November 30, 2023

To: **Excellency Dr. Sultan Ahmed Al Jaber**
COP28 President-Designate
UAE Special Envoy for Climate Change
Minister of Industry and Advanced Technology
Dubai, United Arab Emirates

Subject: Urging Policymakers to Address Methane Emissions in the Waste Management Sector

Dear President-Designate Dr. Sultan Ahmed Al Jaber,

The signatories of this letter represent the Global Waste-to-Energy Research and Technology Council (WtERT®), a non-profit organization founded by Earth Engineering Center (EEC) at Columbia University in New York, USA. EEC is one of the world's foremost research centers in the area of sustainable waste management. It brings together scientists, engineers, and government with the objective of advancing sustainable technologies, managing urban waste, and reducing greenhouse gases. It collaborates with universities and research institutes across 26 countries.

As the public policy debate grows, concerning the most effective response to global climate change, we strongly urge policymakers within the waste management sector to address methane emissions by diverting biodegradable wastes away from landfills. As an additional measure, landfills should be equipped with stricter controls and undergo comprehensive monitoring procedures.

According to current greenhouse gas inventories, landfills are the third largest source of anthropogenic methane worldwide, accounting for approximately 11% of estimated global methane emissions. Over a 20-year period, methane is 86 times more potent than carbon dioxide and is the second largest factor in anthropogenic climate change. According to UNEP, "reducing methane is the strongest lever we have to slow down climate change over the next 25 years." In the near-term, reducing emissions of short-lived climate pollutants like methane is more effective than reducing CO2.

The central emphasis within the waste sector should prioritize diverting biodegradable organics away from landfills, as this approach is the sole method capable of completely circumventing landfill methane emissions. Building infrastructure for organics diversion will lead to an immediate reduction in methane production at the source. Today, technologies to divert biodegradable wastes from landfills are commercially available and in extensive use worldwide. Waste reduction, reuse, recycling, composting, anaerobic digestion, and combustion with energy recovery are all viable alternatives to landfills, widely implemented around the world.

Better control of methane emissions from landfills remains significant, yet its effectiveness has not been conclusively demonstrated. Notably, even with the most advanced landfill biogas extraction and recovery systems, only 30-50% of generated methane can be captured. Recent studies of direct measurements of methane plumes in landfills, utilizing NASA satellite imaging and specialized spectrometry cameras, indicate that observed emissions surpass on average double the modeled emissions reported in current greenhouse gas inventories. These findings suggest that methane emissions from U.S. landfills alone match those from the entire agricultural sector in the country.

A study recently carried out by ABREN WtERT in Brazil utilized data from GHG Sat and Carbon Mapper, comparing measurements from 113 satellite observations across 22 landfills in Brazil from December 2022 to July 2023. These observations were then contrasted with the fugitive methane emissions reported to the UN by 13 landfills in Brazil. The study's conclusion highlights a discrepancy between the satellite-derived data and the figures reported to the UNFCCC, based on emission factors and theoretical coefficients that appear to diverge from actual observed realities.

The data recorded by satellites suggest that the estimates derived from the theoretical methodologies traditionally employed by the UNFCCC significantly underestimate the actual measured values. In the case of the 13 landfills studied in

Brazil, the average disparity is nearly sevenfold compared to what was reported to the UNFCCC in the Clean Development Mechanism (CMD) contracts. This substantial difference equates landfill emissions to the entire agricultural sector, with 45% of total emissions attributed to each sector.

China's approach to urban waste management has demonstrated a significant positive impact by effectively curbing methane generation and safeguarding the environment. Through robust public policies supporting waste-to-energy industries, China has mitigated the challenges faced by cities overwhelmed by waste. These successful strategies deserve promotion and exploration among both developed and emerging nations.

Under your leadership, we are dedicated to contributing and supporting a WtERT-led global collaboration aimed at enhancing the involvement of universities and scientific research community. Our goal is to facilitate industry-university research partnerships focused on combating misinformation and the absence of verified and validated data regarding the global role of waste-to-energy technologies.

We collaborate with international and local organizations worldwide to advocate our core principles and spread awareness about global environmental issues.

With COP28 being hosted this year in the United Arab Emirates (UAE), we have established strong collaboration with the University of Sharjah, host of the Global WtERT Council in the UAE. Our joint efforts aim to drive the transition towards sustainable waste management practices, aligning with the national strategic environmental agenda and supporting the ongoing waste-to-energy initiatives across the country.

We are certain that with your leadership and the commitments made by governments, diverting waste from landfills will become a top priority. Our aspiration is for sustainable technologies aimed at safeguarding our environment to take precedence, benefiting all individuals, particularly future generations.

Yours sincerely,

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