Lampiran C

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Grid-Connected System: Simulation parameters

Project : **STTPLN**

Geographical Site	**Jakarta**		Country	**Indonesia**
Situation	Latitude	6.2°S	Longitude	106.7°E
Time defined as	Legal Time	Time zone UT+7	Altitude	7 m
	Albedo	0.20		
Meteo data:	**Jakarta**	Meteonorm 7.1 (2010-2014), Sat=100% - Synthetic		

Simulation variant : **STTPLN**

Simulation date	30/07/17 01h03

Simulation parameters

Collector Plane Orientation	Tilt	15°	Azimuth	0°
Models used	Transposition	Perez	Diffuse	Perez, Meteonorm
Horizon	Free Horizon			
Near Shadings	No Shadings			

PV Array Characteristics

PV module	Si-mono	Model	**STP 260S-20/Web**		
Original PVsyst database		Manufacturer	Suntech		
Number of PV modules		In series	18 modules	In parallel	3 strings
Total number of PV modules		Nb. modules	54	Unit Nom. Power	260 Wp
Array global power		Nominal (STC)	**14.04 kWp**	At operating cond.	12.49 kWp (50°C)
Array operating characteristics (50°C)		U mpp	483 V	I mpp	26 A
Total area		Module area	**87.9 m²**	Cell area	79.2 m²

Inverter	Model	**STP17000TL**		
Custom parameters definition	Manufacturer	SMA		
Characteristics	Operating Voltage	400-800 V	Unit Nom. Power	17.0 kWac
Inverter pack	Nb. of inverters	1 units	Total Power	17.0 kWac

PV Array loss factors

Thermal Loss factor	Uc (const)	20.0 W/m²K	Uv (wind)	0.0 W/m²K / m/s
Wiring Ohmic Loss	Global array res.	317 mOhm	Loss Fraction	1.5 % at STC
Module Quality Loss			Loss Fraction	-1.3 %
Module Mismatch Losses			Loss Fraction	1.0 % at MPP
Incidence effect, ASHRAE parametrization	IAM =	1 - bo (1/cos i - 1)	bo Param.	0.05

User's needs : Unlimited load (grid)

PVsyst Evaluation mode

Grid-Connected System: Main results

Project : **STTPLN**

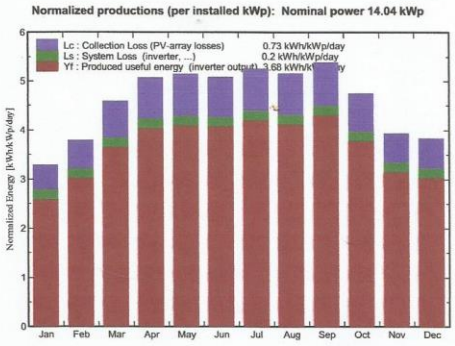
Simulation variant : **STTPLN**

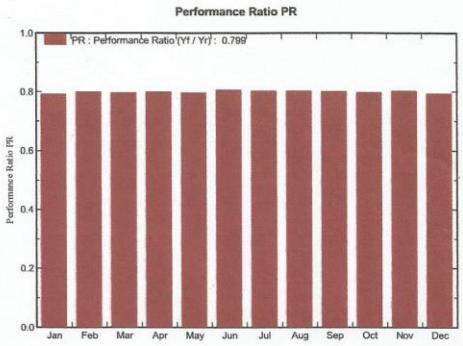
Main system parameters	System type	**Grid-Connected**		
PV Field Orientation	tilt	15°	azimuth	0°
PV modules	Model	STP 260S-20/Web	Pnom	260 Wp
PV Array	Nb. of modules	54	Pnom total	**14.04 kWp**
Inverter	Model	STP17000TL	Pnom	17.00 kW ac
User's needs	Unlimited load (grid)			

Main simulation results

System Production — **Produced Energy** **18.85 MWh/year** Specific prod. 1342 kWh/kWp/year

Performance Ratio PR 79.9 %





STTPLN

Balances and main results

	GlobHor kWh/m²	T Amb °C	GlobInc kWh/m²	GlobEff kWh/m²	EArray MWh	E_Grid MWh	EffArrR %	EffSysR %
January	110.3	26.17	102.1	97.8	1.219	1.134	13.60	12.65
February	111.7	25.83	106.3	102.2	1.269	1.192	13.60	12.77
March	143.4	26.49	142.3	137.5	1.678	1.591	13.42	12.72
April	146.0	26.43	151.8	147.1	1.788	1.703	13.41	12.77
May	147.0	26.79	159.3	154.7	1.868	1.782	13.35	12.73
June	137.7	26.05	152.1	147.8	1.797	1.718	13.45	12.86
July	147.0	26.25	162.4	157.9	1.914	1.829	13.41	12.82
August	150.8	26.44	159.6	154.8	1.882	1.797	13.42	12.82
September	159.0	26.44	161.2	156.0	1.897	1.812	13.39	12.80
October	152.2	27.07	146.8	141.5	1.729	1.645	13.41	12.75
November	126.3	26.42	117.8	113.1	1.406	1.326	13.59	12.81
December	130.3	26.25	118.5	113.7	1.406	1.320	13.50	12.67
Year	1661.7	26.39	1680.2	1624.0	19.853	18.848	13.45	12.77

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

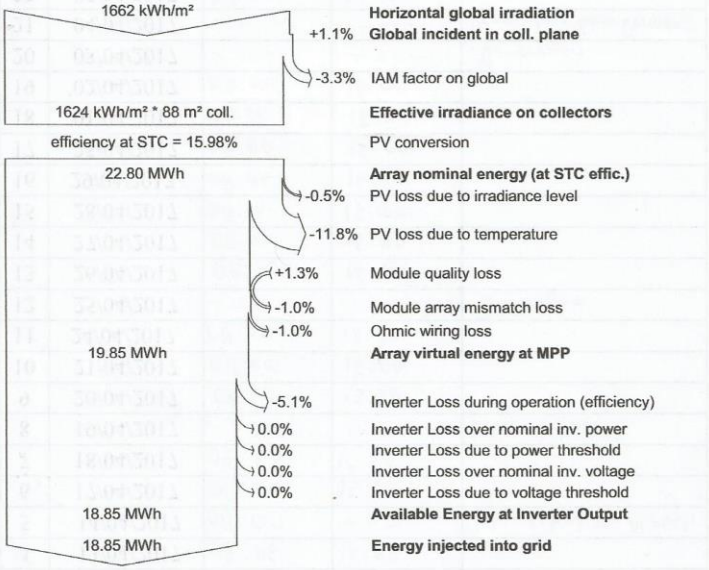
Grid-Connected System: Loss diagram

Project : **STTPLN**

Simulation variant : **STTPLN**

Main system parameters	System type	**Grid-Connected**		
PV Field Orientation	tilt	15°	azimuth	0°
PV modules	Model	STP 260S-20/Web	Pnom	260 Wp
PV Array	Nb. of modules	54	Pnom total	**14.04 kWp**
Inverter	Model	STP17000TL	Pnom	17.00 kW ac
User's needs	Unlimited load (grid)			

Loss diagram over the whole year



PVsyst Evaluation mode