

Introduction

Novus is an Energy Technology Company specializing in high rate catalyzed anaerobic digestion processes with zero waste. We solve a critical problem for our customers and at the same time create added benefits in the form of renewable biogas, organic fertilizer and clean water. Our process is deterministic.

Charles Wood, Chairman of the Novus Board of Governors.

Joe Burke

Surya Pidaparti

Ann Lagorio

Jeff Zierdt

Partners & Roles



Adolfson & Peterson Construction is a \$1 billion innovative construction company. EPC for projects.



Harris Companies is a \$200 million mechanical contractor. EPC for projects.



Pacific PowerStock, is the industry leader in biomass collection. Feedstock supplier.



Buyer for the RNG under a fixed 10 year contract for fuel / renewable attributes.



Insurer for the project output of RNG.



California Opportunity

- Dairy Herd = 1.7 million (73% in Valley).
 - CH₄ (RNG) potential = 540 MMCFD
- Biodiesel Production = 61 MMGY.
 - 8.4 million gallons per year waste glycerin.
 - RNG potential = 866 MMCFD.

RNG Generation Potential = 1,406 MMCFD.

Daily Natural Gas Usage = 6,729 MMCFD.

Challenges

- Conditions vary from Site to Site.
 - Fluctuations in feedstock quality and quantity.
 - Chemical composition – metals, antibiotics, salinity, etc..
 - Local operation skill.
 - Regulatory requirements.
 - Proximity to feedstock and offtake customers.
- Solution must be tailored to site specifics.
 - Does the process need be modified to handle each site's requirements?
 - Can local labor operate a full scale plant? If not, identify training needed.

Onsite long term piloting critical to address these issues.

Pilot Campaigns

- Hermiston, OR
 - mixed food processing waste + manure.
 - 1000 lbs/d OLR >10 gCOD/l/d, 4 day HRT.
 - 90% conversion.
 - Process can be operated effectively with local labor.
- Fuels Company, AR
 - Biodiesel + Chemical Waste.
 - 500 gpd, OLR > 12 gCOD/l/d, 4 day HRT.
 - 40-80% conversion.
 - Process can convert complex chemical wastes to biogas.

Novus Pacific LLC, Boardman

Feedstock	Manure, Onion Waste, Potato waste
Feed rate	1300 TPD
RNG	2.9 MMCFD
Fertilizer, 6-2-6	700 gpd
Clean water	240,000 gpd



- Create 52 jobs in a Highly Distressed Rural Census Zone.
- Help alleviate load problems on local waste treatment plant.
- Power 500 CNG Buses of a large transit system in California. Help Lower greenhouse gas emissions.