to quantify methane emissions prove infeasible or unreliable). In these cases, if the relevant company can show that efforts consistent to [section 4.2.1 of The Framework] have been made to obtain and disclose methane emissions data at levels 4 or 5 then this shall be deemed to meet the reporting requirements and shall not impact the ability of the company to achieve or maintain gold standard'.

Brief description of the source

There are two types of flares, elevated and ground flares. Elevated flares are more common and typically have larger capacities than ground flares. In elevated flares, a waste gas stream is fed through a stack which can be up to 100 meters tall and is combusted at the tip of the stack. The flame is exposed to atmospheric disturbances such as wind and precipitation. In ground flares, combustion takes place at ground level and is almost always unassisted. Ground flares vary in complexity, and they may consist either of conventional flare burners without enclosures or of multiple burners in refractory-lined steel enclosures.

The typical flare system consists of (1) a gas collection header and piping for collecting gases, (2) a knockout drum (dis-entrainment drum) to remove and store condensables and entrained liquids, (3) a proprietary seal, water seal, or purge gas supply to prevent flash-back, (4) a single- or multiple-burner unit and a flare stack, (5) gas pilots and an ignitor to ignite the mixture of waste gas and air, and, if required, (6) a provision for external momentum force (steam injection or forced air) for smokeless flaring. Natural gas, fuel gas, or inert gas such as nitrogen can be used as purge gas.

The flare system, together with the pressure relief system forms a critical part of the safety system and is designed to prevent escalation of accidents and dangerous situations. It is also used for the elimination of waste gas (i.e. gas from the process which is not recovered, such as dehydrator vents or compressor seal gas). Flaring, aside from portable flaring (see *Scope boundaries*), is rarely used in gas transmission, gas storage and gas distribution.

Flaring can be either continuous, intermittent or released in a discrete batch when purposefully depressurizing equipment for maintenance (e.g. where equipment is depressurized and a discrete volume of gas is sent to flare, linked to single events – pipeline maintenance, compressor station blowdown). Methane emissions from flares can arise for different reasons which can be classified in two categories (incomplete combustion and vented emissions):

1

Approved by OGMP 2.0 Steering Group in June 2021

Structure:

- ***Brief description of the source***
 - Types of flares (elevated & ground flares)
 - What typical flare system consists of & its role
 - Types of flaring (continuous, intermittent or released in a discrete batch)
- ***Scope boundaries***
 - All sources of emissions related to incomplete combustion of waste gas as it is combusted in either a flare, enclosed flare or combustor should be reported under Flaring.
- ***Level 3 & 4 Quantification Methodologies***
- ***Example Models***

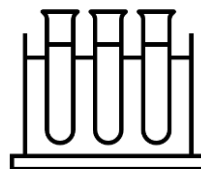
Flare Efficiency TGD – Level 3 Quantification Methodologies

The following quantification methodologies are considered as providing Level 3 estimates:



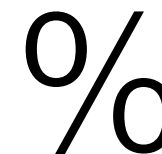
Gas flow

Directly measured
Mass balance



Gas composition

Directly measured
Mass balance
Process simulation
Regulated specification



Destruction
efficiency

Assume 98%

- **Accepted QMs/those prescribed by local regulation** are considered as providing L3 estimated if they consider all 3 parameters.

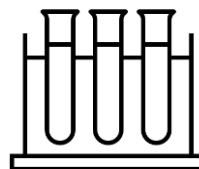
Flare Efficiency TGD – Level 4 Quantification Methodologies

The following quantification methodologies are considered as providing Level 4 estimates:



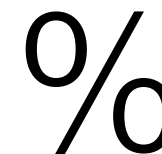
Gas flow

- Continuous direct measurement
- Mass balance
- Process simulation



Gas composition

- Continuous direct measurement
- Sample measurement

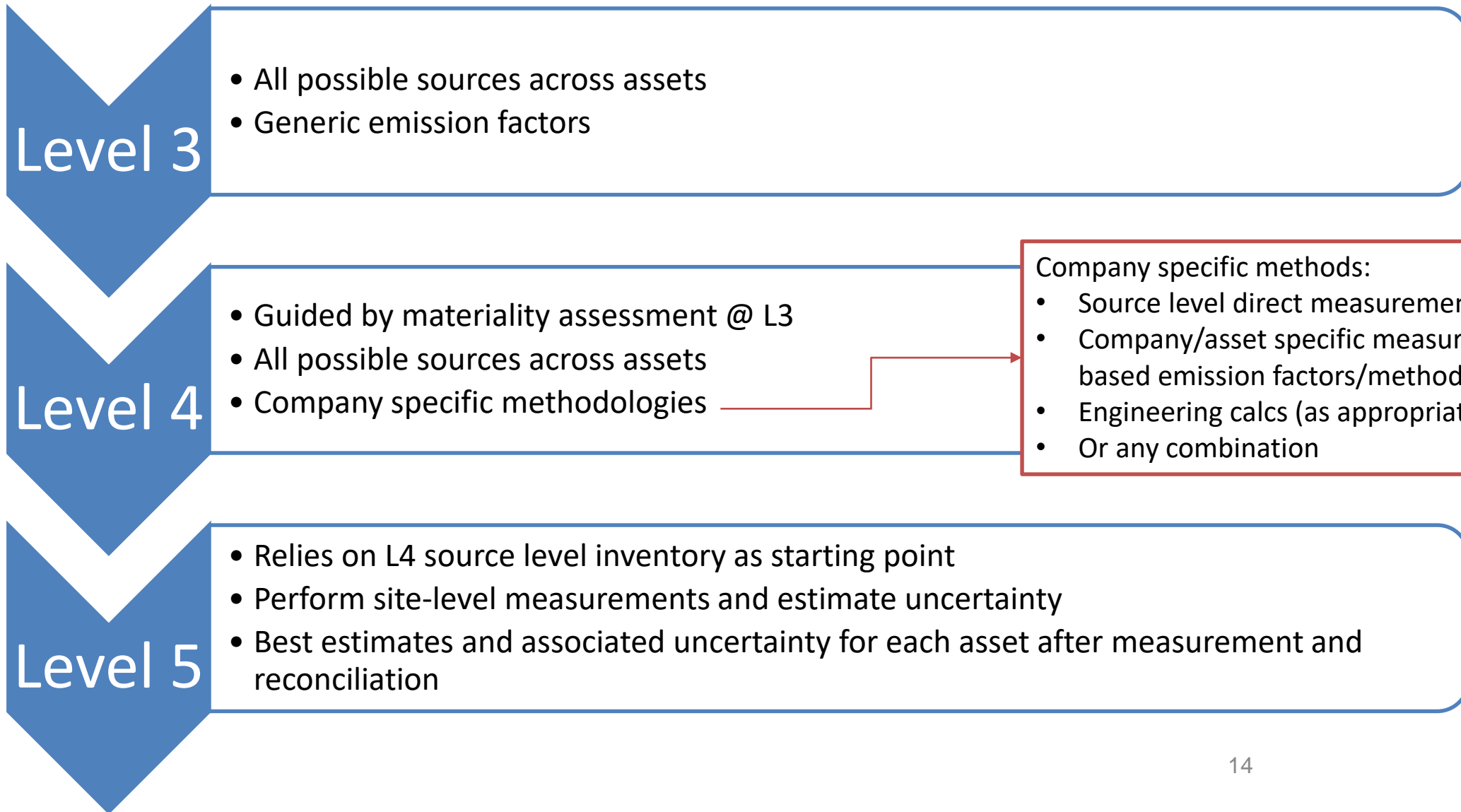


Destruction efficiency

- Measurement-based or determined via Representative Sampling
- Engineering calculations
- Models

- **Uncertainty guidance** provides guidances on how to develop a statistically representative sample.
- **Importance of operators' judgment for both L3/L4:** practitioners should use methodologies that best represent conditions & practices of their facilities + adjust estimation methods given potential differences in their systems.

Developing L4 and L5 Inventories

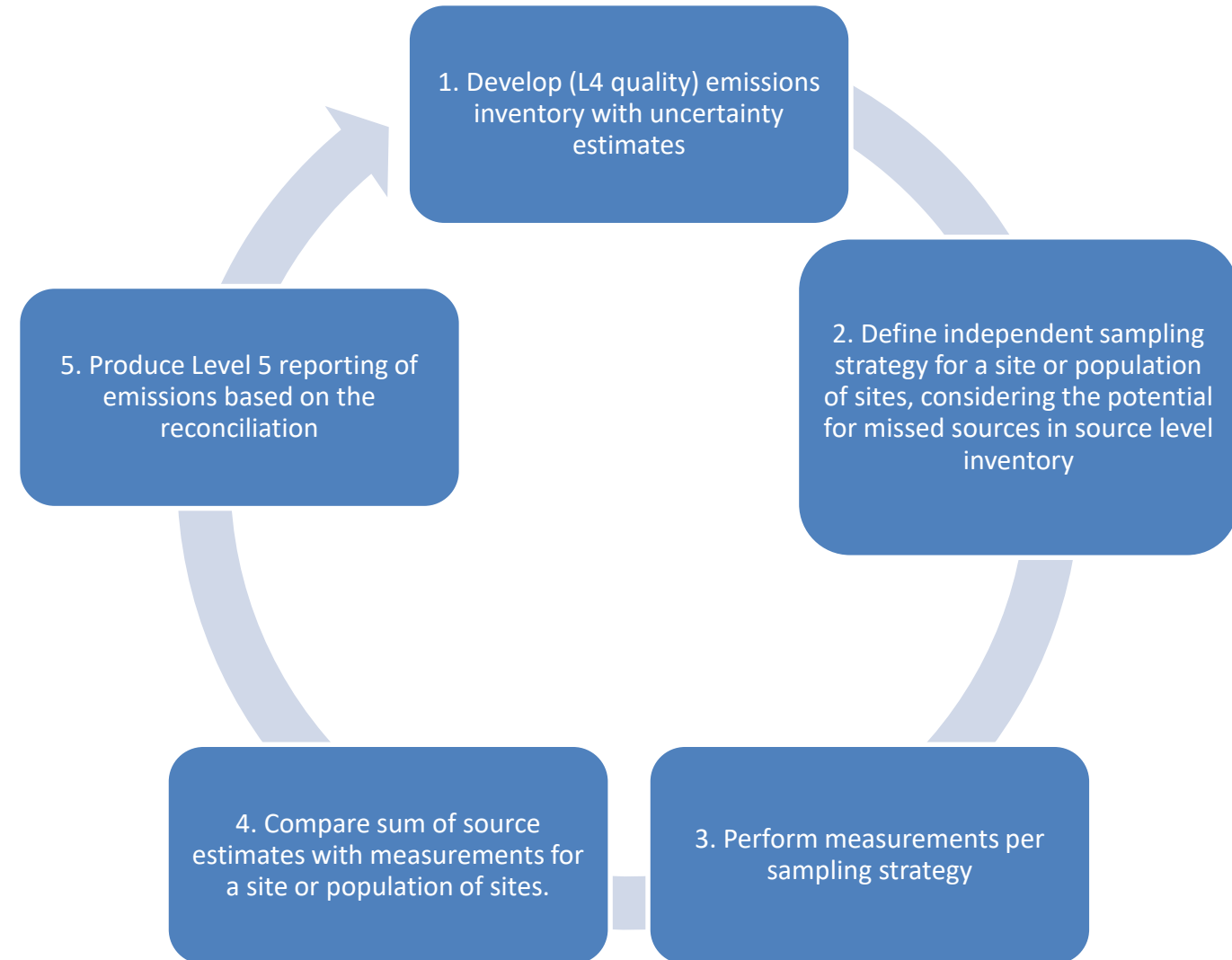


Level 5 Reporting Process

Reconciliation is

- An iterative process of investigation
- Should not be thought of as a one-off comparison of two independent values.

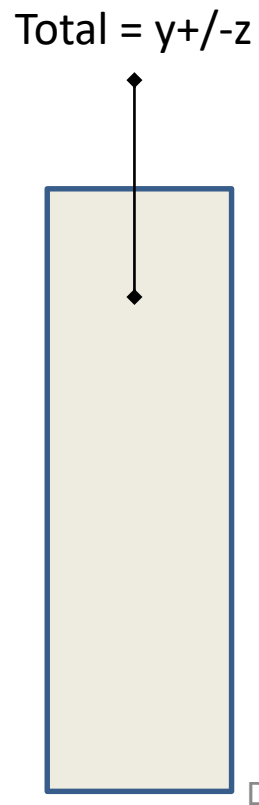
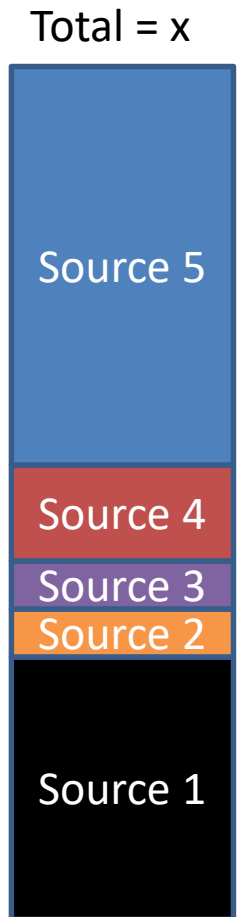
The process, like the knowledge, will evolve over years – the focus is on making credible progress year over year.



Level 5 Reporting – An Illustration

Level 4 – Source level necessary for mitigation

Site level measurement



Investigate sources of discrepancy

Revise source level inventory to reflect learning

Level 5 Total



Illustrative Approach of Sampling Strategy

Starting Point - Depends on the materiality of the asset, availability of L4 details, etc...

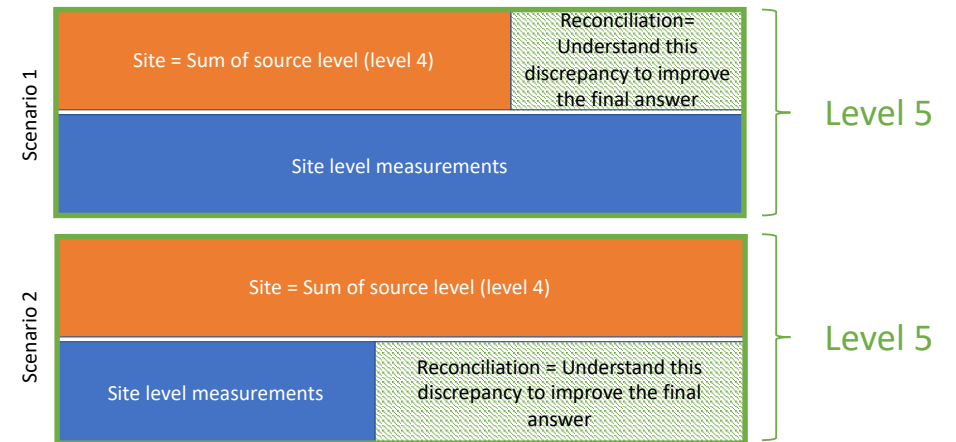
No single sampling strategy can be identified - operators should use **judgement** to ensure representative sampling and provide **justification** of the approach

	Simple*	Complex*
Small population (<10)	10-20% >20%	40-60% 60-100%
Medium population (10-100)	10-15% >15%	30-50% >50%
Large population (>100)	5-10% >10%	20-40% >40%
Mega population (>1000)	<5% >5%	10-30% >30%

Increasing sampling →

↑ Increasing sampling

Decrease the green area over time!



Notes

Low contribution to materiality of emissions
High contribution to materiality of emissions

*Complexity in terms of emissions distribution or site/infrastructure typology

Selection of sampling size should consider technical, time, and resource constraints

Uncertainty & Reconciliation

- Reconciliation should be carried out between **emissions data which have been determined on the same basis**.
 - Unique facilities or small number of facilities basis - Sampling strategy to ensure that the sum of source-level emissions is corroborated by site-level measurements at one or more points in time.
 - A population of sites basis - Sufficient site-level measurements to be representative over time. Monte Carlo analysis (or other appropriate statistical methods) can be used.
- Reconciliation requires an **estimate of uncertainty** for both L4 estimates and site level measurements.
- Ideally, L5 reported emissions would be derived where there is **reasonable agreement between uncertainties** of the two. Otherwise endeavor to understand the source of disagreement and incorporate any adjustment (increase or decrease as appropriate) to the asset level (L5) reported value.
- Operators should apply judgement and focus on reducing uncertainty where it matters most.

Thank you

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ogmpartnership.com
unep.org/methane