

HOMER Input Summary

File name: neopowerDG12.hmr

File version: 2.68 beta

Author:

AC Load: Primary Load 1

Data source: Synthetic

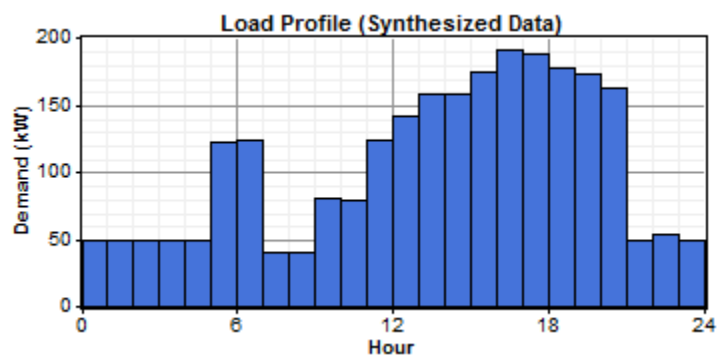
Daily noise: 2.5%

Hourly noise: 2.5%

Scaled annual average: 2,536 kWh/d

Scaled peak load: 257 kW

Load factor: 0.410



PV

Size (kW)	Capital (\$)	Replacement (\$)	O&M (\$/yr)
100.000	500,000	50,000	5,000

Sizes to consider: 0, 100 kW

Lifetime: 20 yr

Derating factor: 80%

Tracking system: Two Axis

Slope: 36 deg

Azimuth: 0 deg

Ground reflectance: 20%

Solar Resource

Latitude: 0 degrees 0 minutes North

Longitude: 0 degrees 0 minutes East

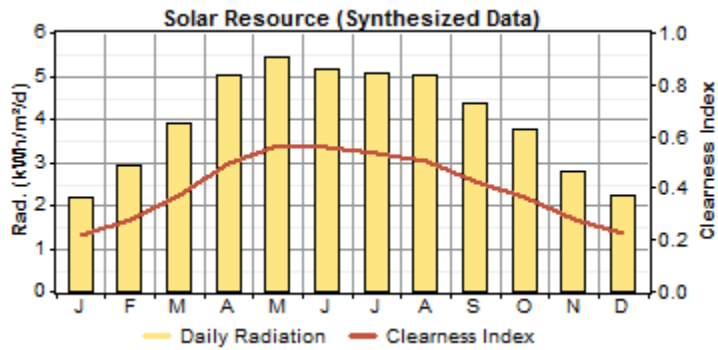
Time zone: GMT +0:00

Data source: Synthetic

Month	Clearness Index	Average Radiation
		(kWh/m ² /day)
Jan	0.216	2.170
Feb	0.281	2.920
Mar	0.371	3.900
Apr	0.494	5.040
May	0.564	5.450
Jun	0.557	5.180

Jul	0.539	5.080
Aug	0.505	5.010
Sep	0.424	4.380
Oct	0.363	3.760
Nov	0.276	2.790
Dec	0.223	2.210

Scaled annual average: 4.1, 8.0, 12.0 kWh/m²/d



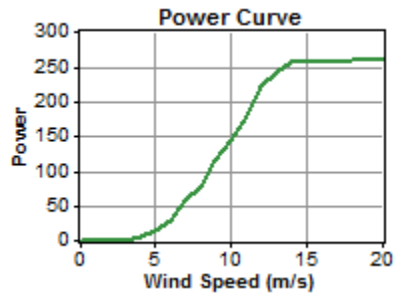
AC Wind Turbine: WES 30

Quantity	Capital (\$)	Replacement (\$)	O&M (\$/yr)
2	6,400,000	640,000	64,000

Quantities to consider: 1, 2, 4

Lifetime: 15 yr

Hub height: 25 m

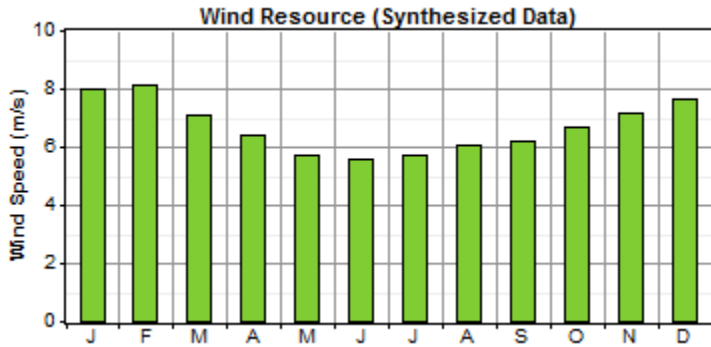


Wind Resource

Data source: Synthetic

Month	Wind Speed
	(m/s)
Jan	8.03
Feb	8.17
Mar	7.11
Apr	6.44
May	5.73
Jun	5.59
Jul	5.70
Aug	6.06
Sep	6.22

Oct	6.66
Nov	7.15
Dec	7.66

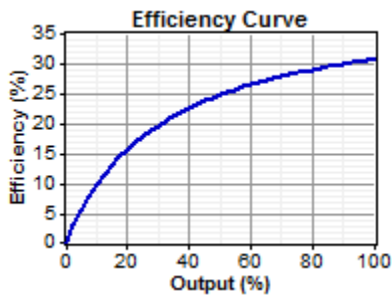


Weibull k: 2.00
 Autocorrelation factor: 0.850
 Diurnal pattern strength: 0.250
 Hour of peak wind speed: 15
 Scaled annual average: 6.7, 9.0, 12.0 m/s
 Anemometer height: 10 m
 Altitude: 0 m
 Wind shear profile: Logarithmic
 Surface roughness length: 0.01 m

AC Generator: Generator 1

Size (kW)	Capital (\$)	Replacement (\$)	O&M (\$/hr)
150.000	30,000	3,000	0.000

Sizes to consider: 0, 150 kW
 Lifetime: 15,000 hrs
 Min. load ratio: 30%
 Heat recovery ratio: 0%
 Fuel used: Diesel
 Fuel curve intercept: 0.08 L/hr/kW
 Fuel curve slope: 0.25 L/hr/kW

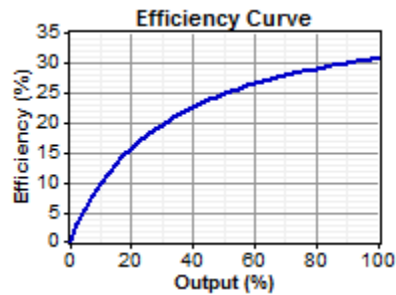


AC Generator: Generator 2

Size (kW)	Capital (\$)	Replacement (\$)	O&M (\$/hr)
150.000	30,000	3,000	0.000

Sizes to consider: 0, 150 kW
 Lifetime: 15,000 hrs
 Min. load ratio: 30%

Heat recovery ratio: 0%
 Fuel used: Diesel
 Fuel curve intercept: 0.08 L/hr/kW
 Fuel curve slope: 0.25 L/hr/kW



Fuel: Diesel

Price: \$ 1.6, 2.0, 3.0/L
 Lower heating value: 43.2 MJ/kg
 Density: 820 kg/m³
 Carbon content: 88.0%
 Sulfur content: 0.330%

Battery: Trojan L16P

Quantity	Capital (\$)	Replacement (\$)	O&M (\$/yr)
1	300	30	0.00

Quantities to consider: 3, 6
 Voltage: 6 V
 Nominal capacity: 360 Ah
 Lifetime throughput: 1,075 kWh

Converter

Size (kW)	Capital (\$)	Replacement (\$)	O&M (\$/yr)
400.000	80,000	24,000	8,000

Sizes to consider: 0, 400 kW
 Lifetime: 15 yr
 Inverter efficiency: 90%
 Inverter can parallel with AC generator: Yes
 Rectifier relative capacity: 100%
 Rectifier efficiency: 85%

Economics

Annual real interest rate: 6%
 Project lifetime: 20 yr
 Capacity shortage penalty: \$ 0/kWh
 System fixed capital cost: \$ 10,000
 System fixed O&M cost: \$ 0/yr

Generator control

Check load following: No
 Check cycle charging: Yes

Setpoint state of charge: 80%

Allow systems with multiple generators: Yes

Allow multiple generators to operate simultaneously: Yes

Allow systems with generator capacity less than peak load: Yes

Emissions

Carbon dioxide penalty: \$ 1.5/t

Carbon monoxide penalty: \$ 0/t

Unburned hydrocarbons penalty: \$ 0/t

Particulate matter penalty: \$ 0/t

Sulfur dioxide penalty: \$ 0/t

Nitrogen oxides penalty: \$ 0/t

Constraints

Maximum annual capacity shortage: 0%

Minimum renewable fraction: 0%

Operating reserve as percentage of hourly load: 10%

Operating reserve as percentage of peak load: 0%

Operating reserve as percentage of solar power output: 25%

Operating reserve as percentage of wind power output: 50%