

## San Mateo County Community College District Energy Services Program

**Co-generation Project Status Report**

September 10, 2003

# Co-Generation Project Benefits

## SMCCCD Benefits

Lower utility costs

## Community Benefits

Project is utilizing local San Mateo County contractors for the majority of the construction work and has already provided jobs to 25+ tradesmen.

# Project Status



## Co-gen Construction

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# Co-Generation Systems

A co-generation system is a collection of equipment which is capable of the simultaneous production of electricity and thermal energy (heat).

By minimizing electrical transmission losses and harnessing the waste heat from power generation, the SMCCCD will be able to produce its own power cheaper than it can buy it from PG&E.

## CSM

560 kW system providing 46% of the campus' electricity

## Skyline College

375 kW system providing 50% of the campus' electricity

**Together, the CSM & Skyline College co-generation systems will save the San Mateo County Community College District \$475,000 per year.**

# Co-Generation Systems



**College of San Mateo**

# Co-Generation Systems



**Skyline College**



# Co-Generation Systems

Frequently asked questions...

## What technologies were evaluated?

- Reciprocating engines
- Fuel cells
- Microturbines
- Photovoltaic (solar power)
- Wind

# Co-Generation Systems

Frequently asked questions...

## **What technology was selected and why?**

Natural gas fired reciprocating engines were selected because:

- They have the ability to modulate or “track” the campus’ electrical load.
- The majority of their waste heat can be utilized to provide space, pool and domestic water heating.
- They have lower procurement & construction costs.

# Co-Generation Systems

Frequently asked questions...

## **If the co-gen units use natural gas, won't that drive up the District's utility bills?**

Unlike residential and small business customers, the San Mateo County Community College District is in the unique position of being able to secure long-term commodity contracts which shield them from the volatility in natural gas pricing. During certain periods of the year, the District will be paying up to 75% less for natural gas than other customers.

# Co-Generation Systems

Frequently asked questions...

## **Will they be noisy?**

The co-gen containers have sound dampening insulation and the exhaust stacks have silencers. The expected noise level is 65 decibels.

Compare with...

- 50 dB - Refrigerator
- 60 dB - Normal conversation
- 70 dB - Air conditioning unit
- 90 dB - Blender

# Co-Generation Systems

Frequently asked questions...

## **Will they pollute the environment?**

The co-gen systems meet the very stringent 2003 California Air Resources Board standards for emissions. When scaled for size, the SMCCCD co-gen systems will produce 50% less pollution than the average fossil fuel power plant.

Additionally, because the co-gen systems produce hot water, the 60's era boiler plants need not be operated as frequently. The SMCCCD co-gen units will produce 35% less emissions than the existing boiler plants.