

2019 IRP Electric Supply-Side Resources - Thermal

Draft 7/24/18

2018 \$	Units	Frame Peaker		CCCT	Recip Peaker					
		1x0 F-Class Dual Fuel CT (NG)	1x0 F-Class Dual Fuel CT (FO)	1x1 F-Class CC (NG Only)	12x0 18 MW Class RICE (NG Only)	12x0 18 MW Dual Fuel RICE (NG)	12x0 18 MW Dual Fuel RICE (FO)			
ISO Capacity Primary	MW	225	217	336	219	201	173			
Winter Capacity Primary (23° F)	MW	237	229	348	219	201	173			
Capacity DF (At ISO)	MW			19						
Capital Cost + Duct Fire*	\$/KW			\$825				\$1,167	\$1,192	\$1,357
O&M Fixed	\$/KW-yr			\$3.93				\$13.44	\$3.74	\$4.12
Flexibility	\$/KW-yr									
O&M Variable	\$/MWh			\$0.69				\$2.45	\$5.30	\$5.80
Start Up Costs	\$/Start			\$6,502						
Capacity Credit	%									
Operating Reserves	%	3%	3%	3%	3%	3%	3%			
Forced Outage Rate	%	2.38%	2.38%	3.88%	3.30%	3.30%	3.30%			
Heat Rate – Baseload (HHV)	Btu/KWh	9,904	10,985	6,624	8,445	8,582	8,780			
Heat Rate – Turndown (HHV)	Btu/KWh	15,794	12,856	7,988	11,288	11,471	11,736			
Heat Rate – DF	Btu/KWh			6,724						
Min Capacity	%	30%	50%	38%	30%	30%	30%			
Start Time (hot)	minutes	21	21	45	5	5	5			
Start Time (warm)	minutes	21	21	60	5	5	5			
Start Time (cold)	minutes	21	21	150	5	5	5			
Start up fuel (hot)	mmBtu	366	338	839	69	69	57			
Start up fuel (warm)	mmBtu	366	338	1,119	69	69	57			
Start up fuel (cold)	mmBtu	366	338	2,797	69	69	57			
Location		PSE	PSE	PSE	PSE	PSE	PSE			
Fixed Gas Transport	\$/Dth/Day	\$0.00		\$0.84	\$0.84	\$0.00				
Fixed Gas Transport	\$/KW-yr	\$0.00		\$49.01	\$62.48	\$0.00				
Variable Gas Transport	\$/MMBtu	\$0.04		\$0.06	\$0.06	\$0.04				
Fixed Transmission	\$/KW-yr	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			
Variable Transmission	\$/MWh	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			
Emissions:										
CO ₂ - Natural Gas	lbs/MMBtu	118		118	118	122				
CO ₂ - Distillate Fuel Oil	lbs/MMBtu		160				160			
NOx - Natural Gas	lbs/MMBtu	0.004		0.008	0.029	0.037				
NOx - Distillate Fuel Oil	lbs/MMBtu		0.014				0.130			
First Year Available		2022		2023	2023	2023	2023			
Economic Life	Years	30	30	30	30	30	30			
Greenfield Dev. & Const. Lead-time	years	1.8	1.8	2.7	2.3	2.3	2.3			