

DRAFT - CalRecycle Commercial Generation Study - May 2015

Colton's Services 2014 Waste Characterization: All Commercial

		Disposed		Curbside Recycle		Curbside Organics		Other Diversion		Total Generation	
		%	tons	%	tons	%	tons	%	tons	%	tons
Paper	Uncoated Corrugated Cardboard	3%	494,244		1,024,317		3,198		1,800,463		3,322,222
	Paper Bags	0%	62,235		12,318		39		296		74,889
	Newspaper	2%	337,096		38,121		857		2,096		378,170
	White Ledger Paper	2%	268,245		127,555		48		34,770		430,618
	Other Office Paper	2%	293,207		95,814		414		16,999		406,435
	Magazines and Catalogs	1%	115,761		74,131		0		1,965		191,859
	Phone Books and Directories	0%	5,777		957		0		140		6,874
	Other Miscellaneous Paper - Compostable	0%	77,929		56,269		7,988		3,226		145,411
	Other Miscellaneous Paper - Other	3%	493,669		105,709		622		178,968		778,968
	Remainder/Composite Paper - Compostable	10%	1,673,592		16,981		3,978		12,969		1,707,540
	Remainder/Composite Paper - Other	4%	593,991		21,490		914		970		617,365
Glass	Clear Glass Bottles and Containers	1%	143,197		50,649		5,051		21,140		220,037
	Green Glass Bottles and Containers	0%	61,533		36,710		7,925		16,192		121,759
	Brown Glass Bottles and Containers	0%	40,146		15,677		1,522		43,032		100,377
	Other Glass Colored Bottles and Containers	0%	1,091		305		0		0		1,395
	Flat Glass	0%	32,008		6		0		0		32,014
	Remainder/Composite Glass	0%	51,210		1,450		0		7		52,667
Metal	Tin/Steel Cans	0%	81,495		16,866		639		3,263		102,263
	Major Appliances	0%	5,239		0		0		0		5,239
	Used Oil Filters	0%	1,742		0		0		0		1,742
	Other Ferrous	1%	153,526		5,409		55		1,302,028		1,461,018
	Aluminum Cans	0%	27,497		5,381		84		7,432		40,394
	Other Non-Ferrous	1%	121,719		3,278		334		251,361		376,693
	Remainder Composite Metal	1%	209,964		1,436		4		121,218		332,622
Electronic	Brown Goods	0%	32,602		0		0		1,689		34,291
	Computer-related Electronics	0%	4,772		1,853		0		63,018		69,644
	Other Small Consumer Electronics	0%	3,877		548		13		137		4,575
Plastic	Video Display Devices	1%	90,567		0		0		3,675		94,241
	PETE Plastic Containers	1%	90,682		29,391		597		13,660		134,330
Plastic	HDPE Plastic Containers	0%	76,674		19,276		78		1,764		97,792
	Miscellaneous Plastic Containers	0%	49,683		27,073		298		3,871		80,925
	Plastic Trash Bags	2%	389,709		5,514		188		935		396,345
	Plastic Grocery and Other Merchandise Bags	0%	32,264		7,256		42		8		39,570
	Non-Bag Commercial and Industrial Packing Film	1%	107,244		18,306		138		7,512		133,200
	Film Products	0%	2,545		1,927		25		4,303		8,800
	Other Film - Other	2%	407,559		15,406		1,983		1,741		426,689
	Durable Plastic Items - #2 and #5 Bulky Rigid	0%	34,842		16,595		0		2,179		53,617
	Durable Plastic Items - Other	1%	175,506		8,823		57		3,332		187,719
	Remainder/Composite Plastic	5%	764,779		24,419		388		6,279		795,865
Other Organic	Food	24%	4,035,748		34,272		265,024		928,965		5,264,007
	Leaves and Grass	3%	524,559		416		1,372,233		146,752		2,043,959
	Prunings and Trimmings	2%	274,586		6,760		28,412		356,802		666,069
	Branches and Stumps	0%	64,366		17,723		0		19,260		101,349
	Manures	0%	14,884		0		0		0		14,884
	Textiles	2%	374,010		3,990		622		7,536		386,157
	Carpet	1%	134,528		6,989		0		17		141,534
	Remainder/Composite Organics	6%	997,614		3,835		0		2		1,001,452
Inerts and Other	Concrete	1%	122,482		0		0		718		123,200
	Asphalt Paving	0%	48,429		0		0		0		48,429
	Asphalt Roofing	0%	61,718		50		0		0		61,768
	Clean Dimensional Lumber	1%	113,949		10,668		0		2,830		127,447
	Clean Engineered Wood	1%	107,458		0		0		0		107,458
	Clean Pallets & Crates	4%	735,005		18,139		0		249,357		1,003,001
	Other Wood Waste	2%	387,705		176		0		434		388,315
	Gypsum Board	1%	99,223		537		0		642		100,403
	Rock, Soil and Fines	1%	170,747		0		310		32,886		203,943
	Remainder/Composite Inerts and Other	2%	351,881		5,378		0		4,275		361,534
Household Hazardous Waste	Paint	0%	9,094		0		0		0		9,094
	Vehicle and Equipment Fluids	0%	6,707		0		0		0		6,707
	Used Oil	0%	343		404		0		0		747
	Batteries	0%	2,268		266		14		2,530		5,077
	Remainder/Composite Household Hazardous Waste	0%	16,473		64		0		35		16,571
Special Waste	Ash	0%	30,397		0		0		0		30,397
	Treated Medical Waste	0%	5,849		347		0		0		6,195
	Bulky Items	1%	153,016		715		0		4,665		158,396
	Tires	0%	3,884		40		0		0		3,924
	Remainder /Composite Special Waste	0%	14,017		698		0		0		14,715
Mixed Residue	Mixed Residue	0%	66,303		3,481		0		60		69,843
TOTALS:			16,536,661		2,001,673		1,703,491		5,690,925		25,932,749

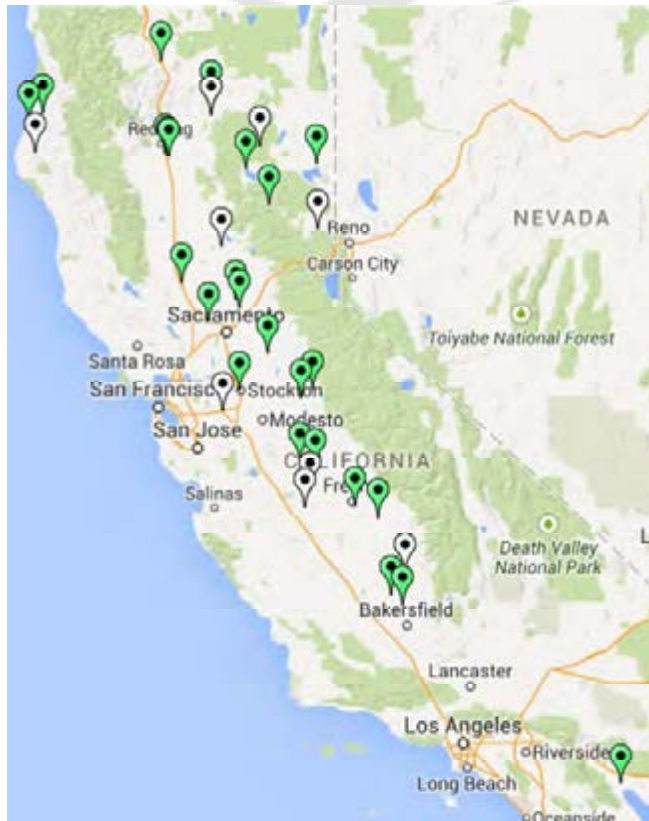
California Needs the Existing Biomass Industry

Introduction

Biomass power plants combust wood waste to produce electricity – material that would otherwise create adverse environmental impacts. Among the wood waste used are:

- Agricultural waste like orchard removals, pruning, rice hulls and fruit pits.
- Urban wood waste like construction wood scraps, broken pallets and tree trimmings.
- Forest waste like small trees and undergrowth cleared from forests as part of fire suppression.

Unlike most renewable power, biomass plants are baseload renewable and are not dependent upon Mother Nature to produce power.



Aside from renewable energy, biomass plants provide positive environmental and economic impacts that other sources of renewable energy cannot.

About the Industry

There are 25 biomass electric generating plants, distributed across 20 counties. The biomass plants combined produce more than 565 megawatts of baseload renewable energy. That is enough to power more than 420,000 homes, nearly all of Sacramento County's residences.

Environmental Benefits

California's current plants use more than 8 million tons of wood waste as fuel annually that would otherwise clog the landfills, left to decay and serve as a fire hazard in the forest, or open burned. About 3.7 million tons of wood waste is urban wood waste diverted

from landfills thereby helping local governments meet landfill diversion mandates. Biomass plants promote healthier forests by reducing the amount of overgrowth materials in the forests as well as open burns by the agricultural community. In fact, there is a direct correlation to the increase in burn permits and a recent closure of a biomass power plant.

Healthy Soils Initiative

Short Term Actions (within a year)

- Establish a short- and long-term goal for building soil organic matter in California's agricultural and degraded soils by December 2015. These goals will be established through stakeholder meetings with scientific input (lead CDFA and CalRecycle).
- Establish a soil health initiative coordinator position to facilitate interagency activities including interagency communication, collaborations and to ensure resources optimization and permit streamlining to build soil carbon with carbon-based inputs (lead CDFA).
- Identify critical agronomic and economic research needed to fill knowledge gaps and build mapping tools for increasing soil organic matter throughout the state (lead CDFA).
- Identify demonstration projects and contract with University of California Cooperative Extension (UCCE) to begin the cycle of management practice adoption to implement research objectives that meet soil carbon goals (lead CDFA).
- Integrate incentives for improved soil management practices into the Sustainable Agricultural Lands Conservation Program (lead Department of Conservation).
- Encourage organic diversions from landfills to more beneficial uses, including composting facilities, by a tiered tipping fee or complementary mechanism that incentivizes the diversion of organics. (lead CalRecycle).
- Provide healthy soils guidance in the Climate Change Handbook for Agricultural Water Management Planning as well as in public and outreach and education efforts (lead DWR).
- Facilitate discussion on the benefits of compost use when managing nitrogen and include as a separate component in the nitrogen management plans required by the Irrigated Lands Regulatory Program (lead Water Boards).
- Grow CDFA's State Water Efficiency and Enhancement Program to promote soil management practices that improve water retention (lead CDFA).
- Add healthy soils as an Efficient Water Management Practice (EWMP) in the guidebook to assist Agricultural Water Suppliers to Prepare an Agricultural Water Management Plan, and as a co-benefit in water efficiency grant programs (lead DWR).
- Explore opportunities to implement healthy soil management on construction, maintenance and operation plans in DWR (lead DWR).
- Explore with other Agencies opportunities for implementation of healthy soil management on public lands.

Long Term actions (1-5 years)

Identify sustainable and integrated financing opportunities, including market development, to facilitate increased soil organic matter

Develop and fund incentive and demonstration programs with new and existing resources such as Resource Conservation Districts and UC Cooperative Extension, to promote GHG reductions, carbon sequestration, cover crops, crop rotation and organic amendments including compost to build soil carbon, increase water holding capacity and ensure crop yields for food production through on-farm management practices (lead CDFA).

Provide for research, education and technical support to facilitate healthy soils

Identify and secure resources to contract with the appropriate academic institution to develop a user-friendly soil management data base to incorporate research findings and practical applications.

Identify and secure short and long term funding sources to support a robust scientific research program that will fund research on topics such as carbon farming, subsidence reversal, wetland restoration, drainage issues, salt accumulation and multi-benefit farming to support and enhance healthy soils (lead CDFA).

Increase governmental efficiencies to enhance soil health on public and private lands

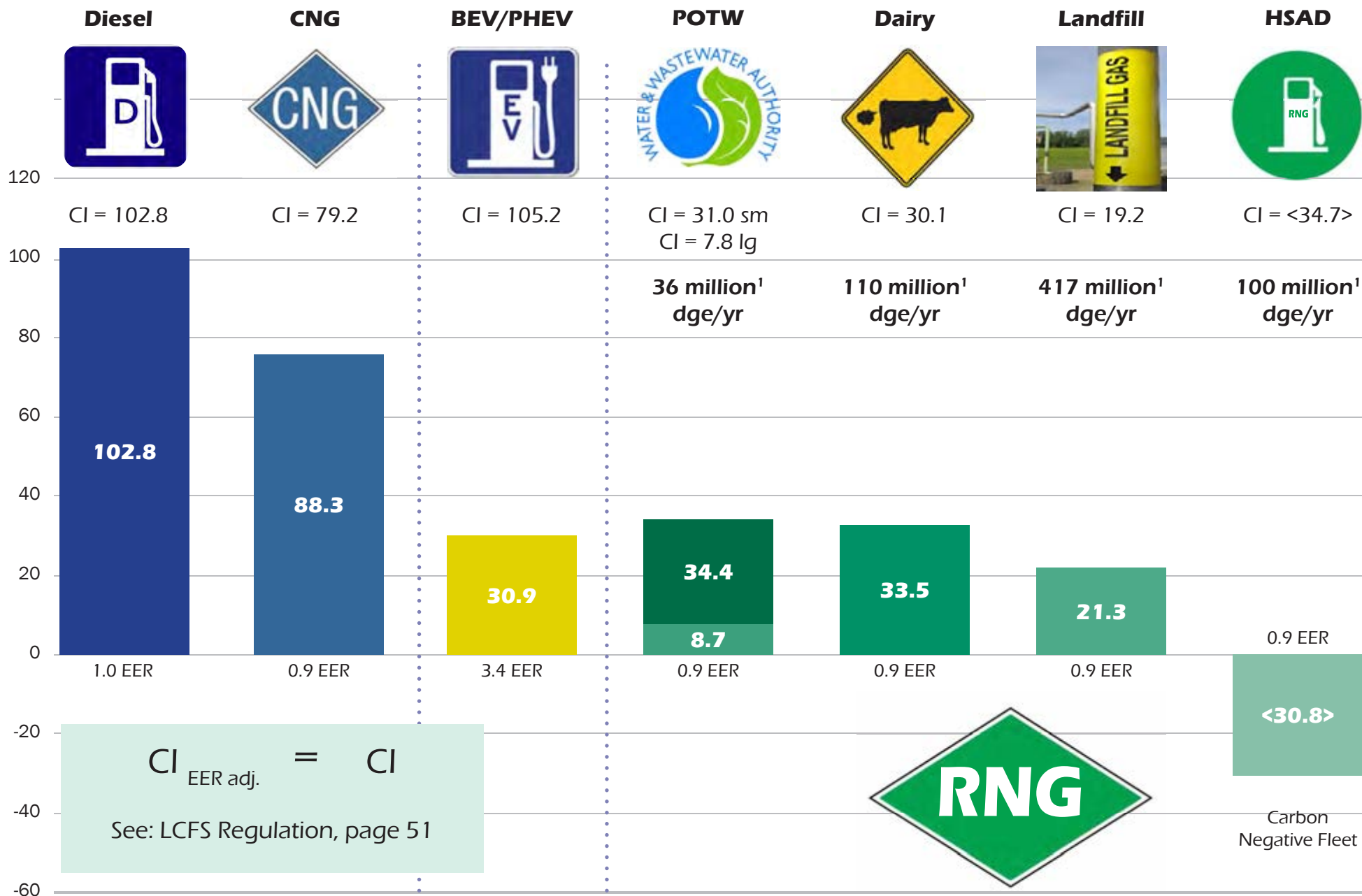
Increase the generation and use of compost in California to improve soil health, by permitting 100 new composting and anaerobic digestion facilities in California by 2020 (lead CalRecycle).

Ensure interagency coordination and collaboration

Include in the regular coordination between agencies the potential for broader discussions on soil health. Such as: include Healthy Soil Initiative practices to promote groundwater recharge and groundwater quality protection in DWR Sustainable Groundwater Management Program (lead DWR); with the ARB on dust mitigation as a key element in all Climate Change work across Cabinet.

Carbon Intensity for Diesel & Substitutes, grams CO2 emitted per unit of energy adjusted for energy (g CO2 e/MJ)

(June 25, 2015,
California Air Resources Board Staff Report)



Waste Sector (Organics, Recycling, MSW)



Class 7 - 12,000 in CA still on diesel



Class 8 - 3,000 in CA - all on diesel

Incremental CNG truck cost compared to Diesel truck



\$40,000 per truck average - 15,000 Class 7 and 8 trucks from Diesel to CNG



\$600 million for 15,000 trucks (2015/16-2020/21) - \$100 million year

CNG Fleet with RNG Off-Take Agreement



Demand 15,000 trucks - 50 dge/day/truck - 200 million dge per year



- RNG Supply - 100 million dge from Organics/HSAD (minus 30.8 carbon intensity)



- RNG Supply - 417 million dge from Landfills (21.3 carbon intensity)



- RNG Supply - 36 million dge from Wastewater Plants (9 to 34 carbon intensity)