

Are the environmental protections for digesters enough?

**California Air Resources Board Workshop:
Methane, Dairies and Livestock, and Factory Farm Gas in California
Tuesday, March 29, 2022**

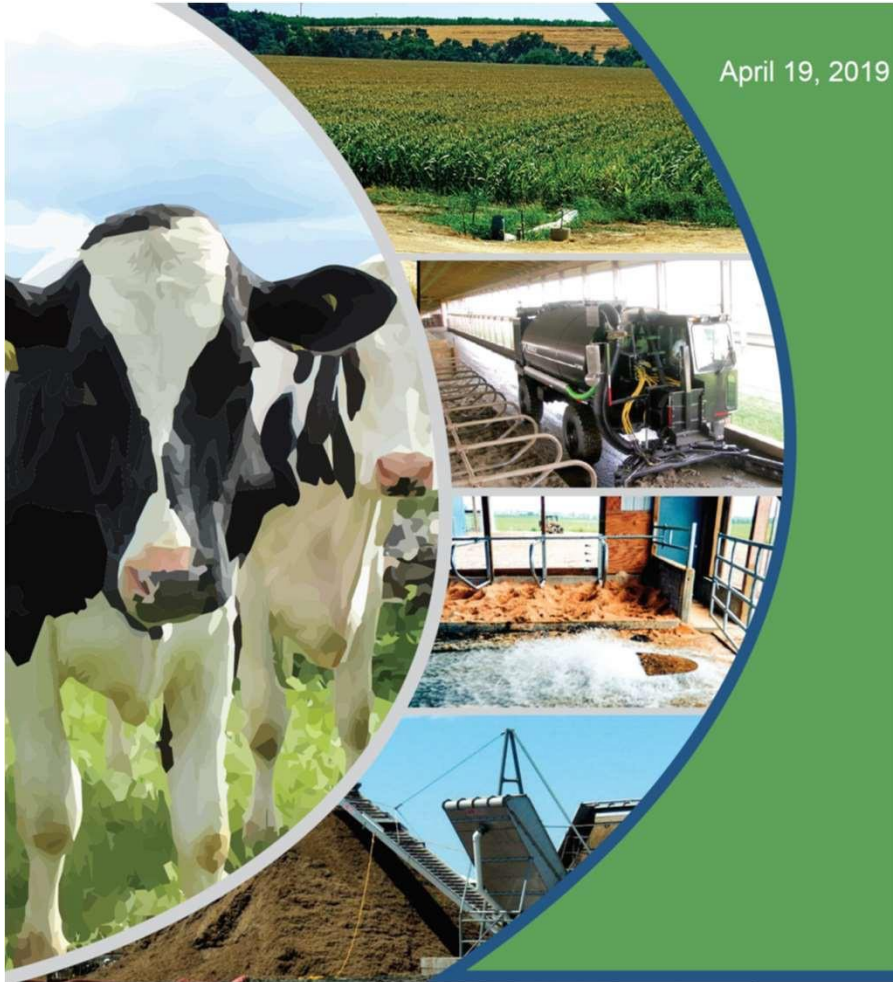
BRENT NEWELL

LAW OFFICES OF BRENT J. NEWELL



Nitrate pollution from land-applied nitrogen

Rian deVos, 2016



April 19, 2019

All 42 dairies had nitrate contamination.
Shallow: 48 mg/l average nitrate
Deeper: 38 mg/l average nitrate

“The above acreages in combination with the associated per-acre nitrogen-loading rates yield . . . nitrogen loading contributions of 94% . . . for manured cropland[.]”

“Evidence garnered from annual reports to the Regional Board by individual dairies suggests a substantial amount of ‘unaccounted-for’ manure nitrogen exists on many dairies.”

Summary Representative Monitoring Report (Revised*)



Nitrous oxide from digestate solids

Rian deVos, 2016



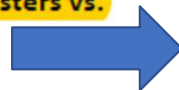
Brent Newell, 2006

Ammonia from Manure Management

Factory Farm Gas vs. Avenal Power Center



	NOx	SOx	PM10	CO	VOC	PM2.5	MW/hour	% of Avenal Electricity
One Digester (lbs/year)	9,166	2,268	3,970	101,636	6,370	3970	1.059	
One Digester (tons/year)	4.58	1.13	1.99	50.82	3.19	1.99		
25 Digesters (lbs/year)	229,150	56,700	99,250	2,540,900	159,250	99,250	26.475	4.41%
25 Digesters (tons/year)	114.58	28.35	49.63	1,270.45	79.63	49.63		
Avenal (lbs/year)	198,840	33,521	161,550	197,928	69,222	161550	600	
Avenal (tons/year)	99.42	16.76	80.78	98.96	34.61	80.775		
Pollution Difference Digesters vs. Avenal (tons/year)	15.16	11.59	-31.15	1,171.49	45.01	-31.15		



Source: Avenal Power Center Authority to Construct Permit No. December 17, 2010, Post-Project Stationary Source Potential to Emit (SSPE2) at 27.

Source: Lakeview Dairy Biogas digester Authority to Construct Permit March 22, 2016, Post-Project Stationary Source Potential to Emit (SSPE2) at 14, 20

Emissions from Factory Farm Gas Production

Exhibit 25. Total Carbon Intensity for Dairy Manure Pathway-Western Sky Biogas LLC

Process Stage	Carbon Intensity (gCO ₂ e/MJ Biogas)
Diesel Consumption	█
Electricity Consumption	█
Loss/Fugitives	█
Biomethane Transmission	█
Compression of CNG	█
Tailpipe Emissions	█
Methane Avoided	█
CO ₂ Diverted	█
Final CNG CI (gCO ₂ e/MJ)	-385.40



III. GREET Results

Exhibit 8 shows the extracted results from a table created on the "Biogas to RNG" tab for the dairy manure in Section 4 of the Tier 1 calculator.

Exhibit 8. Total Carbon Intensity for RNG Produced

Process Stage	Carbon Intensity (gCO ₂ e/MJ)
Raw Biogas Production-Digester	42.23
Biogas Upgrading	116.06
NG Transmissions	11.99
RNG Compression	3.50
Combustion	60.73
Methane Credit	-614.14
CO ₂ Diverted	-0.07
Total - (gCO ₂ e/MJ)	-382.83

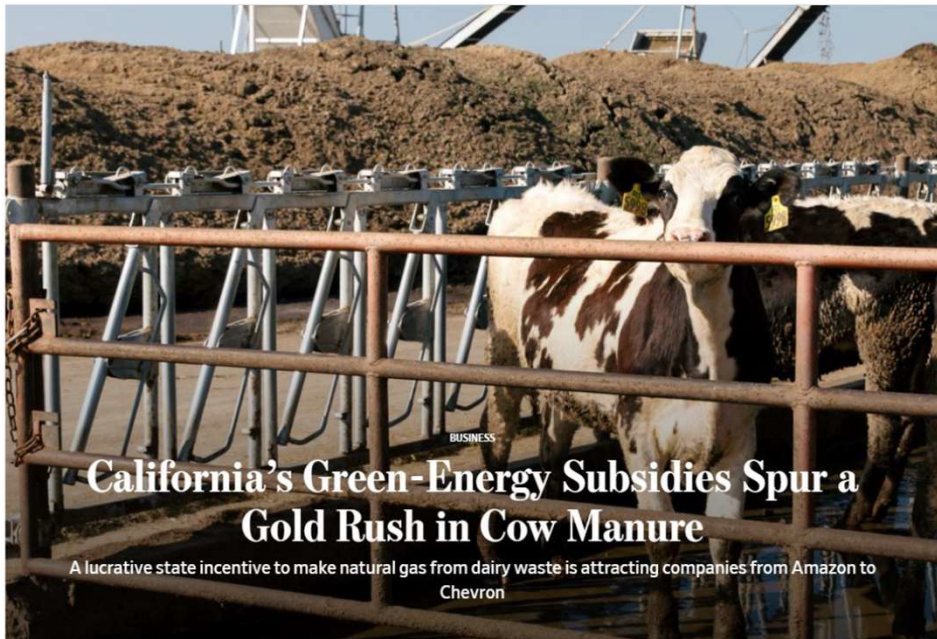
Kinnard Farms,
Wisconsin, 2022

B0216

BEFORE THE CALIFORNIA AIR RESOURCES BOARD

PETITION FOR RECONSIDERATION OF THE DENIAL OF THE PETITION FOR
RULEMAKING TO EXCLUDE ALL FUELS DERIVED FROM BIOMETHANE FROM
DAIRY AND SWINE MANURE FROM THE LOW CARBON FUEL STANDARD
PROGRAM

THE WALL STREET JOURNAL.



**California's Green-Energy Subsidies Spur a
Gold Rush in Cow Manure**

A lucrative state incentive to make natural gas from dairy waste is attracting companies from Amazon to
Chevron

Inflated Credits

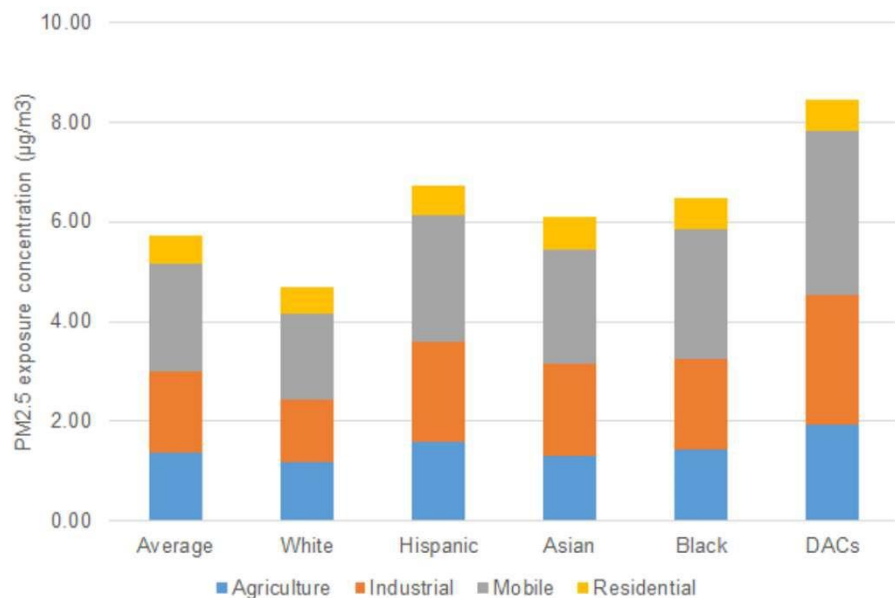
Illusory Credits

**Increased pollution in
rural communities**

**Increased emissions
from fuels**

Disparate Impact of Inflated & Illusory Credits

Figure 2 – Top Sources of PM2.5 and their Contribution to PM2.5 Exposures by Race and in Disadvantaged Communities



Transportation fuel producers – “deficit holders” – can buy these credits and emit more greenhouse gases and co-pollutants.

“mobile sources are the largest sources of pollution exposure disparity for Black populations and disadvantaged community residents, when compared to the average population in California. Specifically, mobile sources accounted for 45 percent of exposure disparity for the Black population, and 37 percent of exposure disparity for people in disadvantaged communities.” CARB 2020 Mobile Source Strategy at 26-27.