

Memorandum



CITY OF DALLAS

DATE September 5, 2008

TO Transportation and Environment Committee:
Linda Koop, Chair; Sheffie Kadane, Vice Chair; Jerry R. Allen, Carolyn R. Davis,
Vonciel Jones Hill, Angela Hunt, Pauline Medrano, Ron Natinsky

SUBJECT Southside Wastewater Treatment Plant
Renewable Energy Leasing Project

Attached is the material for the briefing that will be presented on Monday, September 8, 2008 regarding an update to the Renewable Energy Leasing Project at the Southside Wastewater Treatment Plant (SWWTP).

This project involves the construction of cogeneration facility at SWWTP which will generate electricity utilizing the biogas generated during the wastewater treatment process.

Please contact me if you require additional information.

A handwritten signature in black ink, appearing to read 'Ramon F. Miguez'.

Ramon F. Miguez, P.E.
Assistant City Manager

Attachment

c: The Honorable Mayor and Members of the City Council
Mary K. Suhm, City Manager
Thomas P. Perkins Jr., City Attorney
Deborah Watkins, City Secretary
Craig Kinton, City Auditor
Judge C. Victor Lander, Judiciary
Ryan S. Evans, First Assistant City Manager
Jill A. Jordan, P.E., Assistant City Manager
A.C. Gonzales, Assistant City Manager
David O. Brown, Interim Assistant City Manager
David Cook, Chief Financial Officer
Jeanne Chipperfield, Director, Office of Financial Services
Helena Stevens-Thompson, Assistant to the City Manager, Council Office
Jody Puckett, P.E., Director, Dallas Water Utilities



**City of Dallas – Water Utilities Department
Southside Wastewater Treatment Plant
Renewable Energy Leasing Project**

**Presented to the TEC
September 8, 2008**



**Southside Wastewater Treatment Plant
Renewable Energy Leasing Project**

- ◆ **The objective of this briefing is to provide an update on how the Southside Wastewater Treatment Plant Renewable Energy Project can help reduce the City's electrical costs and further it's goal of becoming a greener City.**

Briefing Outline

- ◆ Project Background and Drivers
- ◆ What is Biogas
- ◆ Southside Wastewater Treatment Process
- ◆ Renewable Energy Leasing Project Details
- ◆ Total Emissions Comparisons
- ◆ Benefits Associated with the Project
- ◆ Project Schedule
- ◆ Questions

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Project Background and Drivers

- ◆ **Wastewater Residuals Master Plan (1994)**
 - Recommended consolidation of solids processing and disposal at Southside Wastewater Treatment Plant (SWWTP) and the construction of a Cogeneration Facility to convert the biogas being produced into electricity
- ◆ **Texas Senate Bill 7 (1999)**
 - Set goals for electricity generation from renewable energy resources and established rules for buying and selling renewable energy credits (REC's)
- ◆ **Texas Senate Bill 5 (2001)**
 - Required political subdivisions to reduce energy consumption by 5% each year for five years. Program was renewed for another 5 years in 2007 with the passage of Senate Bill 12

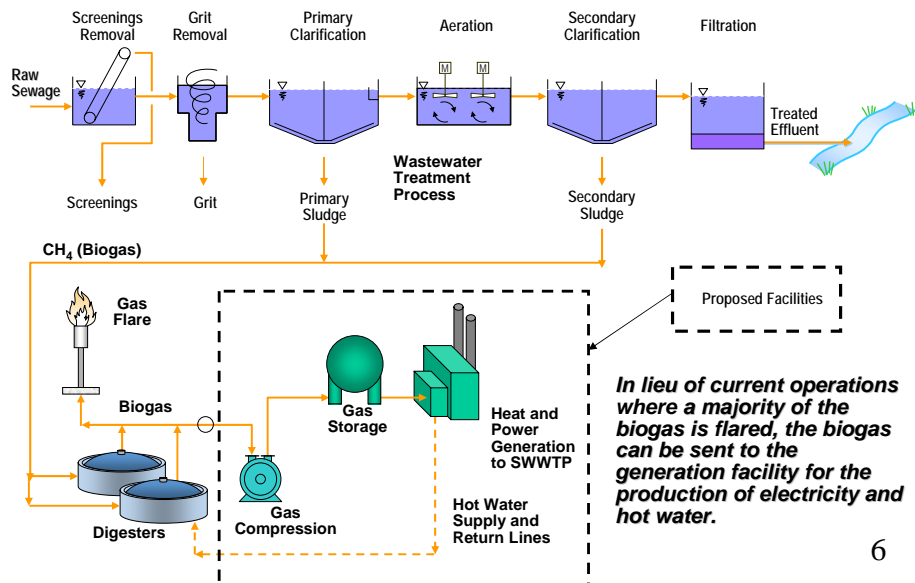
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What is Biogas?

- ◆ Biogas is the methane (CH_4) produced as a by-product of the anaerobic digestion process at the Southside Wastewater Treatment Plant
- ◆ DWU's biogas is currently used to fire boilers to heat the digesters, but a large portion is burned off in flares
- ◆ Bio-Gas is a renewable fuel source that can be used to generate electricity in lieu of using coal or natural gas

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Southside Wastewater Treatment Process



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Renewable Energy Leasing Project – City Responsibilities

- ◆ **Lease a 2.5 acre tract of land (leased premises) at SWWTP to the Lessee/Developer for the proposed Cogeneration Facility**
- ◆ **Provide for the construction of all utility extensions to the lease premises necessary to support the Cogeneration facility (estimated cost \$7M)**
- ◆ **Guarantee to supply a minimum quantity of biogas to the Lessee/Developer**
- ◆ **Purchase all electricity produced by the Cogeneration facility**

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Renewable Energy Leasing Project – Lessee/Developer Responsibilities

- ◆ **Finance, design, permit, build, operate and maintain the Cogeneration Facility**
- ◆ **Provide a base rental payment to the City for the use of the leased premises (\$1,000/yr)**
- ◆ **Provide the City a guaranteed minimum amount of electricity at a fixed price escalated 1.5% annually for the twenty year lease term**
- ◆ **Provide the City a guaranteed minimum amount of hot water for heating on-going operations of digesters and boilers**

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Total Emissions Comparisons

- ◆ Emissions comparison looked at current system (assumes coal fired power) vs. proposed cogeneration system
- ◆ Below is the comparison in tons/year:

<u>CURRENT</u>		<u>PROPOSED</u>
56055	Carbon Dioxide (CO ₂)	15899
243	Particulate Matter (PM)	4
48	Mercury (Hg)	0
115	Carbon Monoxide (CO)	93
12	Sulfur Oxide (SOX)	1
13	VOC's	8
29	Nitrogen Oxides (NO _x)	27

(NOTE: Proposed cogeneration system increases emissions at the SWWTP but **reduces overall emissions in the region**)

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Benefits of the Project

- ◆ Proposed facility will produce 30,000,000 kWh per year reducing purchased power by 60% at SWWTP
- ◆ Since the cost of electricity to be provided by the Lessee/Developer will be substantially less than cost from TXU/Brazos, the resulting savings to be realized is estimated at \$1.6M net per year over the twenty year term of the lease
- ◆ This project will generate approximately 30,000 Renewable Energy Credits (REC's) per year. At the current market value of \$7.50/REC, the monetary value to the City will be \$225,000/year
- ◆ The REC's generated by this project may also be used for other purposes such as points contributing towards LEED's certification

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Benefits of the Project (cont'd)

- ◆ This project will help the City comply with Texas Senate Bills 5 and 12
- ◆ This project will provide a fourth source of electricity to SWWTP which will increase the service reliability at the plant
- ◆ Other than the cost to extend utilities to the leased premises, this project will not require any capital outlay to implement
- ◆ This project will not require any additional labor or skill set above and beyond DWU's current staff complement and capabilities
- ◆ New cogeneration system results in an overall reduction in emissions

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Proposed Schedule

TASK NAME	2008				2009												2010 - 2029		
	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	DEC	
I. Award Project	●																		
II. Notice to Proceed		●																	
III. Facility Construction																			
IV. Facility In Operation																			

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Questions?