

EXHIBIT NO. _____ (CJB-11)
DOCKET NO. _____
2003 POWER COST ONLY RATE CASE
WITNESS: CHARLES J. BLACK

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,

Complainant,

Docket No. _____

v.

PUGET SOUND ENERGY, INC.,

Respondent.

DIRECT TESTIMONY OF
CHARLES J. BLACK
ON BEHALF OF PUGET SOUND ENERGY, INC.

Exhibit CJB-11
 Generic Resource Characteristics for April 2003 LCP¹

Cost and Performance Characteristics

Technology	Capacity (mw)	Heat Rate (btu/kwh)	All-In Cost (\$/kw)	Fixed O&M (\$/kw)	Fixed Fuel (\$/kw)	Variable O&M (\$/mwh)
CCCT	516	6,900	645	11.00	15.55	2.00
SCCT	168	11,700	441	3.00	15.74	2.00
Duct Firing	80	9,100	150	0	15.55	2.00
Coal	900	9,425	1,500	20.0	0	2.00
Wind	100	0	1,003	26.10	0	0
Solar	20	0	6,000	15.00	0	0.80

The CCCT represents a two-by-one configuration – two turbines with a heat recovery system. These plants are typically scaled by increments of about 250 MW, with variations around those figures depending on specific configurations.

The SCCT represents a lower-cost traditional peak using “frame” FA or EA gas turbines in simple cycle. More expensive aero-derivative plants are available which have a better heat rate at a much higher cost. Throughout the industry and its literature, one can find a wide variety of capacities, heat rates and costs for the numerous simple cycle options. The least-cost option is site and application dependent. The costs provided by Tenaska are based on the same assumptions as the combined cycle and coal plants which allows for a fair comparison between the technologies. For example, the SCCT listed starts with an EPC cost (engineering, procurement and construction) of \$327/kw before taking into account “soft” costs such as insurance, contingencies, and costs related to financing, startup and spares etc. before arriving at a total installed capacity cost of \$441/kw.

The coal plant represents a new site with a supercritical boiler design. An alternative would be a plant with two percent to four percent lower costs but with a two percent to four percent higher heat rate. Again the least-cost option depends upon the site and application.

¹ Source: April 2003 Least Cost Plan, Appendix K, p. 6. Table revised 10/21/03 to include Duct Firing assumptions.

The wind plant is based on the assumption that 100 MW is necessary to achieve economies of scale.