## Case Study: The Impact of Voluntary Carbon Credits on Landfill Methane Destruction

Submission prepared by Anew Climate, LLC in response to SBTi's Call for Evidence on the Effectiveness of the Use of Environmental Attribute Certificates in Corporate Climate Targets.

Evidence is provided in response to SBTi questions 1, 5, 7, and 8.

## Results in Brief

In response to SBTi's Call for Evidence, Anew Climate, LLC (Anew) performed an analysis on publicly available data on carbon credits issued to landfill projects on four major voluntary registries and the average market price for carbon credits as publicly reported by a voluntary carbon market (VCM) observer. This analysis shows the strong correlation between landfill carbon credit generation and average prices in the VCM. This submission provides evidence:

- of the effectiveness of environmental attribute certificates in delivering measurable emission reductions (SBTi Question #1),
- that the uptake of attribute certificates contributes to the transformation needed to reach climate stabilization (SBTi Question #5),
- that the market value of this type of instrument (landfill carbon credits) is commensurate with the abatement costs of the underlying activity (SBTi Question #7),
- and that the use of these instruments, i.e., procurement of the attribute certificate, could contribute to scale-up of climate finance compared to alternative interventions (SBTi Question #8).

## Analysis

Landfill projects capture and destroy the methane that is produced by anaerobic bacteria breaking down organic waste. In the absence of the project, this methane would be released into the atmosphere. Landfill project developers voluntarily install gas collection and control systems (GCCS) and methane destruction devices on sites that fall below regulatory control thresholds because of the opportunity presented by the voluntary carbon market (VCM). Without the possibility of generating and selling environmental attribute certificates such as carbon credits, landfill owners would have no GHG mitigation incentive to invest in emission reducing equipment/practices, and methane would continue to be emitted.

The submitted evidence shows the correlation between credits issued to landfill projects on four major voluntary registries and the average market price for carbon credits as publicly reported by Ecosystem Marketplace, a non-profit initiative of Forest Trends and a VCM observer. Landfill credit issuances track VCM prices closely. Landfill methane destruction credits have historically commanded lower prices than other project types like nature-based solutions, making landfill project performance more sensitive to market trends since credit value is commensurate with abatement costs.



Figure 1. – Voluntary Landfill Credit Generation and Average VCM Pricing by Vintage Year

Figure 1 displays the total landfill credits (bar) and average VCM credit price (line) by vintage year. One landfill carbon credit represents one metric ton of CO<sub>2</sub>e avoided through the voluntary installation and operation of a GCCS. Issuance data comes from projects registered on four voluntary registries: ACR, the Climate Action Reserve, Gold Standard, and Verra.<sup>1</sup> Pricing data is sourced from Ecosystem Marketplace reports.<sup>2</sup>

Credit issuances trail rising prices in the mid-aughts because project development typically takes 6 to 24 months. When VCM prices fell during the 2012 - 2018 timeframe, credit generation decreased as well.

<sup>&</sup>lt;sup>1</sup> Credits generated in multi-year reporting periods are annualized using a simple average and added to the singleyear reporting period totals to reflect the total emission reductions by vintage. This is an approximation based on publicly available data and may not represent the actual emission reductions achieved in each calendar year. <sup>2</sup> Average credit price is calculated by dividing total voluntary carbon value by traded volume in the Ecosystem

Marketplace reports. Ecosystem Marketplace uses an identical approach in the body of the report.

Many landfill project developers were unable to recoup the costs of meter calibrations to meet methodology QA/QC requirements as well as third-party verification and registry fees, forcing them to delay credit issuance or cease operations entirely. Some of the projects in the latter category resumed emission reduction activities once VCM pricing began to recover.

This observed correlation indicates that the market value of landfill carbon credits is commensurate with the abatement costs of the project activity, i.e., the installation and continued operation of the GCCS and methane destruction devices like flares and gensets. Ongoing expenses typically include the calibration of flow meters and gas analyzers by accredited technicians, validation and verification services, and the credit issuance fees levied by the registry.

When credit prices are low or liquidity is down, the economics force landfill projects to pause reporting or cease emission reduction activities entirely. Widespread recognition of the environmental benefits of landfill methane destruction and the use of the associated attribute certificates will draw additional climate finance from private sources. This market signal can, in turn, inspire additional landfills (typically smaller sites that do not generate large volumes of methane) to voluntarily install gas collection and control systems, as seen in the VCM to date. We will see more investment activity if buyers have further clarity that the environmental benefits of these instruments can be applied against their GHG footprints.

## Sources

ACR. https://acr2.apx.com/mymodule/mypage.asp

Climate Action Reserve. https://thereserve2.apx.com/

Gold Standard Impact Registry. <u>https://registry.goldstandard.org/projects?q=&page=1</u>

Verra. https://registry.verra.org/app/search/VCS/All%20Projects

Registry data collected in August 2023.

- Forest Trends' Ecosystem Marketplace. (2021). 'Market in Motion', State of Voluntary Carbon Markets 2021, Installment 1. Washington DC: Forest Trends Association. <u>https://www.ecosystemmarketplace.com/publications/state-of-the-voluntary-carbon-markets-2021/</u>
- Forest Trends' Ecosystem Marketplace. (2022). *The Art of Integrity: State of Voluntary Carbon Markets, Q3 Insights Briefing*. Washington DC: Forest Trends Association. <u>https://www.ecosystemmarketplace.com/publications/state-of-the-voluntary-carbon-markets-2022/</u>