

**FUEL CELL OPERATING COST - PRELIMINARY
for Apollo power Plant Hybrid Model 106-B**

F U E L >	Hydrogen (Liquid)	Hydrogen (Liquid)		n-Butane		Methanol		Ammonia Anhyd.	Ammonia 29.0%		Methane	Natural Gas		LPG (Propane)
Chemical Symbol	H	H		C ₄ H ₁₀		CH ₃ OH		NH ₃			CH ₄	96% CH ₄		96% C ₃ H ₈
Power consumption (kWh/day)	131.3	131.3		131.3		131.3		131.3	131.3		131.3	131.3		131.3
System efficiency (%)	66.0	66.0		40.0		42.0		50.0	45.0		40.0	40.0		40.0
Fuel consumption (kWh/day)	199.0	199.0		328.3		312.7		262.7	291.8		328.3	328.3		328.3
Fuel consumption (MJ/day) (1 kWh = 3.6 x 10 ⁵ J)	716.3	716.3		1182.0		1125.7		945.6	1050.6		1182.0	1182.0		1182.0
High Heat Value (HHV) (MJ/kg)	143.4	143.4		49.5		21.8		20.9	5.8		56.1	56.1		48.0
Fuel (kg)	5.0	5.0		23.9		51.6		45.2	181.0		21.1	21.1		24.6
Fuel (ft ³ as gas)	2114.2	2114.2		338.0				2075.0			1096.6	1096.6		468.0
Fuel (liters as liquid)	72.8	72.8		41.5		65.3		74.3			49.5	49.5		49.5
												Values =		Value =
												Methane		Propane
Fuel Cost Information	\$0.320	\$1.00-\$1.40				\$0.185		\$0.09-\$0.10	\$0.04-\$0.06			\$5-\$10		\$0.90-\$0.95
	per lb.	per lb.				per liter		per lb.	per lb.			per 1000 ft ³		Per gal.
						(\$.70/gal)								
	H2 Info Net as Liquid at producer site	H2 Info Net as Liquid delivered and stored				Methanex Barge Price FOB port		CF Ind. In 40,000 lb. Tanker FOB dist	LaRoche In 44,000 lb. Tanker FOB dist			EIA Charts Ave. Resid. 96% CH ₄		Teco Bulk undelivered 96% C ₃ H ₈
Calculation	\$0.32	\$1.20				\$0.185		\$0.095	\$0.05			\$7.50		\$9.25
Cost Per Day	\$3.52	\$13.20				\$12.08		\$9.45	\$19.95			\$8.23		\$12.10
Cost Per 30-Day Month	\$105.60	\$396.00				\$362.42		\$283.50	\$597.30			\$246.74		\$363.00