

**TO: Amrith Gunasekara, CDFA; Howard Levenson, CalRecycle; Shelby Livingston, ARB; Frances Spivy-Weber, SWRCB**  
**FROM: Marin Carbon Project (MCP) and Carbon Cycle Institute (CCI)**  
**RE: Comments on Update to the AB 32 Scoping Plan.**  
**DATE: 8/5/3**

The Marin Carbon Project (MCP) and Carbon Cycle Institute (CCI) appreciate the opportunity to submit comments to the Update to the AB 32 Scoping Plan (Plan). Below, we provide some overall comments to the Plan and comments targeted to specific sectors.

We note that a total reduction of 22 million metric tons (MMT) annual emissions is required to meet the overall 2020 target of 427 MMT CO<sub>2</sub>e (Scoping Plan Overview, presented by Mike Tollstrup, CARB, July 2013). This reduction is readily achieved *on an annual basis* with organic diversion from landfill alone, as indicated by a recent Lifecycle Assessment conducted under the auspices of the MCP (DeLonge, et al 2013). Additional reductions can be achieved by diverting these organic waste materials (including those from anaerobic agricultural waste storage facilities, including dairy manure lagoons) to anaerobic digestion, composting and, ultimately, applying them to rangeland and agricultural soils for direct sequestration of organic carbon, resulting in enhanced water holding capacity, reduced water demand, and increased crop production and photosynthetic carbon capture (Ryals, et al, 2013).

To realize the significant emissions reduction and resulting environmental benefits of rangeland compost application simply requires that the State employ synergies across the Agriculture, Waste, Natural Resources and Water sectors toward the near-term 2020 goals in the Plan, rather than relegating these opportunities to the post-2020 implementation phase.

### **Recommendations for Specific Sectors**

#### **Agriculture**

The scoping plan treatment of this sector is comprehensive, including recognition of its potential for greenhouse gas (GHG) reductions and carbon sequestration. However, it should be explicitly noted that the significant GHG reduction capacity of this sector is a function of the massive potential for soil carbon storage and carbon capture through increased per acre crop productivity resulting from improved soil husbandry practices, including compost application to managed rangelands (rangeland practice). The Marin Carbon Project has developed a protocol for this rangeland practice in collaboration with the Environmental Defense Fund. This protocol is currently being reviewed by the Bay Area Air Quality Management District (for use under CEQA for local GHG mitigation), and will be sent to the American Carbon Registry sometime this summer for their consideration. We also hope ARB and CAR will consider the protocol in 2014.

## **Water**

This sector is properly focused on conservation, reuse and energy capture, but fails to recognize the enormous potential for enhanced water capture and conservation through managed increases in water holding capacity of soils via soil organic carbon enhancement, including diversion of waste organic matter to soils via composting, and other land management practices that lead to enhanced rates of ecosystem carbon capture.

## **Waste**

This sector correctly recognizes the need to achieve 75% diversion by 2020, and that this will require diversion of at least 22 million tons of waste materials from landfills annually, resulting in an annual 20 – 30 MMT CO<sub>2</sub>e reduction. Priority should be placed on phasing organics out of landfills, diverting those materials to composting facilities, and applying the resulting compost to grazed rangelands and agricultural soils, including those managed by state agencies. Bringing together the assets and synergies of the agriculture, waste, natural resources and water sectors in the Plan would accelerate this highly effective strategy.

## **Natural and Working Lands**

This sector includes: forests, woodlands, urban forests, rangelands and wetlands, which constitute a significant amount of the land area in California. With appropriate objectives for these lands, including reduced GHG emissions, and maintenance and enhancement of the capacity of natural and working lands to sequester and store carbon, there is an opportunity to achieve significant near-term reductions in GHGs and to sequester carbon.

Unfortunately, this immediate opportunity is squandered by relegating action on these working lands to the 2020-2050 period of the Plan. As noted in “Pathways to 2050 visions,” “leveraging cost-effectiveness and outcomes with synergies and integration with other sectors,” offers the most powerful near and long term potential for significant GHG reductions from these four sectors. Powerful synergies, including growth of markets for diverted organics and enhanced capacity for emissions avoidance and carbon storage, can be realized by bringing these four sectors together with a shared solution focused on organics diversion, avoided emissions, soil quality improvement, enhanced net primary productivity, increased carbon and water capture and conservation, and greater resilience for California’s working landscapes.

### Questions:

- What data are available and what more are needed to assess baseline sequestration and GHG emissions? *The MCP has four published papers on this question, including a complete Lifecycle Assessment (attached), and has calibrated a soil carbon model (Century) for use in Marin County; the model could be calibrated for use in other regions of California.*
- What areas can be leveraged most effectively with the needs and goals of other sectors? *Diversion of organics from landfills to soils via composting and anaerobic digestion-plus-composting will address waste, energy, water, agriculture and working lands within the context of significant GHG avoidance*

*and carbon sequestration. This would also build partnerships with federal agencies in these sectors, most notably USDA and USEPA, whom are already in support of strategies such as the rangeland compost practice.*

- How do we assess the value (market and nonmarket) of conservation and restoration of natural working lands? *One way to do this is to value the carbon and water sequestered as a result of these actions (including the rangeland compost practice), as well as other ecosystem services resulting from enhancement of soil and ecosystem carbon.*
- What funding streams are needed and what are potential sources? *Incentives for diversion, compost production and compost use are critical. Incentives for compost use have the potential to drive the first two. Waste diversion credits, carbon market credits and other ecosystem service credits may all find a reasonable nexus here. These incentives could leverage federal funding, including NRCS conservation programs (such as EQIP) and USEPA water quality programs, which is already been done through the State of Oklahoma's Soil Carbon Program (see [www.conservation.ok.gov](http://www.conservation.ok.gov)).*
- Monitoring, research, and modeling — what and how much are needed? *Assessing the sequestration potential of soils in response to compost applications via modeling has the potential to render the practice more readily adoptable and quantifiable for markets. As noted above, the Marin Carbon Project has developed a soil carbon model for its rangeland compost practice, which is the foundation of a protocol now being advanced through BAAQMD, ACR, and ARB with the Environmental Defense Fund.*

Thank you for your consideration and incorporation of the comments provided above. Please feel free to contact us if you have any questions. We look forward to providing more detailed comments on the Draft Update to the Scoping Plan, to be released later this summer.

Sincerely,

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*On behalf of the Carbon Cycle Institute and Marin Carbon Project*