

CR&R Anaerobic Digestion Project

Perris, California

Converting Green Waste and Food Scraps Into Vehicle Fuel

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CR&R Environmental Services

Act Expo & NGV Global 2014

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CR&R Environmental Services

Founded 1963 in Orange County
~50 Municipal Contracts and > 2.5 Million Customers

3 Material Recovery Facilities
Construction and Demolition Recycling Plant
Green Waste Composting Facilities

700 Heavy Duty Trucks
Incl. 250 Natural Gas Vehicles and 3 Natural Gas Fueling Stations



AD Project Goals

- Approach: Exploit economies of scale
 - Modular design of the plant
 - Expansion opportunities on a single site
 - Total of 4 phases

- Advance preprocessing of source-separated municipal organic waste

- Promote regional growth of RNG usage for vehicle trucks

Project Scale

Feedstocks

High Solid Yard
and Food Waste

Throughput

229 Tons per Day
~ 80,000 Tons per Year
Over 300,000 Tons per Year in 2020

Biogas / CNG Production

~ 1,000,000
Diesel Gallon
Equivalent (DGE)
per Year



CR&R Project Partners

Design and Engineering of AD Technology:

EISENMANN

Biogas Upgrading Technology:



Construction
Management:



Planning Services to
Integrate Plant into
Existing Facility:



Project Siting and Permitting

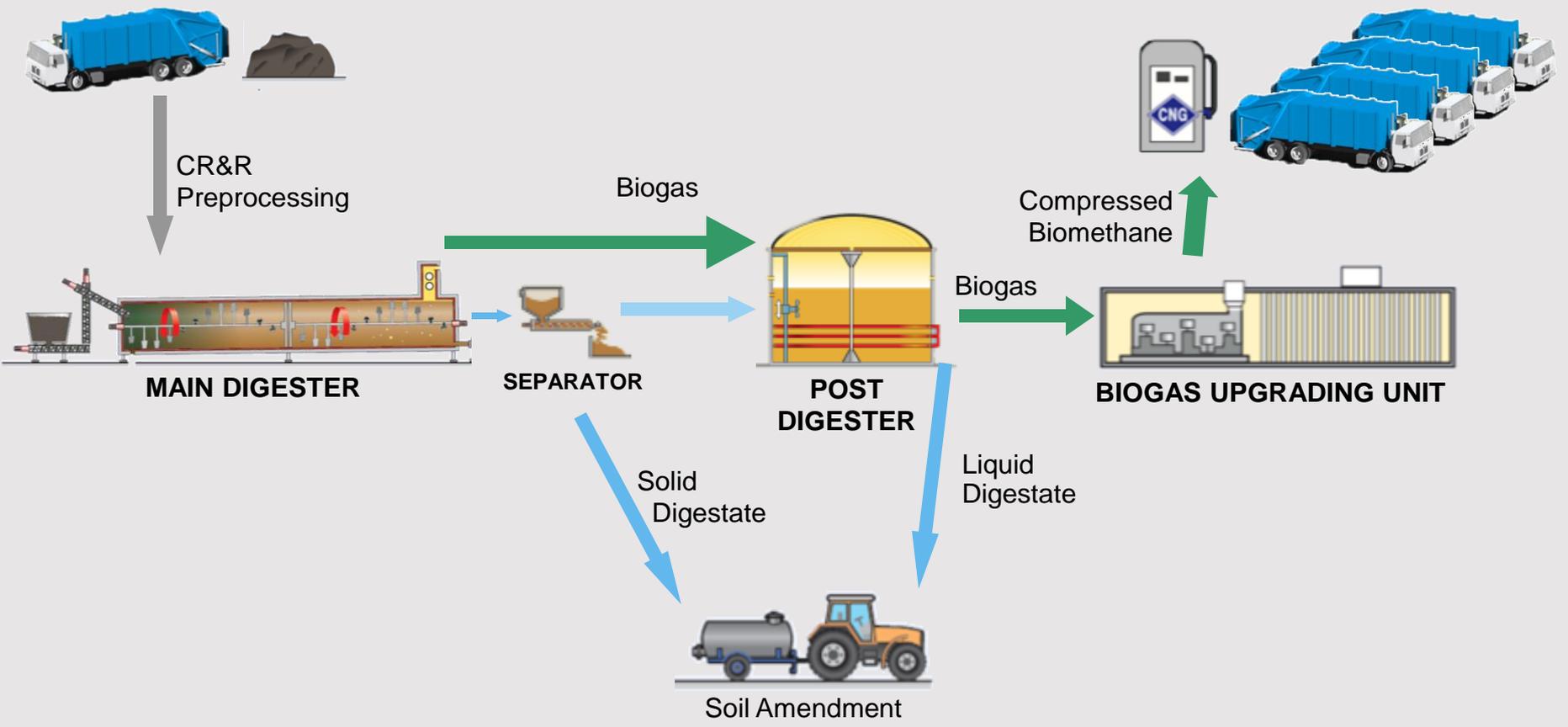


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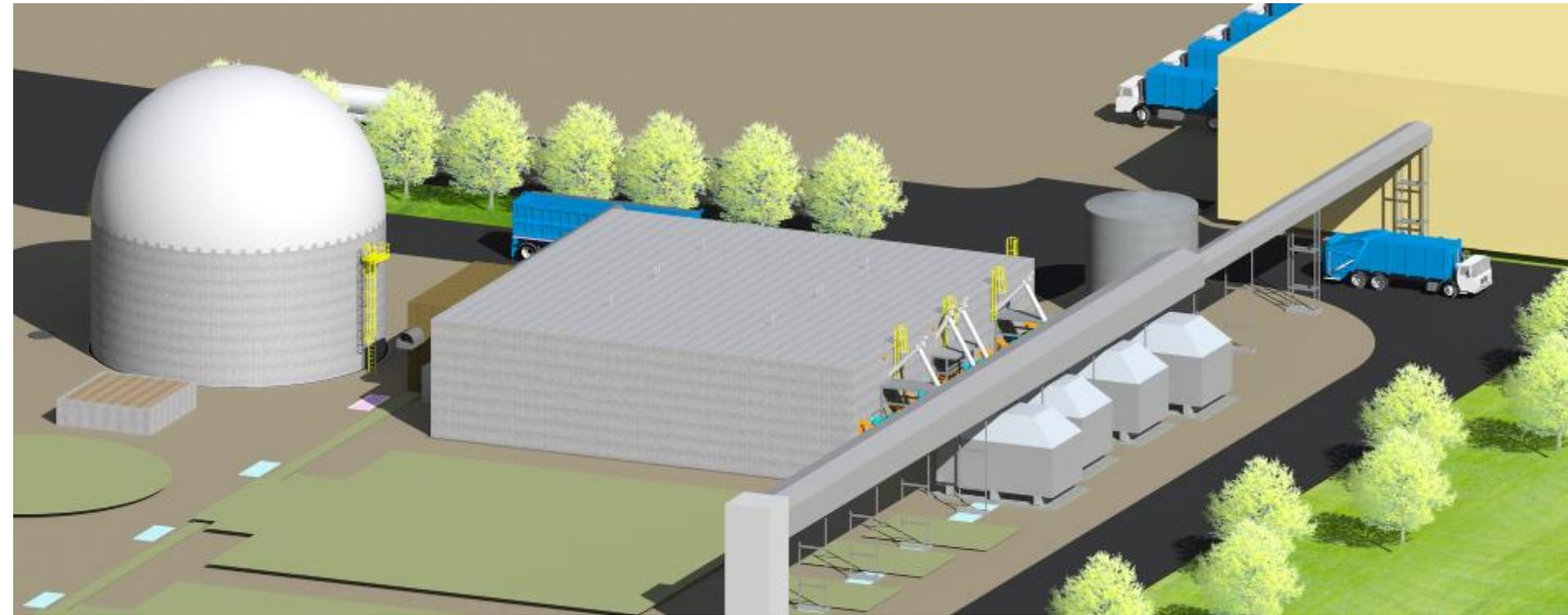
[Google View](#)



Project Schematic



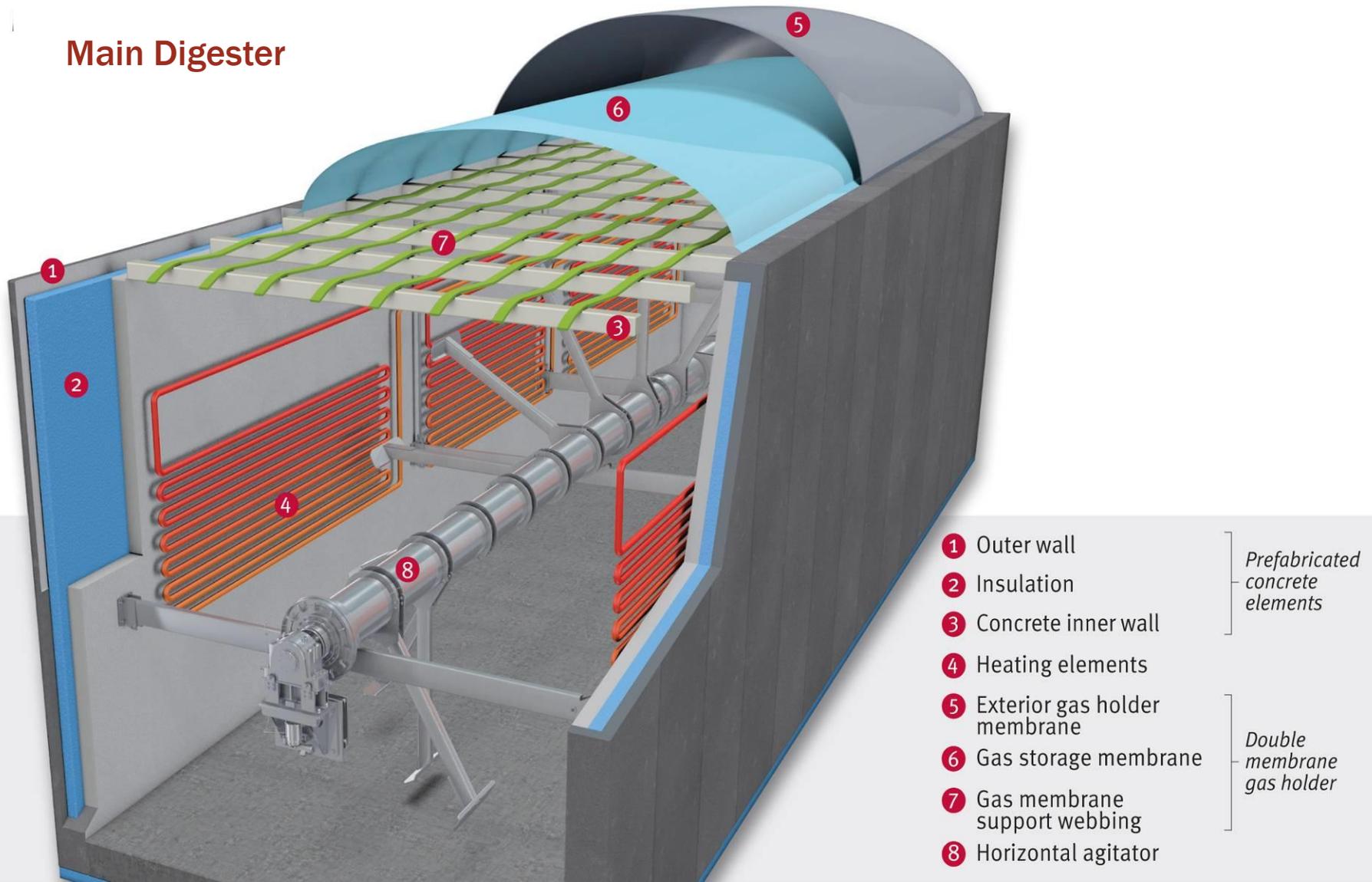
Biogas Plant, Perris CA



Showing Phase 1 (over 80,000 tons / year)

Maximizing Biogas Production

Main Digester



- 1** Outer wall
 - 2** Insulation
 - 3** Concrete inner wall
 - 4** Heating elements
 - 5** Exterior gas holder membrane
 - 6** Gas storage membrane
 - 7** Gas membrane support webbing
 - 8** Horizontal agitator
- Prefabricated concrete elements*
- Double membrane gas holder*

Project Metrics

~ 1,000,000 Diesel Gallon Equivalent Production (DGE) per year

→ 4,000,000 DGE per year by 2020 (phases 1-4)



YEARLY EMISSION REDUCTIONS

- *Over 13,000 Metric Tons of GHG Emissions*
- *Over 60 Tons of NOx Emissions*
- *1.22 Tons of Particulate Matter (PM)*

New Jobs per Project Phase:

Approx. 75 top scale construction jobs and 8 permanent operating jobs

Outlook

- Establish precedent for the industry
- Demonstrate feasibility of municipal waste contract system
- California Energy Commission (CEC) incentive funding can stimulate AD development and CNG usage for transportation
- Demonstrate critical role of AD facilities for CalRecycle's 75% diversion goal



“It is clear that the time is right to invest in organics conversion. It’s the right decision for our business, the municipalities we service, and the environment.”

Clifford Ronnenberg, Founder and CEO of CR&R

THANK YOU.

Paul Relis

CR&R Incorporated

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