

Appendix C
Waste Sector Implementation Plan
Version – June 18, 2013

ARB and CalRecycle developed this Implementation Plan based on the tasks identified in the technical papers: Recycling, Reuse, and Remanufacturing; Composting and Anaerobic Digestion; Biomass Conversion; Municipal Solid Waste Thermal Technologies; Landfilling of Waste; and, State Procurement. The Implementation Plan serves as a working model to address the issues and activities associated with achieving the AB 32 GHG emissions and AB 341 waste reduction goals. This dynamic plan is a tabulated account of the types of actions and the estimated timeframe for completing these actions. This plan outlines an initial set of potential actions needed to meet GHG and waste reduction goals. It is a working document that will undergo subsequent revisions based on the continued inter-agency, stakeholder, and public collaboration.

Category/Task	Actions	Timeframe
1. Emission Reduction Factors	a. Revise compost emission reduction factor to include avoided landfill emissions	Short term/in progress by late 2013
	b. Develop new emission reduction factors for anaerobic and aerobic digestion	Short term/in progress by late 2013, ongoing element
	c. Develop emission reduction factors materials that can be recycled (carpet, paint)	Short term/mid-2014
	d. Update emission reduction factors for landfills, including avoided methane emissions for organics that are shifted to non-landfill alternatives	Short term/mid-2014
2. Permitting	a. Work with other agencies, districts, and jurisdictions to address conflicting requirements, including cross media issues	Short term/mid-2014, ongoing element
	b. Streamline permitting process for new and up-graded facilities – develop model permit	Short term/mid-2015
	c. Create programmatic EIRs and guidance documents to assist in environmental review and CEQA	Short term/mid-2015
	d. Develop industry specific web-based tools for planning and permitting guidance	Short term/mid-2015, ongoing element
3. Infrastructure	a. Develop sustainable low-carbon waste management system to handle waste shifted from landfills to compost and anaerobic digestion and other technologies	Long term/2013-2035

	b. Establish a more formalized state, local, and private partner working relationship to develop additional re-manufacturing facilities	Long term/2013-2035
	c. Encourage development of small community-scale biomass facilities	Long term/2013-2035
4. Offsets	a. Identify opportunities and develop framework for composting and anaerobic digestion activities to be a source of GHG and criteria offsets.	Short term/2014-2015, ongoing element
	b. Identify offset project protocols for applicable recycling processes	Short term/2014-2016, ongoing element
	c. Identify offset opportunities that could assist in bioenergy projects	Short term/2014-2016, ongoing element
5. Funding/Incentives	a. Provide funding for facility improvement to meet air, water, and EJ goals	Short term/2013-2020, ongoing element
	b. Establish feed-in-tariffs for electricity production to make instate renewal energy production more competitive	Short term/2013-2020
	c. Increase AB 118 funding for anaerobic digestion projects and support re-authorization of AB118.	Short term/2014-2015
	d. Evaluate if energy produced by anaerobic digestion qualifies for LCFS credits and how the credits can be monetized to improve the economic viability of anaerobic digestion projects.	Short term/2013-2015
	e. RMDZ or other loans for anaerobic digestion projects	Short term/2014-2015, ongoing element
	f. Obtain GoBiz support and expand technical support	Short term/2014-2015
	g. Obtain Cap & Trade funding or other funding source for incentive, grant, and loan programs for compost and anaerobic digestion projects, recycling and remanufacturing facilities, and other projects that reduce waste to landfills	Short term/2013-2020
	h. Develop new financial incentives for building sufficient infrastructure in-state for non-landfill alternatives	Short term/2014-2020, ongoing element
	i. Establish new incentive payments or grant programs for remanufacturing of high-GHG commodities	Short term/2014-2020, ongoing element
	j. Develop and implement product stewardship programs for high-GHG commodities	Short term/2014-2020, ongoing element
	k. Evaluate whether to allow all municipal solid waste thermal technologies (MSW Thermal) to generate renewable energy and receive credits	Short term/2014-2015
	l. Identify landfills close to pipelines and evaluate feasibility of biogas injection	Short term/2014-2015
	m. Establish new incentive programs geared for biomass conversion projects, possibly through Cap-and-Trade revenues	Short term/2014-2020

	n. Ensure EPIC fund is devoted to new bioenergy facilities. Explore tax credits.	Short term/2014-2020
	o. Monitor the Renewable Market Adjusting Tariff to assess whether it incentivizes new bioenergy projects	Short term/2015-2020
	p. Ensure that biomass projects benefit from SB 32 feed-in-tariff and consider use of other procurement mechanisms	Short term/2015-2020
6. Public Education/Acceptance	a. Initiate public education campaign addressing: goals of waste sector, benefits of recycling/remanufacture, collection of cleaner recyclable commodities, need for contamination-free feedstocks, reducing carbon footprint through increased recycling	Short term/2013-2020
	b. Foster State, local, and private cooperation in achieving Waste Sector Goals	Long term/ongoing through 2035
	c. Evaluate effectiveness of education programs and modify as needed	Long term/2015-2050
7. Markets/Quality of Products	a. Maximize recovery potential by establishing grants and /or performance standards for MRFs and C&D facilities to recover higher-quality commodities	Short term/2013-2020
	b. Increase markets for anaerobic digestion and compost products	Long term/2013-2035
	c. Work with industry to standardize quality requirements of products from composting and anaerobic digestion	Long term/ongoing through 2025
	d. Incorporate recycling and recyclability as front end design parameter for packaging and products	Long term/ongoing through 2035
	e. Identify and support markets for recycled, reused, and remanufactured materials	Long term/ongoing through 2035
	f. State procurement: Reform SABRC statutes (include more products with recycling or GHG implications; revise minimum percentages; include Community Colleges and University of California; require State contractors to meet same purchasing requirements as State agencies; establish enforcement mechanism for non-compliance	Short term/2013-2020
	g. State procurement: Educate all State agency purchasing officials and all staff within agencies that purchase materials	Short term/2013-2020
	h. State procurement: Certification and product information – Create system to track purchases and certify PCRC of products and identify suppliers of certified PCRC products; require manufacturers and suppliers to disclose products' environmental information and provide certification for products	Short term/2013-2020
8. Sustainability	a. To protect recycling, composting, and AD programs, establish front-end processing standards for waste sent to MSW-thermal plants	Short term/2013-2020

	b. Maximize recycling of packaging materials	Long term/2014-2035
	c. Evaluate opportunities to reuse materials	Long term/ongoing through 2035
	d. Develop new product stewardship programs (See 5k above)	Long term/ongoing through 2035
9. Research		
	a. Improved characterization of direct and avoided GHG emissions from composting and anaerobic digestion	Short term/late 2013-2014
	b. Characterize properties of digestate from anaerobic systems and determine the suitability for uses	Long term/2020-2025
	c. Support research and development projects demonstrating newest best management practices for composting and anaerobic digestion	Long term/2015-2025
	d. Identify research to further achieve goals of the program	Long term/2015-2035
	e. Pursue research into development and commercialization of emerging biomass conversion and thermal technologies	Long term/ongoing through 2025
	f. Conduct additional research for safe and beneficial uses of MSW and biomass conversion ash	Long term/2025
	g. Conduct research to improve understanding of landfill gas collection efficiencies	Long term/ongoing through 2025
	h. Develop concept and funding source for statewide characterization of landfill methane emissions and criteria pollutants by best available direct measurement methods and validation of inventory models	Long term/ongoing through 2025
	i. Research and demonstration projects for methane capture equipment and technology to convert it to commercial LNG	Long term/ongoing through 2025
10. Cap and Trade		
	a. Review benchmarks for capped recycling manufacturing facilities	Short term/late 2013/early 2014
	b. Determine status of MSW-Thermal facilities in Cap-and-Trade	Short term/late 2015
	c. Review landfills for inclusion in Cap-and-Trade	Short term/late 2014
11. Regulatory/Statutory		
	a. Investigate regulatory actions to further reduce GHG emissions at landfills such as incorporating BMPs identified into the Landfill Measure	Short term/ongoing through 2020
	b. Consider regulatory or statutory actions requiring phasing organics out of landfills and moving toward inert only landfilling practices	Short term/ongoing through 2020