CALIFORNIA ASSOCIATION of SANITATION AGENCIES
925 L Street, Suite 200 • Sacramento, CA 95814 • TEL: (916) 446-0388 • www.CASAweb.org

June 24, 2022

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

Re: Comments on the Draft 2022 Scoping Plan Update

Submitted online via:
https://www.arb.ca.gov/lispub/comm/iframe_bcsubform.php?listname=scopingplan2022&comm_period=N&_ga=2.40164194.1392146242.1655237846-945140602.1582326093

Dear Ms. Sahota:

The California Association of Sanitation Agencies (CASA) appreciates the opportunity to provide comments on the Draft Scoping Plan Update (SPU). 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 are focused on helping the state achieve carbon neutrality (and its current 2030 mandates and goals for greenhouse gas (GHG) emissions reductions) which include:

- Reducing short-lived climate pollutant (SLCP) emissions
- Effectively diverting organic waste from landfills
- Reducing carbon intensity of transportation fuel
- Providing 60 percent (later 100 percent) of the state's energy needs from renewable sources
- Increasing soil carbon and carbon sequestration with biosolids under the Healthy Soils Initiative, Natural and Working Lands Climate Smart Strategy, and Wildfire and Forest Resilience Action Plan

However, as written, the draft SPU does NOT support the continued recovery of resources at publicly owned (wastewater) treatment works (POTWs), even for the continued use of renewable non-fossil fuel biogas onsite to ensure resilient critical operations! As a result, the reliability of our essential public services, as well as the viability of SB 1383 implementation, are severely threatened.

We ask that the following comments be given strong consideration by CARB staff (and associated state agencies) to prioritize resilient essential public service operations while achieving carbon neutrality and environmental justice.

Over 90 percent of California's wastewater solids are treated via anaerobic digestion (AD). AD is a key component of the solids treatment process at POTWs that produces renewable non-fossil fuel biogas (digester gas containing about 60 percent methane on average) and biosolids (an organic soil amendment meeting EPA and SWRCB requirements for land application). By utilizing these recoverable resources, we avoid wasting resources and help close the loop on the circular economy. We have a readily available and usable renewable, non-fossil low carbon biogas to produce renewable energy and heat to sustain critical POTW operations, transportation fuel for heavy-duty essential fleet vehicles, and

for pipeline injection – however, no single use is sufficient for all non-fossil fuel biogas produced today and in the future with SB 1383 implementation since there are regulatory limitations (discussed below). We also have a readily available and usable renewable, organic soil amendment that can be recycled back to the land and support regenerative agriculture. 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 all divertible food waste across the state thereby removing a major source of fugitive methane from landfills (which account for about 20 percent of the state's methane). Utilizing co-digestion, California's POTWs will significantly increase biogas production.

Keeping in mind the existing production and potential significant future increases in renewable non-fossil fuel biogas production as a result of complying with Senate Bill 1383 regulations, as well as the role the resulting biosolids can play in improving soil health, our comments focus on the critical importance of their continued use – not only for ensuring that the essential public service of wastewater treatment continue to operate in all conditions, but to significantly increase community resilience through the recovery of natural resources instead of wasting them!

The Role of Wastewater Sector Non-Fossil Fuel Biogas in Achieving Scoping Plan Goals While Ensuring Reliable Essential Public Services

A pillar of the 2017 SPU is the Short-Lived Climate Pollutant (SLCP) Reduction Strategy, targeting landfill methane emission reductions. SB 1383 requires organic waste be diverted to anaerobic digesters or compost facilities. As mentioned above, the SWRCB estimates existing POTW anaerobic digester capacity can accept all divertible food waste, which can produce up to 29 billion standard cubic feet of renewable wastewater-derived non-fossil fuel biogas. Adding this to what is produced from municipal sludge digestion results in about 87 million diesel gallon equivalents (or about 575 million truck-miles each year). Converting this biogas to a low carbon transportation fuel helps clean the air by eliminating diesel particulate emissions, lowering nitrogen oxide (NOx) emissions, and creating a potentially carbon negative fuel. Without the ability to use this as a vehicle fuel or otherwise, diversion of landfilled food waste to POTWs will be challenged and methane emission reductions are unlikely to be realized.

The Governor's Executive Order N-79-20 states regulations must be "… ***consistent with state and federal law***…" and implemented "…***where feasible***…" Our members are already required to invest in compressed natural gas (CNG) fueled vehicles and infrastructure by various regulatory requirements, including SCAQMD Rule 1196. Furthermore, the Clean Air Act (CAA) requires the South Coast air basin, which is in extreme non-attainment for ozone, to come into compliance by 2023 via NOx reductions. Table 8 of CARB's October 28, 2021, Mobile Source Strategy shows that only 7.9 tons per day of NOx reductions will be achieved in the South Coast Air Basin by 2023, which is about 100 tons per day less than required. For those in violation, the CAA 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 public WWTPs estimated the penalty to exceed $1,000,000 per year).

The draft Advanced Clean Fleet (ACF) public fleet regulations only consider zero emission vehicles (ZEVs) for POTWs, since the definition of near-zero emission vehicles (N-ZEVs) in the regulation does not consider renewable CNG vehicles to be N-ZEV.[1] Our members have attempted to purchase ZEVs, but

[1] The draft ACF language states that "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).

manufacturers are unable to deliver electric medium- and heavy-duty trucks specific to WWTP needs and have stated in bids they will be unavailable for years to come. 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 non-fossil fuel biogas. These issues, if not addressed, will incentivize the continued use of diesel trucks and result in significant stranded assets for POTWs who have invested in N-ZEVs which operate on their non-fossil fuel biogas.

While the recent decision by the CPUC to implement SB 1440 provides incentives for pipeline injection of our renewable non-fossil fuel biogas, especially when co-digesting food waste, there are limitations to the amount that can be injected. This is due to requirements in the Cal/OSHA Process Safety Management (PSM) program under CCR Title 8 Section 5189(b). There are exemptions in Section 5189(b)(1) which apply to the wastewater sector, but injection is limited under the exemption to 10,000 pounds of biogas, or when all biogas is sold on the retail market. Compliance with the PSM requirements is very challenging for POTWs and experience has shown it will be avoided. Thus, while there may be an increase in pipeline injection, it will not be the solution for all biogas produced nor will it work for all agencies. Many POTWs are too far removed from an interconnection point and cost remains an issue since other options may be more cost effective.

Additionally, California POTWs have very limited experience with producing hydrogen from biogas for use as a transportation fuel and stationary fuel cell applications. Considering these options necessitates funding to support researching geographically diverse demonstration projects to vet the viability supporting essential public services.

The challenges described above are 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. 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.

CARB staff have proposed a prohibition on the use of renewable wastewater-derived non-fossil fuel biogas in the Scoping Plan Update, 2020 Mobile Source Strategy, and Advanced Clean Fleets regulations; CARB/CEC/CPUC did not consider our renewable biogas as part of the SB 100 approach; and local air districts are limiting its utilization for onsite energy production to limit emissions and/or do not have enough emission reduction credits to allow for its use. This set of circumstances is threatening the use of a renewable resource which will continue to be produced as we flush our toilets and as a natural part of wastewater treatment and will have to be wasted in the absence of alternatives, putting essential public services at risk and stranding assets which have been procured with significant ratepayer funding.

Board Members Gideon Kracov and Dr. Daniel Sperling stated during the Board's discussion of the Draft SPU the morning of June 24th that our sector is unique in the roles we play, supporting SLCP reduction per SB 1383 and being essential public service providers at the intersection of various regulations. Board Member Dr. Sperling added that it is important for CARB staff to consider flexibility, specifically with respect to our continued use of the resources we recover to ensure our services, including allowing the

sector to continue utilizing the renewable non-fossil fuel biogas as a CNG fuel for our heavy-duty essential specialty vehicles.

The Role of the Wastewater Sector Biosolids in Natural & Working Lands (NWL)

CASA commends the Natural Resources Agency (CNRA) 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 only the beginning. CASA commented on the initial results and modeling limitations April 4, 2022.

Biosolids produced as an integral part of the wastewater treatment process can help meet all the objectives of the Healthy Soils and NWL initiatives. Existing research quantifies the carbon sequestration that is achieved and acknowledges the many co-benefits of land applying biosolids – including offsetting energy-intensive synthetic fertilizer and improving soil health through rebuilding organic matter which results in improved water holding capacity and increased crop yields. In turn, biosolids reduce the need for irrigation and crops are more resilient to drought. Each of these outcomes are targeted by the Draft Climate Smart Strategy and NWL scenarios.

Biosolids have been land applied for decades in various areas of California (*recycling carbon and nitrogen back to the soil so as not to interrupt natural cycles*). There will always be a source of biosolids with the existence of society – we will all continue to flush our toilets and over 90 percent of the state's solids are treated through anaerobic digestion, from which biosolids are generated. The same digesters have available capacity to recycle **all** divertible and digestible food waste, without which we are unlikely to achieve SB 1383 mandates and methane reduction at landfills!

We are very concerned there is no mention of biosolids in the Draft Climate Smart Strategy or the draft SPU, which is a significant omission. As SB 1383 is implemented, recycling of biosolids via land application is recognized as the sustainable beneficial means to manage this vital renewable resource. In addition, biosolids can be used to reclaim fire damaged land, improve water quality in impacted areas, and lower the potential severity of future fires.

To help CNRA and CARB staff quickly incorporate the benefits of biosolids in the NWL scenario modeling and properly estimate the benefits, we are citing peer-reviewed scientific research for use. Based on the described limitations of the scenarios – specifically, 1) not including carbon sequestration accomplished on croplands and 2) not accounting for offsetting synthetic fertilizer – we list citations addressing these specific issues as well as for reclaiming fire damaged land with biosolids.

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 and Increasing Drought Resilience

- 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.

Reclamation of Fire Impacted Land with Biosolids

- Meyer. V.F. et al (2001). *Biosolids Applications Affect Runoff Water Quality following Forest Fire. Journal of Environmental Quality 30:1528-1532.*
- Meyer, V.F. et al (2004). *Plant and Soil Response to Biosolids Application following Forest Fire. Journal of Enviornmental Quality 33:873-881.*
- McFarland, M. J. et al (2009). *Restoring Fire Ravaged Land in California with Biosolids*. Australian Water.
- Crohn D.M. et al (2013). Composts as Post-Fire Erosion Control Treatments and their Effect on Runoff Water Quality. Soil & Water Division of ASABE.

In summary, beneficial use of both renewable non-fossil fuel biogas and biosolids derived from POTWs are critical paths to achieving carbon neutrality and ensuring community resilience, while remaining in compliance with existing federal and local air quality, water quality, and land related regulations. The laudable objectives of SB 1383 will otherwise be in jeopardy, the natural carbon and nitrogen cycles will be further interrupted, and community resilience will be at risk.

CASA strongly requests:

- CARB staff work directly with CASA and the wastewater sector to maintain multiple pathways for renewable non-fossil fuel biogas use and incorporate these pathways into the SPU.
- CARB staff acknowledge the benefits of biosolids in the SPU and show plans to incorporate quantification of those benefits in the NWL scenario modeling (citing the peer-reviewed scientific research provided above).

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Please contact me with any questions at sdeslauriers@carollo.com or at 925-705-6404. We are ready to work closely and collaboratively with you on this critical effort while reliably maintaining essential public and emergency services for all communities under all conditions.

Sincerely,

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

cc: Liane Randolph – Chair, CARB
Jared Blumenfeld – Secretary, CalEPA
Shereen D'Souza – Deputy Secretary, CalEPA
Amanda Hansen – CNRA
Nancy Vogel – CNRA
Calla Rose Ostrander – CNRA
Justin Ong – CNRA
Anil Prabhu – CARB
Craig Segall – CARB
Tony Brasil – CARB
Craig Duehring – CARB
Ashley Yee – CalRecycle
Mark de Bie – CalRecycle
Cara Morgan - CalRecycle
Kyle Pogue – CalRecycle
Brian Stalker – CalRecycle
Timothy Hall – CalRecycle
Karin Sung – CPUC
Chris Hyun – SWRCB
Max Gomberg – SWRCB
Adam Link – Executive Director, CASA
Greg Kester – Director of Renewable Resources, CASA