

REDACTED

041393-EI

GENERIC UNIT CHARACTERISTICS for ALL TECHNOLOGIES - Florida (a)

8142 MW 89050

TECHNOLOGY NAME	Advanced Fluidized Bed (b)	Coal Gasification Combined Cycle		Pulverized Coal (b)		Combined Cycle (2x2x1 Configuration)		Aero Non-augmented Nominal 45 MW		Combustion Turbines Aero Augmented Nominal 47 MW		Frame Aero Augmented Nominal 80 MW	
	(annual)	(winter)	(summer)	Sub-Crit (annual)	Super-crit (annual)	(winter)	(summer)	(winter)	(summer)	(winter)	(summer)	(winter)	(summer)
Net Unit Capacity, MAX (MW)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Min Rating (%)													
Net Unit Capacity, MIN (MW)													
Max # of Units/Site	2	2	2	2	2	2	2	8	8	8	8	8	8
Total Site Capacity (MW)													
Total Plant Cost/Unit (\$/kW)													
Start-up (\$/kW)													
Royalties (\$/kW)													
Land (\$/kW)													
Inventories (\$/kW)													
Total Investment (\$/kW)													
Total Plant Cost/Unit (K\$)	616,589	735,346		521,008	566,651	222,972		30,120		32,280		36,495	36,496
Total Capital Required (\$/kW)													
Fixed O&M (\$/kW-yr)													
Pipeline Reservation Fee (¢)	n/a	n/a	n/a	n/a	n/a	31.32	35.11	21.74	26.98	22.87	26.37	26.87	33.34
Nuclear D&D Fund	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
TOTAL FO&M													
Variable O&M (\$/MWh)													
Non-escalating Nuclear Back-end Cost	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
TOTAL VO&M													
Full Load Heat Rate (Btu/kWh)													
75%													
50%													
25%													
Equip. FOR (%)													
Maint. Outage (Wks/yr)													
Book Life (Years)													
Tax Life (Years)													
Construct Time (Years) (2)													
Cash Flow (\$/yr) (3)													
Levelized Fixed Charge Rate (%)	13.03%	14.35%	14.35%	13.02%	13.02%	14.11%	14.11%	13.43%	13.43%	13.43%	13.43%	13.48%	13.48%
1st Year Charge Rate (%)	18.01%	19.61%	19.61%	18.01%	18.02%	19.17%	19.18%	18.77%	18.77%	18.77%	18.77%	18.83%	18.83%
Cumulative PV CC (%)	152.77%	151.15%	151.15%	152.75%	152.68%	148.63%	148.63%	141.51%	141.51%	141.51%	141.51%	141.94%	141.94%
NOx Emission Rates (lb/mmBtu) (4)													

FUEL DATA

Sulfur Removed (4)

GLOBAL DATA (5)

Start Year = 2004

Discount Rate = 8.16%

Escalation Rate = 2.50%

M-Slope (Used For Reliability) = 274

NOTES

- Except for CC's and CT's, costs are based on TAG version 6.1 escalated to 2004\$. CC and CT capital costs are based on the 2004 TAG pre-release. Max Rating is for a single unit, not the plant. Costs are based on multiple units per site.
- Coal technologies include mercury control costs as follows: ~\$25/kW capital, ~\$1.00/kW-yr FO&M, and ~\$0.12/MWh VO&M.
- Incremental augmentation costs are the average of Evaporative Cooling and Fogging technologies.
- Includes cost of generation module replacements over 30 years.
- Nuclear Decommissioning Fund costs should be modeled as escalating at the same rate as O&M up to the installation year then held constant. Back-end costs do not escalate.
- Does NOT include impact of the "Production Tax Credit."
- Based on PMDb element "FL_CT & CC Assumptions_2004_0211.xls"; all rates are NON-escalating. Heat rates from Summer 2003 TAG runs.
- Construction times shown represent the minimum time required to build a power plant under ideal conditions. It includes engineering, licensing, construction start-up, & power testing, but does not include site selection and other pre-licensing activities.
- Patterns represent the annual construction cash flows associated with various technologies. They are in percent of overnight construction costs.
- NOx Emission Rates and Sulfur Removal Rates are from TAG.
- Based on PMDb submittal "Financial_2003_1204.xls".

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GENERIC UNIT CHARACTERISTICS FOR ALL TECHNOLOGIES - Florida (a)

TECHNOLOGY NAME	Net Unit Capacity, MAX (MW)		Net Unit Capacity, MIN (MW)		Max. # of Units/She		Total Site Capacity (MW)		Total Plant Cost/Unit (\$/kW)		Start-up (\$/kW)		Royalties (\$/kW)		Land (\$/kW)		Inventories (\$/kW)		Total Investment (\$/kW)		Total Plant Cost/Unit (\$/kW)		Total Capital Required (\$/kW)		Fixed O&M (\$/kW-yr)		Pipeline Reservation Fee (r)		Nuclear D&D Fund		TOTAL FO&M		Variable O&M (\$/MW-h)		Non-escalating Nuclear Back-end Cost		TOTAL Y&M		Full Load Heat Rate (Btu/kWh)		75%		50%		25%		Equiv. FOR (%)		Maint. Outage (Wks/Yr)		Book Life (Years)		Tax Life (Years)		Construct Time (Years) (2)		Cash Flow (\$/kW-yr) (3)		Levelized Fixed Charge Rate (%)		Net Year Charge Rate (%)		Cumulative PV CC (%)		NOx Emission Rates (lb/mmBtu) (4)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							

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NOTES

- Except for CC's and CT's, costs are based on TAG version 6.1 escalated to 2004\$. CC and CT capital costs are based on the 2004 TAG pre-release. Max Rating is for a single unit, not the plant. Costs are based on multiple units per site.
- Coal technologies include mercury control costs as follows: ~\$25/kW-capital, ~\$1.00/kW-yr FO&M, and ~\$0.12/MWh VO&M.
- Incremental augmentation costs are the average of Evaporative Cooling and Fogging technologies.
- Includes cost of generation module replacements over 30 years.
- Nuclear Decommissioning Fund costs should be modeled as escalating at the same rate as O&M up to the installation year then held constant. Back-end costs do not escalate.
- Does NOT include impact of the "Production Tax Credit."
- Based on PMDB element "FL, CT & CC Assumptions_2004_021.xls"; all rates are NON-escalating. Heat rates from Summer 2003 TAG runs.
- Construction times show the minimum time required to build a power plant under ideal conditions. It includes engineering, licensing, construction start-up, & power testing, but does not include site selection and other pre-licensing activities.
- Patterns represent the annual construction cash flows associated with various technologies. They are in percent of overnight construction costs.
- NOx Emission Rates and Sulfur Removal Rates are from TAG.
- Based on PMDB submittal "Financial_2003_1204.xls".

PHASED CONSTRUCTION COSTS for VIABLE TECHNOLOGIES - Florida

(Based on TAG version 6.1, Summer 2003 runs)

	A	B	C	D	E	F
	Atmospheric Fluidized Bed		Pulverized Coal			
	Winter		Sub-Crit	Super-crit	Winter	Summer
			Annual	Annual		
COAL						
Total Investment (\$/kW)						
# of Units/Site	4	2	2	2	2	2
Unit Size						
Total Project Cost (Unit-\$/kW)						
Total Plant Cost for 1st Unit (\$/kW)						
Remaining Project Cost (Unit-\$/kW)						
# of Remaining Units	3		1	1	1	1
incr. Cost of Remaining Units (\$/kW)						
Scalar						
Total Cost for 1st Unit (K\$)	448,749	643,559	561,430	610,615	836,572	836,575
Total Cost for Remaining Units (K\$)	884,428	589,619	480,585	522,686	634,121	634,124
TOTAL PROJECT COST (K\$)	1,233,178	1,233,178	1,042,015	1,133,302	1,470,693	1,470,699
Seasonal Difference						

	G	H	I	J	K	L	M	N	O	P
	Nominal 45 MW Aero Non-augmented		Nominal 47 MW Aero Augmented		Nominal 80 MW Frame Non-Augmented		Nominal 170 MW Frame Non-Augmented		Nominal 170 MW Frame Augmented	
	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer
COMBUSTION TURBINES										
Total Investment (\$/kW)										
# of Units/Site	8	8	8	8	8	8	4	4	4	4
Unit Size										
Total Project Cost (Unit-\$/kW)										
Total Plant Cost for 1st Unit (\$/kW)										
Remaining Project Cost (Unit-\$/kW)										
# of Remaining Units	7	7	7	7	7	7	3	3	3	3
incr. Cost of Remaining Units (\$/kW)										
Scalar										
Total Plant Cost for 1st Unit (K\$)	34,384	34,384	35,947	35,947	40,868	40,869	62,011	62,011	63,284	63,283
Total Cost for Remaining Units (K\$)	206,577	206,579	222,295	222,295	251,094	251,096	160,235	160,236	163,525	163,524
TOTAL PROJECT COST (K\$)	240,961	240,963	258,242	258,242	291,962	291,965	222,246	222,246	226,808	226,807
Seasonal Difference										

		R
	Nominal 515 MW 2x2x1 Combined Cycle Non-Augmented	
	Winter	Summer
COMBINED CYCLES		
Total Investment (\$/kW)		
# of Units/Site	2	2
Unit Size		
Total Project Cost (Unit-\$/kW)		
Total Plant Cost for 1st Unit (\$/kW)		
Remaining Project Cost (Unit-\$/kW)		
# of Remaining Units		
incr. Cost of Remaining Units (\$/kW)		
Scalar		
Total Plant Cost for 1st Unit (K\$)	248,852	248,847
Total Cost for Remaining Units (K\$)	197,091	197,087
TOTAL PROJECT COST (K\$)	445,943	445,934
Seasonal Difference		

NOTES:

Total Plant Cost = "Overnight" Unit Cost plus Owner Costs plus Mercury Controls Costs (if applicable). Does NOT include AFUDC

Assumes the first unit is more heavily weighted and the remaining units are equally weighted.

Total Plant Cost for 1st Unit = Total Plant Cost divided by the Scalar.

Scalars are from 07/10/03 EPRI submittal.

Total Plant Costs are from the Summer 2003 TAG analysis escalated to 2004\$.

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CORPORATE STANDARD ASSUMPTIONS
for **LONG-RANGE GENERIC PLANNING - Florida**

	A	B	C	D	E
	PULVERIZED COAL	COMBINED CYCLE		SIMPLE CYCLE	
	Sub-Critical	Nominal 170 MW CTs 2x2x1 Configuration		Nominal 170 MW Augmented FRAME	
	<u>annual</u>	<u>winter</u>	<u>summer</u>	<u>winter</u>	<u>summer</u>
Net Unit Capacity, MAX (MW)					
Number of Units/Plant	2	2	2	4	4
Total Plant Cost/Unit (\$/kW)					
Start-up (\$/kW)					
Royalties (\$/kW)					
Land (\$/kW)					
Inventories (\$/kW)					
Total Investment (\$/kW)					
Total Plant Cost/Unit (K\$)	521,008	222,972		56,702	
Fixed O&M (\$/kW-Yr)					
Book Life (Years)	40	25		25	
Tax Life (Years)	20	20		15	
Construct Time (Years)	5	3		2	
Cash Flow (%/Yr)					

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NOTES:

- 1) This information was developed for long-range resource planning applications. Use for any other purpose should be checked by Resource Planning Unit to determine appropriateness.
- 2) All costs are "overnight" and do not include AFUDC. Except for CC's and CT's, costs are based on TAG version 6.1 escalated to 2004\$. CC and CT capital costs are based on the 2004 TAG pre-release. Max Rating is for a single unit, not the plant. Costs are based on multiple units per site.
- 3) Construction times shown represent the minimum time required to build a power plant under ideal conditions. It includes engineering, licensing, construction start-up, & power testing, but does not include site selection and other pre-licensing activities.
- 4) Patterns represent the annual construction cash flows associated with various technologies. They are in percent of overnight construction costs.
- 5) Coal technologies include mercury control costs as follows: ~\$25/kW capital, ~\$1.00/kW-yr FO&M, and ~\$0.12/MWh VO&M.

DATE

04/07/04

Copy of FL_Generic Unit Char_2004_0405.xls.

NOTES

Recalculated FO&M and VO&M for CGCC and CC to correspond to summer rating changes that were previously made based on Hines CC4 summer:winter ratios.

Please click on the link below for the assumptions file:
[FL_Generic Unit Assumptions_2004_0407.doc](#)