THE INTEGRITY COUNCIL
FOR THE VOLUNTARY CARBON MARKET

OBSERVATIONS IN RELATION TO CATEGORY ASSESSMENT

LANDFILL GAS CAPTURE AND UTILISATION – PART II

AUGUST 2026

1. Purpose of these observations

The Governing Board (the Board) of the Integrity Council for the Voluntary Carbon Market (ICVCM), when considering the assessment of methodologies related to Landfill Gas (LFG) Capture and Utilisation identified that it would be beneficial to make available their observations for the purpose of supporting the future development of methodologies in this Category.

These observations are non-binding and do not impact or form any part of the Assessment Framework, Assessment Procedure, or any Decision (as defined under the Assessment Framework) and are published by the ICVCM for the purpose of information only.

The ICVCM may, from time to time, publish other observations for other Categories where it considers this may be useful for CCP-Eligible Programs and other stakeholders, and may update and revise its observations from time to time based on further assessment processes or information. Observations are not an exhaustive set of views of the Governing Board, and not all aspects addressed in assessment processes are included. No reliance may be placed on observations, as they are for the purpose of information only, and observations published are without prejudice to other ongoing assessments.

The Governing Board would like to express its gratitude to the experts and other stakeholders engaged in the assessment process who provided input to the ICVCM regarding this Category.

2. Category Details

Landfill gas capture and utilisation mitigation activities are designed to destroy or capture methane produced from the anaerobic decay of biomass in landfill sites. Once captured, methane can also be converted into useful electrical or thermal energy. As methane has a high global warming potential and can also be converted into useful energy, landfill gas capture and utilisation mitigation activities are a highly effective method of reducing greenhouse gas emissions.

3. Observations relating to LFG methodologies

The Governing Board's observations regarding the assessment of LFG methodologies against the ICVCM Assessment Framework and its Core Carbon Principles generally relate to additionality and robust quantification. The methodology within this Category to which these observations relate is VMR0016 Flaring or Use of Landfill Gas (ACM0001 Revision), v1.0 applied under VCS.

Additionality

The Governing Board decisions taken on 30 May 2024, including ACM0001 under VCS[1], noted that this methodology did not always have evidential requirements that meant conformity with the requirements of the ICVCM Assessment Framework could be determined with confidence. At that time, the Governing Board encouraged programs using the CDM Additionality Tools 1, 2 and 21 to consider reviewing and/or updating their methodologies/tools to be in line with Assessment Framework requirements on additionality and to consider introducing specific guidance on the validation of incentives and regulatory additionality in landfill gas mitigation activities.

In October 2024, Verra published VT0009 – Combined Baseline and Additionality Assessment[2] a new additionality tool that is referenced in Verra's revised ACM0001 methodology VMR0016. The Governing Board found that VMR0016 only meets the Assessment Framework when applying VT0009 if the benchmark analysis demonstrates that carbon credit revenues materially improve the economic performance of the mitigation activity by raising the relevant financial indicator to or above the applicable benchmark.

The Governing Board notes that other similar, qualitative approaches under the Paris Agreement Crediting Mechanism (PACM) are also designed to show that carbon revenues are decisive in overcoming financial barriers[4]. The Assessment Framework recognizes several ways to demonstrate additionality, provided they ensure a transparent and robust demonstration of that additionality.

Oxidation Factors

The oxidation factor is used to estimate the proportion of methane that is naturally oxidised within a landfill site before being emitted to the atmosphere. Once oxidised, methane is converted to carbon dioxide and no longer acts as a greenhouse gas. The extent of oxidation is dependent on many variables, one of which is the cover type of the landfill. Owing to the numerous variables that influence oxidation (including temperature and time), it cannot be easily measured.

The Governing Board notes that both the PACM[5] and the VMR0016 methodology apply differentiated default oxidation factors based on landfill cover type, drawing on the same underlying study[6]. VMR0016 also allows use of oxidation factors informed by ex-ante methane flux measurements, providing a more site-specific approach where robust measurements are undertaken. Although direct measurement provides the most site-specific estimate of methane oxidation, it remains technically challenging, costly, and may be subject to measurement uncertainty.

[1] https://icvcm.org/wp-content/uploads/2024/06/VCS_ACM0001_v15-19_2024-1.pdf
[2] https://verra.org/methodologies/vt0009-combined-baseline-and-additionality-assessment/
[4] https://unfccc.int/process-and-meetings/the-paris-agreement/article-6/article-64-pacm/mechanism-process/methodologies/a64-amt-002
[5] A6.4-AMM-001: Flaring or use of landfill gas
[6] US EPA SWICS Methane Oxidization Addendum 2012

The Governing Board considers that differentiated default oxidation factors, particularly those based on landfill cover characteristics and, where appropriate, ex-ante methane flux measurements, may better reflect current scientific understanding than a single globally applicable default value. However, uncertainty remains inherent in estimating methane oxidation and methodologies should continue to update their approach as the evidence base develops. Given the above, the Governing Board invites CCP-Eligible Programs to remain attentive to ongoing scientific developments relating to oxidation factors in landfill gas methodologies.

Leakage

The Governing Board notes that the PACM applies a 0.5% deduction to total emission reductions to account for upstream emissions associated with the manufacture of project equipment and infrastructure, transportation equipment, and fossil fuel-based energy generation. VMR0016 does not account for leakage or upstream emissions in this manner and this was considered negligible.