PVKIT005B
2 X 10 SSMCAB245 + STP5000TL-20

Grid-Connected System: Simulation parameters

Project : **DENMARK KITS**

Geographical Site	**Kobenhavn**		**Country**	**Denmark**
Situation	Latitude	55.4°N	Longitude	12.4°E
Time defined as	Legal Time	Time zone UT+1	Altitude	5 m
	Albedo	0.25		

Meteo data : Kobenhavn, Synthetic Hourly data

Simulation variant : **KIT005B**

Simulation date 04/02/13 13h09

Simulation parameters

Collector Plane Orientation	Tilt	40°	Azimuth	0°
Models used	Transposition	Hay	Diffuse	Measured
Horizon	Free Horizon			
Near Shadings	No Shadings			

PV Array Characteristics

PV module	Si-mono	Model	**SSM60C-245 BL**		
		Manufacturer	Senersun LTD.		
Number of PV modules		In series	10 modules	In parallel	2 strings
Total number of PV modules		Nb. modules	20	Unit Nom. Power	245 Wp
Array global power		Nominal (STC)	**4900 Wp**	At operating cond.	4364 Wp (50°C)
Array operating characteristics (50°C)		U mpp	272 V	I m pp	16 A
Total area		Module area	**32.5 m²**	Cell area	27.8 m²

Inverter		Model	**Sunny Tripower STP 5000TL-20**		
		Manufacturer	SMA Solar Technology AG		
Characteristics		Operating Voltage	245-800 V	Unit Nom. Power	5.00 kW AC

PV Array loss factors

Thermal Loss factor	Uc (const)	20.0 W/m²K	Uv (wind)	0.0 W/m²K / m/s
=> Nominal Oper. Coll. Temp. (G=800 W/m², Tamb=20°C, Wind=1 m/s.)			NOCT	56 °C
Wiring Ohmic Loss	Global array res.	284 mOhm	Loss Fraction	1.5 % at STC
Module Quality Loss			Loss Fraction	0.0 %
Module Mismatch Losses			Loss Fraction	2.0 % at MPP
Incidence effect, ASHRAE parametrization	IAM =	1 - bo (1/cos i - 1)	bo Parameter	0.05

User's needs : Unlimited load (grid)

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Grid-Connected System: Main results

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Simulation variant : **KIT005B**

Main system parameters	System type	**Grid-Connected**			
PV Field Orientation	tilt	40°	azimuth	0°	
PV modules	Model	SSM60C-245 BL	Pnom	245 Wp	
PV Array	Nb. of modules	20	Pnom total	**4900 Wp**	
Inverter	Model	Sunny Tripower STP 5000TL-20	Pnom	5.00 kW ac	
User's needs	Unlimited load (grid)				

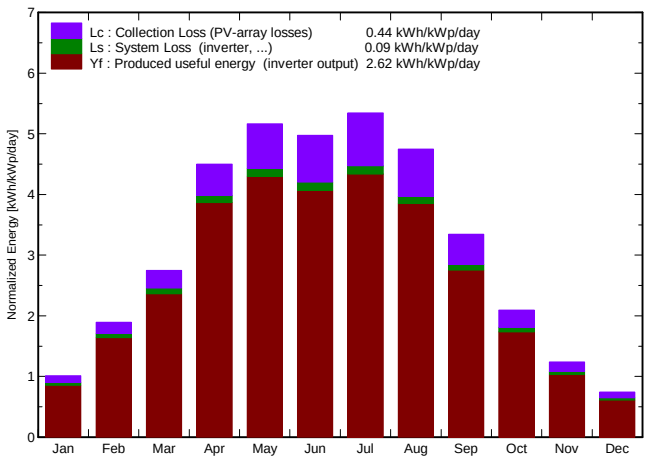
Main simulation results

System Production

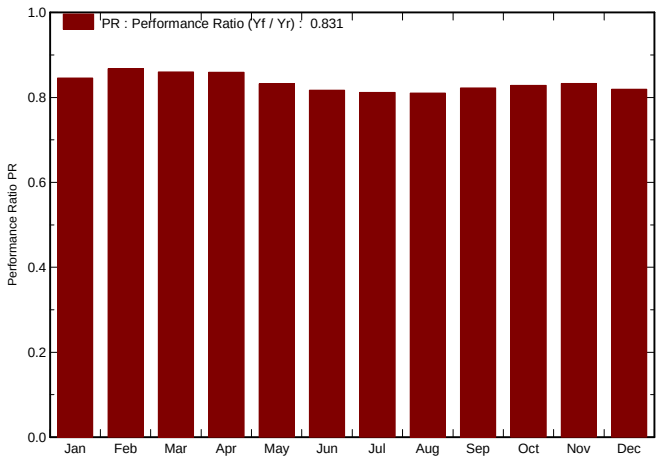
Produced Energy **4691 kWh/year** Specific prod. 957 kWh/kWp/year

Performance Ratio PR 83.1 %

Normalized productions (per installed kWp): Nominal power 4900 Wp



Performance Ratio PR



KIT005B

Balances and main results

	GlobHor kWh/m²	T Amb ℃	GlobInc kWh/m²	GlobEff kWh/m²	EArray kWh	E_Grid kWh	EffArrR %	EffSysR %
January	16.0	2.30	31.4	30.5	137.1	130.1	13.42	12.73
February	32.0	1.00	53.0	51.4	234.5	225.3	13.60	13.07
March	63.0	2.50	85.3	82.5	373.1	359.4	13.45	12.95
April	115.0	5.10	135.0	130.8	585.5	568.4	13.33	12.94
May	156.0	10.40	160.2	155.1	673.5	653.1	12.92	12.53
June	154.0	13.30	149.3	144.2	618.1	598.0	12.72	12.31
July	165.0	15.20	165.6	160.3	679.8	658.9	12.61	12.23
August	132.0	15.90	147.2	142.7	603.5	584.8	12.60	12.21
September	80.0	13.80	100.4	97.3	419.0	404.8	12.82	12.39
October	44.0	10.50	65.0	63.0	274.5	263.7	12.98	12.47
November	20.0	6.50	37.2	36.1	159.7	151.8	13.19	12.55
December	11.0	4.00	23.1	22.5	98.4	92.9	13.06	12.34
Year	988.0	8.42	1152.7	1116.3	4856.9	4691.2	12.95	12.51

Legends:

GlobHor	Horizontal global irradiation	EArray	Effective energy at the output of the array
T Amb	Ambient Temperature	E_Grid	Energy injected into grid
GlobInc	Global incident in coll. plane	EffArrR	Effic. Eout array / rough area
GlobEff	Effective Global, corr. for IAM and shadings	EffSysR	Effic. Eout system / rough area

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Grid-Connected System: Loss diagram

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Loss diagram over the whole year