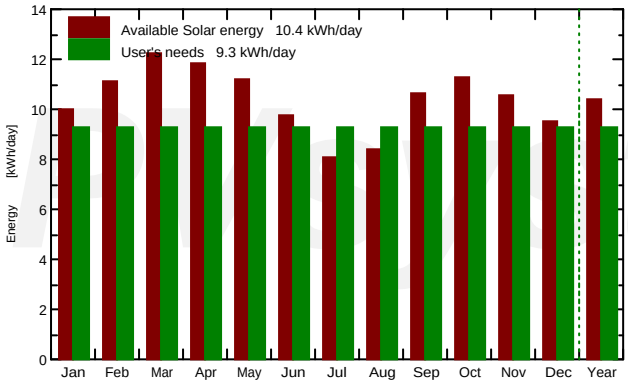
Stand-alone system presizing

Geographical Site	**Delhi/Safdarjung**			Country	**India**
Situation		Latitude	28.58° N	Longitude	77.20° E
Time defined as		Legal Time	Time zone UT+5.5	Altitude	212 m
Collector Plane Orientation		Tilt	30°	Azimuth	0°

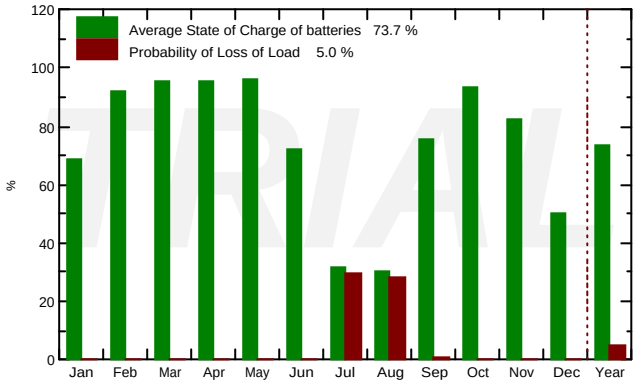
System pre-sizing evaluation

Average use of energy	Daily	9.3	kWh/day	Yearly	3392	kWh
Autonomy		2.0	days			
Loss-of-Load	Time fraction	5.0	%	Missing energy	62	kWh
Battery system	Voltage	48	V	Capacity	456	Ah
PV array	Nominal power	2114	Wp	Nominal Current	34	A
Economic gross evaluation	Investment	1181907	INR	Energy price	37.52	INR/kWh

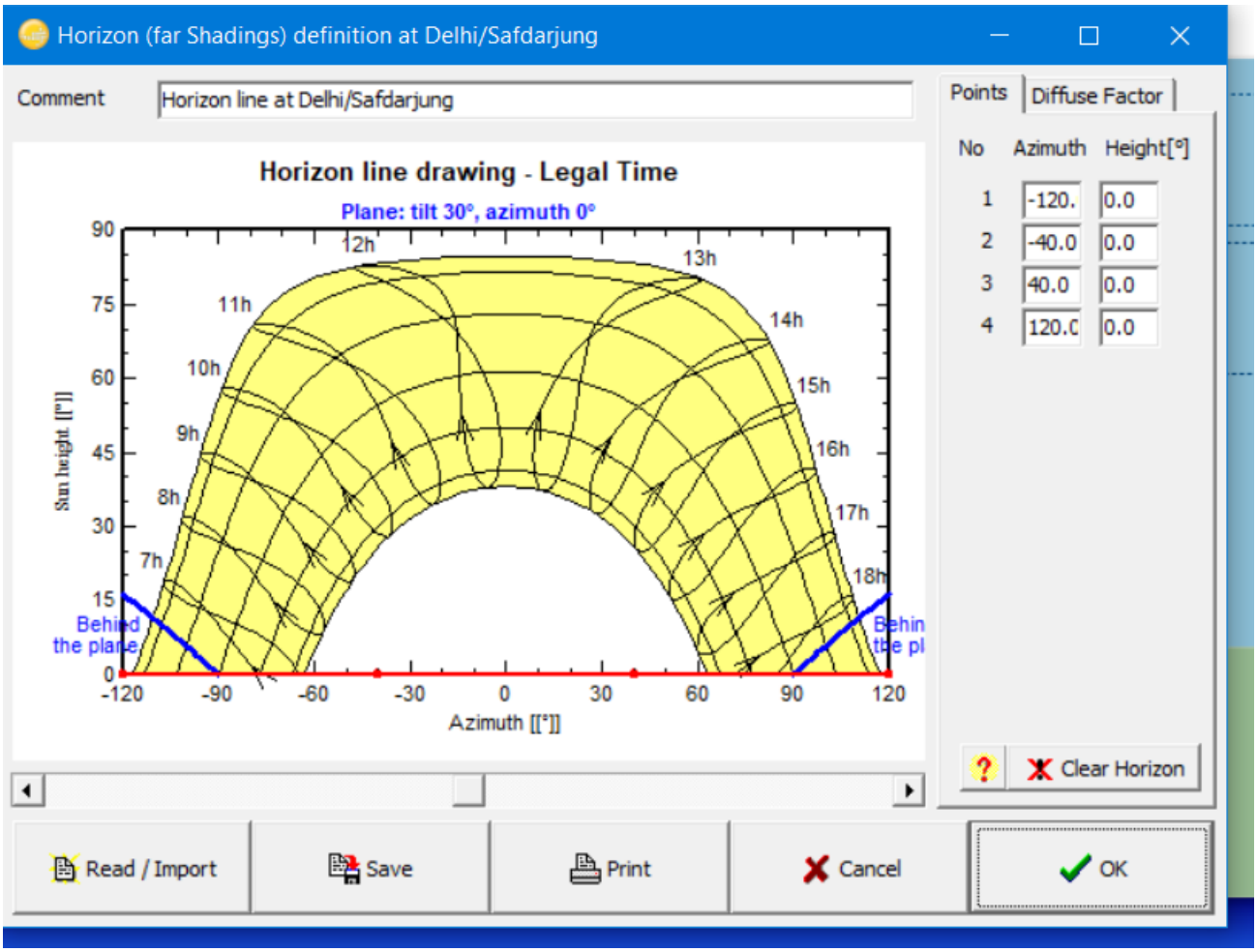
PV energy yield and user's needs

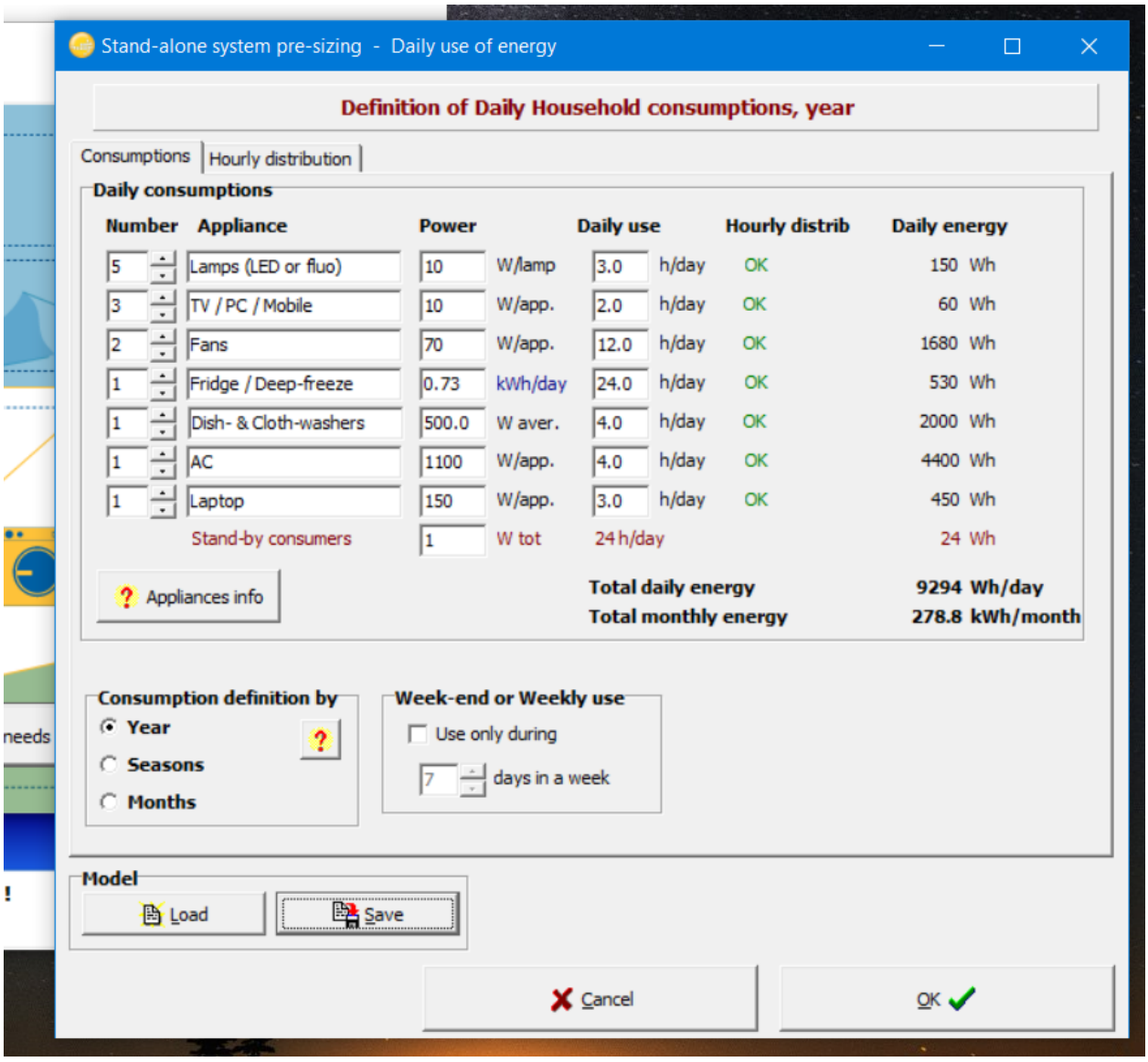


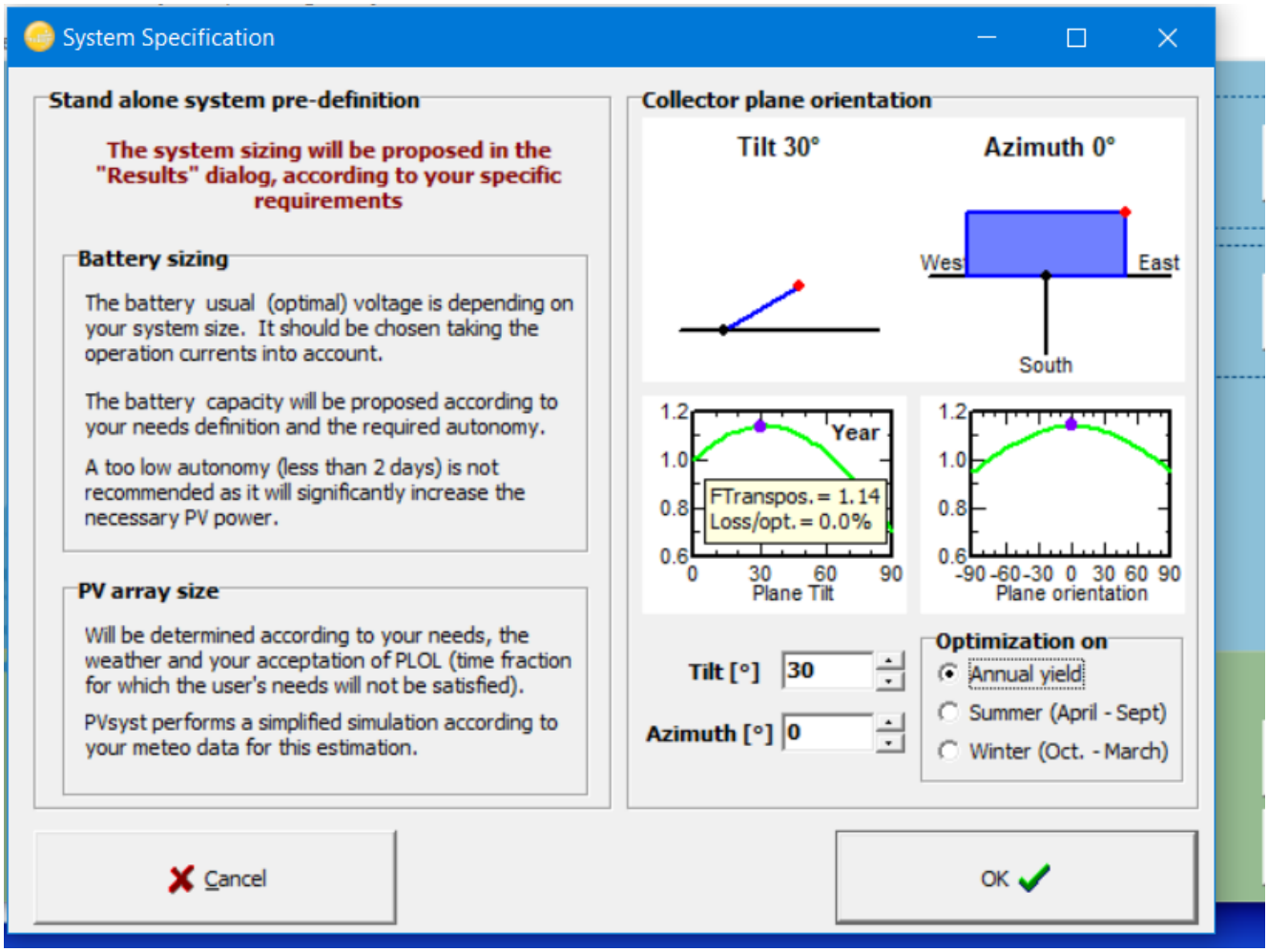
Battery SOC and Loss-of-Load Probability



	Incid. kWh/m².day	PV avail. kWh	Demand kWh	Excess kWh	Missing kWh	SOC %	Pr. LOL %	Fuel liter
Jan.	5.9	311.4	288.1	0.0	0.0	69	0.0	0.0
Feb.	6.6	312.6	260.2	39.9	0.0	92	0.0	0.0
Mar.	7.2	378.8	288.1	82.9	0.0	96	0.0	0.0
Apr.	7.0	356.8	278.8	70.6	0.0	95	0.0	0.0
May	6.6	347.4	288.1	53.9	0.0	96	0.0	0.0
June	5.8	292.8	278.8	18.6	0.0	72	0.0	0.0
July	4.8	250.7	288.1	0.0	29.7	32	29.7	19.8
Aug.	5.0	260.3	288.1	0.0	32.5	30	28.4	21.7
Sep.	6.3	319.3	278.8	18.4	0.2	75	0.9	0.1
Oct.	6.7	350.1	288.1	45.3	0.0	94	0.0	0.0
Nov.	6.3	317.9	278.8	29.3	0.0	82	0.0	0.0
Dec.	5.6	295.6	288.1	0.0	0.0	50	0.0	0.0
Year	6.1	3793.7	3392.3	358.8	62.4	74	5.0	41.6


Horizon (far Shadings) definition at Delhi/Safdarjung
Comment
Horizon line at Delhi/Safdarjung
Horizon line drawing - Legal Time
Plane: tilt 30°, azimuth 0°
12h
13h
11h
14h
10h
15h
9h
16h
8h
17h
7h
18h
Behind the plane
Behin the pl
Sun height [[°]]
Azimuth [[°]]
90
75
60
45
30
15
0
-120
-90
-60
-30
0
30
60
90
120
Points
Diffuse Factor
No
Azimuth
Height[°]
1
-120.
0.0
2
-40.0
0.0
3
40.0
0.0
4
120.0
0.0
Clear Horizon
Read / Import
Save
Print
Cancel
OK


Stand-alone system pre-sizing - Daily use of energy
Definition of Daily Household consumptions, year
Consumptions
Hourly distribution
Daily consumptions
Number Appliance Power Daily use Hourly distrib Daily energy
5 Lamps (LED or fluo) 10 W/lamp 3.0 h/day OK 150 Wh
3 TV / PC / Mobile 10 W/app. 2.0 h/day OK 60 Wh
2 Fans 70 W/app. 12.0 h/day OK 1680 Wh
1 Fridge / Deep-freeze 0.73 kWh/day 24.0 h/day OK 530 Wh
1 Dish- & Cloth-washers 500.0 W aver. 4.0 h/day OK 2000 Wh
1 AC 1100 W/app. 4.0 h/day OK 4400 Wh
1 Laptop 150 W/app. 3.0 h/day OK 450 Wh
Stand-by consumers 1 W tot 24 h/day 24 Wh
Appliances info
Total daily energy 9294 Wh/day
Total monthly energy 278.8 kWh/month
Consumption definition by
Year
Seasons
Months
Week-end or Weekly use
Use only during
7 days in a week
Model
Load
Save
Cancel
OK


System Specification
Stand alone system pre-definition
The system sizing will be proposed in the "Results" dialog, according to your specific requirements
Battery sizing
The battery usual (optimal) voltage is depending on your system size. It should be chosen taking the operation currents into account.
The battery capacity will be proposed according to your needs definition and the required autonomy.
A too low autonomy (less than 2 days) is not recommended as it will significantly increase the necessary PV power.
PV array size
Will be determined according to your needs, the weather and your acceptation of PLOL (time fraction for which the user's needs will not be satisfied).
PVsyst performs a simplified simulation according to your meteo data for this estimation.
Collector plane orientation
Tilt 30°
Azimuth 0°
West
East
South
Year
FTranspos. = 1.14
Loss/opt. = 0.0%
Plane Tilt
Plane orientation
Tilt [°] 30
Azimuth [°] 0
Optimization on
Annual yield
Summer (April - Sept)
Winter (Oct. - March)
Cancel
OK