CALIFORNIA ASSOCIATION of SANITATION AGENCIES
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April 4, 2022

Ms. Rajinder Sahota
Deputy Executive Officer for Climate Change & Research
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Comments on 2022 Scoping Plan Update – March 15th Initial Modeling Results Workshop (including Natural and Working Lands Scenarios)

Submitted online via: https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=sp22-modelresults-ws&comm_period=1

Dear Ms. Sahota:

The California Association of Sanitation Agencies (CASA) appreciates the opportunity to provide comments on the Scoping Plan Update's Initial Modeling Results presented during the March 15th Public Workshop. CASA is an association of local agencies performing essential public services – cleaning wastewater to protect public health and the environment while advancing community resilience through the recovery of renewable resources (water, energy, fuel, biosolids, nutrients, etc.). Through these efforts we help create a clean and sustainable environment for Californians.

Our members fully support and are focused on helping the state achieve carbon neutrality, including the interim 2030 greenhouse gas (GHG) emissions reduction goals which we are currently working toward:

- Reducing short-lived climate pollutant (SLCP) emissions.
- Effectively diverting organic waste from landfills.
- Providing 60 percent of the state's energy needs from clean and renewable sources.
- Reducing carbon intensity of transportation fuel used in the state.
- Increasing carbon sequestration and improving soil health under the Healthy Soils Initiative, Natural and Working Lands (NWL) Climate Smart Strategy, and Forest Carbon Plan.

Anaerobic digestion is a key component of the solids treatment process at publicly owned (wastewater) treatment works (POTWs) that produces renewable biogas (digester gas) and biosolids (soil amendment). By utilizing these recoverable resources, we can avoid venting methane to the atmosphere, generate a renewable low carbon transportation fuel, generate onsite low carbon heat and power, provide low carbon energy or fuel to nearby customers, and provide an organic soil amendment that can be recycled back to the soil. As quantified in the SWRCB's Co-Digestion Capacity Analysis (released by the Governor's office in August 2020), POTWs can utilize their available anaerobic digestion capacity to co-digest the divertible food waste across the state thereby removing a major source of fugitive methane from landfills (which account for ~20 percent of the state's methane). Utilizing co-digestion, California's POTWs can significantly increase biogas production.

Keeping in mind the existing and potential for significantly increasing renewable POTW biogas production as a result of complying with Senate Bill 1383 regulations, our comments focus on the two sets of scenarios for which initial modeling results were presented during CARB's March 15th Public Workshop – specifically, the Scoping Plan Scenarios and the NWL Scenarios.

Scoping Plan Scenarios

CASA strongly agrees with including low carbon compressed natural gas (CNG) derived from renewable POTW biogas as a portion of the fuel used to support the operation of heavy-duty vehicles in each of the Scoping Plan Scenarios; however, the definition of near-zero emission vehicles (N-ZEVs) in the draft Advanced Clean Fleet (ACF) regulation does not consider renewable CNG vehicles to be N-ZEV.[1] We are concerned about the disconnect between the Scoping Plan Scenarios to achieve carbon neutrality, the developing ACF regulatory language, and achieving the National Ambient Air Quality Standards as required by the federal Clean Air Act requirements in extreme ozone non-attainment areas by 2023 and 2031 (refer to CARB's approved State Implementation Plans for the South Coast AQMD and San Joaquin Valley APCD). With N-ZEVs powered by Cummins Westport engines, NO_x emissions are lowered by 90 percent compared to diesel engines. However, the proposed ACF regulations will result in stranding these N-ZEVs and infrastructure, as well as impede these regions' ability to comply with the Clean Air Act requirements set for 2023 and 2031. If the 2023 deadline for NO_x reduction is not achieved, Clean Air Act Sections 179 and 185 allow the USEPA to withhold federal highway funding, increase offsetting requirements, and impose an annual penalty on major stationary sources. Some agencies have estimated their potential penalty for not complying to exceed $1,000,000 per year. Additionally, the Governor's Executive Order N-79-20 denotes that the resulting regulations must be "… consistent with state and federal law…" and be implemented "…where feasible…". The question of feasibility is critical – heavy-duty ZEVs are not commercially available and will not be for years, nor will they provide the level of service and reliability of existing heavy-duty N-ZEVs fueled with wastewater derived renewable natural gas (RNG). These issues, if not addressed will also incentivize the continued use of diesel trucks.

The disconnect described above is especially concerning given the limited availability of heavy-duty ZEV technology for specialty vehicles (e.g., vacuum/jetter trucks) and the fact that N-ZEVs are available today to provide continued essential public services while achieving NO_x reductions to protect public health. Some of our members have already been required (e.g., SCAQMD Rule 1196) to invest in heavy-duty CNG vehicles (i.e., N-ZEVs) fueled by renewable POTW biogas and the supporting infrastructure. **CASA urges CARB staff to coordinate across Scoping Plan programs and the developing ACF regulatory language to be in compliance with existing regulations (per the Governor's Executive Order N-79-20) to reduce NO_x while achieving carbon neutrality. Such an approach would not only improve the overall resilience of our state's essential public services and communities but would also accelerate these clean air efforts.**

Natural & Working Lands (NWL) Scenarios

CASA commends the Natural Resources Agency and CARB staff for undertaking the development of the NWL model, recognizing the critical importance of healthy soils in achieving carbon neutrality and long-term community resilience. The effort also acknowledges the complexity of the many landscapes across California and the many factors that must be accounted for in the modeling of NWL, noting this is just the beginning. CASA appreciates the opportunity to comment on the initial results and modeling limitations.

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[1] "Near-zero-emissions vehicle" or "NZEV" means a vehicle as defined in title 13, CCR section 1963(c)(16), i.e.: An on-road plug-in hybrid electric vehicle which has the same definition as that in 40 CFR section 86.1803-01, amended on July 1, 2011, or an on-road hybrid electric vehicle that has the capability to charge the battery from an off-vehicle conductive or inductive electric source and achieves all-electric range as defined in section 1963(c)(1).

Given the objective of the modeling effort is to "estimate the trajectory of emission sources and sinks", we are concerned to see there is no explicit reference to biosolids in the Draft Climate Smart Strategy or the NWL scenarios. Biosolids have been land applied in some areas of California for decades (recycling carbon back to the soil so as not to interrupt the carbon cycle). There will always be a source of biosolids as society continues to flush and being a natural byproduct of anaerobic digestion, through which over 90 percent of the state's solids are treated and all divertible and digestible food waste can be recycled (to achieve SB 1383 mandates and SLCP reduction at landfills). Biosolids can be recycled to agricultural and NWL as a soil amendment to sequester carbon and improve soil health. Research exists quantifying the carbon sequestration that is achieved by, as well as acknowledging the many co-benefits linked to, land applying biosolids – including displacing energy-intensive synthetic fertilizer, improving soil health through rebuilding organic matter which results in improved water holding capacity and increased crop yields – all of which are targeted by the NWL Draft Climate Smart Strategy and scenarios. Biosolids also reduce the need for irrigation and crops are more resilient to drought when amended with them.

We are citing peer-reviewed scientific research (below) for CARB and CNRA's use and reference in support of including the benefits resulting from biosolids land application in the NWL scenario modeling. These findings also begin to address some of the noted limitations – specifically, 1) accounting for offsetting synthetic fertilizer and 2) including carbon sequestration accomplished on croplands.

Carbon Sequestration

- Villa, Y. and Ryals, R. (2021). *Soil Carbon Response to Long-Term Biosolids Application*. Journal of Environmental Quality. https://doi.org/10.1002/jeq2.20270
- Tian, G., Granato, T. C., Cox, A. E., Pietz, R. I., Carlson Jr, C. R., & Abedin, Z. (2009). *Soil carbon sequestration resulting from long-term application of biosolids for land reclamation*. Journal of Environmental Quality, 38(1), 61-74. https://doi.org/10.2134/jeq2007.0471
- Torri, S. I., Corrêa, R. S., & Renella, G. (2014). *Soil carbon sequestration resulting from biosolids application.* Applied and Environmental Soil Science, 2014.https://doi.org/10.1155/2014/821768
- Antonelli, P. M., Fraser, L. H., Gardner, W. C., Broersma, K., Karakatsoulis, J., & Phillips, M. E. (2018). *Long term carbon sequestration potential of biosolids-amended copper and molybdenum mine tailings following mine site reclamation.* Ecological Engineering, *117*, 38-49. https://doi.org/10.1016/j.ecoleng.2018.04.001

Offsetting Synthetic Fertilizer

- Broderick, S.; Evans, W., (2017). *Biosolids Promote Similar Plant Growth and Quality Responses as Conventional and Slow-release Fertilizers*. American Society of Horticulture Science, Vol 27: Issue 6, 794-804.
- Brown, S.; Beecher, N.; Carpenter, A., (2010). *Calculator Tool for Determining Greenhouse Gas Emissions for Biosolids Processing and End Use.* Environmental Science & Technology, 44, 9509–9515.
- Sullivan, D.; Cogger, C.; Bary, A., (2015). *Fertilizing with Biosolids*. A Pacific Northwest Extension Publication Oregon State University, Washington State University, University of Idaho.
- Sylvis Environmental, (2009). *The Biosolids Emissions Assessment Model (BEAM): A Method for Determining Greenhouse Gas Emissions from Canadian Biosolids Management Practices*. Technical Report., 1–200.

- Evanylo, G. et al. (2006). Biosolids Impact on Tall Fescue Drought Tolerance; Journal of Residuals Science & Technology, Vol 3, No 2.
- Zhang, X. et al (2008). Impact of Biosolids on Hormone Metabolism in Drought-Stressed Tall Fescue. Crop Science, Vol. 49.

Beneficial use of both renewable biogas and biosolids derived from POTWs are critical paths to achieving carbon neutrality and improving community resilience, while remaining in compliance with existing federal and local regulations and reliably maintaining essential public services for all communities under all conditions. The laudable objectives of SB 1383 will otherwise be in jeopardy.

Please contact me with any questions at sdeslauriers@carollo.com or at 925-705-6404. We look forward to collaboratively working with you on this critical effort.

Sincerely,

Sarah A. Deslauriers, PE, ENV SP
Climate Change Program Manager

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