POTENTIAL CAPACITY – WASTE HEAT
Florida Industrial Cogeneration Association

FPSC Docket No. 080503-EI
August 11, 2008

SOURCE	Company Name:		Florida Industrial Cogeneration Association	Florida Industrial Cogeneration Association
	Applicable Utility Service Area	(if any)	Florida Power & Light, Progress Energy, Tampa Electric	Florida Power & Light, Progress Energy, Tampa Electric
	Energy Resource:	(Individual Type)	Waste heat from sulfuric acid manufacturing process	Waste heat from sulfuric acid manufacturing process
	Energy Resource Type:	(Category)	Waste Heat	Waste Heat
	Resource Scale	(Unit or Aggregate)	UNIT --Heat recovery technology available in 8 MW increments (1)	AGGREGATE -- 140 MW
	Unit Status	(Existing or Planning)	Potential	Potential
COMMERCIAL AVAILABILITY	Typical Unit Annual Capacity Rating	(MW)	Increments of about 8 MW dependent on site specifics(2)	140 MW aggregate potential new generating capacity
	Earliest Commercial In-Service Date	(Year)	2010	2010
	Typical Construction & Permitting Time	(Years)	2 to 3 years	2 to 3 years
	Useful Life of Unit	(Years)	30 years	30 years
	Fuel Type		**No fuel** used except minimal natural gas or oil for startup	**No fuel** used except minimal natural gas or oil for startup
PERFORMANCE CHARACTERISTICS	Contribution to Summer Peak Demand	(MW)	Heat recovery technology available in 8 MW increments	140 MW aggregate potential new generating capacity
	Contribution to Winter Peak Demand	(MW)	Heat recovery technology available in 8 MW increments	140 MW aggregate potential new generating capacity
	Average Annual Heat Rate	(BTU/kWh)	Not applicable/available(3)	Not applicable/available(3)
	Equivalent Availability Factor	(%)	95%	95%
	Average Annual Generation	(MWH)	Estimated at 55,000 MWH	Estimated at 1,000,000 MWH
	Resulting Capacity Factor	(%)	Approximately 80%(2)	Approximately 80%(2)

ENVIRONMENTAL CHARACTERISTICS	Emission Rates	Carbon Dioxide (CO_2)	(lb/kWh)	**ZERO** lb/kWh	**ZERO** lb/kWh
		Sulfur Dioxide (SO_2)	(lb/kWh)	**ZERO** lb/kWh	**ZERO** lb/kWh
		Nitrogen Oxide (NO_X)	(lb/kWh)	**ZERO** lb/kWh	**ZERO** lb/kWh
		Mercury (Hg)	(lb/kWh)	**ZERO** lb/kWh	**ZERO** lb/kWh
		Water Usage	(gal/kwh)	**ZERO** lb/kWh	**ZERO** lb/kWh
ESTIMATED COST DATA		First Year of Commercial Operation	(Year)	2010	2010
	Installed Capital	Cost[1]	($/kw)	$3,500 to $4,000 per kW in 2008 dollars(4)	$3,500 to $4,000 per kW in 2008 dollars(4)
		Escalation Rate	(%)	Greater of 5% or CPI	Greater of 5% or CPI
	O & M - Fixed	Cost[1]	($/kw-year)	$40/kW-year (estimated and subject to change)	$40/kW-year (estimated and subject to change)
		Escalation Rate	(%)	Greater of 5% or CPI	Greater of 5% or CPI
	O & M - Variable	Cost[1]	($/kwh)	Not available at this time	Not available at this time
		Escalation Rate	(%)	Not available at this time	Not available at this time
	Fuel	Cost[1]	($/kwh)	Not Applicable - nominal natural gas or oil for start up	Not Applicable - nominal natural gas or oil for start up
		Escalation Rate	(%)	Not Applicable and/or not available at this time	Not Applicable and/or not available at this time
		Discount Rate	(%)	Not Applicable	Not Applicable
		Levelized Cost[2] - Life of Unit	(cents/kwh)	10 cents/kWh (2008 dollars) plus annual CPI excluding energy (4)	10 cents/kWh (2008 dollars) plus annual CPI excluding energy(4)

FOOTNOTES: See Next Sheet

FOOTNOTES / ADDITIONAL NOTES

(1) The latest technology for additional waste heat recovery is typically available in increments of approximately 8 megawatt as a retrofit to existing sulfuric acid plants or as original equipment on new plants. Depending on site specifics incremental generating capacity could be as small as 8 megawatt or multiples of 8 megawatts

(2) The data forms request information sufficient to calculate and compare "effective" capacity contributions each technology. FICA strongly encourages the Commission to do so. For Example:

An 800 mW coal plant, with an installed cost of $4 Billion would equate to a nominal installed cost $5,000 per kW. Assuming an 80% capacity factor, the effective capacity would be 640 mW and the effective cost would be $6250 per kW. (**This cost does not include the cost of fuel or environmental costs which are substantial**)

An 80 mW solar facility with an installed cost of $500 Million would equate to a nominal installed cost of $ $6,250 per kW. Assuming a 22% capacity factor, the effective capacity would be 17.6 mW and the effective cost would be in excess of $**28,000 per kW**. (**This cost does not include environmental costs associated with some solar technologies**.)

At $4,000 per kW), the effective installed cost of waste heat capacity would be $5,000 per kW - over 80% less than the effective cost of solar. Waste heat has all the positive attributes of solar photo-voltaic but at a much lower nominal and effective capacity cost per kW. Like solar photo-voltaic, **waste heat has zero environmental costs or impacts**.

(3) Waste heat produces both process steam for manufacturing and byproduct electricity. As such, heat rate in the sense of a dedicated "fuel consuming" generating plant is not monitored or applicable in this instance.

(4) This number is a representative estimate that can vary by specific application and various facility specific factors.

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RESPECTFULLY submitted the 11th day of August, 2008.

/s/ *Richard A. Zambo*

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