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HOMER Input Summary

File name: yenhwa.hmr

File version: 2.68 beta

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AC Load: Primary Load 1

Data source: Synthetic

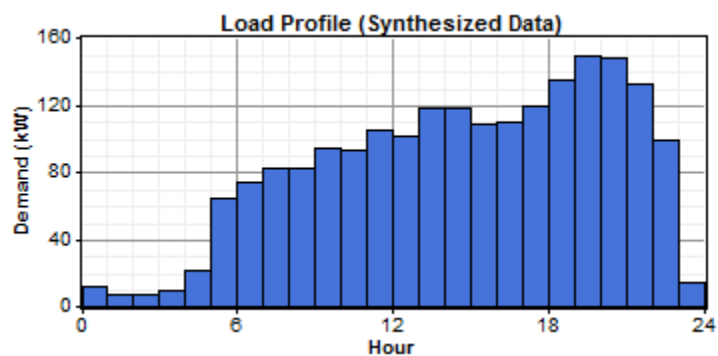
Daily noise: 15%

Hourly noise: 20%

Scaled annual average: 2,010 kWh/d

Scaled peak load: 268 kW

Load factor: 0.312



PV

Size (kW)	Capital (\$)	Replacement (\$)	O&M (\$/yr)
100.000	40,000	10,000	5,000

Sizes to consider: 0, 100, 200 kW

Lifetime: 20 yr

Derating factor: 80%

Tracking system: No Tracking

Slope: 35 deg

Azimuth: 0 deg

Ground reflectance: 20%

Solar Resource

Latitude: 34 degrees 59 minutes North

Longitude: 128 degrees 59 minutes East

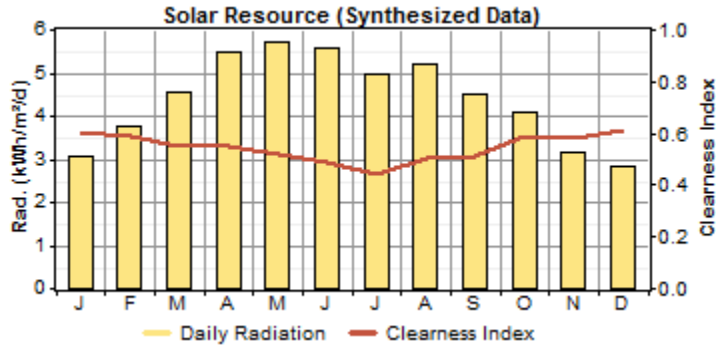
Time zone: GMT +9:00

Data source: Synthetic

Month	Clearness Index	Average Radiation
		(kWh/m ² /day)
Jan	0.603	3.070
Feb	0.589	3.780
Mar	0.552	4.540
Apr	0.552	5.500
May	0.517	5.740
Jun	0.485	5.590

Jul	0.440	4.970
Aug	0.504	5.220
Sep	0.514	4.520
Oct	0.593	4.110
Nov	0.584	3.140
Dec	0.611	2.860

Scaled annual average: 3.79, 8.00 kWh/m²/d



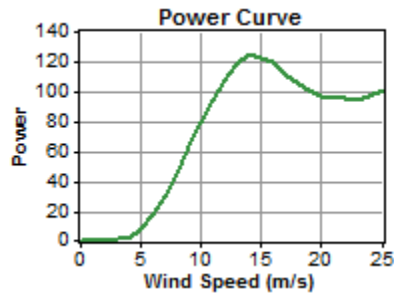
AC Wind Turbine: Fuhrländer 100

Quantity	Capital (\$)	Replacement (\$)	O&M (\$/yr)
5	75,000	3,000	1,500

Quantities to consider: 0, 5, 10, 15

Lifetime: 15 yr

Hub height: 25 m

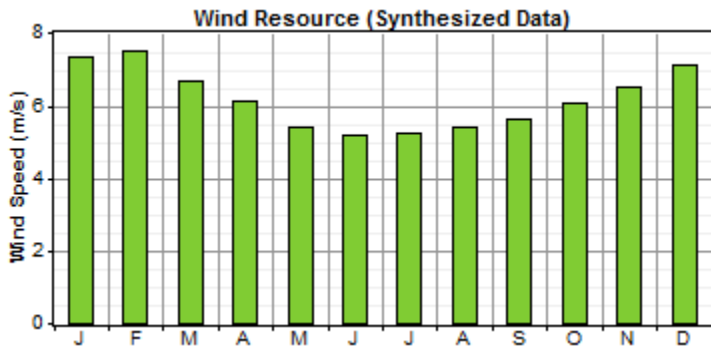


Wind Resource

Data source: Synthetic

Month	Wind Speed
	(m/s)
Jan	7.36
Feb	7.49
Mar	6.69
Apr	6.10
May	5.42
Jun	5.17
Jul	5.22
Aug	5.43
Sep	5.62

Oct	6.07
Nov	6.51
Dec	7.11

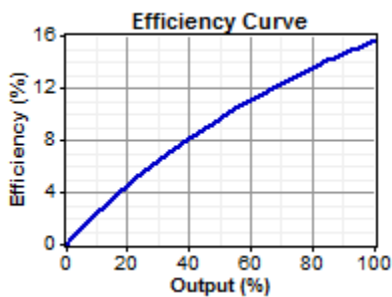


Weibull k: 2.00
 Autocorrelation factor: 0.850
 Diurnal pattern strength: 0.250
 Hour of peak wind speed: 15
 Scaled annual average: 6.18, 9.00 m/s
 Anemometer height: 50 m
 Altitude: 0 m
 Wind shear profile: Logarithmic
 Surface roughness length: 0.01 m

AC Generator: Generator 1

Size (kW)	Capital (\$)	Replacement (\$)	O&M (\$/hr)
150.000	20,000	2,000	100.000

Sizes to consider: 0, 150, 300, 450 kW
 Lifetime: 15,000 hrs
 Min. load ratio: 30%
 Heat recovery ratio: 0%
 Fuel used: Diesel
 Fuel curve intercept: 0.4 L/hr/kW
 Fuel curve slope: 0.25 L/hr/kW



DC Generator: Fuel Cell

Size (kW)	Capital (\$)	Replacement (\$)	O&M (\$/hr)
1.000	1,000	100	50.000

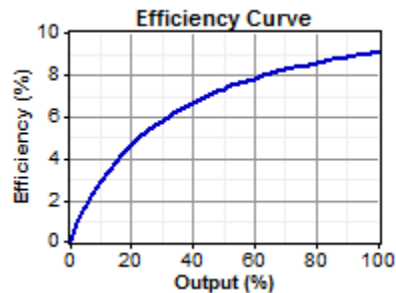
Sizes to consider: 0, 1 kW
 Lifetime: 15,000 hrs
 Min. load ratio: 0%

Heat recovery ratio: 0%

Fuel used: Stored hydrogen

Fuel curve intercept: 0.08 L/hr/kW

Fuel curve slope: 0.25 L/hr/kW



Fuel: Diesel

Price: \$ 1.7, 3.0/L

Lower heating value: 43.2 MJ/kg

Density: 820 kg/m³

Carbon content: 88.0%

Sulfur content: 0.330%

Battery: Vision 6FM200D

Quantity	Capital (\$)	Replacement (\$)	O&M (\$/yr)
1	36,363	7,000	70.00

Quantities to consider: 50

Voltage: 12 V

Nominal capacity: 200 Ah

Lifetime throughput: 917 kWh

Converter

Size (kW)	Capital (\$)	Replacement (\$)	O&M (\$/yr)
50.000	2,000	200	100
50.000	2,000	200	100

Sizes to consider: 0, 50, 100 kW

Lifetime: 15 yr

Inverter efficiency: 90%

Inverter can parallel with AC generator: Yes

Rectifier relative capacity: 100%

Rectifier efficiency: 85%

DC Electrolyzer

Size (kW)	Capital (\$)	Replacement (\$)	O&M (\$/yr)
10.000	1,000	100	50

Sizes to consider: 0, 10 kW

Lifetime: 15 yr

Efficiency: 85%

Min. load ratio: 0%

Hydrogen Tank

Size (kg)	Capital (\$)	Replacement (\$)	O&M (\$/yr)
2,000.000	1,000	100	50

Sizes to consider: 2,000 kg
 Lifetime: 25 yr
 Initial tank level: 10%
 Constrain year-end tank level: Yes

Economics

Annual real interest rate: 6%
 Project lifetime: 25 yr
 Capacity shortage penalty: \$ 0/kWh
 System fixed capital cost: \$ 0
 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: \$ 0/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: 0%
 Operating reserve as percentage of wind power output: 0%