

US EPA ARCHIVE DOCUMENT



Gas To Energy Plants ~ Primary Onsite Power ~ MicroGrids ~ Carbon Negative

RealEnergy Biogas

California BioResources Alliance – Innovative Technologies

Renewable Electricity
Renewable Natural Gas
Renewable Transportation Fuel - CNG

Landfill Diversion
Natural Fertilizers
Carbon Destruction





Disclaimer

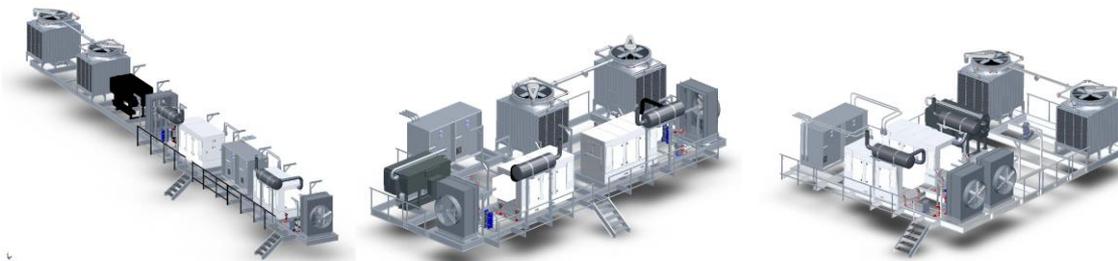
The investment of funds in RealEnergy Biogas Napa involves a number of significant risks and is suitable only for persons who do not have a need for liquidity in their investment and who can afford to lose their entire investment.

Forward Looking Statements

This document includes “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934 and are intended to be covered by the safe harbors created thereby. These statements relate to future events or to our future financial performance. In some cases, you can identify forward-looking statements by terminology such as “may,” “will,” “should,” “expect,” “plan,” “anticipate,” “believe,” “estimate,” “predict,” “potential,” or “continue” or the negative of such terms or other comparable terminology. These statements involve known and unknown risks, uncertainties, and other factors that may cause our or our industry’s actual results, levels of activity, performance, or achievements to be materially different from any future results, levels of activity, performance, or achievements expressed or implied by such forward-looking statements. Although we do not make forward-looking statements unless we believe we have a reasonable basis for doing so, we cannot guarantee their accuracy; and actual results may differ materially from those we anticipated due to a number of uncertainties, many of which are unforeseen, including, among others, the risks we face as described above and elsewhere herein. You should not place undue reliance on these forward-looking statements. To the extent that these statements are not recitations of historical fact, they constitute forward-looking statements that, by definition, involve risks and uncertainties. Our actual results, performance, or achievements could differ materially from those expressed in, or implied by, the forward-looking statements. We can give you no assurance that any of the events anticipated by the forward-looking statements will occur or, if any of them do, what impact they will have on our results of operations and financial condition. We do not intend, and we undertake no obligation, to update any forward-looking statement.

We have designed, supplied, built, owned and operated more clean onsite gas to energy plants than any independent power producer in the US.

- 68 Electric and Natural Gas Grid Interconnections
- Reciprocating Natural Gas Engines, Solar PV, MicroTurbines, Microgrids
- Highly Reliable 'Cleaner Than Grid' Power Located At Host Customer Site
- Power Plant Fleet Sale to ArcLight/John Hancock Insurance



RealEnergy BioGas/Natural Gas PowerPods



Marriott Hotel Fremont, CA



RealEnergy Business Approach

- Biogas Plant Fleet Development
 - (1) WWTP 2015
 - (2) Landfills 2016
 - (2) WWTP & (2) Landfills 2017

- Design / Supply / Build / Own and/or Operate
- Exclusive Proven Technologies
- Negotiated Site Leases vs RFP

- Option for Host to Maintain
- Option for Host to Purchase





RealSustainability

We Design, Supply, Build, Own & Operate Gas to Energy Facilities

- Designed as envisioned by waste/energy regulatory agencies
- Privately financed, for-profit facilities, funding the technology
- Delivering infrastructure & financial returns to pension/insurance funds
- As an energy developer, we will assist in AB939/341 compliance

Economic Sustainability

- Performance based fee development services
- Public/private partnerships with no capital requirements
- Leveraged funding options including grants management
- Strategic planning through intensive, inclusive team design charrettes

Sustainability...

Economic
Environmental
Social
Energy
Food
Agriculture



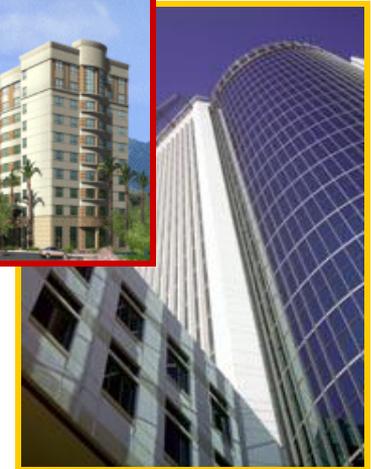
RealEnergy Biogas Design Charrette Napa Valley – Clos Pegase Winery



American Biogas From Organic Waste

Real Energy is developing biogas plants, using organic waste to make renewable natural gas.

- Cheaper, Cleaner, Domestic and Abundant Fuel
- Constant, Safe, Reliable, Renewable, Baseload
- Proven with 6000+ Plants Operating in Europe
- Lowest Carbon Fuel
 - 80-150% Lower Carbon than Conventional Fuels
 - 50-100% Lower Carbon than Electric Vehicles
 - Lower than Cellulosic Ethanol
- Carbon Destruction / Renewable Fuel Credits
- Landfill Diversion
- Renewable Cooling/Heat/Power Serving Microgrids
- Local Jobs
- Sustainable and Organic Fertilizers
- Energy Security and Hedging
- A Better Environment



RealEnergy Projects:

Civic Center, SF
Lend Lease, SF
Marriott, Fremont
Elihu Harris Building, SF



Organics Policy and Environmental Drivers

50% Landfill Diversion By 2000

- Many jurisdictions fail under new SB 1016 compliance requirements.

75% Landfill Diversion By 2020¹

- 46.6%² of black trash can in CA is organic and will become methane
- Achieve compliance by sending 30-60% of black trash can refuse to an Organic Transfer Station and Biogas facility.

10% Lower Carbon Fuel Standard (LCFS)⁴

- Requires oil companies to reduce the carbon intensity of California transportation fuels by 10% by 2020 – Over 80 firms have traded \$72M of carbon at up to \$80/ton of GHG reduction.
- RealEnergy has oil company LCFS buyers.

Biomethane Pipeline Injection Standards⁵

Proposed Compostable Material Handling / In-Vessel Digestion Regs³

¹ Assembly Bill 341 Signed by Governor - www.calrecycle.ca.gov/climate/recycling/faq.htm & www.calrecycle.ca.gov/Calendar/EventDetail.aspx?ID=2888&DS=A

² California 2008 Statewide Waste Characterization Study - www.calrecycle.ca.gov/publications/general/2009023.pdf

³ <http://www.calrecycle.ca.gov/laws/Rulemaking/Compost/default.htm>

⁴ Air Resource Board Negative Carbon Fuel Pathways http://www.arb.ca.gov/fuels/lcfs/20130731_q1datasummary.pdf

⁵ Biomethane Rulemaking Process of the California Public Utility Commission <http://delaps1.cpuc.ca.gov/CPUCProceedingLookup/f?p=401:57:1154561051500701::NO>



Municipal Solid Waste - Organic Solution

Mechanical/Biologic Treatment (MBT)

- Proven Technology – Dozens of Reference Plants
- Measurable Diversion – Over 30% Diversion Credits
- Renewable Fuel (RNG) – One Plant Fuels Over 200 Trucks
- Nutrient Recovery – One Plant Fertilizes 10,000 Acres
 - Liquid Organic Fertilizer is a Sustainable/Consistent Alternative
 - Fertilizer Applied Through Efficient Drip Irrigation Can Reduce N Applied by 50%
 - Sold at the Price of Plant-Available Urea, but Includes N/P/K, Organics and Acids

Revenue Streams

- Gate Fees to Process Organics
- Renewable Biogas for Transportation Fuel
- Liquid Organic Fertilizer



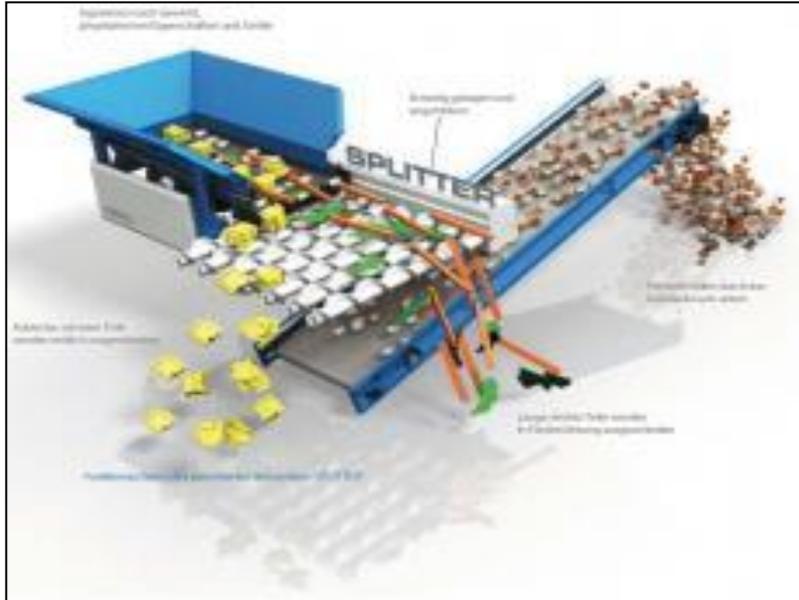


Compact and Expandable Layouts



Proven Organics Sorting Technologies

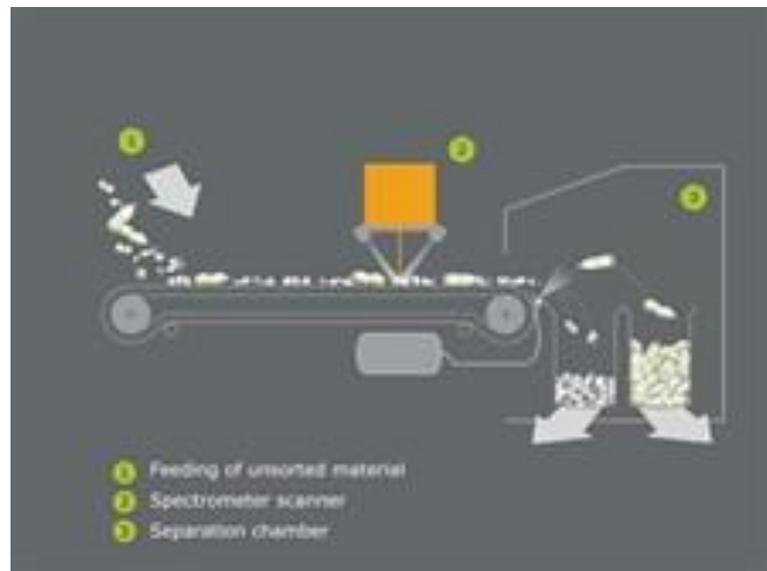
Mechanical Sorting



85 years of service
Manufacturer for Komptech

Proven Organics Sorting Technologies

Infrared/Pneumatic Sorting

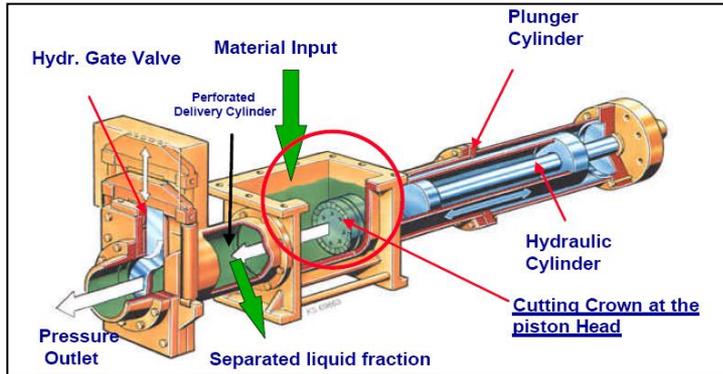


1. **Materials reflect infrared light**
2. **Infrared sensors record each distinctive spectrum**
3. **10 million recordings per second**
4. **320,000 dots of resolution**
5. **Records size, shape, structure, material and position**
6. **Pneumatic sorting - fully automated separation**
7. **95% purity of organics separation after water separation**

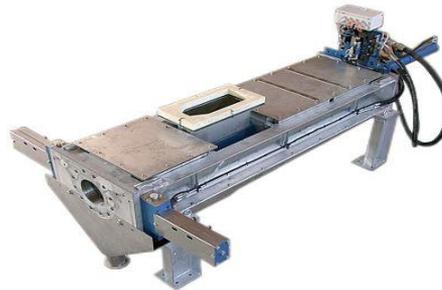


Proven Organics Sorting Technologies

Organic Pressing



**FINSTERWALDER
UMWELTECHNIK**

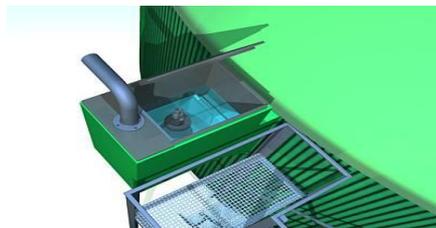


Concrete Pumping Technology

Proven Anaerobic Digestion Technologies



- **Design Experience**
 - 17 Years
- **Operating Experience**
 - 14 Years
- **Reference Plants**
 - 13 Plants
- **Countries Served**
 - 8 Countries
- **Plant Uptime**
 - 98%



**Lights
Skimmer**

**Heavies
Scraper**





Proven Pipeline Injection and CNG Fueling



Clean Energy is the largest provider of vehicular natural gas for fleets and related turnkey services in North America.

One trash truck running on biomethane offsets emissions from 325 vehicles.

In Sweden, over half the gas used in its 11,500 CNG vehicles is biogas.

"It's cheap, clean and domestic..."

T. Boone Pickens



Proven Liquid Fertilizer Production

Digested slurry has nutrients, acids and minerals, but

Not marketable with high bacteria levels. Biosolids generally have a high cost of disposal:

- Requires electricity and polymers to dewater
- Further water treatment / solids storage / composting
- Trucking and disbursement
- Disposal tipping fees

RealLiquid Organic Fertilizer - Class A liquid fertilizer for drip

- Utilizing cell lysis and/or pasteurization for pathogen kill
- Minimum 5% plant available nitrogen, sold as liquid urea
- N-P-K values minimum 5-0-4 plus natural organic matter





Site Lease at Napa Sanitation District



Proposed Transaction Overview

| | |
|---------------|--|
| Location: | Napa Sanitation District |
| Project Size: | 80,000 TPY (200,000 TPY permitted) |
| Feedstock: | Separated Organics from MSW |
| Project Cost: | \$40M |
| Debt: | \$30M Tax Exempt Bonds |
| Equity: | \$10M |
| Revenues: | \$6M Tipping Fees \$4M CNG Fuel & Electricity \$4M Liquid Fertilizer |



Organics Transfer Station at Existing Transfer Station



RealEnergy Biogas Napa

Transfer Station

- MSW Sorting
 - Metals
 - Organic Slurry
 - RDF (Refuse)

WWTP

- Organic Slurry & SSO-AD to CNG
- BioMethane Injection
- Fertilizer Storage

Benefit To Host Community



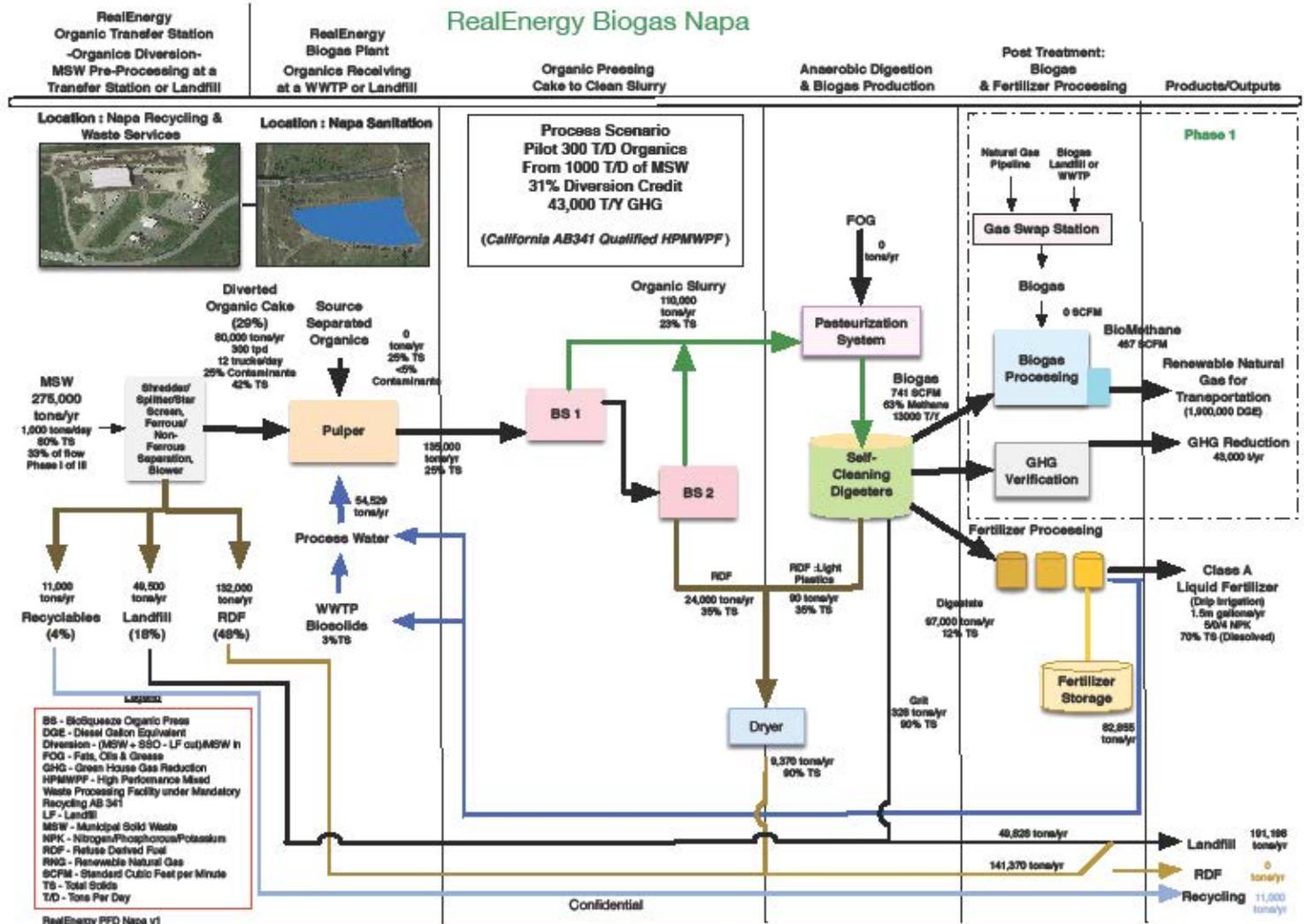
Enhanced Resource Recovery

- Municipal Solid Waste Organics Diversion
- Organics to Soil Tilth (Including Pond Algae)
- Napa Valley...
 - » AB341 Compliant
 - » Carbon Negative

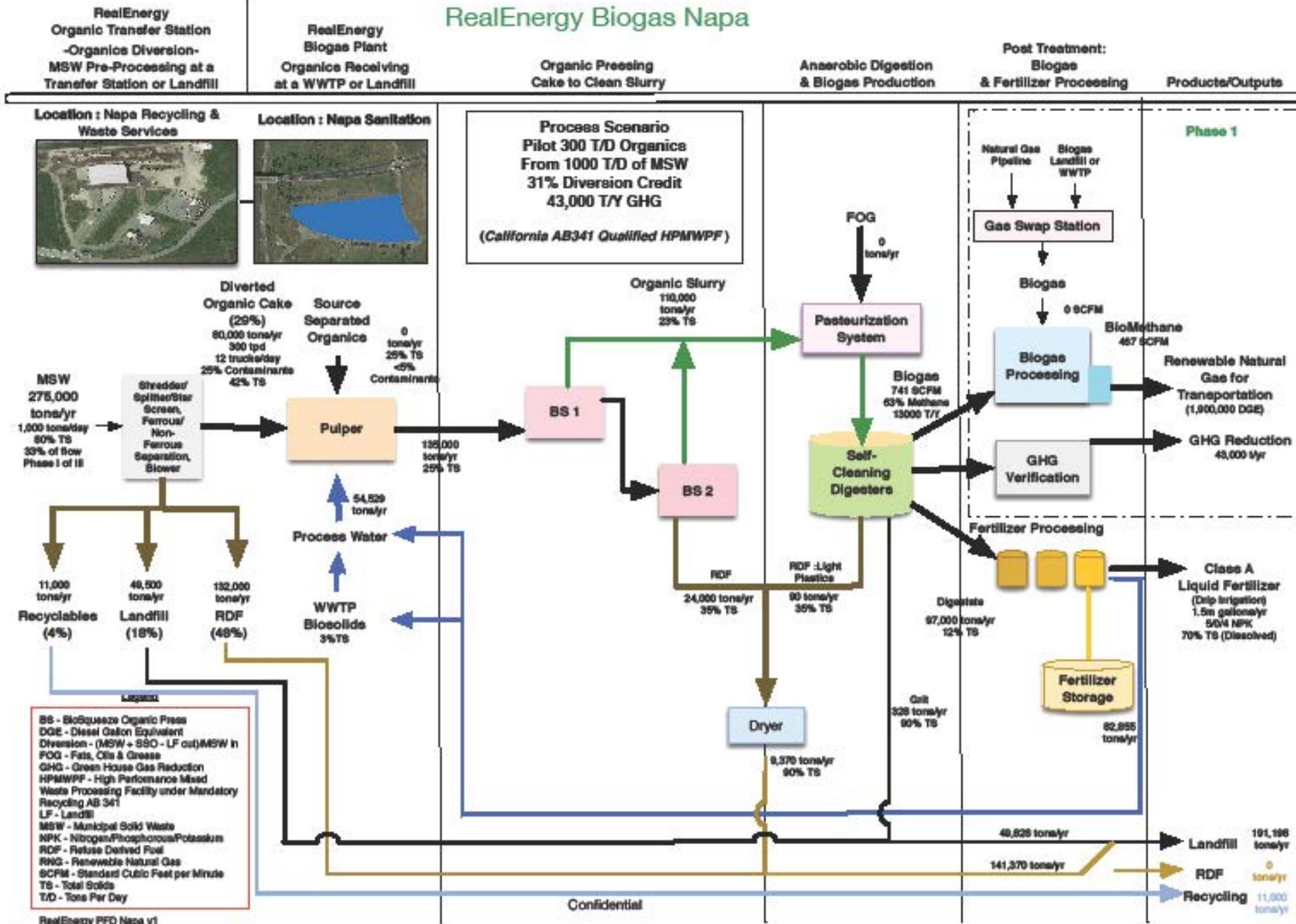
Valuable Revenues

- Class A Fertilizer
- Renewable CNG Fuel and Electricity
- Landfill Diversion
- Greenhouse Gas Reduction Credits

Simplified Process Flow Diagram



RealEnergy Biogas Napa





Proposed Transaction Overview

| | |
|---------------|--|
| Location: | Confidential |
| Project Size: | 80,000 TPY |
| Feedstock: | Separated Organics from MSW |
| Project Cost: | \$40M |
| Debt: | \$30M Tax Exempt Bonds |
| Equity: | \$10M |
| Revenues: | \$6M Tipping Fees \$4M CNG Fuel & Electricity \$4M Liquid Fertilizer |



Streamlined Permitting – Programmatic EIR

California agencies came together to stimulate biogas development with streamlined permitting.

- CalRecycle
- Regional Water Quality Control Board

RealEnergy nominated design features from Biogas Wien as sustainable design.

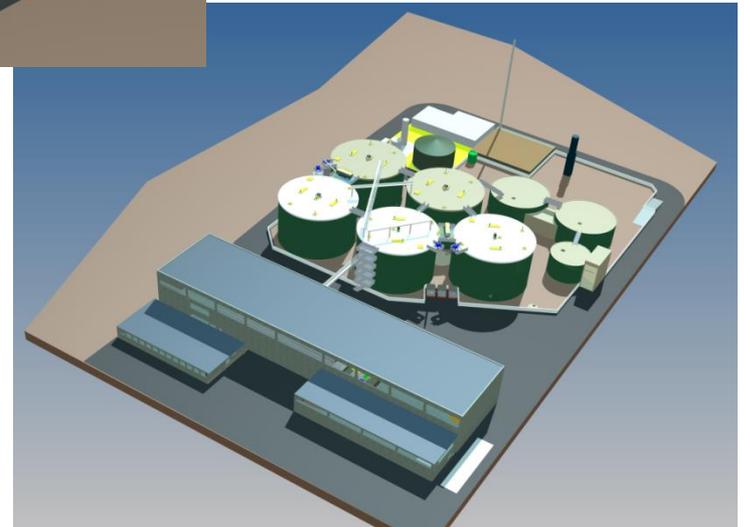
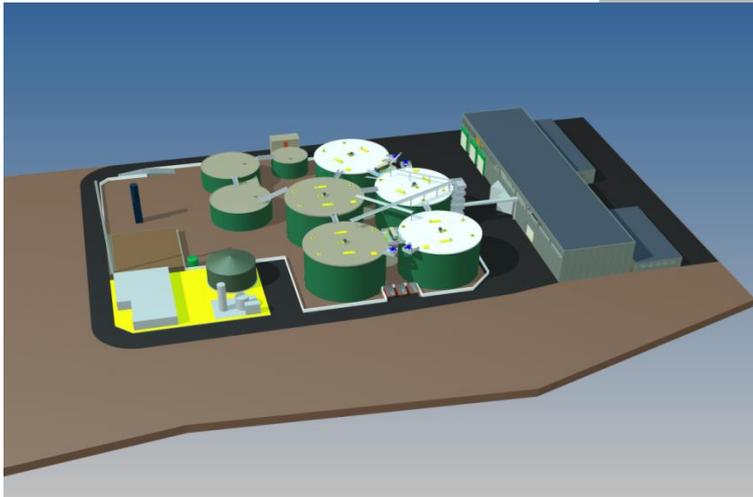
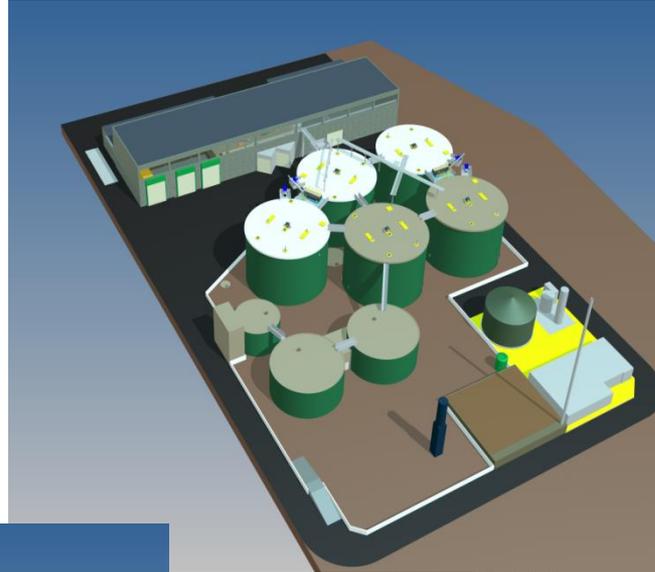
Result:

Two completed California Programmatic Environmental Impact Reports from our multi-year Technical Advisory Groups (TAG's) activities



Biogas Wien – Vienna, Austria

Proposed Site Layout





Development Team

| | |
|---------------------------------------|---|
| Developer and Managing Member | RealEnergy |
| General Contractor | TLG |
| Environmental Planning and Permitting | CH2MHILL |
| Civil/Structural/Electrical Engineer | FITEC IBA Summit Engineers |
| Placement Agent Debt | Stern Brothers |
| Corporate Counsel | Downey Brand |
| Tax Counsel | Jones Hall |
| Placement Agent Counsel | Orrick |
| CPA | Moss Adams |
| Trustee | US Bank |
| Anticipated Incentives | CalRecycle |
| | California Energy Commission |
| | California Air Resource Board |



Site Lease Terms

- 1. 25 year site lease**
- 2. 5 acre site, inside the facility permit area, on natural soil, with a separate gate and scale**
- 3. RealEnergy pays all development costs**
- 4. Rent: 2% of all revenue**
- 5. Design Flow:**
 - **275,000TPY Mixed Waste, or**
 - **80,000TPY Source Separated Organics, or**
 - **a combination of both**
- 6. Host will provide up to 37 AC–FT/y of water, and take up to 55 AC-FT/y of permeate water**
- 7. Host controlled biogas and rights of way to RealEnergy;**
 - **will be contributed at no cost**
 - **at no infrastructure cost to host**



For More Information



Bechtel
Headquarters
San Francisco,
California
1000 kW System

Kevin D. Best
Chief Executive Officer
RealEnergy, LLC
1500 Soscol Ferry Road
Napa, California 94558

Phone: 707 944 2400 x109
Cellular: 707 426 3300

kbest@realenergy.com
www.realenergy.com

BioEnergy Developments ~ Primary Onsite Power ~ Microgrids ~ Carbon Negative