

Project:

Lundäkra

Licensed user:

Renewable Sweden AB  
Batterivägen 2  
SE-311 39 Falkenberg  
+46 723 158788

Calculated:

2024-06-14 06:56/4.0.540

## SHADOW - Main Result

Calculation: Skugga\_RS3.0.0 3 x V162\_7,2MW

### Assumptions for shadow calculations

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

Minimum sun height over horizon for influence

3 °

Day step for calculation

1 days

Time step for calculation

1 minutes

Sunshine probability S (Average daily sunshine hours) [LUND]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,72	1,80	3,22	6,40	9,28	8,04	7,22	5,93	4,57	3,22	1,98	1,28

Operational hours are calculated from WTGs in calculation and wind distribution:

Lundäkra\_ERA5

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
341	349	500	706	691	618	612	838	1 095	1 247	987	532	8 516

Monthly aggregation of real case reduction

Idle start wind speed: Cut in wind speed from power curve

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:

Height contours used: Height Contours: CONTOURLINE\_ONLINEDATA\_1.wpd

Receptor grid resolution: 1,0 m

All coordinates are in

Swedish UTM 33-SWREF99 (SE)

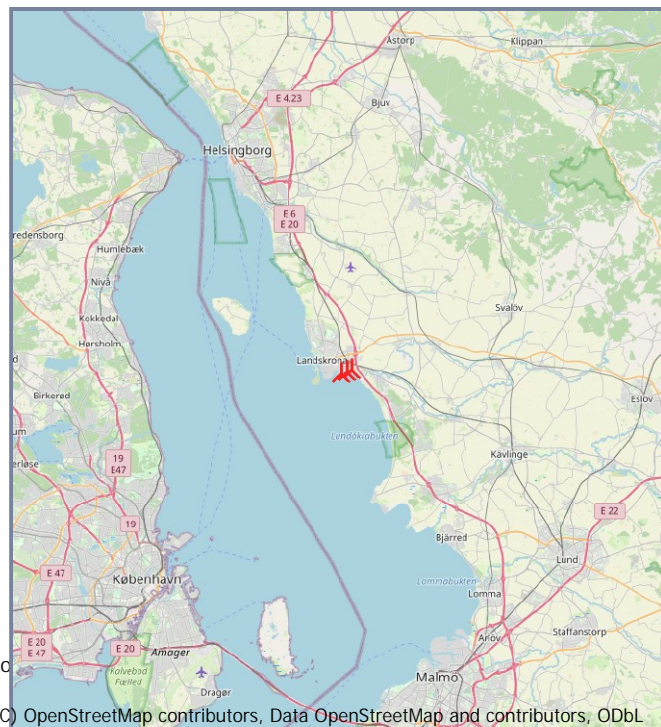
### WTGs

Easting	Northing	Z	Row data/Description	WTG type			Shadow data				
				Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Calculation distance [m]	RPM [RPM]
1	365 962	6 192 345	0,0 VESTAS V162-7.2 7200 162.0 !O! h...	Yes	VESTAS	V162-7.2-7 200	7 200	162,0	144,0	2 042	9,5
2	366 438	6 192 527	1,6 VESTAS V162-7.2 7200 162.0 !O! h...	Yes	VESTAS	V162-7.2-7 200	7 200	162,0	144,0	2 042	9,5
3	366 985	6 192 727	0,9 VESTAS V162-7.2 7200 162.0 !O! h...	Yes	VESTAS	V162-7.2-7 200	7 200	162,0	144,0	2 042	9,5

### Shadow receptor-Input

No.	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
	[m]	[m]	[m]	[m]	[m]	[m]	[°]		[m]
A	367 992	6 192 575	3,3	5,0	5,0	1,0	0,0	"Green house mode"	1,0
B	366 648	6 193 399	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
C	366 615	6 193 427	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
D	366 560	6 193 410	6,5	5,0	5,0	1,0	0,0	"Green house mode"	1,0
E	366 584	6 193 432	5,8	5,0	5,0	1,0	0,0	"Green house mode"	1,0
F	366 579	6 193 444	6,2	5,0	5,0	1,0	0,0	"Green house mode"	1,0
G	366 556	6 193 455	6,2	5,0	5,0	1,0	0,0	"Green house mode"	1,0
H	366 605	6 193 432	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
I	368 214	6 192 674	4,1	5,0	5,0	1,0	0,0	"Green house mode"	1,0
J	367 962	6 192 797	4,5	5,0	5,0	1,0	0,0	"Green house mode"	1,0
K	368 123	6 192 790	4,3	5,0	5,0	1,0	0,0	"Green house mode"	1,0
L	368 225	6 192 797	4,7	5,0	5,0	1,0	0,0	"Green house mode"	1,0
M	368 285	6 192 916	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
N	369 720	6 193 360	10,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
O	369 571	6 193 412	10,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
P	369 181	6 193 577	10,8	5,0	5,0	1,0	0,0	"Green house mode"	1,0
Q	368 982	6 193 761	11,2	5,0	5,0	1,0	0,0	"Green house mode"	1,0
R	368 951	6 193 759	11,1	5,0	5,0	1,0	0,0	"Green house mode"	1,0
S	368 999	6 193 680	10,7	5,0	5,0	1,0	0,0	"Green house mode"	1,0
T	368 969	6 193 696	10,7	5,0	5,0	1,0	0,0	"Green house mode"	1,0
U	368 983	6 193 685	10,7	5,0	5,0	1,0	0,0	"Green house mode"	1,0

To be continued on next page...



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, ODbL

Scale 1:700 000

▲ New WTG

● Shadow receptor

Project:

Lundåkra

Licensed user:

Renewable Sweden AB  
Batterivägen 2  
SE-311 39 Falkenberg  
+46 723 158788

Calculated:

2024-06-14 06:56/4.0.540

## SHADOW - Main Result

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW

...continued from previous page

No.	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
V	368 958	6 193 690	10,7	5,0	5,0	1,0	0,0	"Green house mode"	1,0
W	368 943	6 193 695	10,6	5,0	5,0	1,0	0,0	"Green house mode"	1,0
X	368 924	6 193 706	10,6	5,0	5,0	1,0	0,0	"Green house mode"	1,0
Y	368 910	6 193 710	10,6	5,0	5,0	1,0	0,0	"Green house mode"	1,0
Z	368 890	6 193 716	10,6	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AA	368 878	6 193 726	10,6	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AB	368 848	6 193 736	10,5	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AC	368 825	6 193 741	10,5	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AD	368 799	6 193 751	10,5	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AE	368 772	6 193 757	10,4	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AF	369 786	6 194 328	15,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AG	369 761	6 194 909	11,4	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AH	369 788	6 194 898	11,3	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AI	368 745	6 194 868	15,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AJ	368 047	6 194 572	15,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AK	367 169	6 193 971	7,4	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AL	367 106	6 194 004	7,7	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AM	367 114	6 193 953	7,1	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AN	366 820	6 193 879	6,6	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AO	366 829	6 193 903	6,8	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AP	366 834	6 193 928	7,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AQ	366 889	6 193 933	7,2	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AR	366 858	6 193 950	7,3	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AS	366 822	6 193 967	7,3	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AT	366 801	6 193 979	7,4	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AU	366 832	6 194 005	7,7	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AV	366 865	6 193 968	7,5	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AW	366 911	6 193 968	7,7	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AX	366 927	6 194 006	8,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AY	366 871	6 194 002	7,8	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AZ	366 862	6 194 039	8,1	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BA	366 935	6 194 024	8,2	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BB	366 935	6 194 049	8,4	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BC	367 482	6 194 623	10,5	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BD	367 633	6 194 855	13,1	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BE	364 158	6 193 390	1,4	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BF	365 997	6 193 600	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BG	366 016	6 193 594	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BH	366 035	6 193 589	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BI	366 055	6 193 583	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BJ	366 074	6 193 574	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BK	366 091	6 193 568	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0

## Calculation Results

Shadow receptor

No.	Shadow, worst case			Shadow, expected values	
	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]	
A	34:56	84	0:38	9:15	
B	154:45	106	2:03	18:34	
C	140:07	104	1:58	16:44	
D	137:45	109	1:52	16:36	
E	134:17	104	1:54	16:02	
F	128:49	102	1:52	15:20	
G	122:09	102	1:48	14:30	
H	137:05	103	1:56	16:21	
I	22:20	62	0:31	5:33	
J	32:38	69	0:39	7:37	
K	24:40	60	0:34	5:39	
L	20:37	55	0:31	4:39	
M	16:17	47	0:29	3:27	

To be continued on next page...

Project:

Lundåkra

Licensed user:

Renewable Sweden AB  
Batterivägen 2  
SE-311 39 Falkenberg  
+46 723 158788

Calculated:

2024-06-14 06:56/4.0.540

## SHADOW - Main Result

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW

...continued from previous page

No.	Shadow, worst case			Shadow, expected values
	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
N	0:00	0	0:00	0:00
O	0:00	0	0:00	0:00
P	0:00	0	0:00	0:00
Q	0:00	0	0:00	0:00
R	0:00	0	0:00	0:00
S	0:00	0	0:00	0:00
T	0:00	0	0:00	0:00
U	0:00	0	0:00	0:00
V	0:00	0	0:00	0:00
W	0:00	0	0:00	0:00
X	0:00	0	0:00	0:00
Y	0:00	0	0:00	0:00
Z	0:00	0	0:00	0:00
AA	0:00	0	0:00	0:00
AB	0:00	0	0:00	0:00
AC	0:00	0	0:00	0:00
AD	0:00	0	0:00	0:00
AE	0:00	0	0:00	0:00
AF	0:00	0	0:00	0:00
AG	0:00	0	0:00	0:00
AH	0:00	0	0:00	0:00
AI	0:00	0	0:00	0:00
AJ	0:00	0	0:00	0:00
AK	16:28	44	0:34	1:57
AL	8:59	36	0:19	1:04
AM	14:12	42	0:31	1:41
AN	9:27	22	0:31	0:59
AO	5:32	18	0:25	0:35
AP	1:24	13	0:08	0:09
AQ	3:45	22	0:13	0:25
AR	1:09	12	0:07	0:07
AS	0:00	0	0:00	0:00
AT	0:00	0	0:00	0:00
AU	0:00	0	0:00	0:00
AV	0:25	7	0:05	0:02
AW	2:36	18	0:11	0:17
AX	1:00	12	0:07	0:06
AY	0:00	0	0:00	0:00
AZ	0:00	0	0:00	0:00
BA	0:22	7	0:04	0:02
BB	0:00	0	0:00	0:00
BC	0:00	0	0:00	0:00
BD	0:00	0	0:00	0:00
BE	0:00	0	0:00	0:00
BF	46:30	104	0:36	5:29
BG	46:59	106	0:36	5:32
BH	47:29	106	0:36	5:34
BI	47:43	106	0:36	5:35
BJ	48:45	108	0:36	5:42
BK	49:12	108	0:37	5:44

Total amount of flickering on the shadow receptors caused by each WTG

No.	Name	Worst case [h/year]	Expected [h/year]
1	VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (20)	58:10	7:21
2	VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (21)	136:02	17:33
3	VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (22)	214:30	35:19

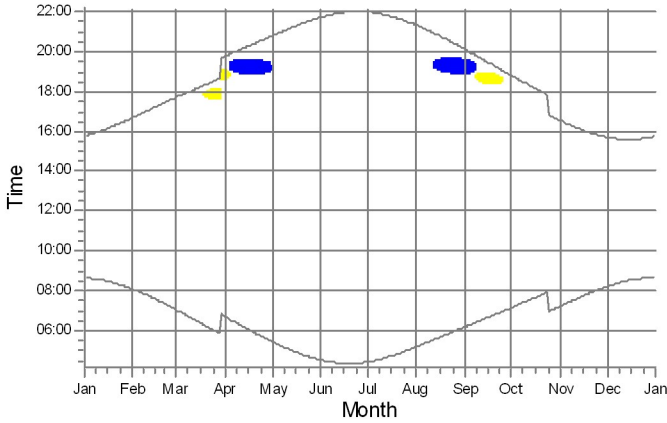
Total times in Receptor wise and WTG wise tables can differ, as a WTG can lead to flicker at 2 or more receptors simultaneously and/or receptors may receive flicker from 2 or more WTGs simultaneously.

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

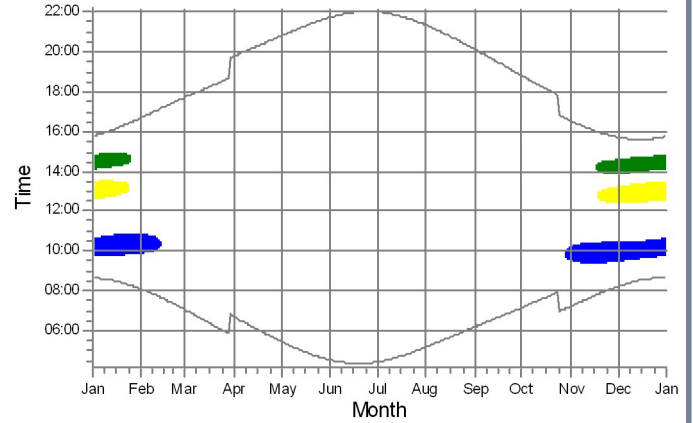
## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW

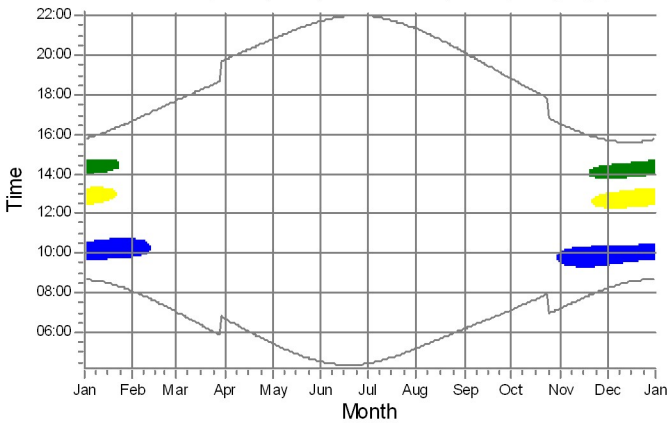
A: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (1)



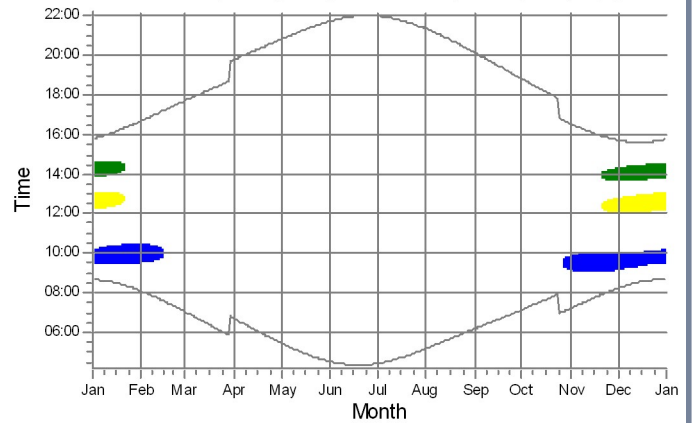
B: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (2)



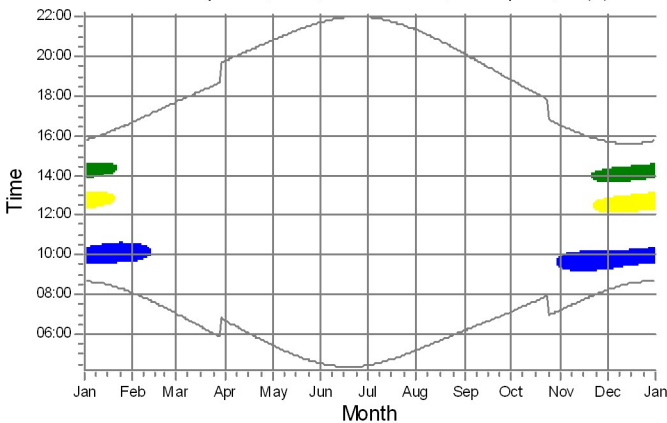
C: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (3)



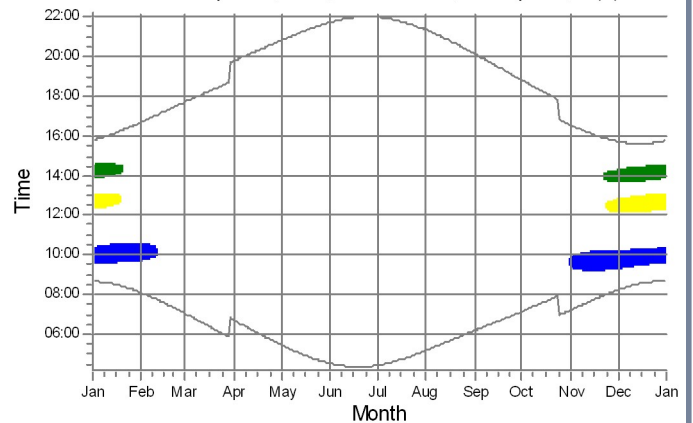
D: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (4)



E: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (5)



F: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (6)



### WTGs

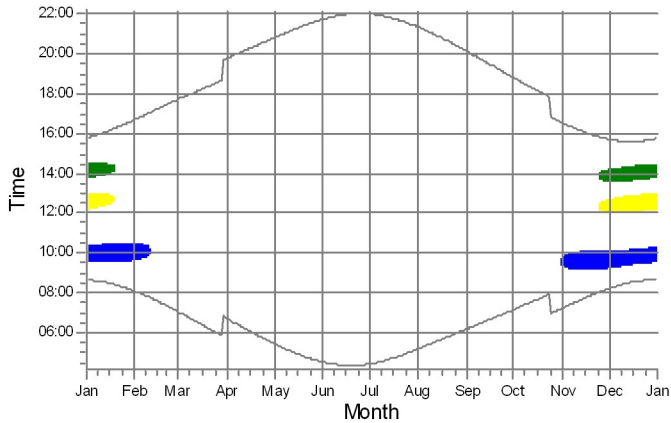
- 1: VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (20)
- 2: VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (21)
- 3: VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (22)



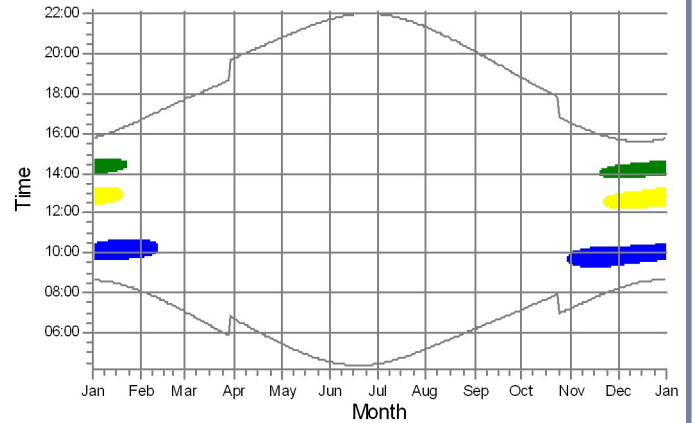
**SHADOW - Calendar, graphical**

Calculation: Skugga\_RS3.0.0 3 x V162\_7,2MW

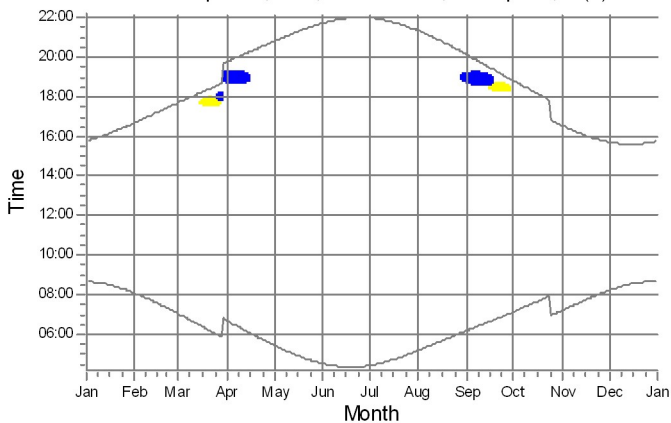
G: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (7)



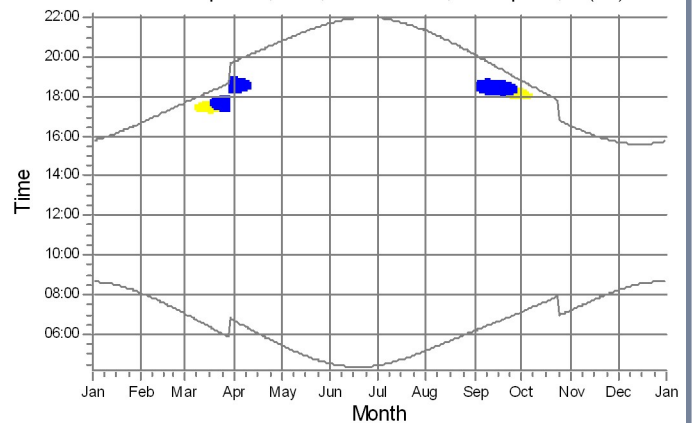
H: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (8)



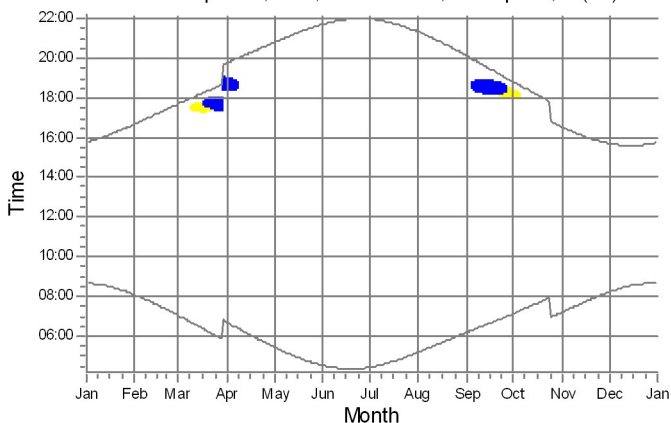
I: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (9)



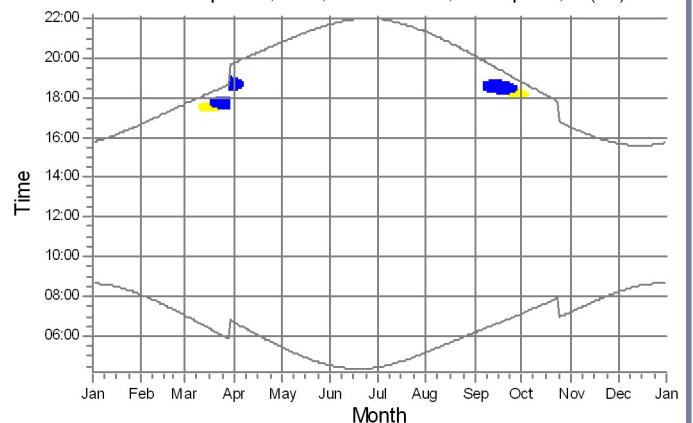
J: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (10)



K: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (11)



L: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (12)



## WTGs

- 1: VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (20)
- 2: VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (21)
- 3: VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (22)

Project:

Lundåkra

Licensed user:

Renewable Sweden AB  
Batterivägen 2  
SE-311 39 Falkenberg  
+46 723 158788

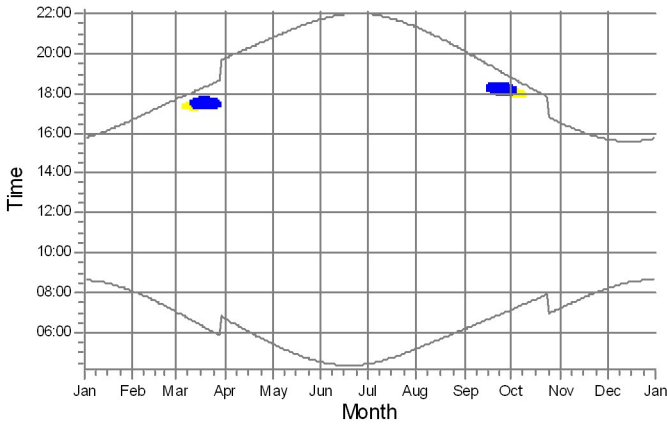
Calculated:

2024-06-14 06:56/4.0.540

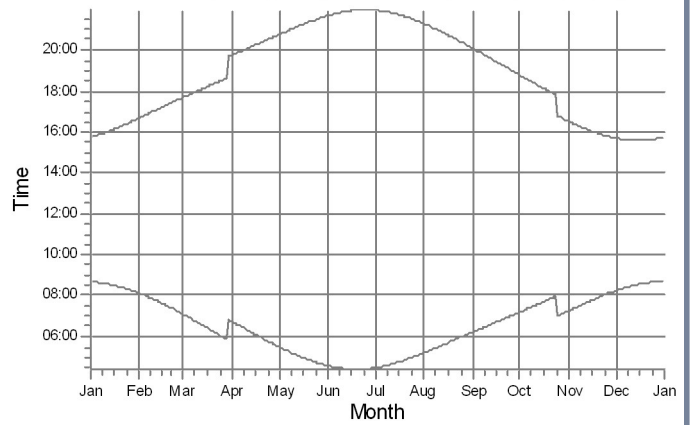
## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW

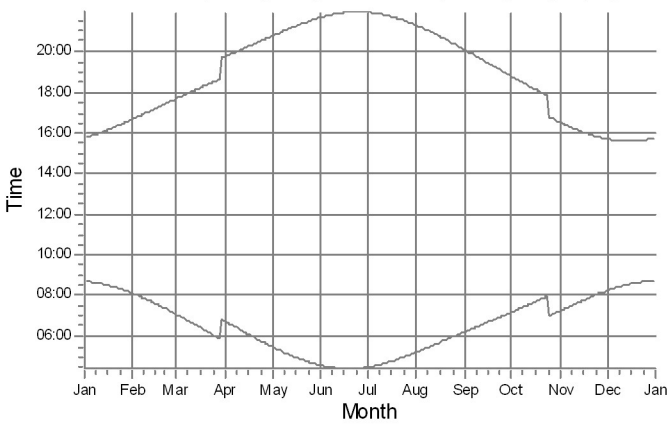
M: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (13)



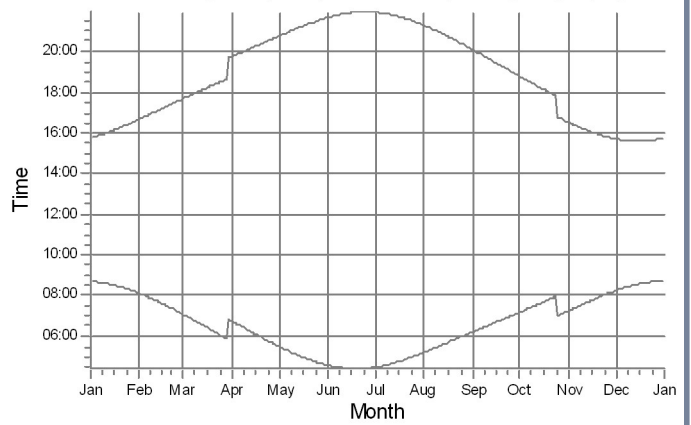
N: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (14)



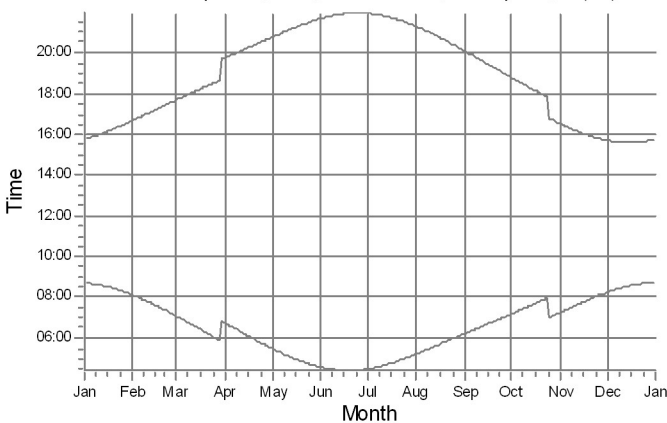
O: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (15)



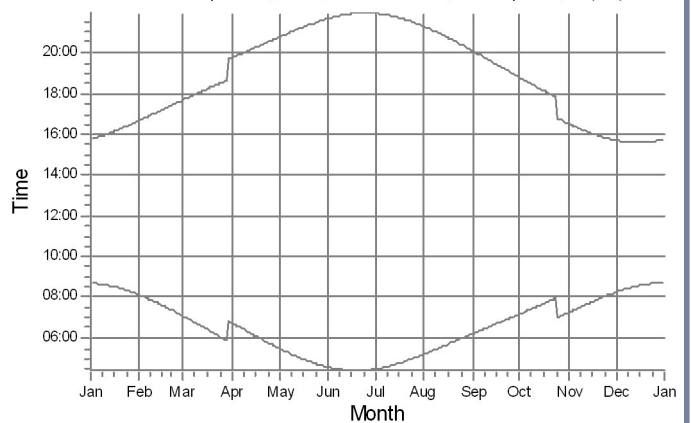
P: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (16)



Q: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (17)



R: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (18)



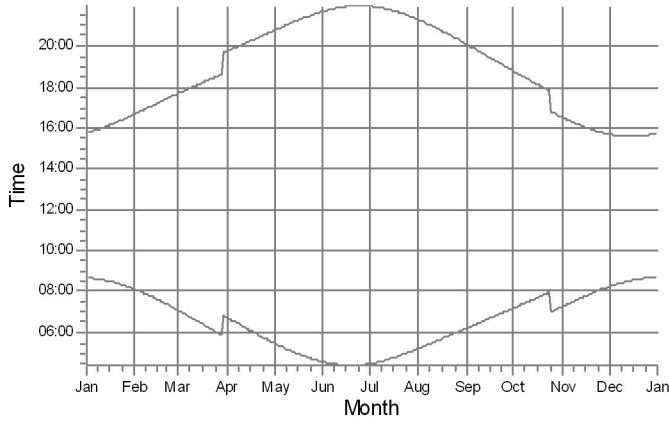
WTGs

- 2: VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (21)
- 3: VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (22)

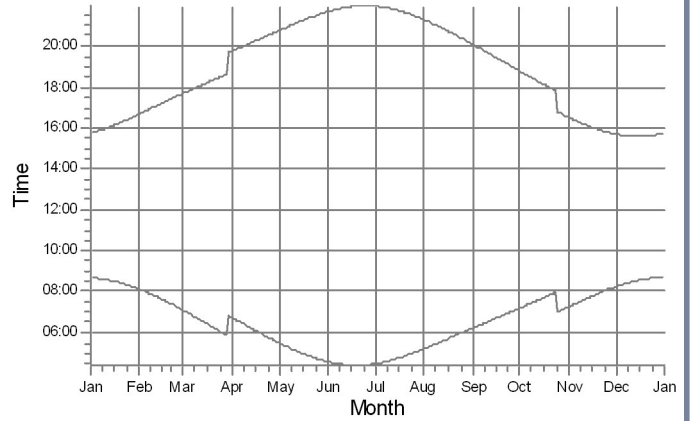
## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW

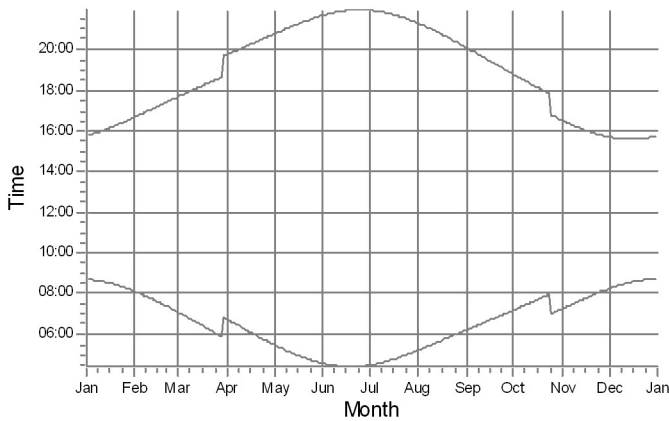
S: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (19)



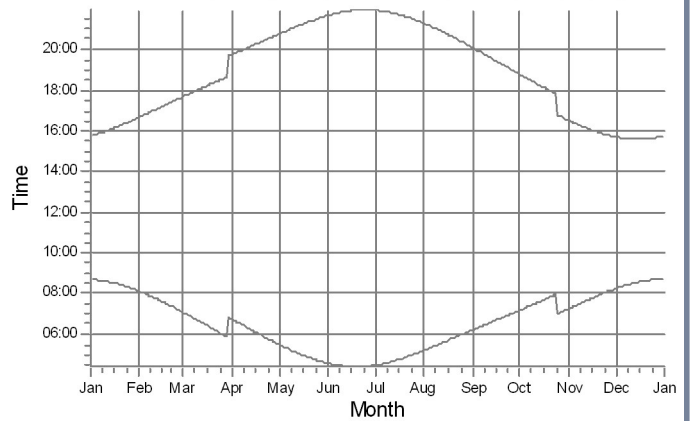
T: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (20)



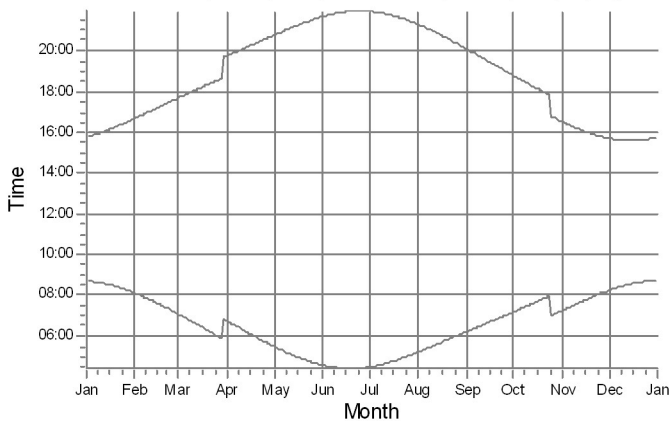
U: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (21)



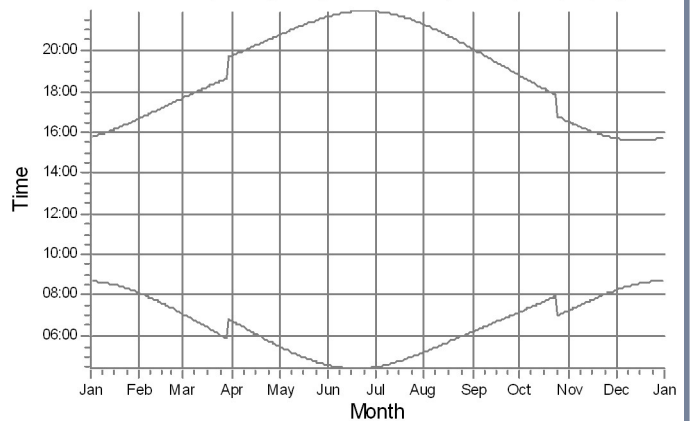
V: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (22)



W: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (23)



X: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (24)

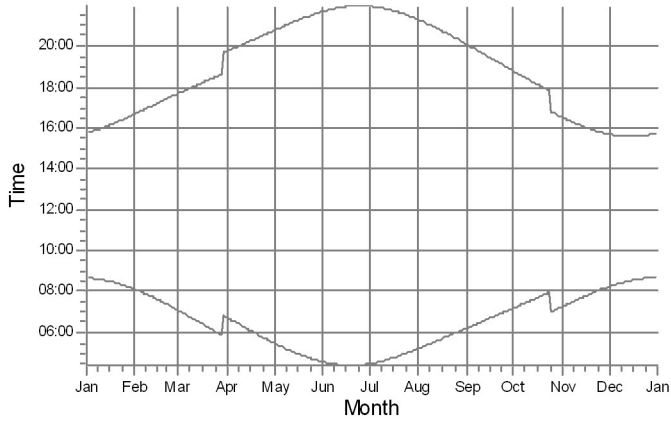


WTGs

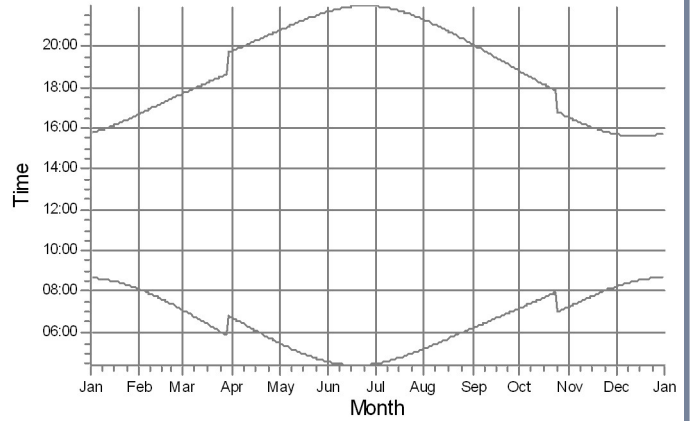
## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW

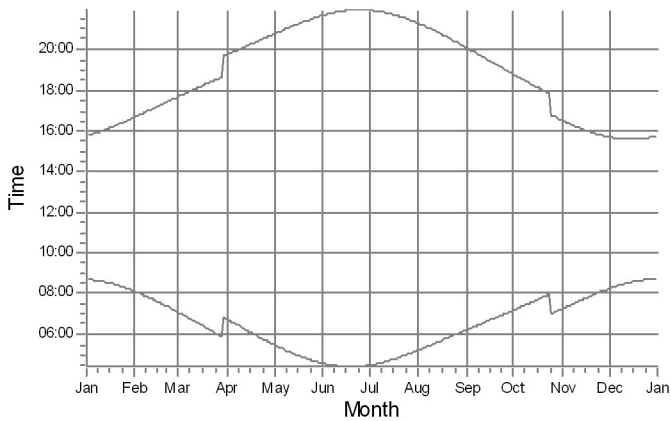
Y: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (25)



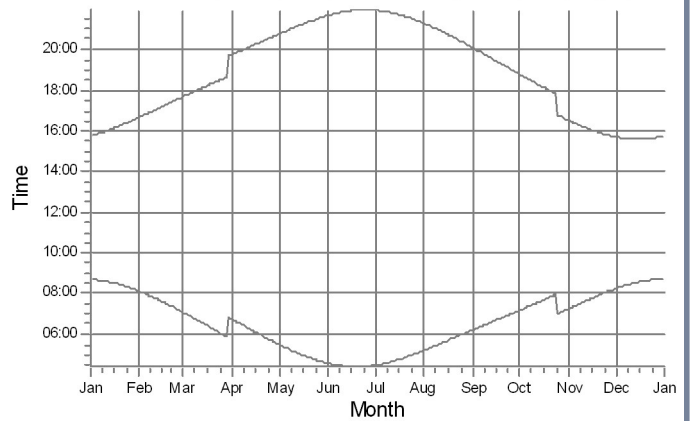
Z: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (26)



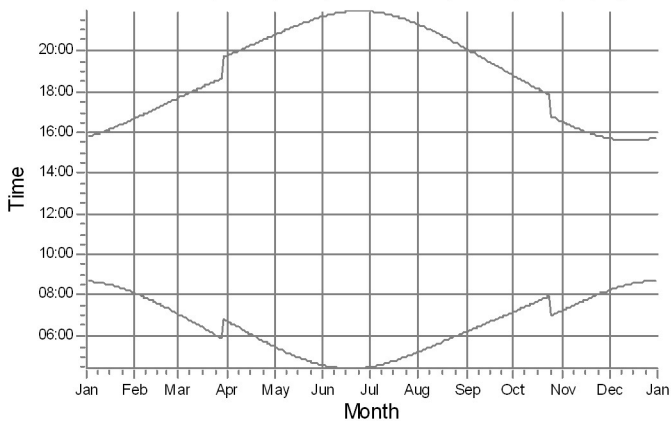
AA: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (27)



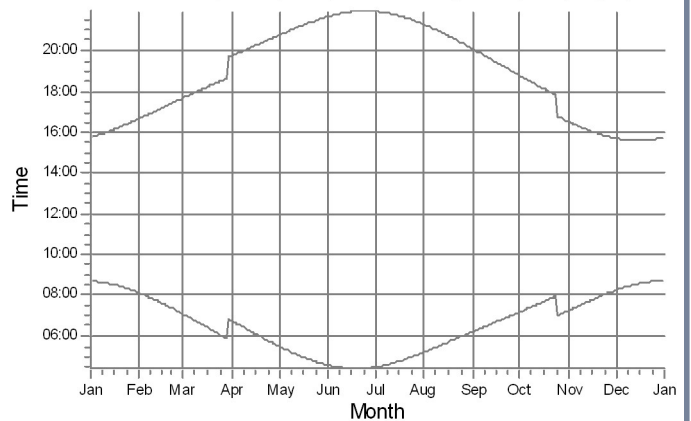
AB: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (28)



AC: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (29)



AD: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (30)

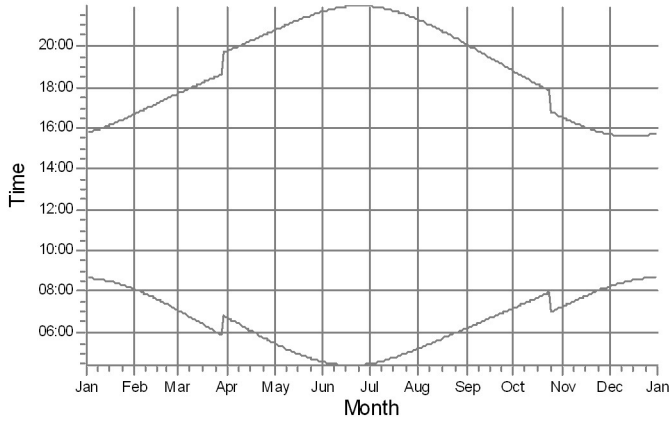


WTGs

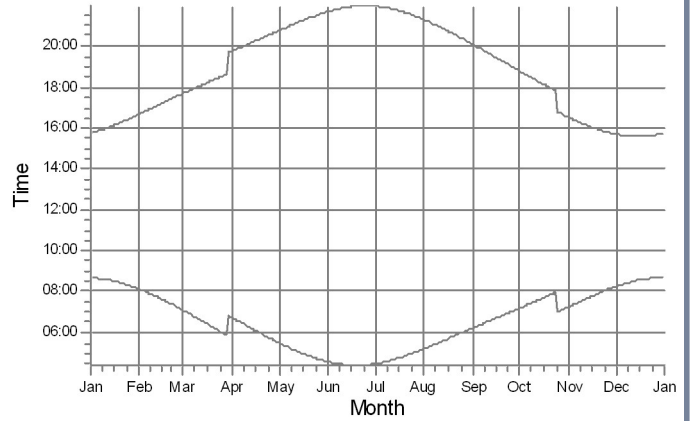
## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW

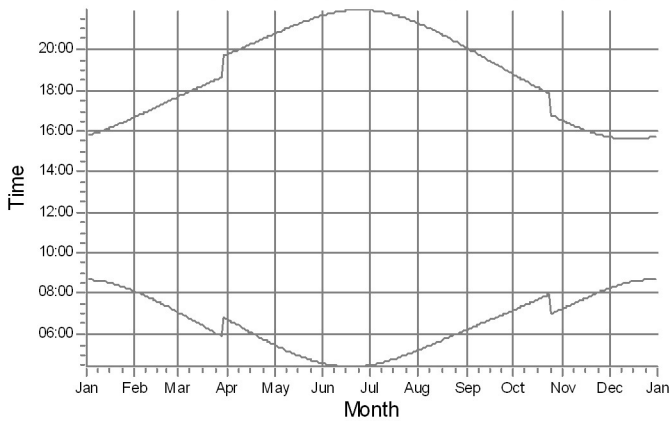
AE: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (31)



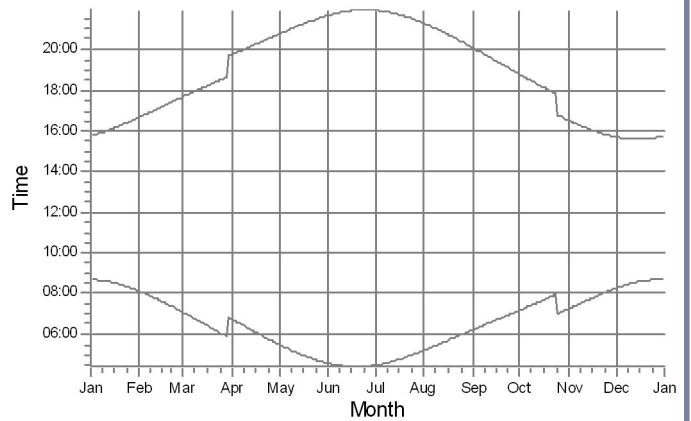
AF: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (32)



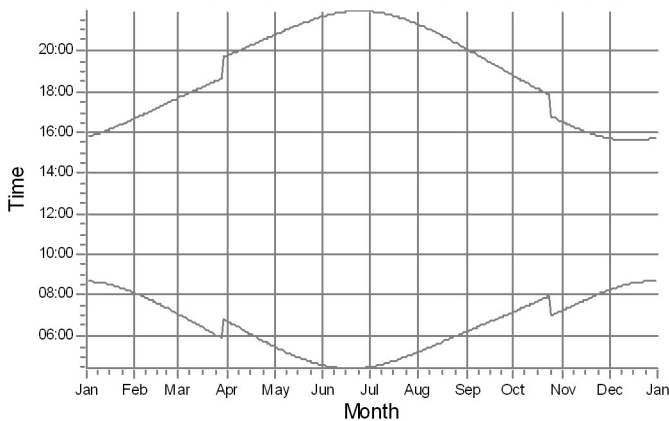
AG: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (33)



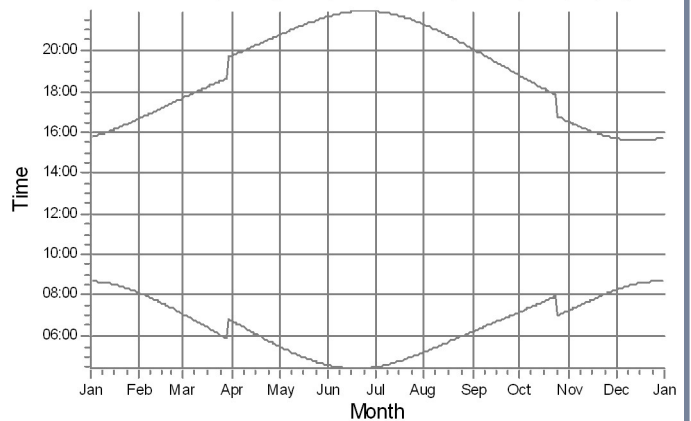
AH: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (34)



AI: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (35)



AJ: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (36)

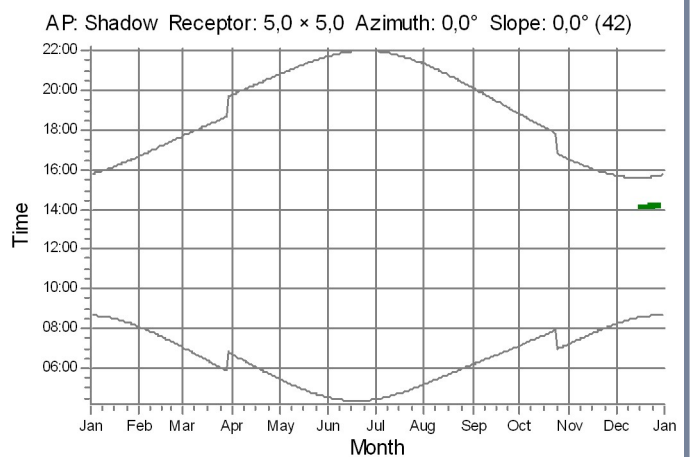
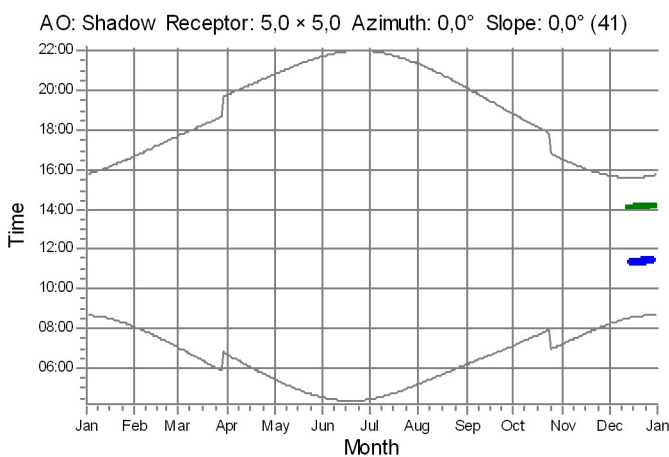
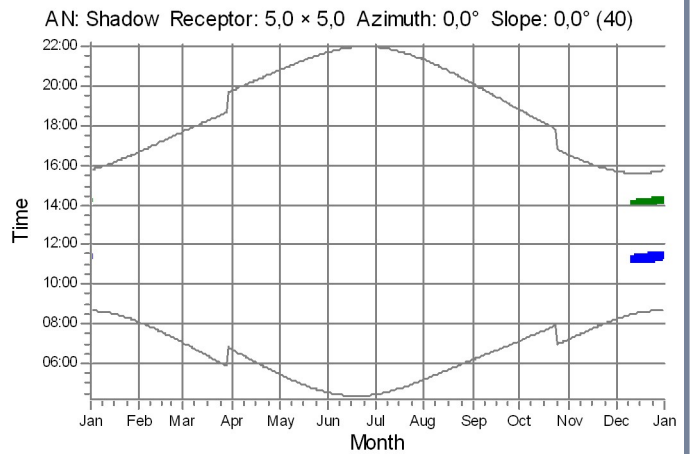
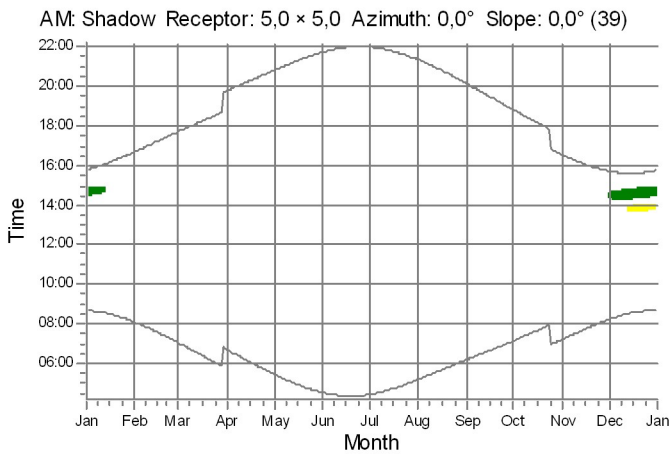
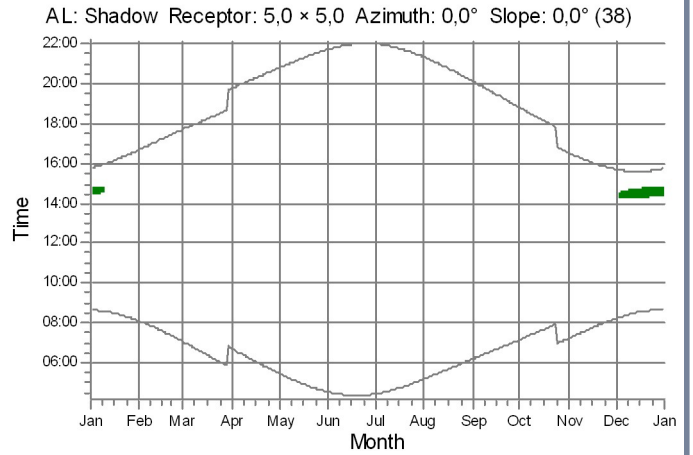
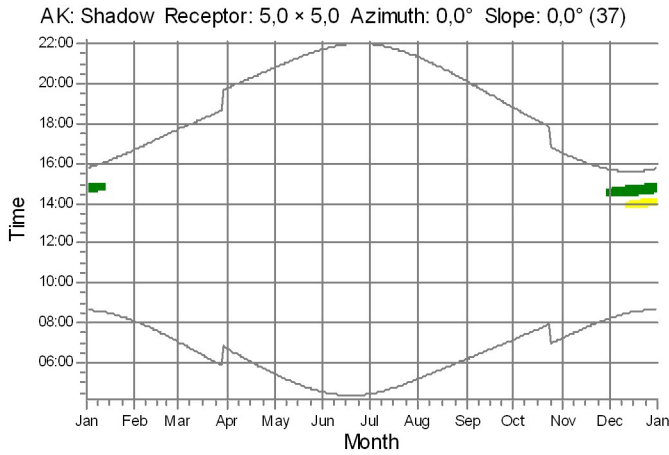


WTGs



## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_7,2MW



### WTGs

- 1: VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (20)
- 2: VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (21)
- 3: VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (22)

Project:

Lundåkra

Licensed user:

Renewable Sweden AB  
Batterivägen 2  
SE-311 39 Falkenberg  
+46 723 158788

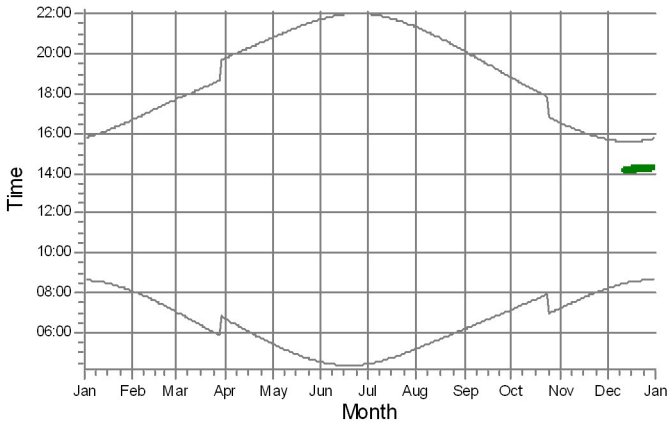
Calculated:

2024-06-14 06:56/4.0.540

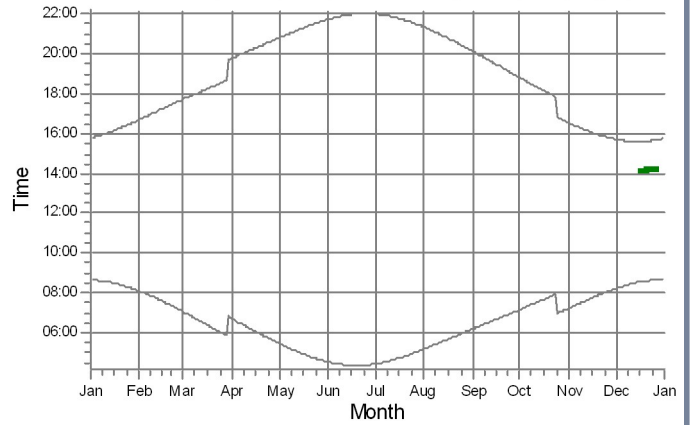
## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW

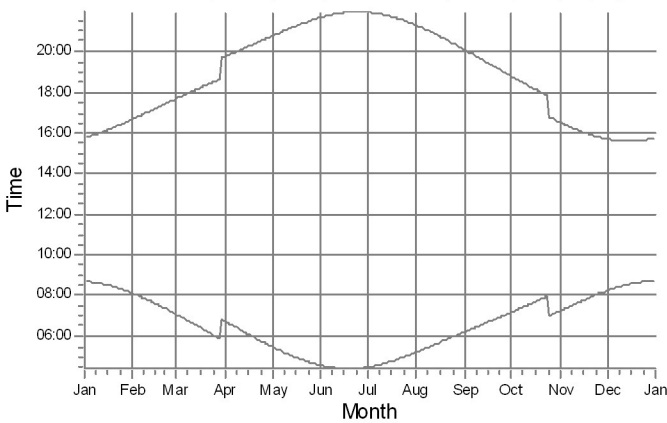
AQ: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (43)



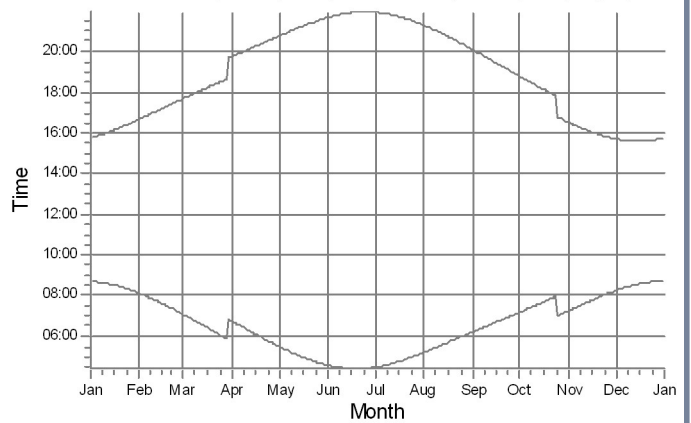
AR: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (44)



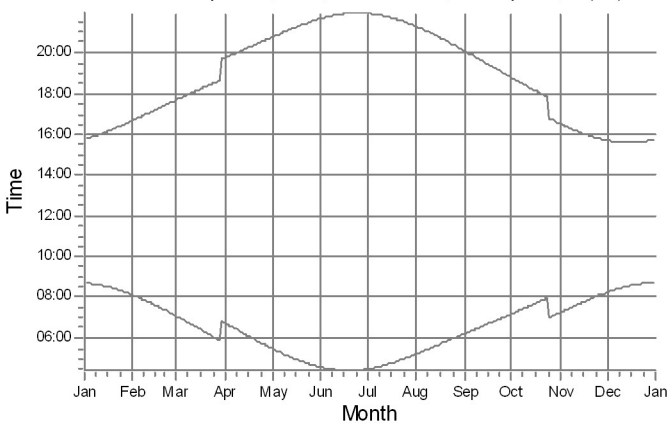
AS: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (45)



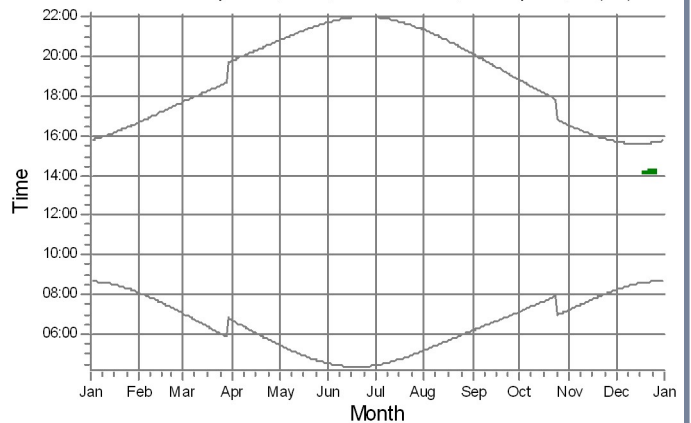
AT: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (46)



AU: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (47)



AV: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (48)



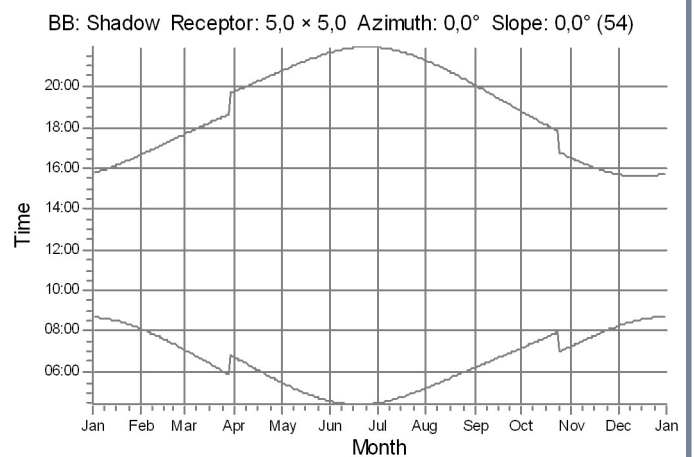
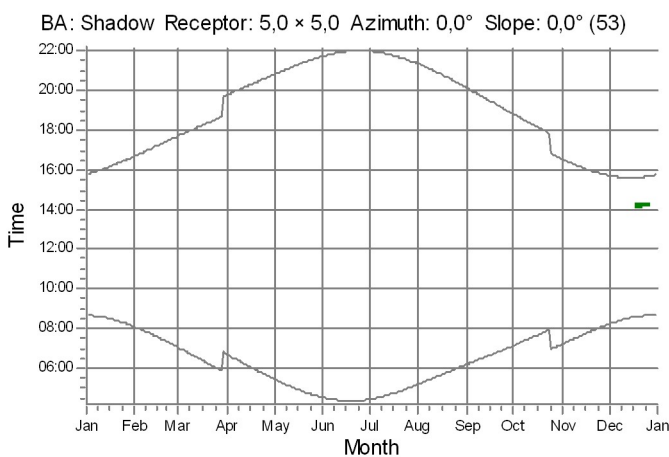
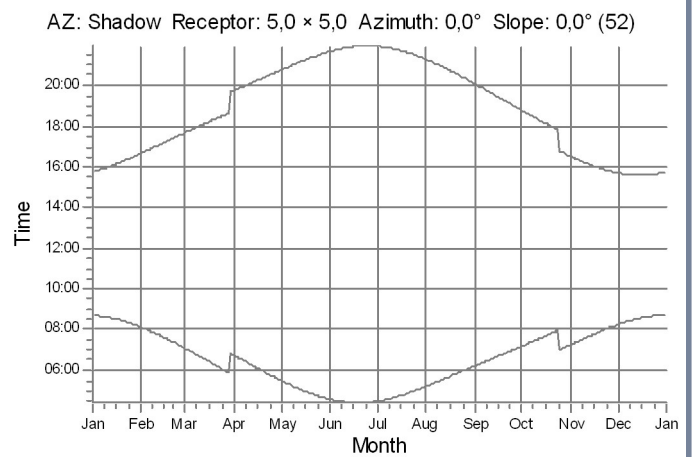
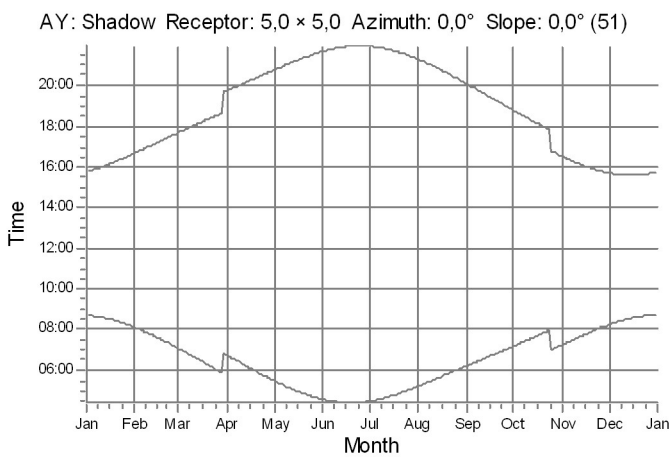
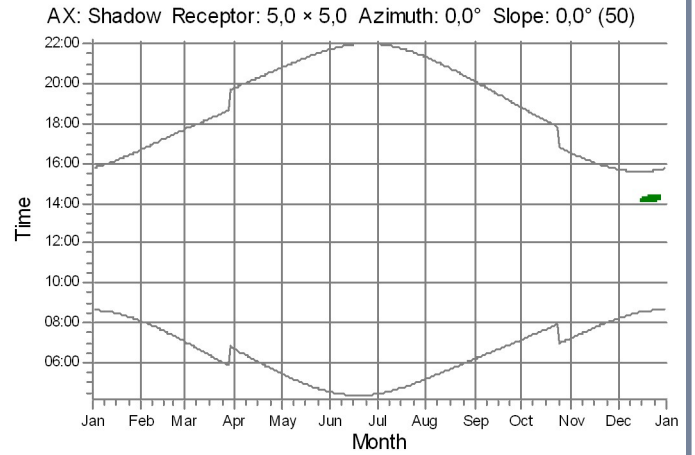
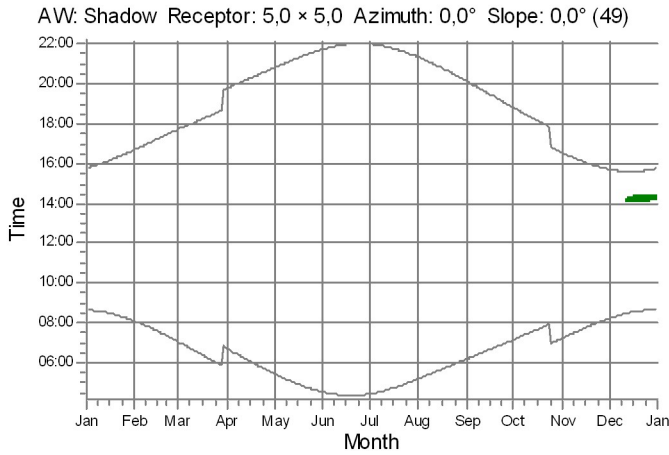
WTGs



1: VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (20)

## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW



### WTGs

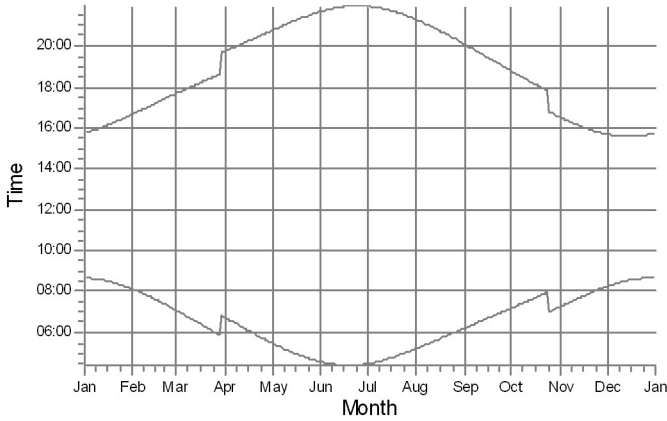


1: VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (20)

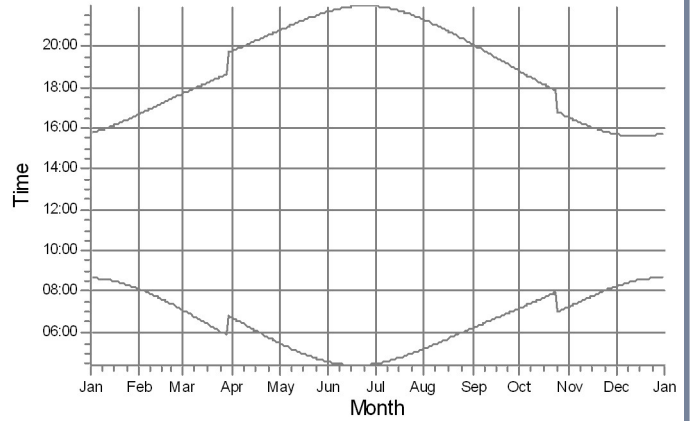
## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW

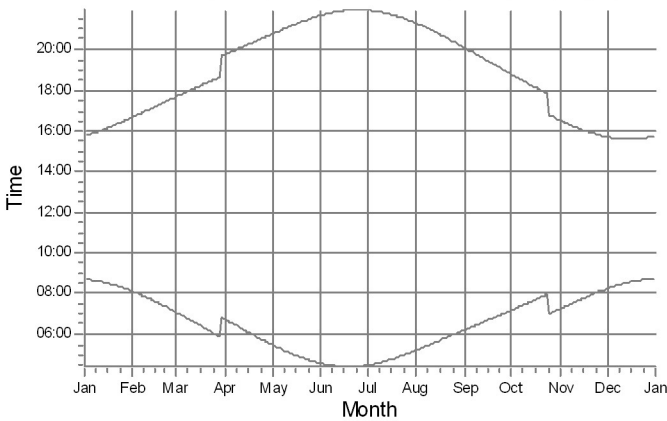
BC: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (55)



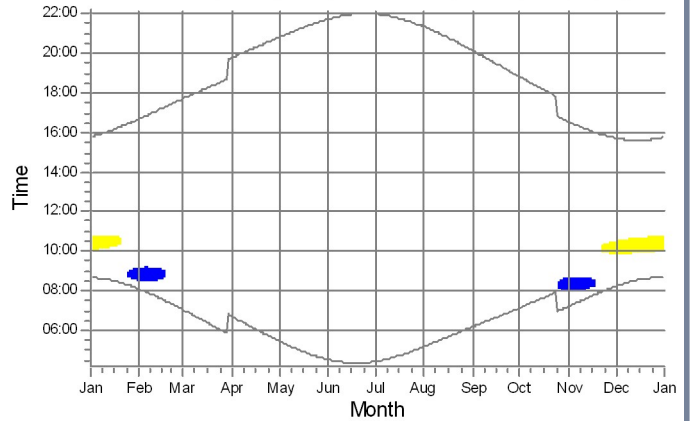
BD: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (56)



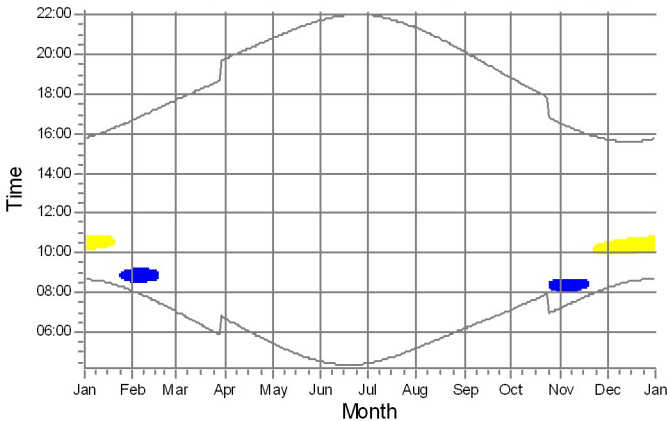
BE: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (57)



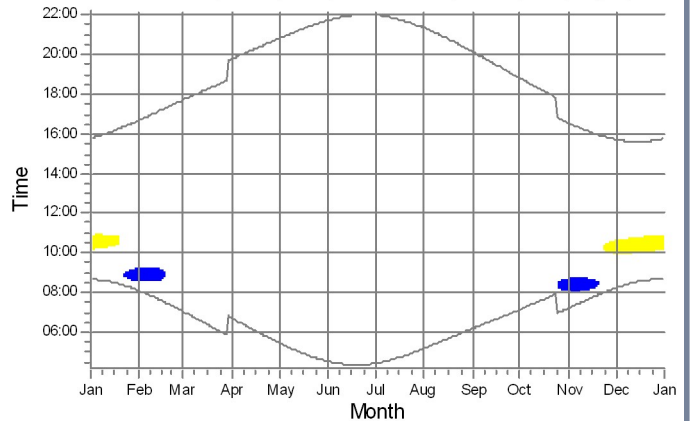
BF: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (58)



BG: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (59)



BH: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (60)



WTGs

- 2: VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (21)
- 3: VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (22)

Project:

Lundåkra

Licensed user:

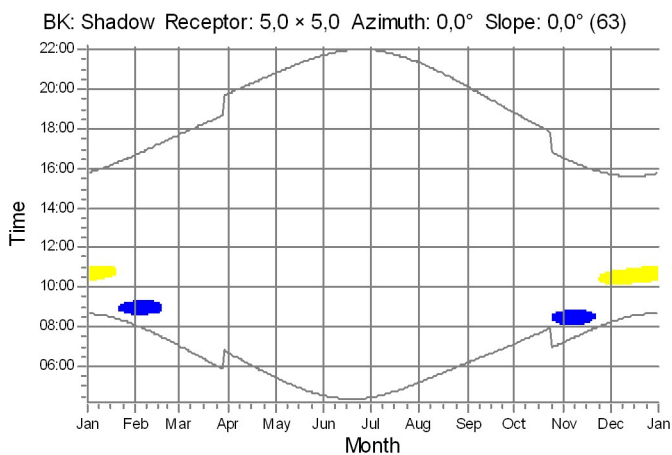
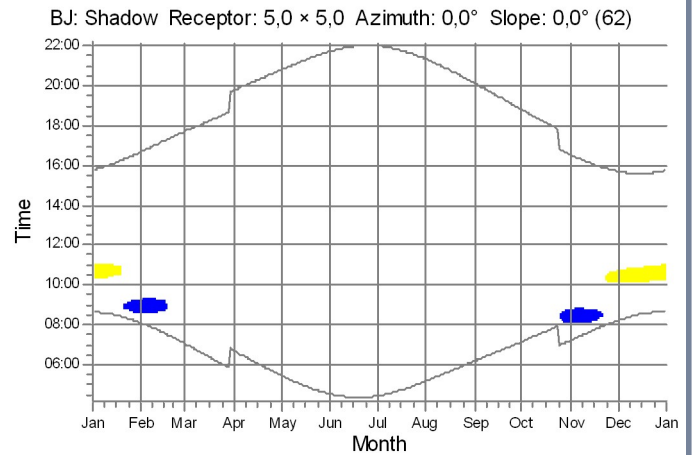
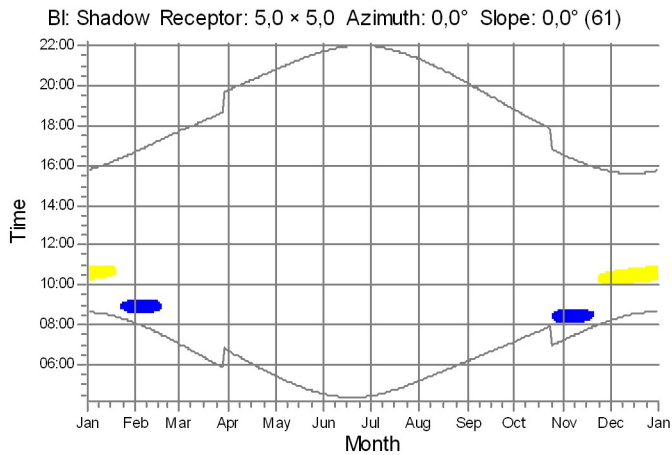
Renewable Sweden AB  
Batterivägen 2  
SE-311 39 Falkenberg  
+46 723 158788

Calculated:

2024-06-14 06:56/4.0.540

## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_7,2MW



WTGs



2: VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (21)

3: VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (22)



Project:  
Lundåkra

Licensed user:  
Renewable Sweden AB  
Batterivägen 2  
SE-311 39 Falkenberg  
+46 723 158788

Calculated:  
2024-06-14 06:56/4.0.540

## SHADOW - Map

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW



0 500 1000 1500 2000 m

Map: Swedish Topographic Map , Print scale 1:38 000, Map center Swedish UTM 33-SWREF99 (SE) East: 366 798 North: 6 192 647

New WTG Shadow receptor

Flicker map level: Height Contours: CONTOURLINE\_ONLINEDATA\_1.wpo (13)

Time step: 3 minutes, Day step: 7 days, Map resolution: 20 m, Visibility resolution: 10 m, Eye height: 1,5 m

Project:

Lundåkra

Licensed user:

Renewable Sweden AB  
 Batterivägen 2  
 SE-311 39 Falkenberg  
 +46 723 158788

Calculated:

2024-06-14 07:05/4.0.540

## SHADOW - Main Result

Calculation: Skugga\_RS3.0.0 3 x V162\_7,2MW\_Kumulativ

### Assumptions for shadow calculations

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

Minimum sun height over horizon for influence

3 °

Day step for calculation

1 days

Time step for calculation

1 minutes

Sunshine probability S (Average daily sunshine hours) [LUND]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,72	1,80	3,22	6,40	9,28	8,04	7,22	5,93	4,57	3,22	1,98	1,28

Operational hours are calculated from WTGs in calculation and wind distribution:

Lundåkra\_ERA5

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
297	300	427	602	595	534	529	725	944	1 065	859	508	7 385

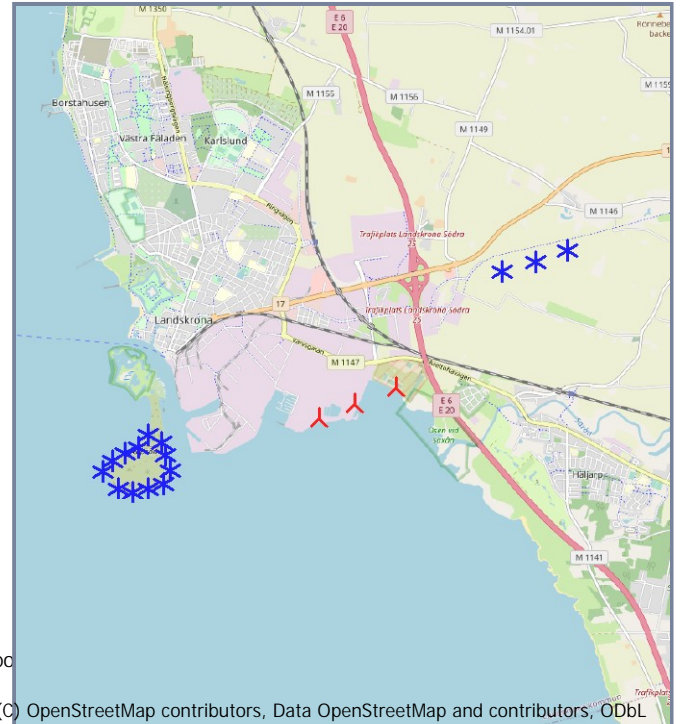
Monthly aggregation of real case reduction

Idle start wind speed: Cut in wind speed from power curve

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:

Height contours used: Height Contours: CONTOURLINE\_ONLINEDATA\_1.wpd

Receptor grid resolution: 1,0 m



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, ODbL

All coordinates are in

Swedish UTM 33-SWREF99 (SE)

Scale 1:100 000

▲ New WTG

★ Existing WTG

★ Shadow receptor

### WTGs

	Easting	Northing	Z	Row data/Description	WTG type			Shadow data				
					Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Calculation distance [m]	RPM [RPM]
1	365 962	6 192 345	0,0	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7 200	7 200	162,0	144,0	2 042	9,5
2	366 438	6 192 527	1,6	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7 200	7 200	162,0	144,0	2 042	9,5
3	366 985	6 192 727	0,9	VESTAS V162-7.2 7200 162.0 !O! ... Yes	Yes	VESTAS	V162-7.2-7 200	7 200	162,0	144,0	2 042	9,5
4	363 682	6 192 199	6,1	VESTAS V42 600 42.0 !O! hub: 40,...	No	VESTAS	V42-600	600	42,0	40,0	2 500	30,0
5	363 850	6 192 104	3,2	VESTAS V42 600 42.0 !O! hub: 40,...	No	VESTAS	V42-600	600	42,0	40,0	2 500	30,0
6	363 904	6 191 929	6,2	VESTAS V42 600 42.0 !O! hub: 40,...	No	VESTAS	V42-600	600	42,0	40,0	2 500	30,0
7	363 958	6 191 719	7,2	VESTAS V42 600 42.0 !O! hub: 40,...	No	VESTAS	V42-600	600	42,0	40,0	2 500	30,0
8	363 857	6 191 544	5,3	VESTAS V42 600 42.0 !O! hub: 40,...	No	VESTAS	V42-600	600	42,0	40,0	2 500	30,0
9	363 653	6 191 499	7,3	VESTAS V42 600 42.0 !O! hub: 40,...	No	VESTAS	V42-600	600	42,0	40,0	2 500	30,0
10	363 452	6 191 451	9,2	VESTAS V42 600 42.0 !O! hub: 40,...	No	VESTAS	V42-600	600	42,0	40,0	2 500	30,0
11	363 271	6 191 506	9,9	VESTAS V42 600 42.0 !O! hub: 40,...	No	VESTAS	V42-600	600	42,0	40,0	2 500	30,0
12	363 074	6 191 741	9,8	VESTAS V42 600 42.0 !O! hub: 40,...	No	VESTAS	V42-600	600	42,0	40,0	2 500	30,0
13	363 198	6 191 872	9,1	VESTAS V42 600 42.0 !O! hub: 40,...	No	VESTAS	V42-600	600	42,0	40,0	2 500	30,0
14	363 366	6 191 967	8,4	VESTAS V42 600 42.0 !O! hub: 40,...	No	VESTAS	V42-600	600	42,0	40,0	2 500	30,0
15	363 554	6 192 047	8,7	VESTAS V42 600 42.0 !O! hub: 40,...	No	VESTAS	V42-600	600	42,0	40,0	2 500	30,0
16	368 433	6 194 217	14,0	VESTAS V90 2000 90.0 !O! hub: 8...	Yes	VESTAS	V90-2 000	2 000	90,0	80,0	1 507	14,9
17	368 879	6 194 329	14,4	VESTAS V90 2000 90.0 !O! hub: 8...	Yes	VESTAS	V90-2 000	2 000	90,0	80,0	1 507	14,9
18	369 309	6 194 475	15,0	VESTAS V90 2000 90.0 !O! hub: 8...	Yes	VESTAS	V90-2 000	2 000	90,0	80,0	1 507	14,9

### Shadow receptor-Input

No.	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
	[m]	[m]	[m]	[m]	[m]	[m]	[°]		[m]
A	367 992	6 192 575	3,3	5,0	5,0	1,0	0,0	"Green house mode"	1,0
B	366 648	6 193 399	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
C	366 615	6 193 427	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
D	366 560	6 193 410	6,5	5,0	5,0	1,0	0,0	"Green house mode"	1,0
E	366 584	6 193 432	5,8	5,0	5,0	1,0	0,0	"Green house mode"	1,0

To be continued on next page...

Project:

Lundåkra

Licensed user:

Renewable Sweden AB  
Batterivägen 2  
SE-311 39 Falkenberg  
+46 723 158788

Calculated:

2024-06-14 07:05/4.0.540

## SHADOW - Main Result

Calculation: Skugga\_RS3.0.0 3 x V162\_7,2MW\_Kumulativ

...continued from previous page

No.	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
F	366 579	6 193 444	6,2	5,0	5,0	1,0	0,0	"Green house mode"	1,0
G	366 556	6 193 455	6,2	5,0	5,0	1,0	0,0	"Green house mode"	1,0
H	366 605	6 193 432	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
I	368 214	6 192 674	4,1	5,0	5,0	1,0	0,0	"Green house mode"	1,0
J	367 962	6 192 797	4,5	5,0	5,0	1,0	0,0	"Green house mode"	1,0
K	368 123	6 192 790	4,3	5,0	5,0	1,0	0,0	"Green house mode"	1,0
L	368 225	6 192 797	4,7	5,0	5,0	1,0	0,0	"Green house mode"	1,0
M	368 285	6 192 916	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
N	369 720	6 193 360	10,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
O	369 571	6 193 412	10,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
P	369 181	6 193 577	10,8	5,0	5,0	1,0	0,0	"Green house mode"	1,0
Q	368 982	6 193 761	11,2	5,0	5,0	1,0	0,0	"Green house mode"	1,0
R	368 951	6 193 759	11,1	5,0	5,0	1,0	0,0	"Green house mode"	1,0
S	368 999	6 193 680	10,7	5,0	5,0	1,0	0,0	"Green house mode"	1,0
T	368 969	6 193 696	10,7	5,0	5,0	1,0	0,0	"Green house mode"	1,0
U	368 983	6 193 685	10,7	5,0	5,0	1,0	0,0	"Green house mode"	1,0
V	368 958	6 193 690	10,7	5,0	5,0	1,0	0,0	"Green house mode"	1,0
W	368 943	6 193 695	10,6	5,0	5,0	1,0	0,0	"Green house mode"	1,0
X	368 924	6 193 706	10,6	5,0	5,0	1,0	0,0	"Green house mode"	1,0
Y	368 910	6 193 710	10,6	5,0	5,0	1,0	0,0	"Green house mode"	1,0
Z	368 890	6 193 716	10,6	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AA	368 878	6 193 726	10,6	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AB	368 848	6 193 736	10,5	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AC	368 825	6 193 741	10,5	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AD	368 799	6 193 751	10,5	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AE	368 772	6 193 757	10,4	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AF	369 786	6 194 328	15,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AG	369 761	6 194 909	11,4	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AH	369 788	6 194 898	11,3	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AI	368 745	6 194 868	15,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AJ	368 047	6 194 572	15,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AK	367 169	6 193 971	7,4	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AL	367 106	6 194 004	7,7	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AM	367 114	6 193 953	7,1	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AN	366 820	6 193 879	6,6	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AO	366 829	6 193 903	6,8	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AP	366 834	6 193 928	7,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AQ	366 889	6 193 933	7,2	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AR	366 858	6 193 950	7,3	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AS	366 822	6 193 967	7,3	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AT	366 801	6 193 979	7,4	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AU	366 832	6 194 005	7,7	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AV	366 865	6 193 968	7,5	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AW	366 911	6 193 968	7,7	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AX	366 927	6 194 006	8,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AY	366 871	6 194 002	7,8	5,0	5,0	1,0	0,0	"Green house mode"	1,0
AZ	366 862	6 194 039	8,1	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BA	366 935	6 194 024	8,2	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BB	366 935	6 194 049	8,4	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BC	367 482	6 194 623	10,5	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BD	367 633	6 194 855	13,1	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BE	364 158	6 193 390	1,4	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BF	365 997	6 193 600	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BG	366 016	6 193 594	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BH	366 035	6 193 589	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BI	366 055	6 193 583	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BJ	366 074	6 193 574	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0
BK	366 091	6 193 568	5,0	5,0	5,0	1,0	0,0	"Green house mode"	1,0



Project:

Lundåkra

Licensed user:

Renewable Sweden AB  
Batterivägen 2  
SE-311 39 Falkenberg  
+46 723 158788

Calculated:

2024-06-14 07:05/4.0.540

## SHADOW - Main Result

Calculation: Skugga\_RS3.0.0 3 x V162\_7,2MW\_Kumulativ

### Calculation Results

Shadow receptor

No.	Shadow, worst case		Max shadow hours per day [h/day]	Shadow, expected values
	Shadow hours per year [h/year]	Shadow days per year [days/year]		Shadow hours per year [h/year]
A	34:56	84	0:38	8:01
B	154:45	106	2:03	16:08
C	140:07	104	1:58	14:32
D	137:45	109	1:52	14:26
E	134:17	104	1:54	13:56
F	128:49	102	1:52	13:20
G	122:09	102	1:48	12:37
H	137:05	103	1:56	14:13
I	22:20	62	0:31	4:49
J	32:38	69	0:39	6:35
K	24:40	60	0:34	4:54
L	20:37	55	0:31	4:01
M	16:17	47	0:29	2:59
N	0:00	0	0:00	0:00
O	6:57	42	0:16	1:46
P	6:31	36	0:15	1:31
Q	11:34	37	0:24	2:43
R	2:36	17	0:12	0:36
S	0:00	0	0:00	0:00
T	0:00	0	0:00	0:00
U	0:00	0	0:00	0:00
V	0:00	0	0:00	0:00
W	0:00	0	0:00	0:00
X	0:00	0	0:00	0:00
Y	0:00	0	0:00	0:00
Z	0:00	0	0:00	0:00
AA	0:00	0	0:00	0:00
AB	0:00	0	0:00	0:00
AC	0:00	0	0:00	0:00
AD	0:00	0	0:00	0:00
AE	0:00	0	0:00	0:00
AF	55:01	121	0:44	13:45
AG	37:25	68	0:54	4:47
AH	32:15	56	0:54	4:11
AI	71:11	103	1:11	7:25
AJ	46:50	112	0:42	6:13
AK	20:24	66	0:34	2:40
AL	12:13	56	0:19	1:43
AM	17:39	62	0:31	2:19
AN	9:27	22	0:31	0:51
AO	5:32	18	0:25	0:30
AP	1:24	13	0:08	0:08
AQ	3:45	22	0:13	0:21
AR	1:09	12	0:07	0:06
AS	0:00	0	0:00	0:00
AT	0:00	0	0:00	0:00
AU	0:00	0	0:00	0:00
AV	0:25	7	0:05	0:02
AW	2:36	18	0:11	0:15
AX	1:00	12	0:07	0:05
AY	0:00	0	0:00	0:00
AZ	0:00	0	0:00	0:00
BA	0:22	7	0:04	0:02
BB	0:00	0	0:00	0:00
BC	8:44	42	0:21	1:22
BD	10:48	49	0:22	1:19
BE	0:00	0	0:00	0:00
BF	46:30	104	0:36	4:47
BG	46:59	106	0:36	4:50
BH	47:29	106	0:36	4:52
BI	47:43	106	0:36	4:53

To be continued on next page...

Project:

Lundäkra

Licensed user:

Renewable Sweden AB  
Batterivägen 2  
SE-311 39 Falkenberg  
+46 723 158788

Calculated:

2024-06-14 07:05/4.0.540

## SHADOW - Main Result

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW\_Kumulativ

...continued from previous page

No.	Shadow, worst case			Shadow, expected values
	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
BJ	48:45	108	0:36	4:58
BK	49:12	108	0:37	5:00

Total amount of flickering on the shadow receptors caused by each WTG

No.	Name	Worst case [h/year]	Expected [h/year]
1	VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (20)	58:10	6:21
2	VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (21)	136:02	15:14
3	VESTAS V162-7.2 7200 162.0 !O! hub: 144,0 m (TOT: 225,0 m) (22)	214:30	30:43
4	VESTAS V42 600 42.0 !O! hub: 40,0 m (TOT: 61,0 m) (16)	0:00	0:00
5	VESTAS V42 600 42.0 !O! hub: 40,0 m (TOT: 61,0 m) (17)	0:00	0:00
6	VESTAS V42 600 42.0 !O! hub: 40,0 m (TOT: 61,0 m) (18)	0:00	0:00
7	VESTAS V42 600 42.0 !O! hub: 40,0 m (TOT: 61,0 m) (19)	0:00	0:00
8	VESTAS V42 600 42.0 !O! hub: 40,0 m (TOT: 61,0 m) (20)	0:00	0:00
9	VESTAS V42 600 42.0 !O! hub: 40,0 m (TOT: 61,0 m) (21)	0:00	0:00
10	VESTAS V42 600 42.0 !O! hub: 40,0 m (TOT: 61,0 m) (22)	0:00	0:00
11	VESTAS V42 600 42.0 !O! hub: 40,0 m (TOT: 61,0 m) (23)	0:00	0:00
12	VESTAS V42 600 42.0 !O! hub: 40,0 m (TOT: 61,0 m) (24)	0:00	0:00
13	VESTAS V42 600 42.0 !O! hub: 40,0 m (TOT: 61,0 m) (25)	0:00	0:00
14	VESTAS V42 600 42.0 !O! hub: 40,0 m (TOT: 61,0 m) (26)	0:00	0:00
15	VESTAS V42 600 42.0 !O! hub: 40,0 m (TOT: 61,0 m) (27)	0:00	0:00
16	VESTAS V90 2000 90.0 !O! hub: 80,0 m (TOT: 125,0 m) (28)	93:25	14:10
17	VESTAS V90 2000 90.0 !O! hub: 80,0 m (TOT: 125,0 m) (29)	64:58	8:19
18	VESTAS V90 2000 90.0 !O! hub: 80,0 m (TOT: 125,0 m) (30)	102:18	19:17

Total times in Receptor wise and WTG wise tables can differ, as a WTG can lead to flicker at 2 or more receptors simultaneously and/or receptors may receive flicker from 2 or more WTGs simultaneously.

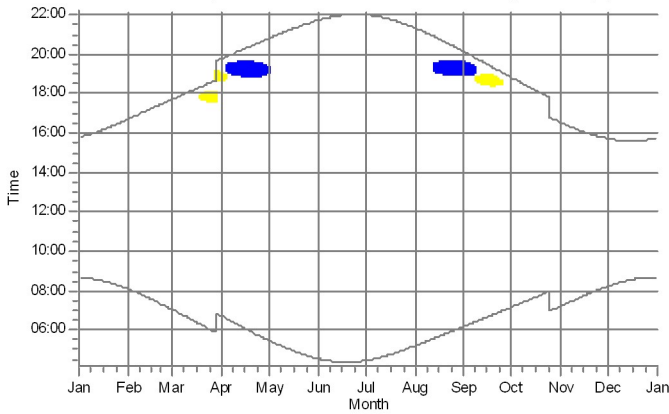
The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.



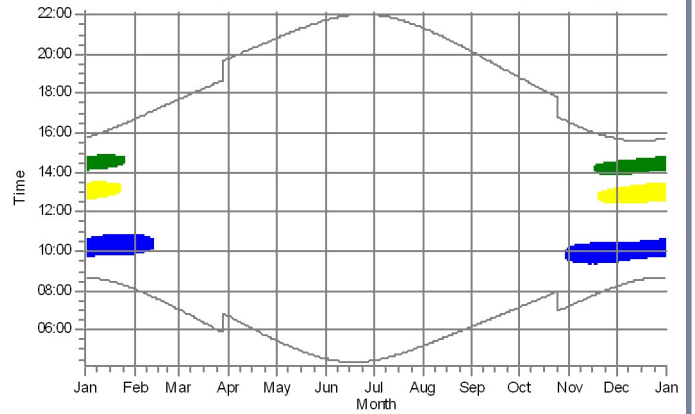
## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_7,2MW\_Kumulativ

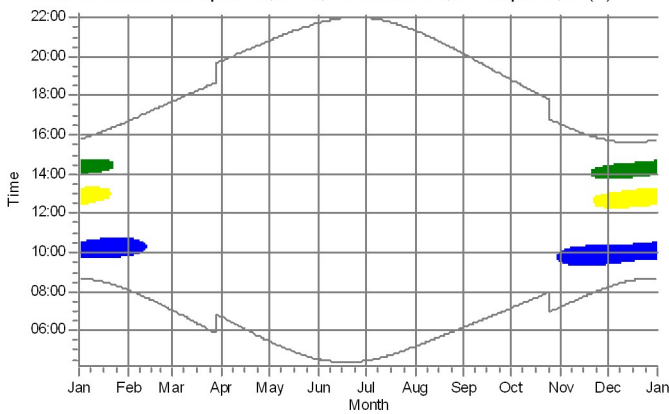
A: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (1)



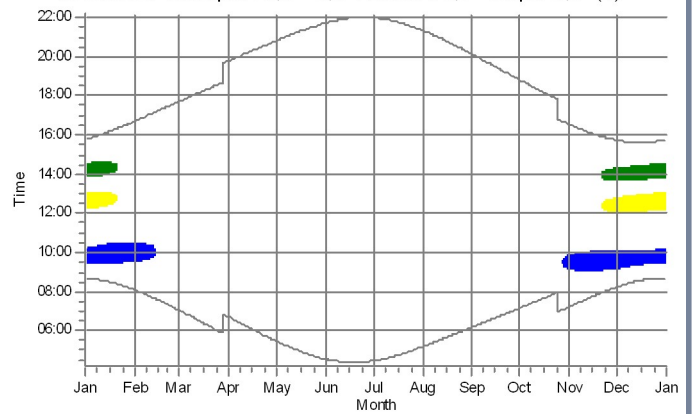
B: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (2)



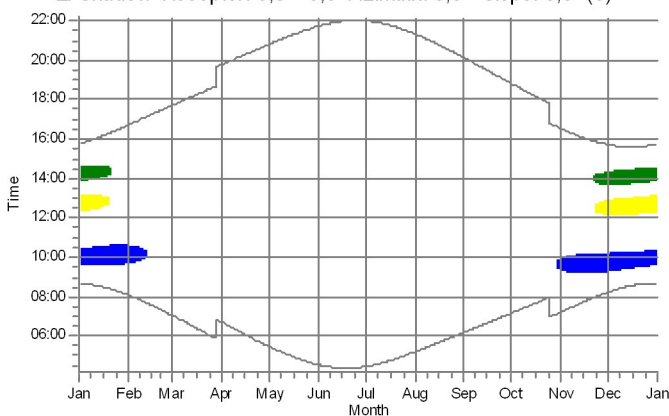
C: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (3)



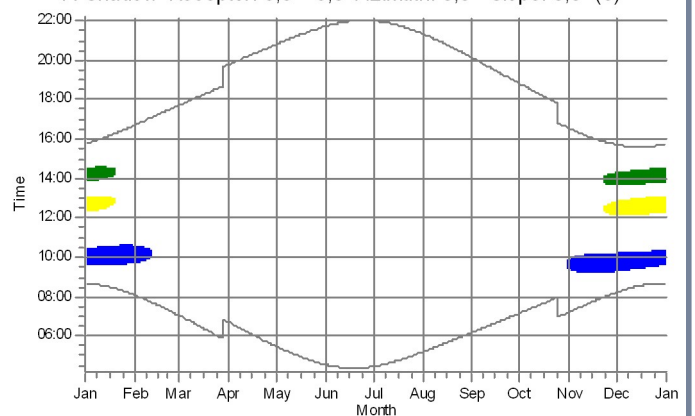
D: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (4)



E: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (5)



F: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (6)



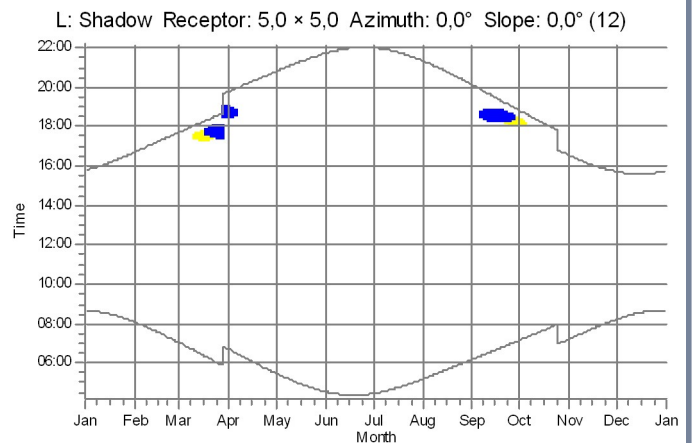
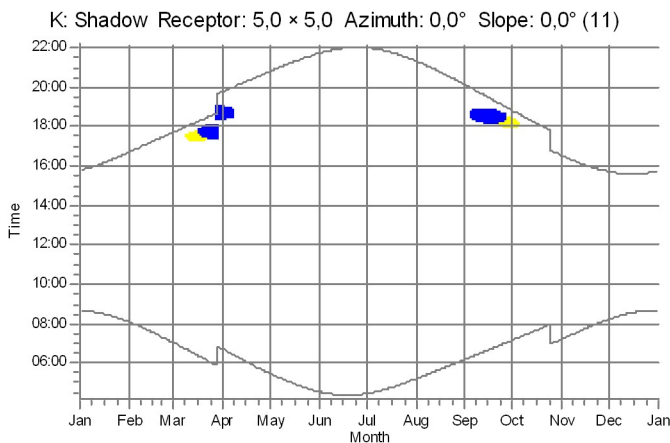
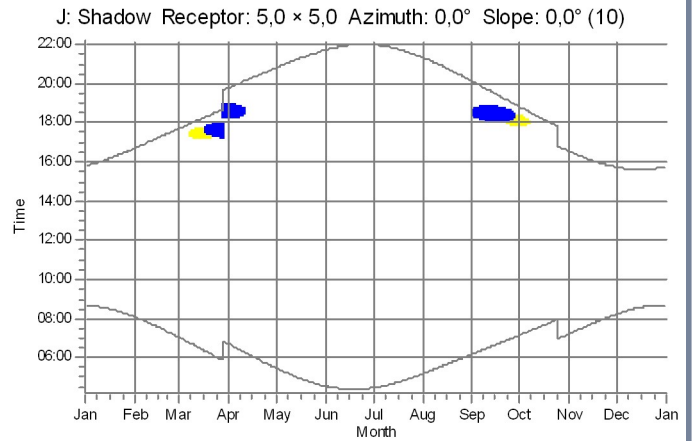
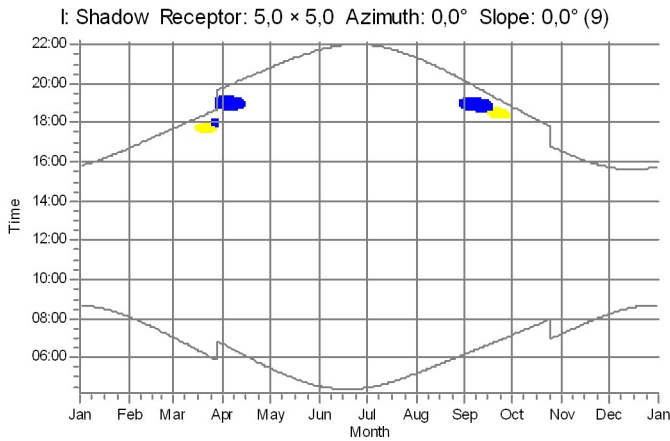
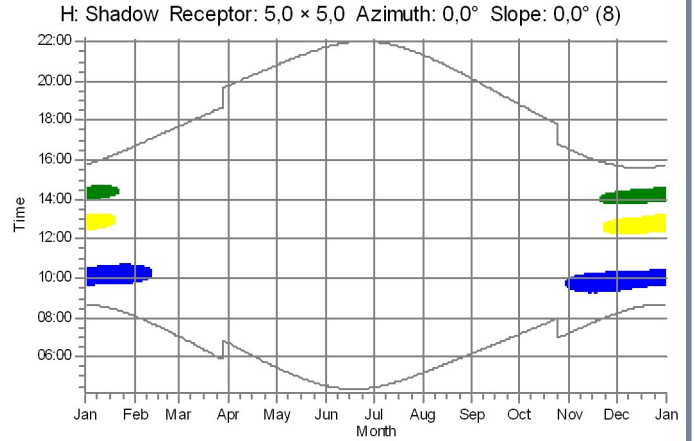
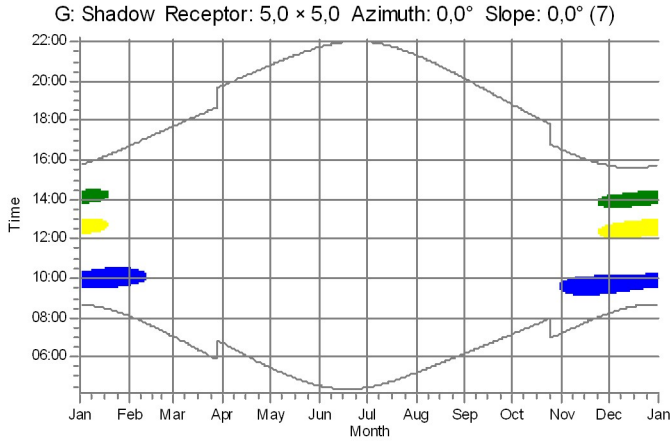
WTGs

- 1: VESTAS V162-7.2 7200 162.0 IOI hub: 144,0 m (TOT: 225,0 m) (20)
- 2: VESTAS V162-7.2 7200 162.0 IOI hub: 144,0 m (TOT: 225,0 m) (21)

- 3: VESTAS V162-7.2 7200 162.0 IOI hub: 144,0 m (TOT: 225,0 m) (22)

## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_7,2MW\_Kumulativ



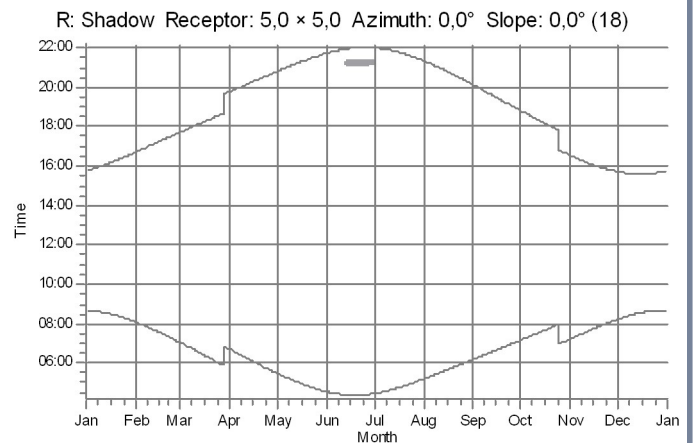
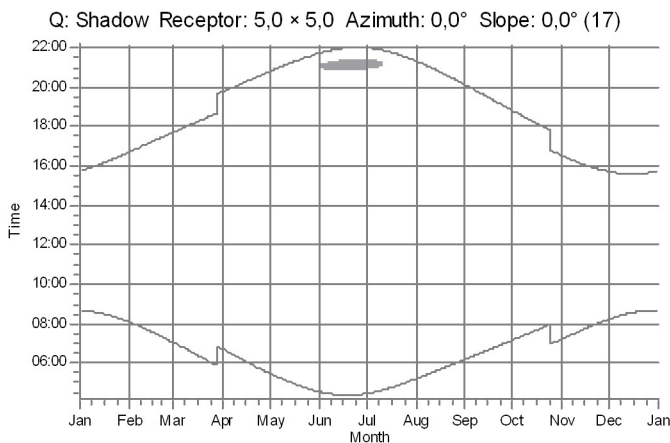
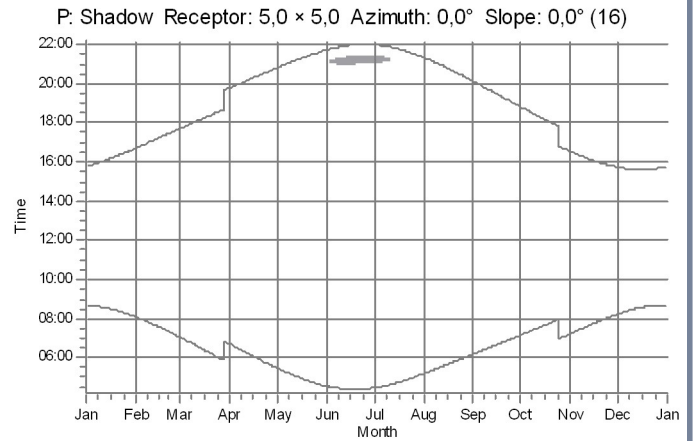
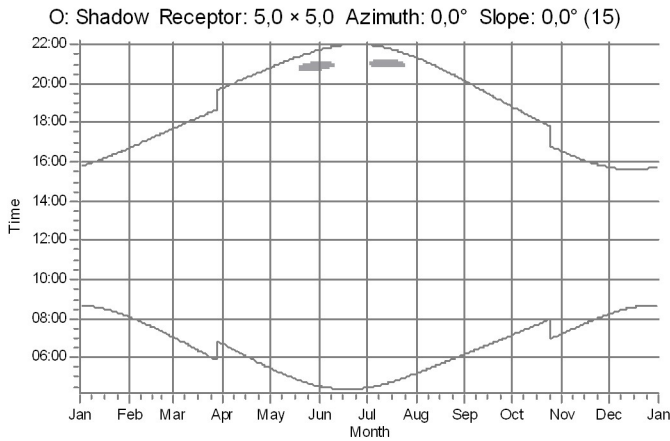
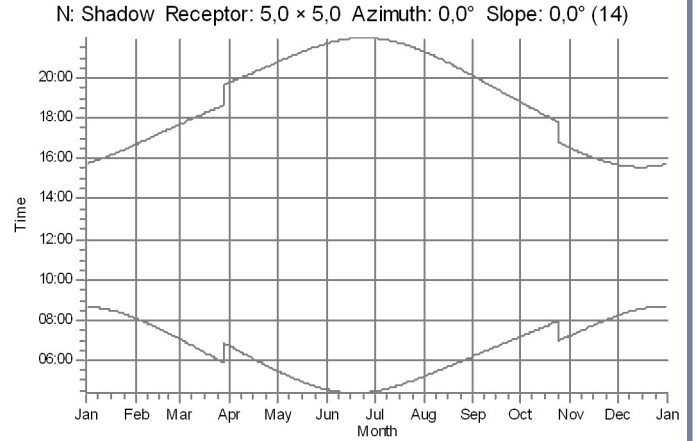
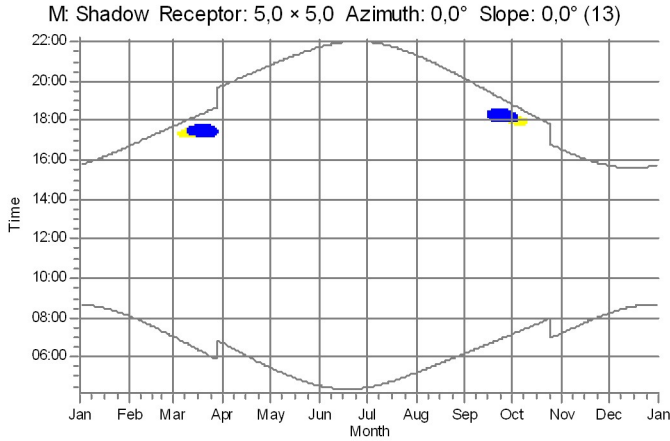
WTGs

- 1: VESTAS V162-7.2 7200 162.0 IOI hub: 144,0 m (TOT: 225,0 m) (20)
- 2: VESTAS V162-7.2 7200 162.0 IOI hub: 144,0 m (TOT: 225,0 m) (21)

- 3: VESTAS V162-7.2 7200 162.0 IOI hub: 144,0 m (TOT: 225,0 m) (22)

## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW\_Kumulativ



WTGs

- 2: VESTAS V162-7.2 7200 162.0 IOI hub: 144,0 m (TOT: 225,0 m) (21)
- 3: VESTAS V162-7.2 7200 162.0 IOI hub: 144,0 m (TOT: 225,0 m) (22)

- 16: VESTAS V90 2000 90.0 IOI hub: 80,0 m (TOT: 125,0 m) (28)

Project:

Lundåkra

Licensed user:

Renewable Sweden AB  
Batterivägen 2  
SE-311 39 Falkenberg  
+46 723 158788

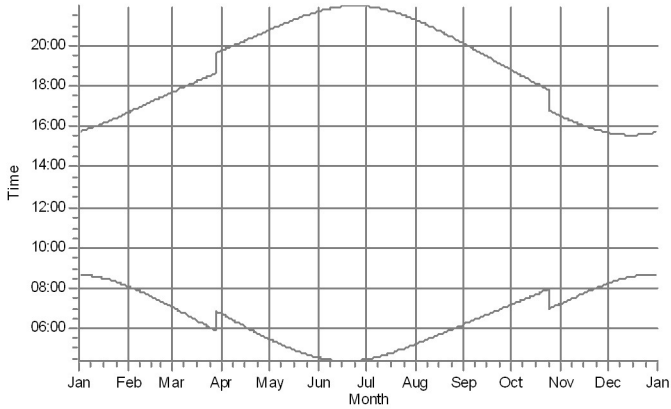
Calculated:

2024-06-14 07:05/4.0.540

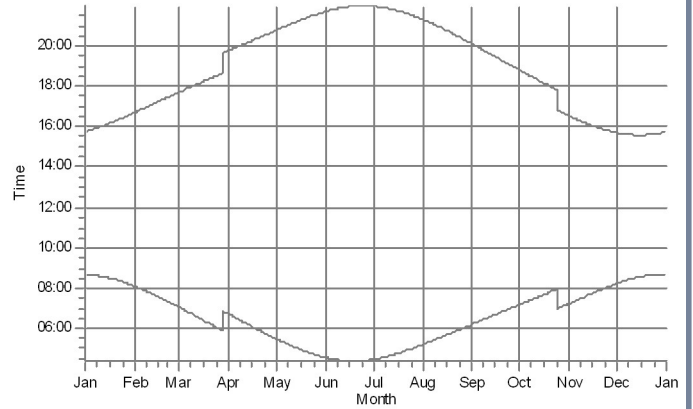
## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW\_Kumulativ

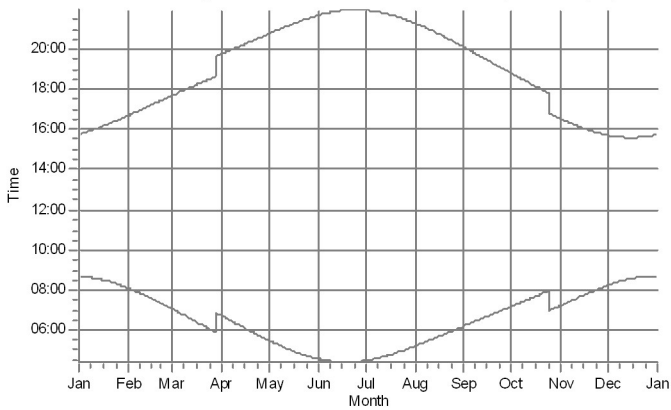
S: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (19)



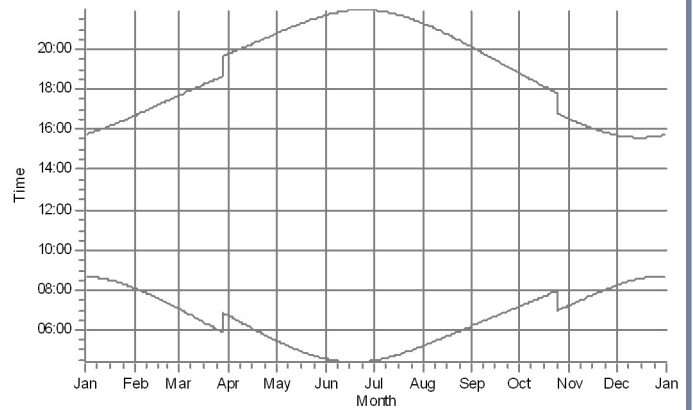
T: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (20)



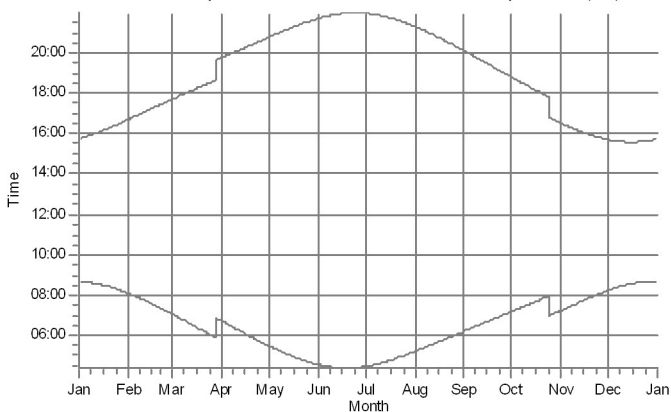
U: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (21)



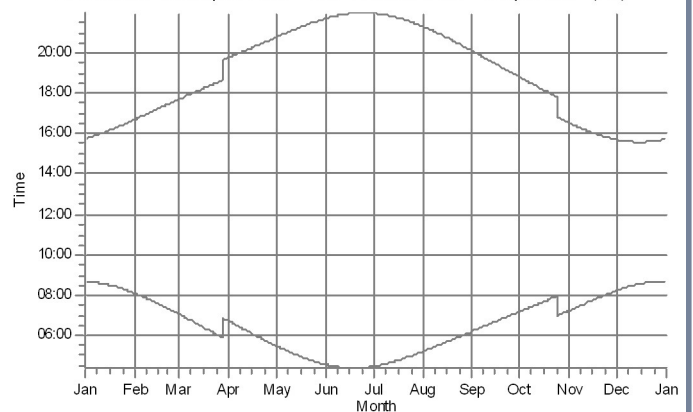
V: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (22)



W: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (23)



X: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (24)

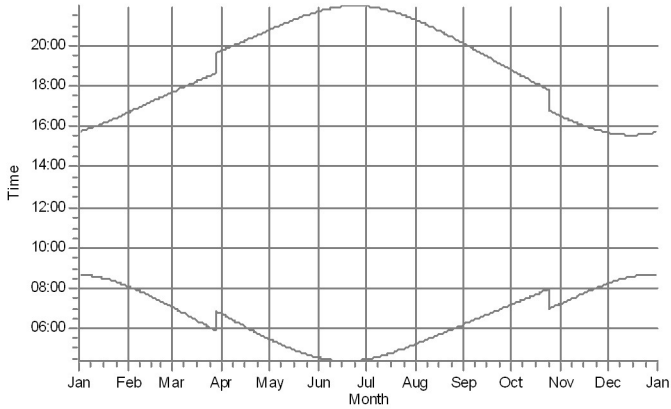


WTGs

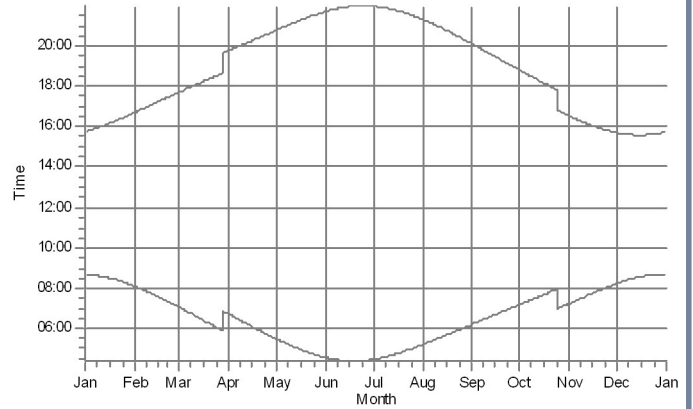
## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW\_Kumulativ

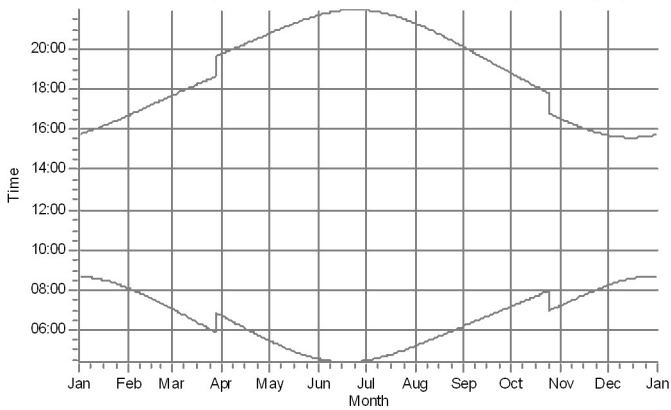
Y: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (25)



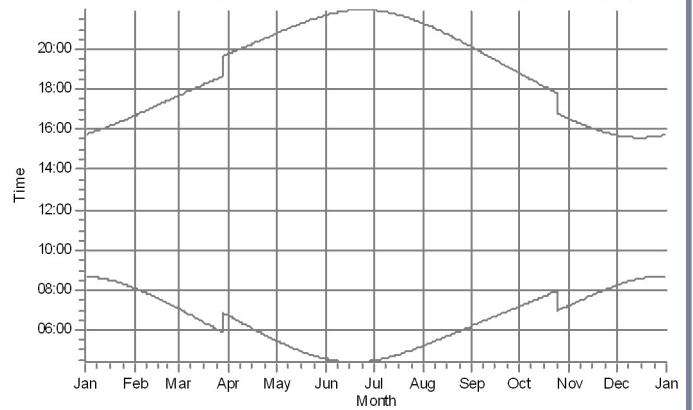
Z: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (26)



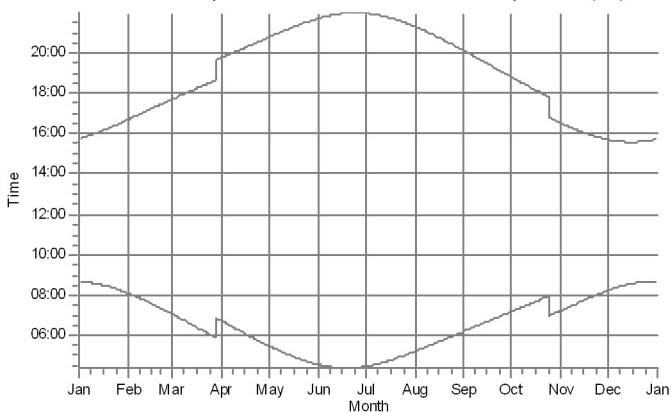
AA: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (27)



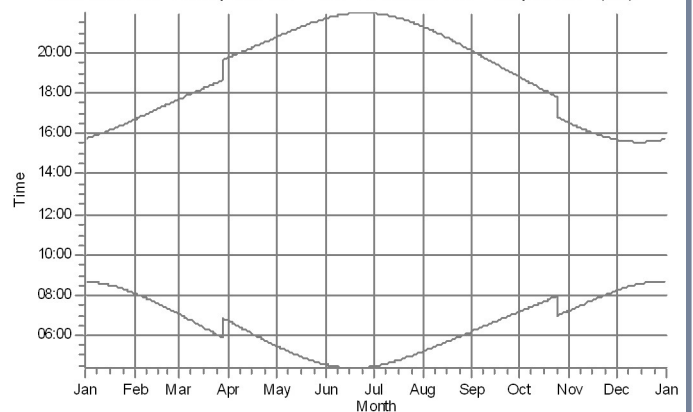
AB: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (28)



AC: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (29)



AD: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (30)



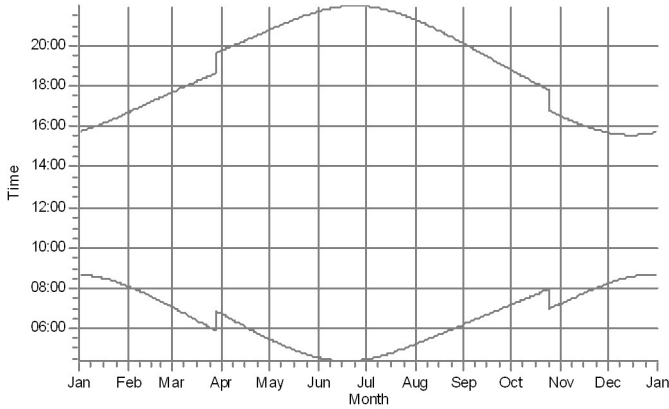
WTGs



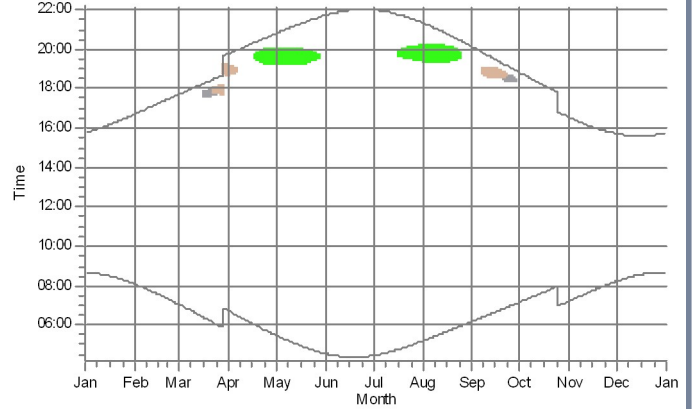
## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW\_Kumulativ

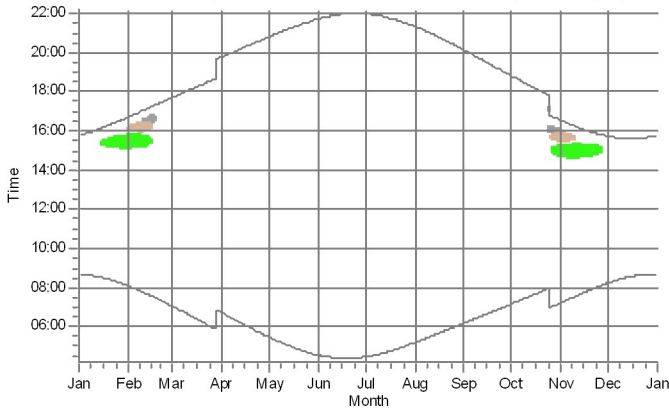
AE: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (31)



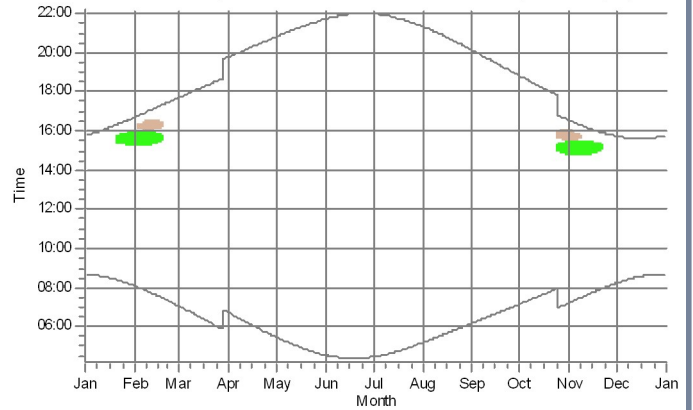
AF: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (32)



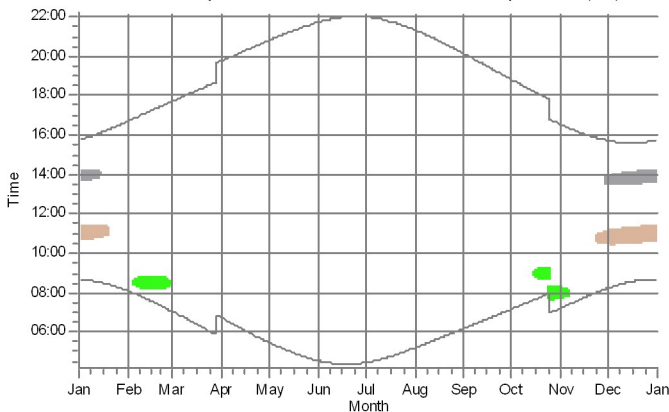
AG: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (33)



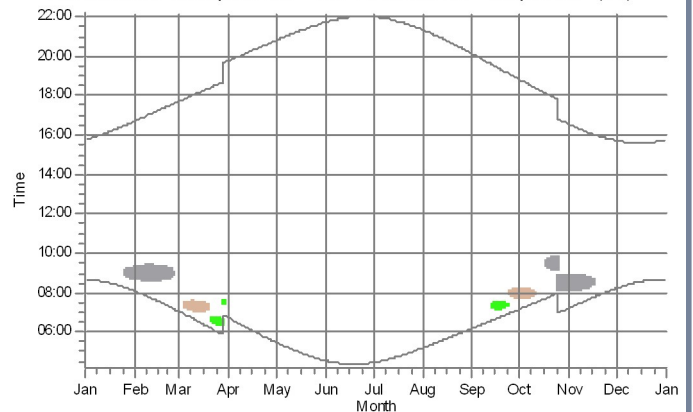
AH: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (34)



AI: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (35)



AJ: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (36)



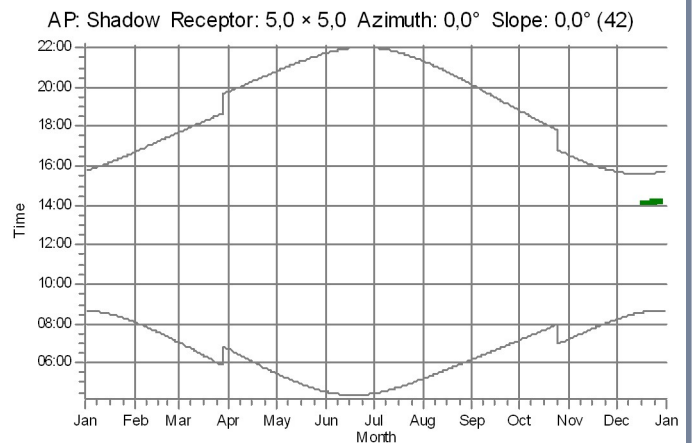
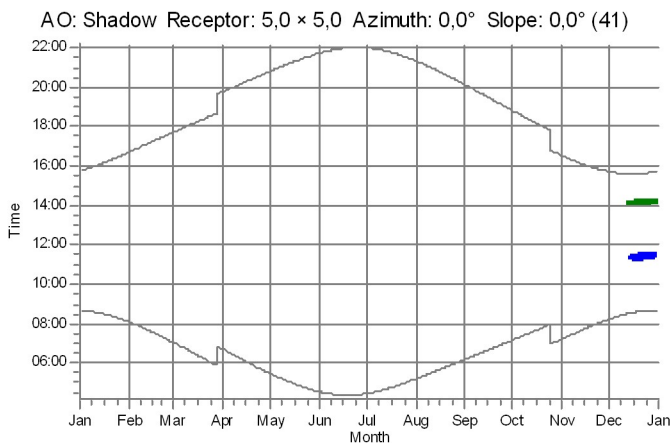
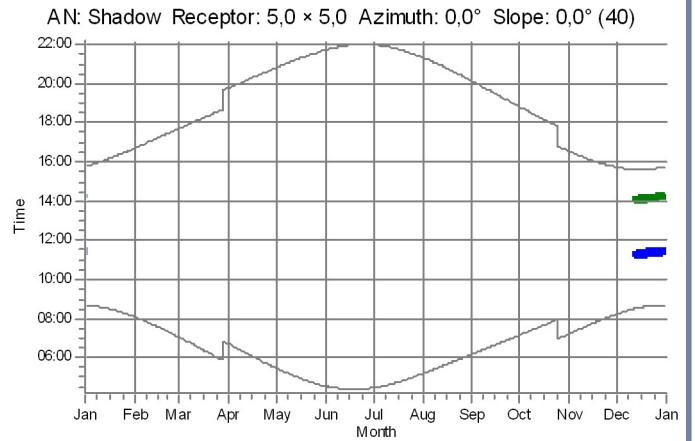
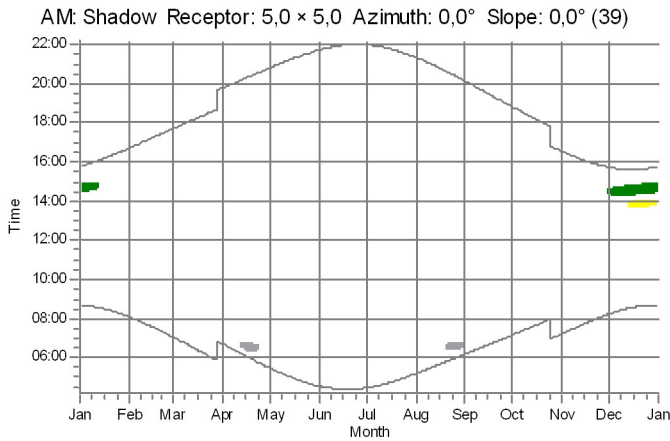
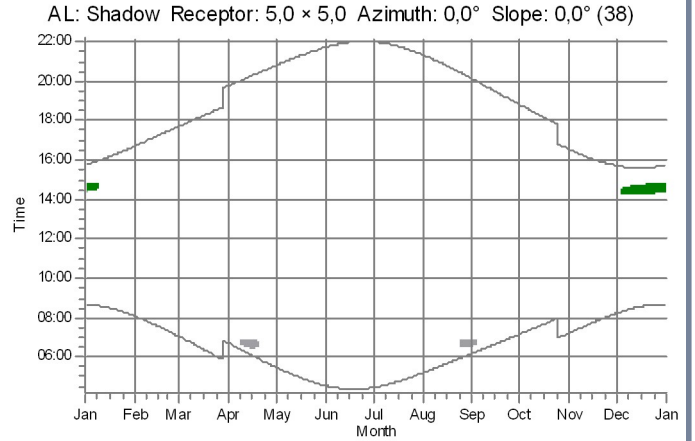
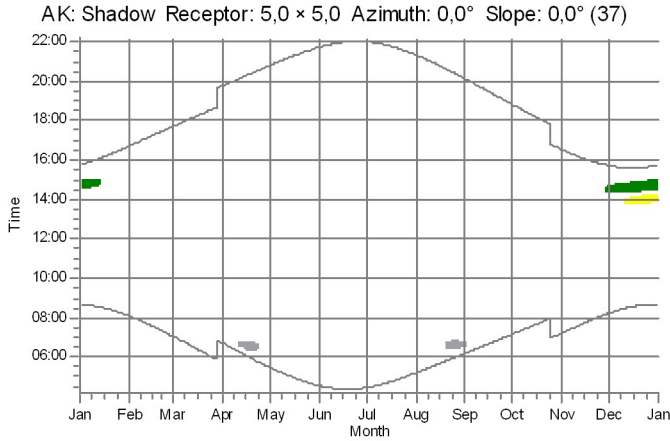
WTGs

- 16: VESTAS V90 2000 90.0 IOI hub: 80,0 m (TOT: 125,0 m) (28)
- 17: VESTAS V90 2000 90.0 IOI hub: 80,0 m (TOT: 125,0 m) (29)

- 18: VESTAS V90 2000 90.0 IOI hub: 80,0 m (TOT: 125,0 m) (30)

## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_7,2MW\_Kumulativ



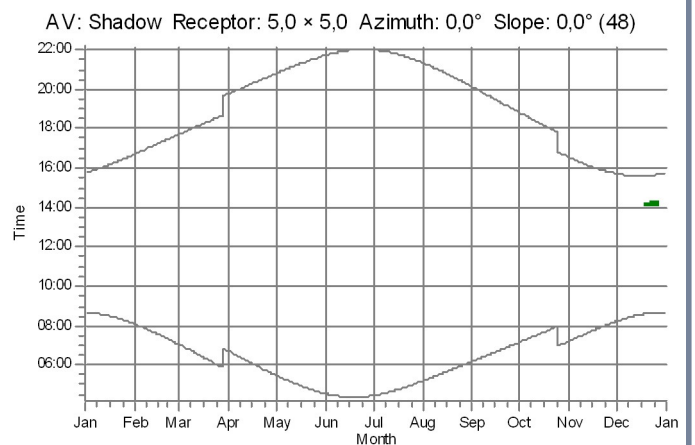
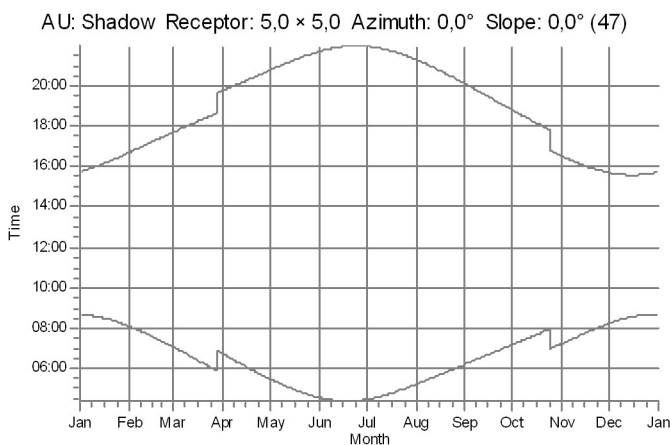
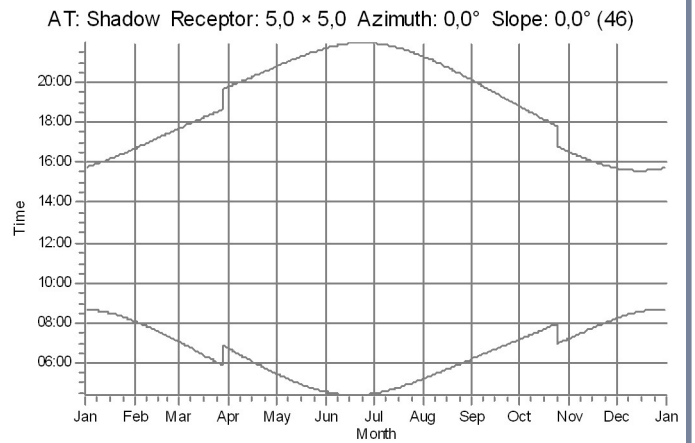
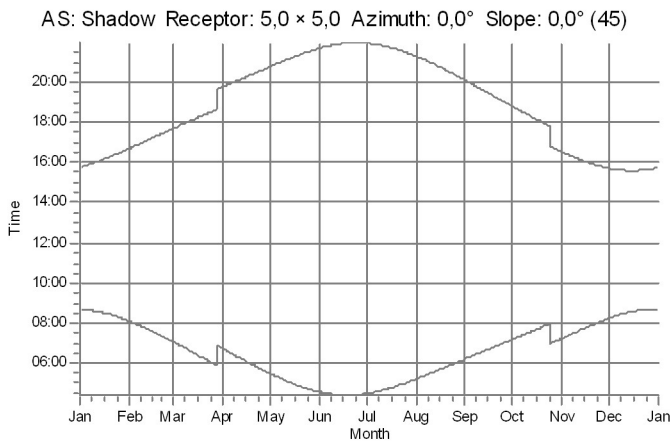
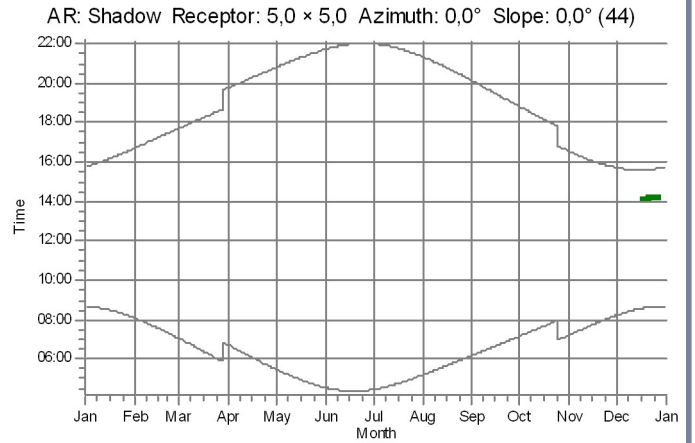
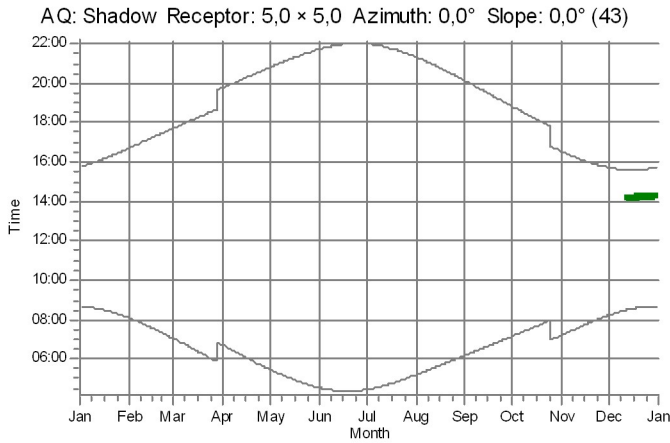
WTGs

- 1: VESTAS V162-7.2 7200 162.0 IOI hub: 144,0 m (TOT: 225,0 m) (20)
- 2: VESTAS V162-7.2 7200 162.0 IOI hub: 144,0 m (TOT: 225,0 m) (21)

- 3: VESTAS V162-7.2 7200 162.0 IOI hub: 144,0 m (TOT: 225,0 m) (22)
- 16: VESTAS V90 2000 90.0 IOI hub: 80,0 m (TOT: 125,0 m) (28)

## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW\_Kumulativ

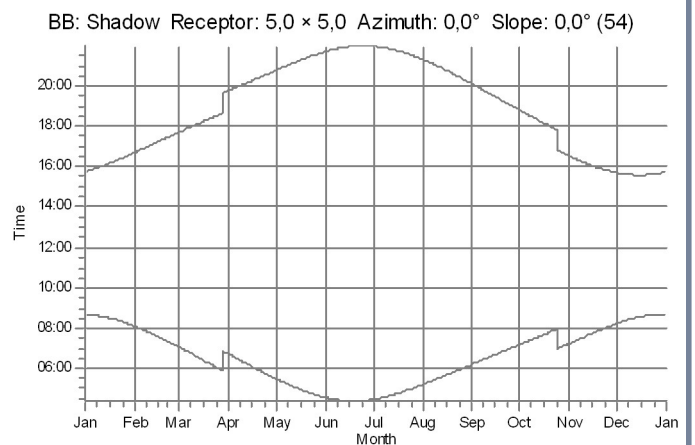
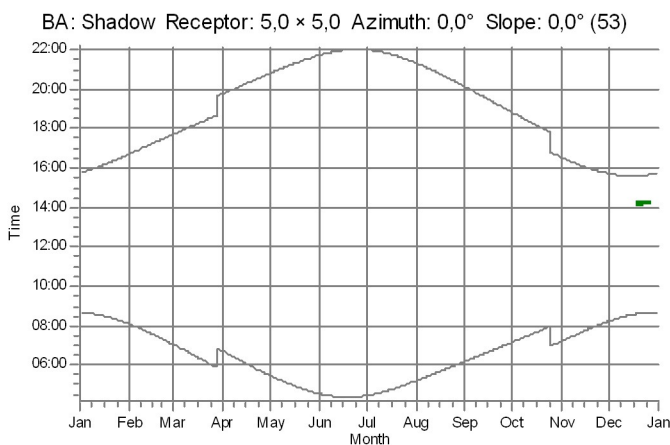
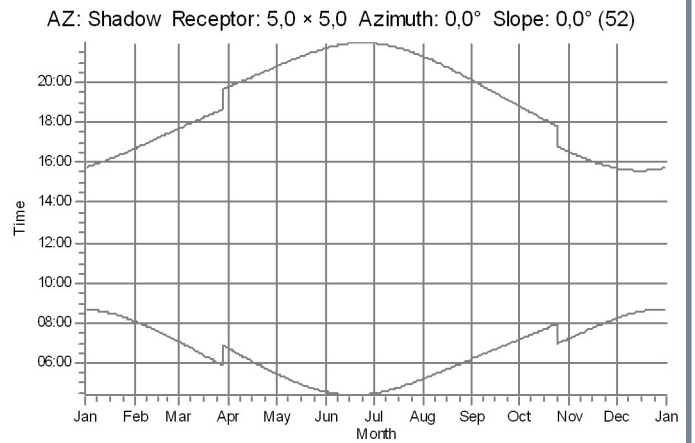
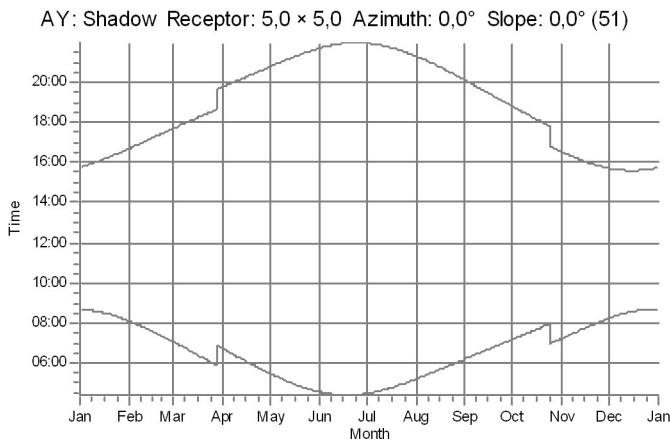
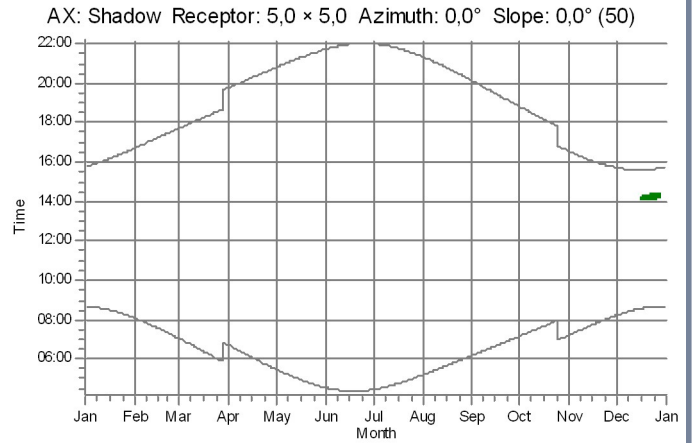
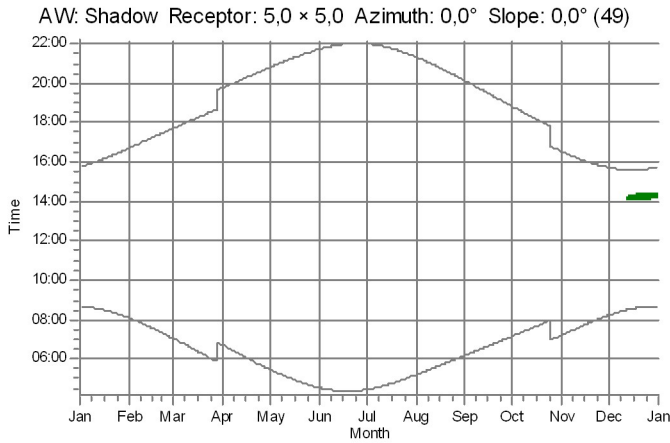


WTGs

1: VESTAS V162-7.2 7200 162.0 IOI hub: 144,0 m (TOT: 225,0 m) (20)

## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW\_Kumulativ

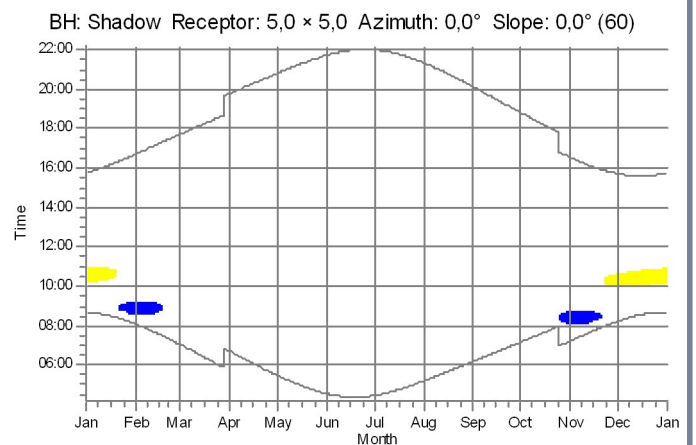
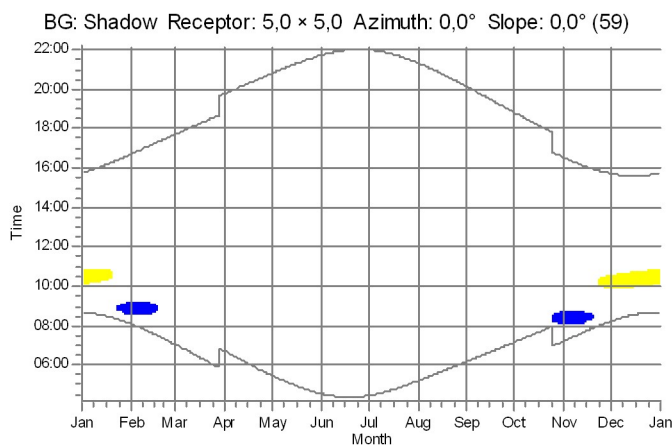
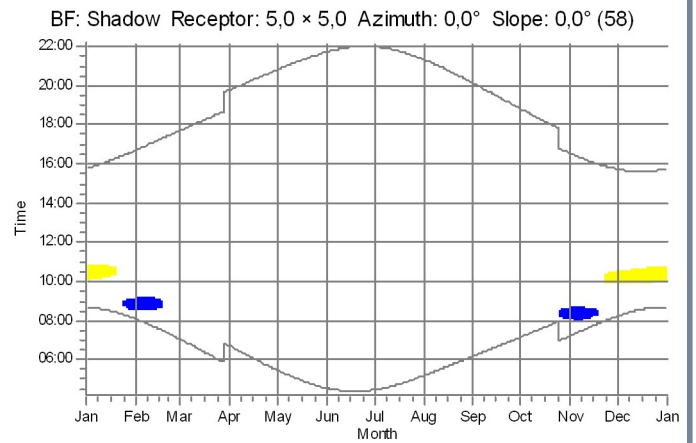
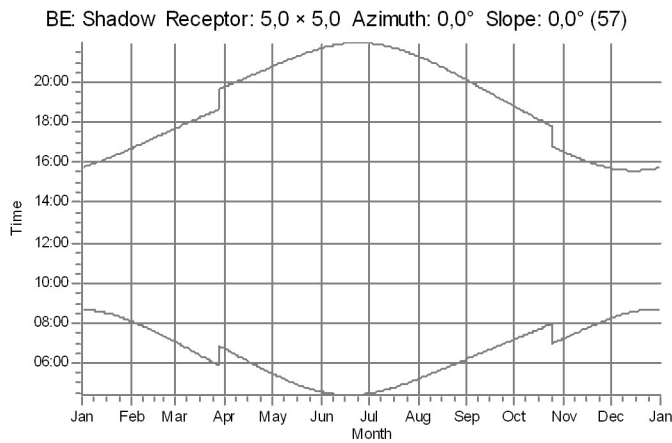
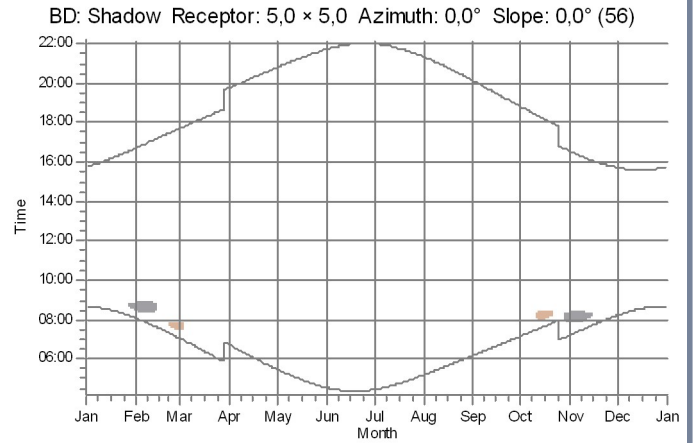
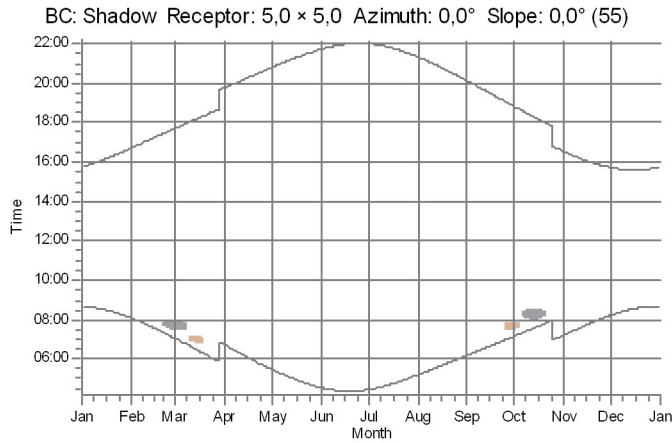


WTGs

1: VESTAS V162-7.2 7200 162.0 IOI hub: 144,0 m (TOT: 225,0 m) (20)

## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_7,2MW\_Kumulativ



WTGs

- 2: VESTAS V162-7.2 7200 162.0 IOI hub: 144,0 m (TOT: 225,0 m) (21)
- 3: VESTAS V162-7.2 7200 162.0 IOI hub: 144,0 m (TOT: 225,0 m) (22)

- 16: VESTAS V90 2000 90.0 IOI hub: 80,0 m (TOT: 125,0 m) (28)
- 17: VESTAS V90 2000 90.0 IOI hub: 80,0 m (TOT: 125,0 m) (29)



Project:

Lundåkra

Licensed user:

Renewable Sweden AB

Batterivägen 2

SE-311 39 Falkenberg

+46 723 158788

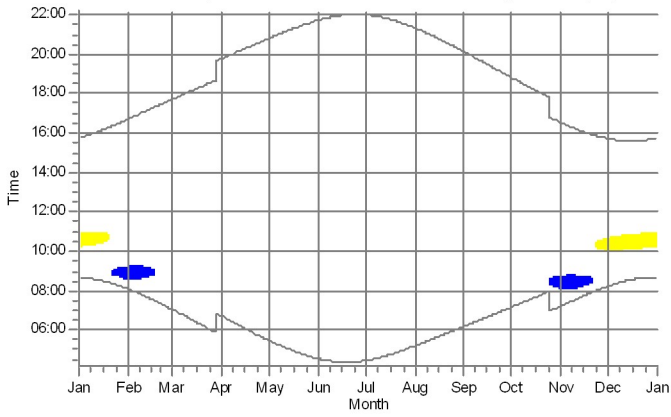
Calculated:

2024-06-14 07:05/4.0.540

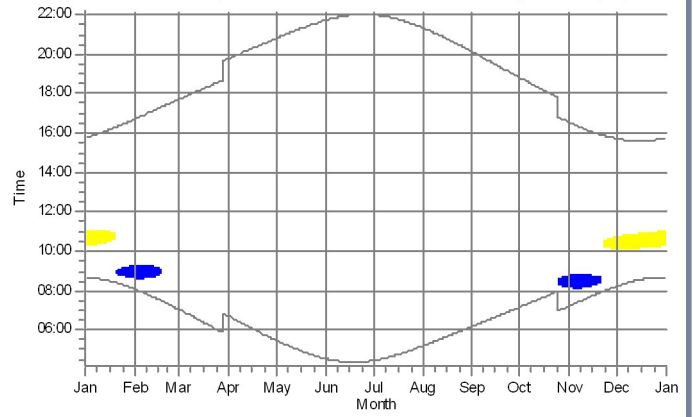
## SHADOW - Calendar, graphical

Calculation: Skugga\_RS3.0.0 3 x V162\_ 7,2MW\_Kumulativ

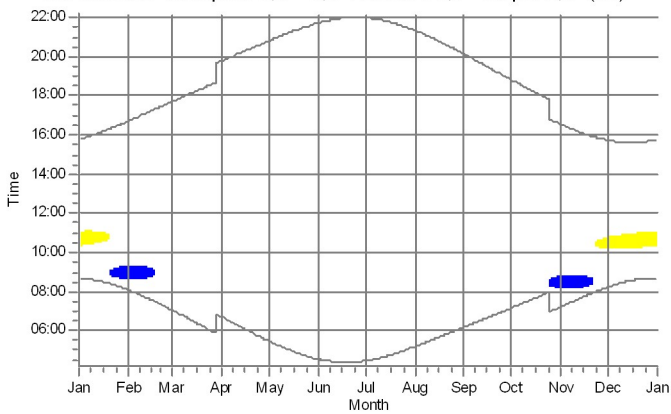
BI: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (61)



BJ: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (62)



BK: Shadow Receptor: 5,0 × 5,0 Azimuth: 0,0° Slope: 0,0° (63)



WTGs

2: VESTAS V162-7.2 7200 162.0 IOI hub: 144,0 m (TOT: 225,0 m) (21)

3: VESTAS V162-7.2 7200 162.0 IOI hub: 144,0 m (TOT: 225,0 m) (22)

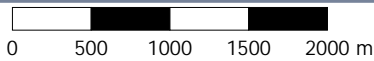
Project:  
Lundåkra

Licensed user:  
Renewable Sweden AB  
Batterivägen 2  
SE-311 39 Falkenberg  
+46 723 158788

Calculated:  
2024-06-14 07:05/4.0.540

### SHADOW - Map

Calculation: Skugga\_RS3.0.0 3 x V162\_7,2MW\_Kumulativ



Map: Swedish Topographic Map, Print scale 1:48 000, Map center Swedish UTM 33-SWREF99 (SE) East: 366 060 North: 6 193 100

▲ New WTG    \* Existing WTG    ● Shadow receptor

Flicker map level: Height Contours: CONTOURLINE\_ONLINEDATA\_1.wpo (13)

Time step: 3 minutes, Day step: 7 days, Map resolution: 20 m, Visibility resolution: 10 m, Eye height: 1,5 m