Natural Gas and Southern California’s Renewable Energy Future
Los Angeles, CA

June 14, 2011
BioFuels Energy, LLC ("BFE") has secured long term bio-gas rights from the Point Loma Wastewater Treatment Facility.

BFE will purify the digester gas such that the end product meets the new SDG&E pipeline injection standards (Rule 30).

BFE will nominate the cleaned biogas ("directed biogas") to the following BioFuels customers and provide renewable energy under a long term Power Purchase Agreement:

- City of San Diego South Bay Water Reclamation Plant (1.4 MW)
- University of California San Diego (2.8 MW)

BFE will provide all the necessary capital to implement the project ($45 M Total Capital Cost)
Existing Point Loma Wastewater Treatment Plant Location & Process

- **Point Loma**
- **San Diego**

**Excess Gas to be Purified in the Gas Purification Facility**

**Influent Screens**
- The wastewater is first sent through a screen that collects and removes large debris.

**Grit Chamber**
- The grit chamber removes heavy debris, such as dirt, to settle to the bottom of the tank where it is removed.

**Primary Clarifier**
- In primary treatment, heavy particles such as dirt sink to the bottom of large tanks and are removed.

**Effluent Bar Screens**
- The wastewater is finally sent through a screen that collects and removes small sediment.

**Anaerobic Digesters**
- Organic matter is converted to methane gas, carbon dioxide, and biosolids.

**Waste Gas Burners**
- Excess gas that can not be used in cogeneration is burned off.

**Cogeneration Gas Utilization Facility**
- The methane gas generated in the digesters is collected and converted to electricity and thermal energy.

**Biosolids go to Metro Biosolids Center**

**Point Loma Wastewater Treatment Plant Process**

Aerial Photograph: San Diego - January 2005

SITE AERIAL PHOTOGRAPH
BioFuels San Diego Project

- First commercial project in California to purify wastewater treatment digester gas for injection into the SDG&E nat gas pipeline

- Project entails two separate projects (a) gas purification from the San Diego Point Loma Wastewater Treatment Plant with injection to the pipeline and (b) distributed power generation at City of San Diego and University of California, San Diego

- Financing entails: (a) approved tax-exempt California Pollution Control Financing Authority bond $12 million, (b) Grant Anticipation Bonds $18 million, (d) US Bank investment $10 million (incl. New Market Tax Credits) and (e) New Energy Capital $5 million.

- Community support – Mayor of San Diego, Councilman Kevin Faulconer, San Diego City Council unanimous approval, local Point Loma Community Group
San Diego Gas & Electric Rule 30
Biomethane Gas Delivery Specification

- PUC Approved and Issued August 27, 2009
- Approval of subsequent SDG&E Advise Filing defines “biogas” as being derived from renewable organic sources.
- Specifically excludes California landfill gas from definition
- 98% methane requirement
- Water Vapor 7 lb/MMscf or less
- Oxygen .2% or less
- Total Sulfur .75 gr. S/100 scf
- Others
Strategic Project Alliances

- Biogas Cleaning - SCS Engineers
  - Responsible for cleaning all biogas to within the SDG&E Rule 30 gas specification

- Distribution System – SDG&E Natural Gas Pipeline Systems
  - Responsible for transporting cleaned biogas from the generation site to various customer locations

- Fuel Cell Company - Fuel Cell Energy
  - Provide South Bay (1.4 MW); Point Loma (300KW); and UCSD (2.8 MW) Fuel Cells and long term O&M Services for each

- Fuel Cell E/P/C Company
  - Otto H. Rosentreter Company responsible for fuel cell installation at South Bay and UCSD

- Investment Bank - George K. Baum & Company
  - Responsible for Grant Anticipation Note (GAN) financing
  - Pt. Loma CPCFA Tax Exempt Financing
  - New Energy Capital (Equity Partners)
Government Incentives

- Self-Generation Incentive Program (California Public Utilities Commission/California Center for Sustainable Energy)
  - $4,500 per KW of electricity rebated for first MW at each site
  - $2,250 per KW of electricity rebated for capacity 1 to 2 MW
  - $1,125 per KW of electricity rebated for capacity 2 to 3 MW

  - 30% of net project costs (after rebate above) available as a tax credit

- Federal New Market Tax Credits
  - 75% of project cost subsidized
Marriage of Bio-methane & Nat Gas to Deliver Reliable Power

Via HDR Independent Engineers Report

- Annual Bio-Methane Production-285,700 mmbtu/yr (at 95 percent operating capacity)
  - 279,700 mmbtu/yr (at 93 percent operating capacity)

- Gas Utilization -294,443 mmbtu/yr (sum of fuel cell requirements @ 93% availability)

- 97% - fuel source as renewable energy @95%
- 95% - fuel source as renewable energy @93%
FuelCell Energy’s DFC 1500 B
South Bay Water Reclamation Facility
1.4 MW DFC1500

Pepperidge Farm Bakery
FuelCell Energy’s DFC3000
University of California San Diego
2.4 MW DFC3000

World’s Largest Fuel Cell – 5 MW Double DFC3000’s - Korea
Point Loma Project Status

- Completed Project Financing......Nov. 2, 2010
- Initiated Construction .............. Dec. 2010
- Fuel Cells Delivery ................... August 2011
- Complete Construction .............. October 2011
- Operation/Maintenance NTP .......... Nov 2011 (starts 10 year term)
Opportunities & Challenges to Expanding Biogas Projects

Policy Opportunity
Rescind Section 3 (O). “gas from landfills will not be accepted or transported” from Sempra Rule 30, Transportation of Customer-Owned Gas;

Policy Challenges
CPUC Staff’s Sept. 2010 Proposal regarding modifications to the SGIP Program which if adopted will reduce incentives and significantly impact the implementation of fuel cell projects
Opportunity for New Methane Gas Projects

- Duplicate Concept in California based upon;
  - other WWT Facilities (ex. Hyperion)
  - food waste and FOG as feedstock in dedicated Anaerobic Digesters

- LRI Landfill, Graham, Washington
  - Landfill Gas Sale and Purchase Agreement with Waste Connections, Inc. (15 years)
  - 3,000 scfm growing to 8,000 scfm in 15 yrs-
  - Clean Up landfill gas, inject into Northwest Pipeline and utilize as directed biogas in Ca.
Alternate Uses for Renewable Biogas

- Renewable CNG as a Transportation Fuel
- As “Directed Biogas” for use in new Energy Generation Facilities
- For Sale to Investor Owned Utilities as Fuel in existing generation units to meet RPS goals
- For Sale to Commercial, Industrial, & Institutional Customers (boiler or generation applications)
Thank You,

BioFuels Energy, LLC
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New Market Tax Credit Program

- Established in 2000 Community Renewal Tax Relief Act
- Encourages investment in low income Communities
- Thru the end of 2010- 594 awards totaling $29.5 B
- Census tracts with a poverty rate of a least 20%
  - 30% of net project costs (after rebate above) available as a tax credit
- Provides Federal Income tax Credit equal to 39% of Qualified Equity Investment
- Tax Credit claimed over a seven year period and can be sold to a third party
BioFuels Conceptual Process

- Biogas recovery process and gas cleanup at digester or landfill
- Gas transported via tube trailers (25 miles or less) - 2400 PSI or
- Gas Injected into local utility natural gas distribution line
- Long-term customer CNG or Biogas Purchase Agreements