

IMPIANTO FOTOVOLTAICO EG VERDE SRL

E OPERE CONNESSE

POTENZA IMPIANTO 18,52MWp - COMUNE DI LAGOSANTO (FE)

Proponente

EG VERDE S.R.L.

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Titolo Elaborato

STIMA PRODUCIBILITA'

LIVELLO PROGETTAZIONE	CODICE ELABORATO	FILENAME	RIFERIMENTO	DATA	SCALA
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Revisioni

REV.	DATA	DESCRIZIONE	ESEGUITO	VERIFICATO	APPROVATO
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COMUNE DI LAGOSANTO (FE)
REGIONE EMILIA ROMAGNA



STIMA PRODUCIBILITÀ

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1. STIMA PRODUCIBILITA'

Di seguito si riportano il dettaglio di calcolo relativo alla stima di producibilità degli impianti in esame.

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Grid-Connected System: Simulation parameters					
Project : Salvagnin 1					
Geographical Site		Lagosanto	Country	Italy	
Situation		Latitude	44.75° N	Longitude	12.15° E
Time defined as		Legal Time	Time zone UT+1	Altitude	-3 m
		Albedo	0.20		
Meteo data:		Lagosanto	SolarGIS Monthly aver. , period not spec. - Synthetic		
Simulation variant : Salvagin_Rev1_11m_580_Best Case					
		Simulation date	20/07/21 16h30		
Simulation parameters					
System type		Trackers single array, with backtracking			
Tracking plane, tilted axis		Axis Tilt	0°	Axis azimuth	0°
Rotation Limitations		Minimum Phi	-80°	Maximum Phi	80°
		Tracking algorithm	Astronomic calculation		
Backtracking strategy		Nb. of trackers	100	Single array	
		Tracker Spacing	11.0 m	Collector width	4.97 m
Inactive band		Left	0.02 m	Right	0.02 m
Backtracking limit angle		Phi limits	+/- 62.8° Ground Cov. Ratio (GCR) 45.2%		
Models used		Transposition	Perez	Diffuse	Perez, Meteonom separate
				Circumsolar	
Horizon		Free Horizon			
Near Shadings		According to module strings		Electrical effect	80 %
Bifacial system		Model	, unlimited trackers 2D Calculation		
		Tracker Spacing	11.00 m	Tracker width	5.01 m
		Backtracking limit angle	62.8°	GCR	45.5 %
		Ground albedo	0.20	Axis height above ground	2.50 m
		Module bifaciality factor	70 %	Rear shading factor	0.0 %
		Module transparency	10.0 %	Rear mismatch loss	3.5 %
User's needs :		Unlimited load (grid)			
Grid power limitation		Active Power	19.0 MW	Pnom ratio	0.975
Power factor		Cos(phi)	0.990 leading	Phi	8.1°
PV Array Characteristics					
PV module		Si-mono	Model	JKM580M-7RL4-TV	
Custom parameters definition		Manufacturer	Jinkosolar		
Number of PV modules		In series	28 modules	In parallel	1228 strings
Total number of PV modules		nb. modules	31928	Unit Nom. Power	580 Wp
Array global power		Nominal (STC)	18518 kWp	At operating cond.	18892 kWp (50°C)
Array operating characteristics (50°C)		U mpp	1039 V	I mpp	16253 A
Total area		Module area	87294 m²	Cell area	82232 m²
Inverter		Model	SUN2000-215KTL-H0		
Custom parameters definition		Manufacturer	Huawei Technologies		
Characteristics		Unit Nom. Power	200 kWac	Oper. Voltage	500-1500 V
		Max. power (=>33°C)	215 kWac		
Inverter pack		Total power	19000 kWac	Pnom ratio	0.97
		Nb. of inverters	95 units		
Total		Total power	19000 kWac	Pnom ratio	0.97

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Grid-Connected System: Simulation parameters

PV Array loss factors

Array Soiling Losses		Loss Fraction	1.5 %
Thermal Loss factor	Uc (const) 31.0 W/m²K	Uv (wind) 1.6 W/m²K / m/s	
Wiring Ohmic Loss	Global array res. 0.56 m•	Loss Fraction	0.8 % at STC
LID - Light Induced Degradation		Loss Fraction	1.5 %
Module Quality Loss		Loss Fraction	-0.8 %
Module mismatch losses		Loss Fraction	0.4 % at MPP
Strings Mismatch loss		Loss Fraction	0.10 %

Incidence effect (IAM): User defined profile

0°	30°	50°	60°	70°	75°	80°	85°	90°
1.000	1.000	1.000	0.999	0.989	0.964	0.922	0.729	0.000

System loss factors

AC wire loss inverter to transfo	Inverter voltage 800 Vac tri		
	Wires: 3 x 10000 mm²	445 m	Loss Fraction 2.4 % at STC

MV transfo

	Grid Voltage 30 kV		
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One MV transfo

Operating losses at STC	Iron loss (24/24 Connexion) 36.53 kW	Loss Fraction	0.2 % at STC
	Copper (resistive) loss 3 x 0.46 m•	Loss Fraction	1.3 % at STC

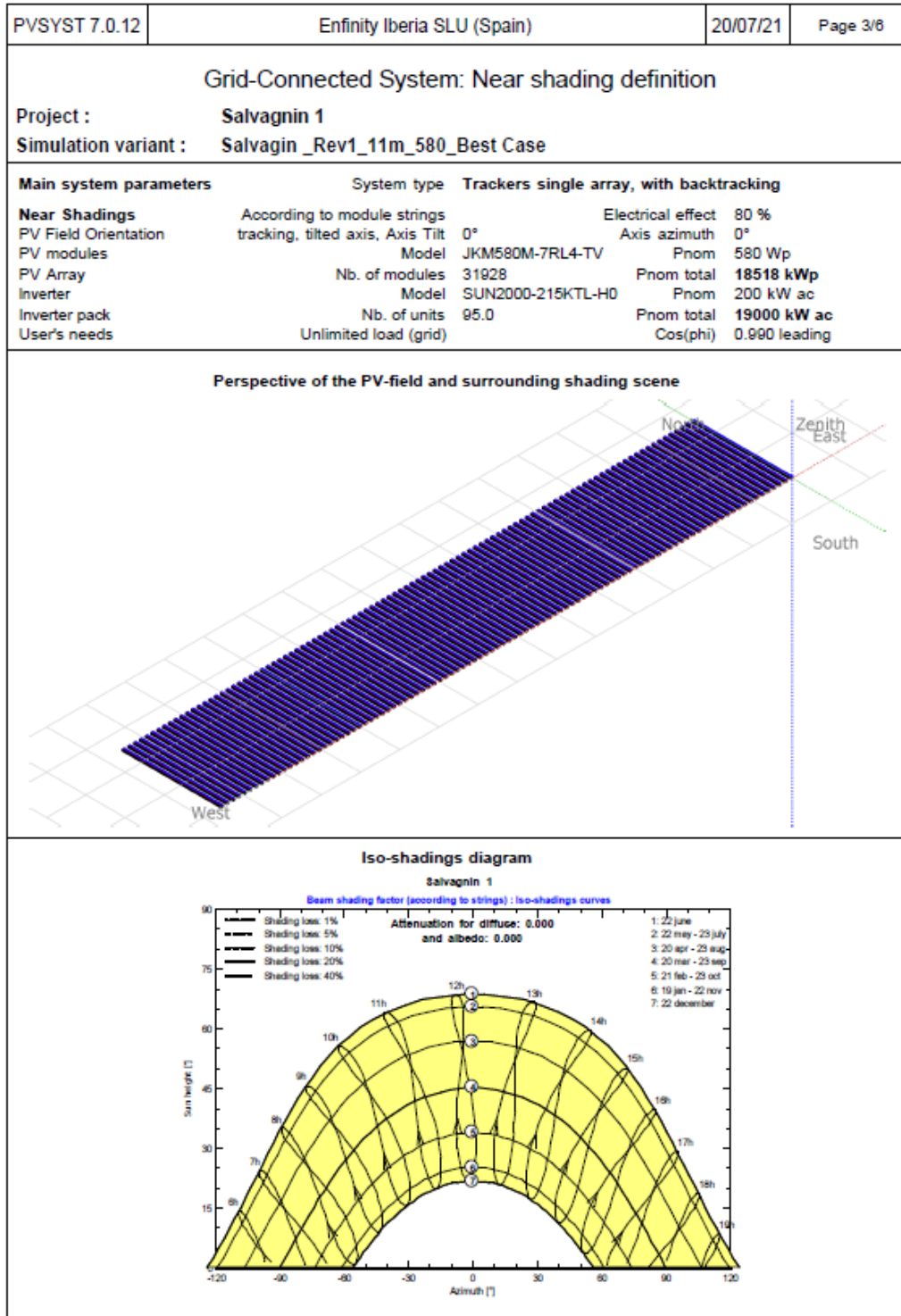
MV line up to Injection

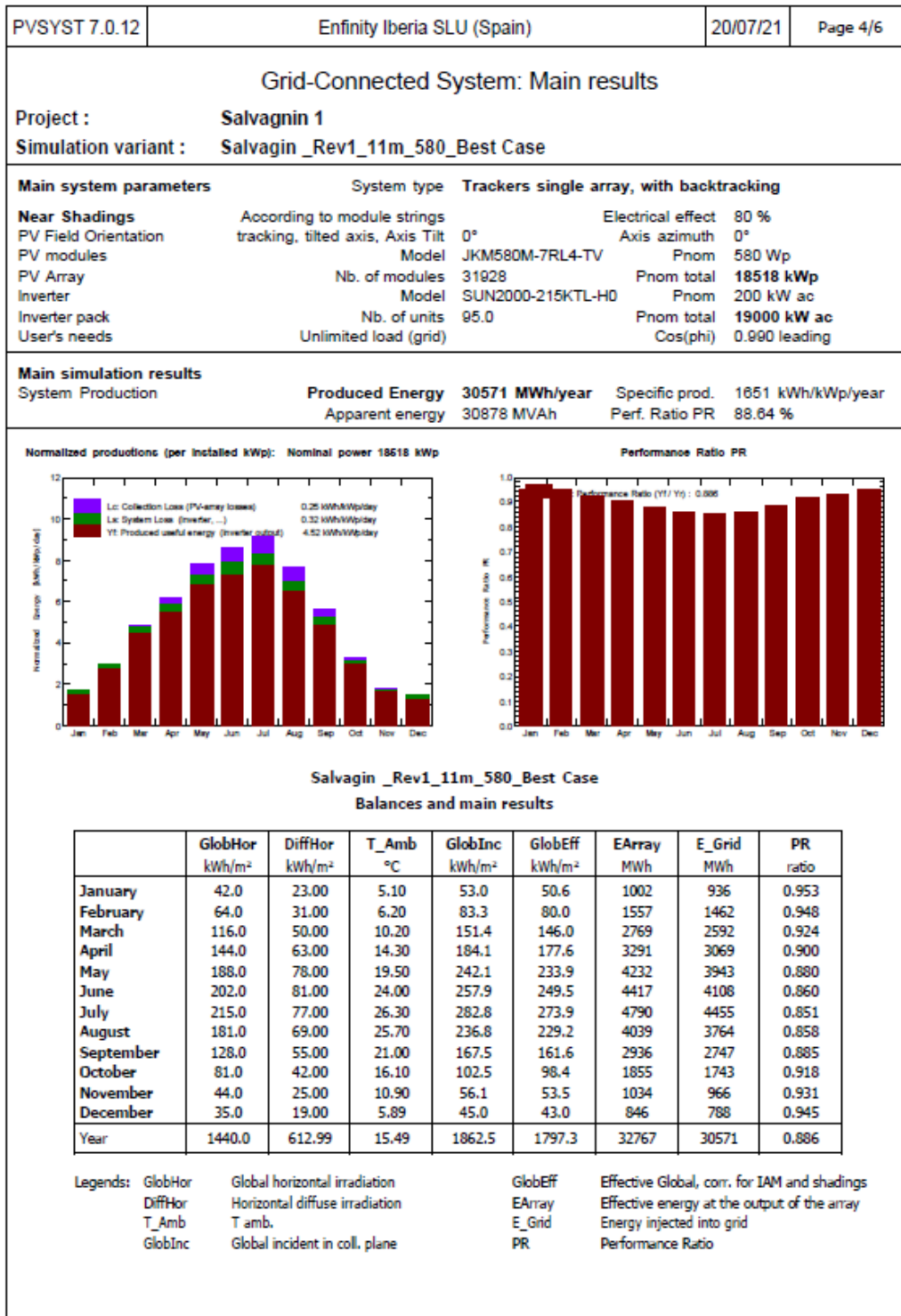
	MV Voltage 30 kV		
	Wires: 3 x 240 mm²	19000 m	Loss Fraction 3.02 % at STC

Auxiliaries loss

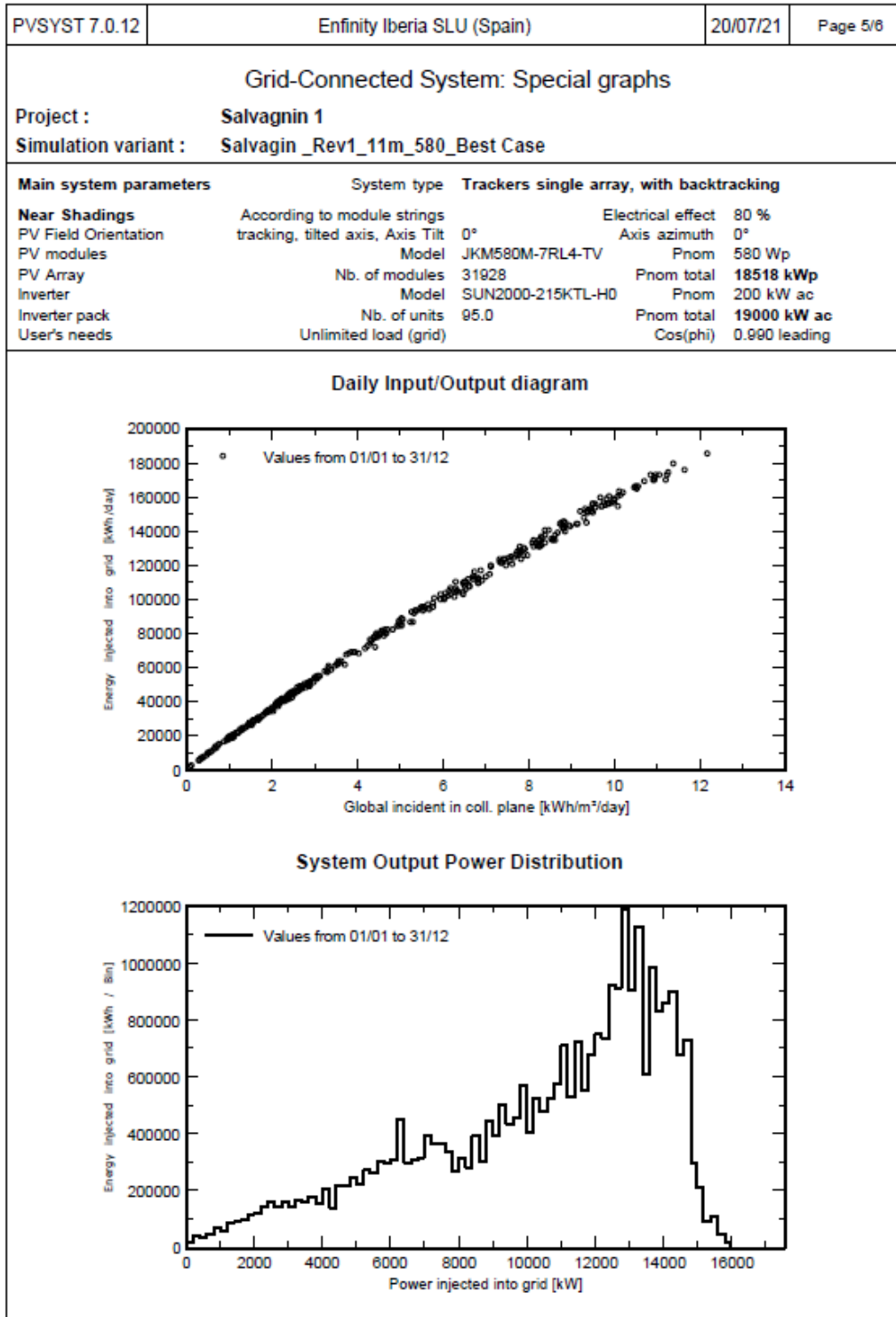
	Proportionnal to Power 4.0 W/kW	... from Power thresh.	0.0 kW
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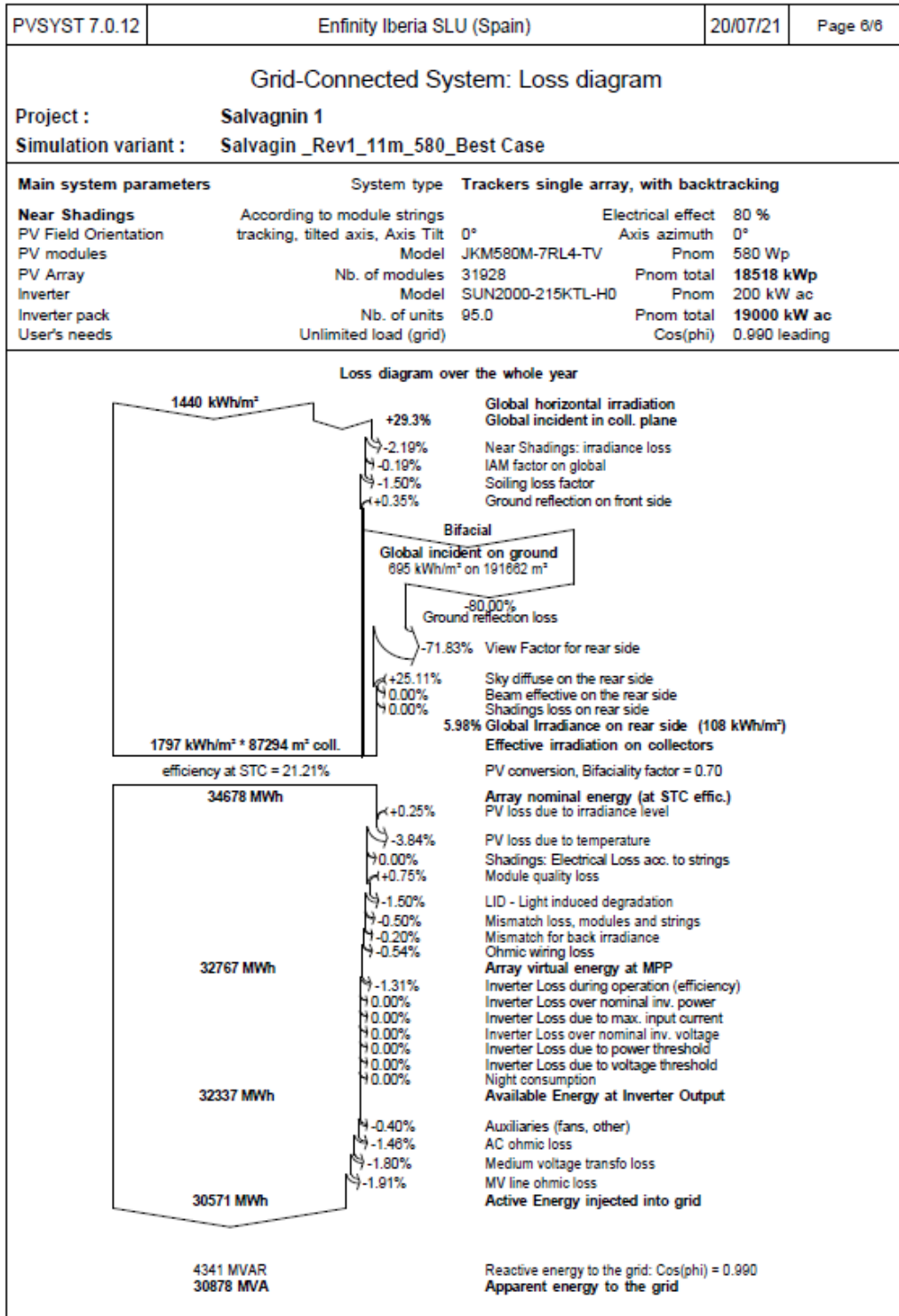




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