

# UTS BIOENERGY

City of San Jose UTS SJ-1 Fuel Cell Project:  
An Overview of a Digester Gas Utilization Project

Bay Area Clean Water Association  
(BACWA)

May 16<sup>th</sup>, 2012



Reliable Biogas Technology.

# Project Overview

- Twenty year Power Purchase Agreement (PPA) between City of San Jose and UTS
- No capital cost to the City of San Jose
- UTS received a grant from the State of California under the Self Generation Incentive Program (SGIP)



# Project Overview

- Additional financial consideration will come from the Federal Investment Tax Credit (ITC)
- Utilizes 320 scfm of raw digester gas
- Produces 1300kw of electricity
- And 2000 Mbtu's/hour of thermal energy



# Project Overview

- Digester gas is cleaned and scrubbed removing moisture, VOC's, siloxanes and H<sub>2</sub>S
- Utilizes state-of-the-art, newly developed proprietary technology supplied by ESC for a regenerable siloxane removal process that provides a much reduced O&M cost.
- Digester gas is converted to electricity and thermal energy using a molten carbonate fuel cell manufactured by Fuel Cell Energy in a combined heat and power configuration.



# Combined Heat and Power

- Project utilizes the concept of combined heat and power (CHP) from a single fuel source to make more efficient use of the energy.

## Separate production of electricity and heat



Efficiency:  $(36+80)/200=0,58$  or **58%**

## Cogeneration



Efficiency:  $(30+55)/100=0,85$  or **85%**



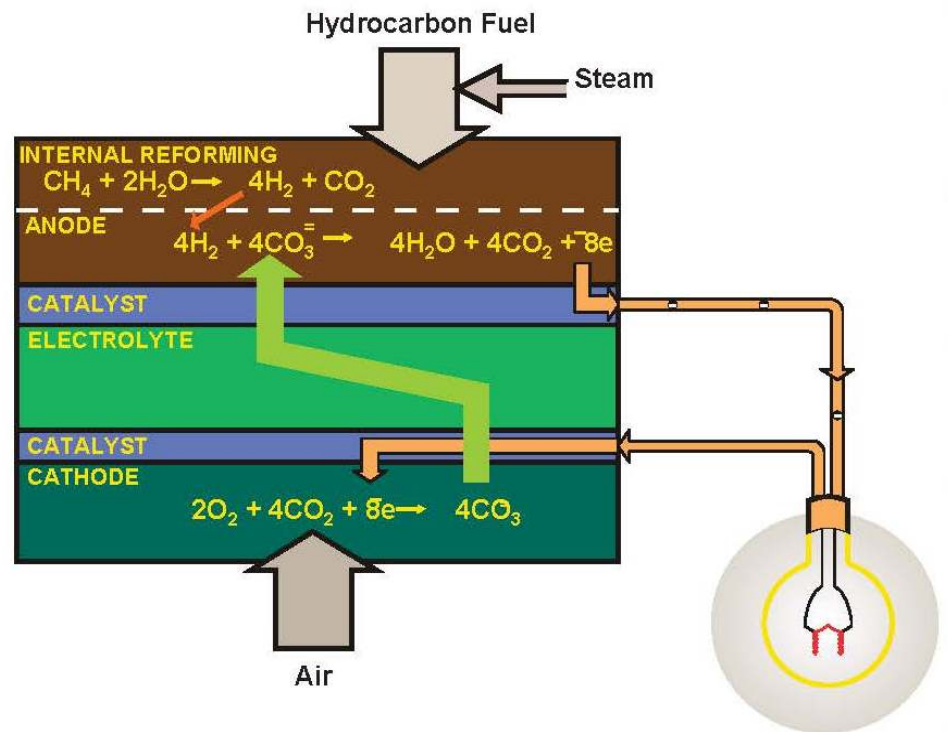
# Combined Heat and Power

- Advantages of Privately developed CHP include:
  - Lower and predictable cost of electricity and heating
  - No additional Capital or O&M
  - Lower compliance cost
  - Lower carbon footprint
  - Lower regulatory uncertainty
  - Increased redundancy for critical operations



# Fuel Cell Basics

- Electrochemical Conversion of Fuel Heating Value to Hydrocarbon Fuel Electricity
- More efficient than engines or turbines
- Cleaner than engines or turbines, negligible NOX and SOX
- No combustion



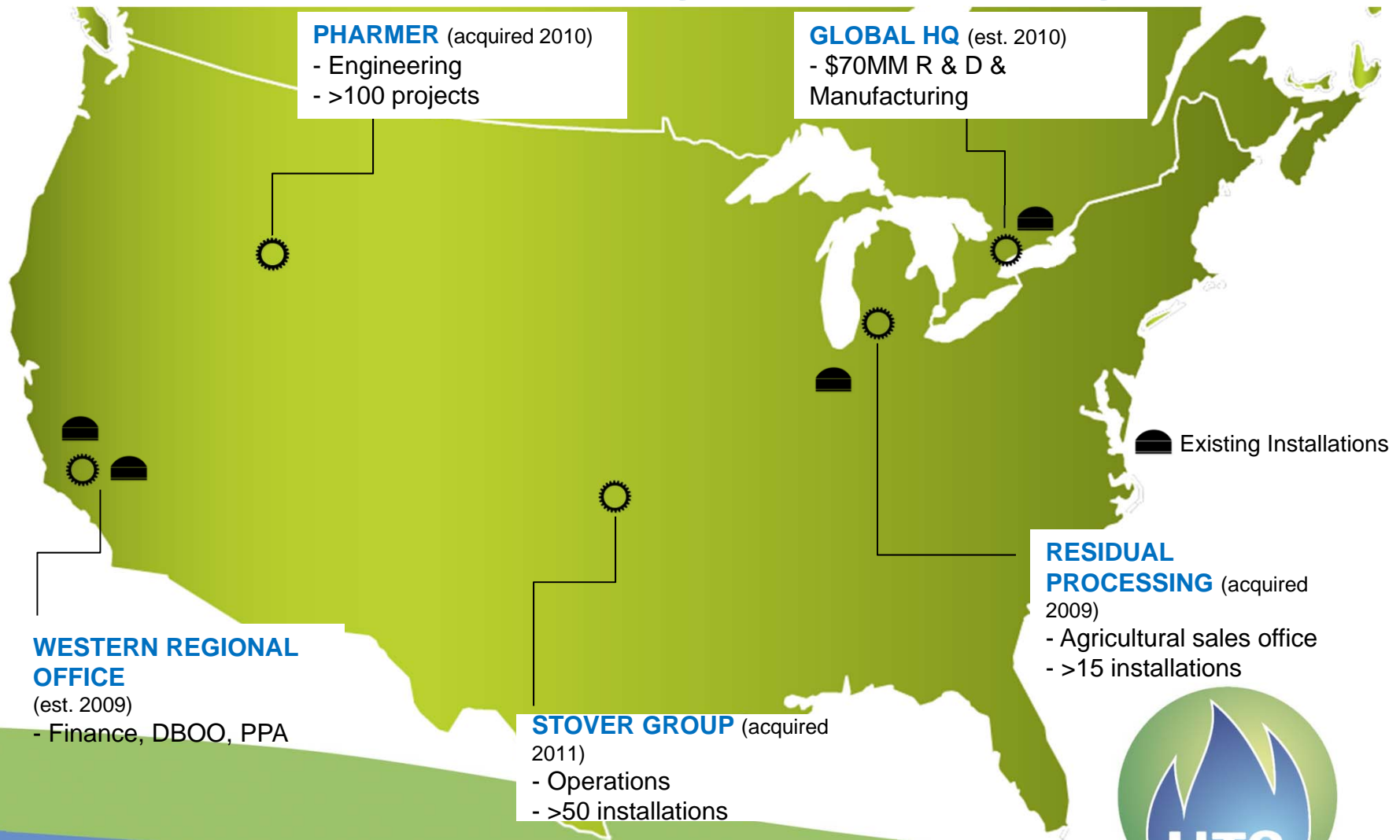
# About UTS BioEnergy

- Private developer of waste to energy projects
- Part of the Anaergia family of companies, a world leader in waste to energy projects
  - The largest developer of waste to energy projects worldwide
  - Largest supplier of commercially available state of the art digester technology
  - Global company based in North America





# UTS BioEnergy / Anaergia

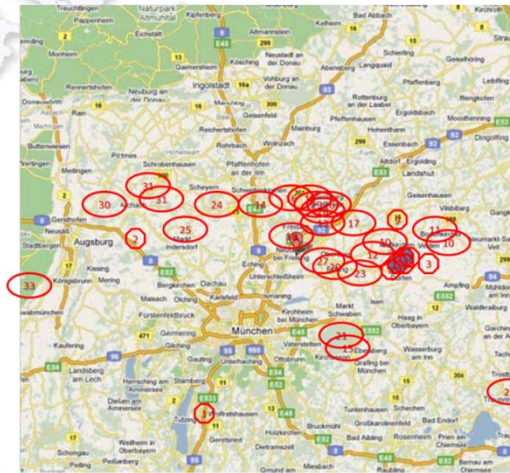
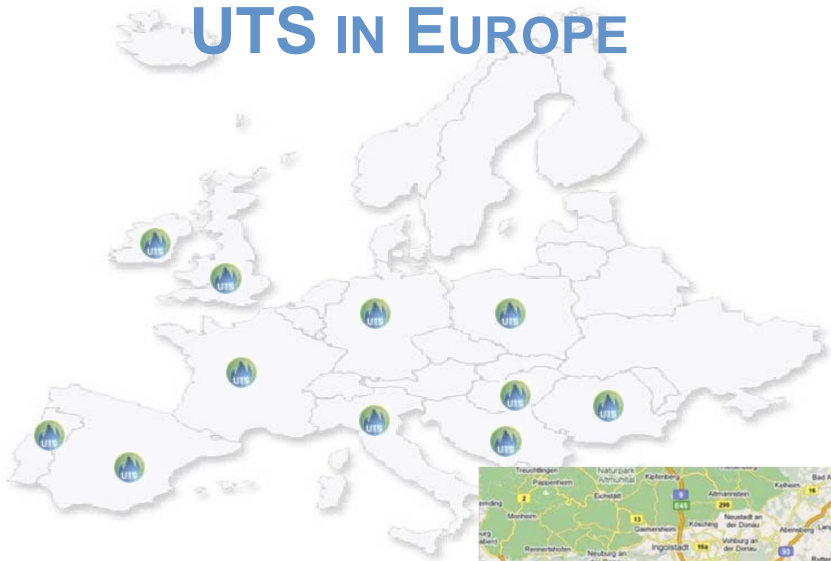


Reliable Biogas Technology.

# UTS BioEnergy / Anaergia

UTS IN EUROPE

ANEARGIA IN NORTH AMERICA



- 1) Johann Urban – 82547 Eurasburg
- 2) Plabst Bioenergie GBR – 82281 Unterschweinbach
- 3) Anton Gradi – 84419 Schwindegg
- 4) Georg Forsthuber Biogas – 84405 Dorfen
- 5) Johann Greimel – 84405 Grüntegernbach / Dorfen
- 6) Günther Droblitsch – 84405 Dorfen
- 7) Johann Habersletter – 84405 Dorfen
- 8) Thomas Moothofer – 84405 Dorfen
- 9) Martin Bachmayer – 84416 Taufkirchen
- 10) Anton Obermaier – 84427 St. Wolfgang
- 11) Johann Altmannbauer GBR – 84149 Velden / Vils
- 12) Georg Bauer – 84435 Lindorf
- 13) Bioenergie Kloh GmbH – 84452 Eichenried
- 14) Alfred Moser – 85402 Kranzberg
- 15) Michael Ametsbichler – 85567 Bruck
- 16) Entsorgung- u. Verwertung GmbH Eggertshofen – 85354 Freising
- 17) Konrad u. Gisela Zollner GBR – 85462 Eitling
- 18) Andreas Stimmer – 85467 Neusching
- 19) Albert Grandl – 85417 Marling
- 20) Georg u. Marianne Hupfer Biogas GBR – 85452 Moosinning
- 21) Biogasanlage Hintermair Dengl Rappolder GBR – 85567 Tagaching
- 22) Otter-Huber Biogas GBR – 83413 Fridolfing
- 23) Jakob Bichler – 85469 Walpertskirchen
- 24) Geisenhofer GBR Bioenergie – 85258 Weichs / Ebersbach
- 25) Götz Agrardienst GmbH – 85229 Markt Indersdorf
- 26) Sebastian Kammerhofer – 85402 Kranzberg
- 27) Anton und Erika Burgholzer GBR – 85435 Erding
- 28) Agro-Gas Niederdorf GBR – 85445 Niederdorf
- 29) Michael Brückel – 85462 Eitling Gaden
- 30) Mäglele Josef & Sohn GBR – 85444 Affing-Gebenhofen
- 31) Friedl GBR – 86551 Aichach-Untermauerbach
- 32) Stefan Finkenzeller – 86577 Sielenbach
- 33) Beck Biogas GBR – 89185 Hüttstheim

Munich ... surrounded by UTS biogas plants



# UTS BioEnergy / Anaergia

- More than 1600 plants worldwide
- Integrated solutions from pre-treatment to energy production
- We finance, own and operate
- We guarantee performance!



# Fair Oaks, IN Renewable Natural Gas

Largest US Dairy producing renewable Natural Gas for transportation fuel from manure.



# Inland Empire Utility Agency, CA Electricity Generation

Producing 2.8 MW of  
electricity from the biogas  
from municipal sludge



Reliable Biogas Technology.



# Szarvas Gallicoop, Hungary



Installed capacity: 4 MW el, 10 MW total  
Substrates: Slaughterhouse waste, sewage sludge, poultry manure, silage  
Reactor type: Helios



# Contact UTS BioEnergy

Arun Sharma

President

[asharma@utsbioenergy.com](mailto:asharma@utsbioenergy.com)

(O) (760) 436-8870 x 110

(C) (10) 994-0272

David Schneider

Director of Business Development

[dschneider@utsbioenergy.com](mailto:dschneider@utsbioenergy.com)

(O) (760) 436-8870 x 130

(C) (310) 994-0272

5780 Fleet St. Suite 310

Carlsbad, CA 92008



# Questions

