Version 7.4.8

# PVsyst - Simulation report

## Grid-Connected System

Project: House_Project_saransh

Variant: New simulation variant

No 3D scene defined, no shadings

System power: 5.46 kWp

Sāloda - India

**Author**

**PVsyst V7.4.8**
VC0, Simulation date:
30/08/24 12:04
with V7.4.8

## Project summary

**Geographical Site**
**Sāloda**
India

**Situation**

| | |
|---|---|
| Latitude | 26.50 °N |
| Longitude | 76.73 °E |
| Altitude | 256 m |
| Time zone | UTC+5.5 |

**Project settings**
Albedo 0.20

**Weather data**
Sāloda
Meteonorm 8.1 (1996-2015), Sat=100% - Synthetic

## System summary

**Grid-Connected System**
**No 3D scene defined, no shadings**

**PV Field Orientation**
Fixed plane
Tilt/Azimuth 22 / 0 °

**Near Shadings**
No Shadings

**User's needs**
Fixed constant load
160 W
Global
1400 kWh/Year

**System information**

**PV Array**

| | |
|---|---|
| Nb. of modules | 12 units |
| Pnom total | 5.46 kWp |

**Inverters**

| | |
|---|---|
| Nb. of units | 1 unit |
| Pnom total | 5.00 kWac |
| Pnom ratio | 1.092 |

## Results summary

| | | | | | |
|---|---|---|---|---|---|
| Produced Energy | 8922.70 kWh/year | Specific production | 1634 kWh/kWp/year | Perf. Ratio PR | 86.75 % |
| Used Energy | 1400.00 kWh/year | | | Solar Fraction SF | 45.75 % |

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## General parameters

**Grid-Connected System** — **No 3D scene defined, no shadings**

**PV Field Orientation**

| Orientation | Sheds configuration | Models used |
|---|---|---|
| Fixed plane | No 3D scene defined | Transposition Perez |
| Tilt/Azimuth 22 / 0 ° | | Diffuse Perez, Meteonorm |
| | | Circumsolar separate |

**Horizon**
Free Horizon

**Near Shadings**
No Shadings

**User's needs**
Fixed constant load
160 W
Global
1400 kWh/Year

## PV Array Characteristics

**PV module**

| | |
|---|---|
| Manufacturer | Generic |
| Model | FS-6455-C April2021 |
| (Original PVsyst database) | |
| Unit Nom. Power | 455 Wp |
| Number of PV modules | 12 units |
| Nominal (STC) | 5.46 kWp |
| Modules | 6 string x 2 In series |
| **At operating cond. (50°C)** | |
| Pmpp | 5.08 kWp |
| U mpp | 338 V |
| I mpp | 15 A |

**Inverter**

| | |
|---|---|
| Manufacturer | Generic |
| Model | SE 5KTL-D1 |
| (Original PVsyst database) | |
| Unit Nom. Power | 5.00 kWac |
| Number of inverters | 1 unit |
| Total power | 5.0 kWac |
| Operating voltage | 70-580 V |
| Max. power (=>25°C) | 5.50 kWac |
| Pnom ratio (DC:AC) | 1.09 |
| Power sharing within this inverter | |

**Total PV power**

| | |
|---|---|
| Nominal (STC) | 5 kWp |
| Total | 12 modules |
| Module area | 30.2 m² |
| Cell area | 28.5 m² |

**Total inverter power**

| | |
|---|---|
| Total power | 5 kWac |
| Max. power | 5.5 kWac |
| Number of inverters | 1 unit |
| Pnom ratio | 1.09 |

## Array losses

**Array Soiling Losses**
Loss Fraction 2.0 %

**Thermal Loss factor**
Module temperature according to irradiance
Uc (const) 29.0 W/m²K
Uv (wind) 0.0 W/m²K/m/s

**DC wiring losses**
Global array res. 362 mΩ
Loss Fraction 1.5 % at STC

**Module Quality Loss**
Loss Fraction -1.3 %

**Module mismatch losses**
Loss Fraction 0.5 % at MPP

**Strings Mismatch loss**
Loss Fraction 0.1 %

**IAM loss factor**
Incidence effect (IAM): User defined profile

| 0° | 30° | 50° | 60° | 65° | 70° | 75° | 80° | 90° |
|---|---|---|---|---|---|---|---|---|
| 1.000 | 1.000 | 0.990 | 0.960 | 0.940 | 0.890 | 0.820 | 0.690 | 0.000 |

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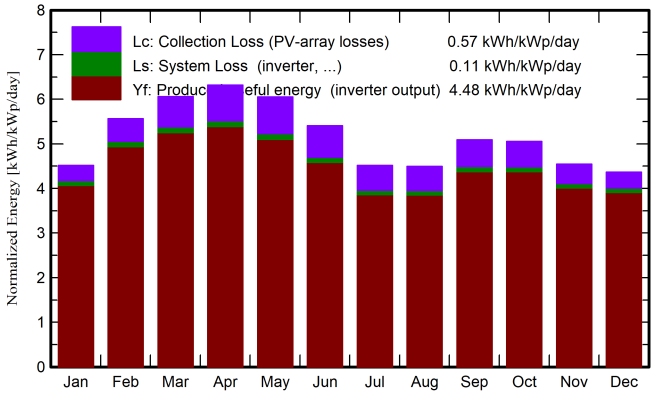
## Main results

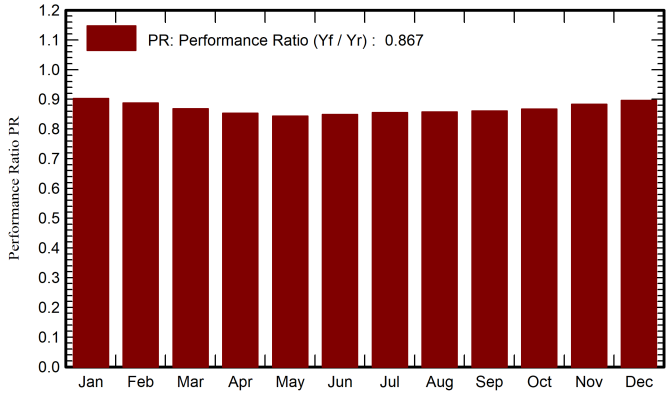
### System Production

| | | | |
|---|---|---|---|
| Produced Energy | 8922.70 kWh/year | Specific production | 1634 kWh/kWp/year |
| Used Energy | 1400.00 kWh/year | Perf. Ratio PR | 86.75 % |
| | | Solar Fraction SF | 45.75 % |

**Normalized productions (per installed kWp)**




**Performance Ratio PR**




**Balances and main results**

| | GlobHor kWh/m² | DiffHor kWh/m² | T_Amb °C | GlobInc kWh/m² | GlobEff kWh/m² | EArray kWh | E_User kWh | E_Solar kWh | E_Grid kWh | EFrGrid kWh |
|---|---|---|---|---|---|---|---|---|---|---|
| **January** | 108.3 | 47.4 | 14.56 | 140.0 | 135.1 | 707.0 | 118.9 | 45.11 | 644.8 | 73.79 |
| **February** | 127.6 | 50.0 | 18.94 | 155.9 | 150.3 | 774.3 | 107.4 | 46.71 | 709.1 | 60.69 |
| **March** | 168.8 | 70.6 | 25.53 | 187.8 | 180.6 | 911.7 | 118.9 | 54.30 | 836.0 | 64.60 |
| **April** | 185.0 | 79.8 | 30.66 | 189.6 | 182.3 | 905.0 | 115.1 | 54.99 | 828.0 | 60.07 |
| **May** | 194.6 | 96.8 | 34.73 | 187.7 | 180.2 | 885.9 | 118.9 | 61.32 | 803.0 | 57.58 |
| **June** | 172.7 | 102.8 | 33.45 | 162.2 | 155.3 | 770.6 | 115.1 | 61.57 | 690.3 | 53.50 |
| **July** | 147.9 | 97.4 | 30.49 | 139.9 | 133.7 | 671.1 | 118.9 | 62.05 | 591.8 | 56.86 |
| **August** | 140.5 | 88.8 | 29.02 | 139.4 | 133.5 | 670.3 | 118.9 | 57.39 | 595.4 | 61.51 |
| **September** | 144.0 | 75.0 | 28.88 | 152.8 | 146.6 | 736.4 | 115.1 | 52.79 | 665.5 | 62.28 |
| **October** | 135.9 | 68.3 | 27.39 | 156.7 | 150.7 | 759.6 | 118.9 | 51.17 | 690.3 | 67.73 |
| **November** | 108.6 | 51.7 | 21.54 | 136.5 | 131.4 | 674.1 | 115.1 | 47.37 | 610.7 | 67.70 |
| **December** | 102.7 | 45.8 | 16.43 | 135.5 | 130.6 | 679.5 | 118.9 | 45.69 | 617.5 | 73.22 |
| **Year** | 1736.6 | 874.4 | 26.00 | 1883.8 | 1810.2 | 9145.5 | 1400.0 | 640.46 | 8282.2 | 759.54 |

### Legends

| | | | |
|---|---|---|---|
| GlobHor | Global horizontal irradiation | EArray | Effective energy at the output of the array |
| DiffHor | Horizontal diffuse irradiation | E_User | Energy supplied to the user |
| T_Amb | Ambient Temperature | E_Solar | Energy from the sun |
| GlobInc | Global incident in coll. plane | E_Grid | Energy injected into grid |
| GlobEff | Effective Global, corr. for IAM and shadings | EFrGrid | Energy from the grid |

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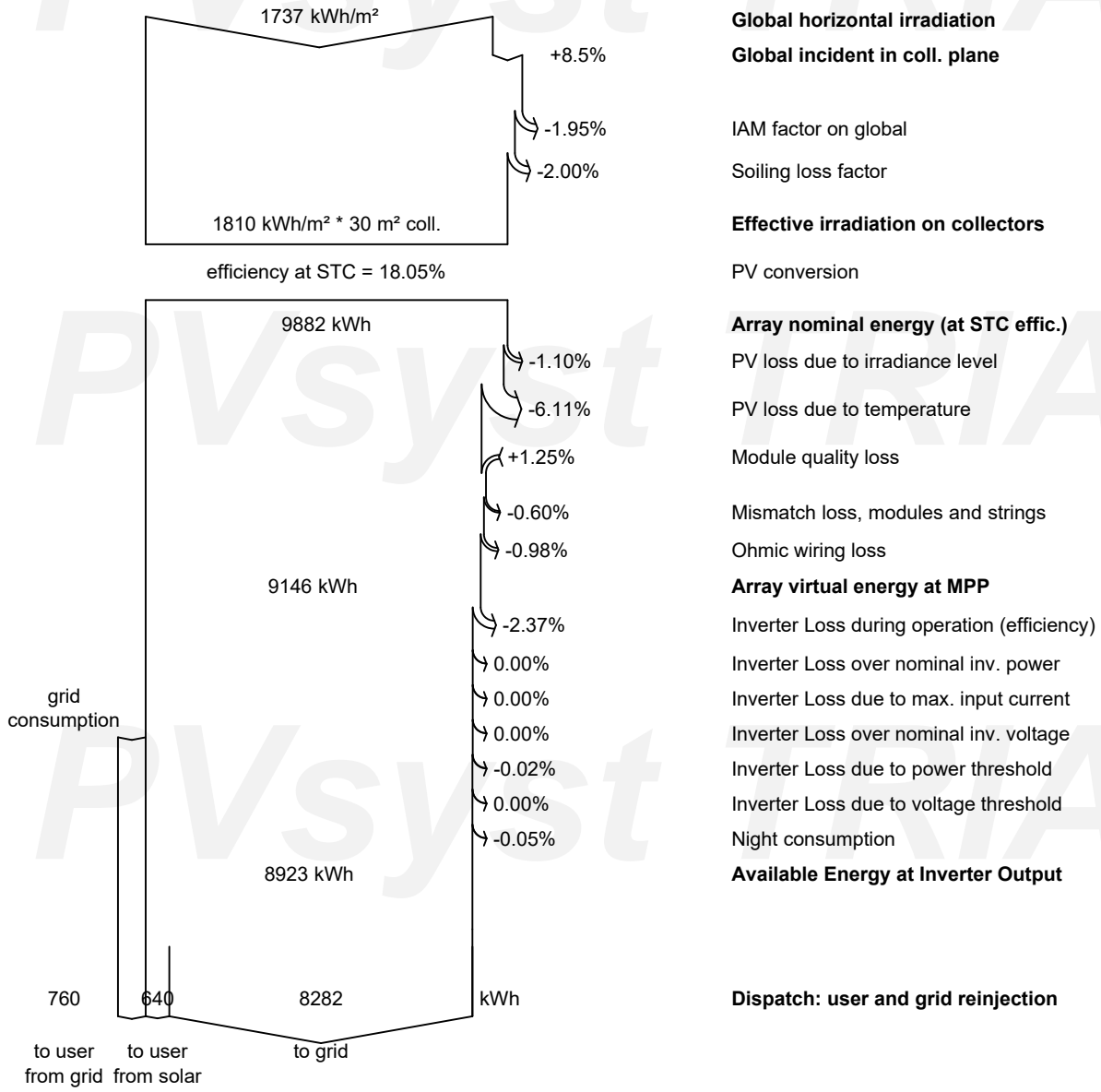
## Loss diagram



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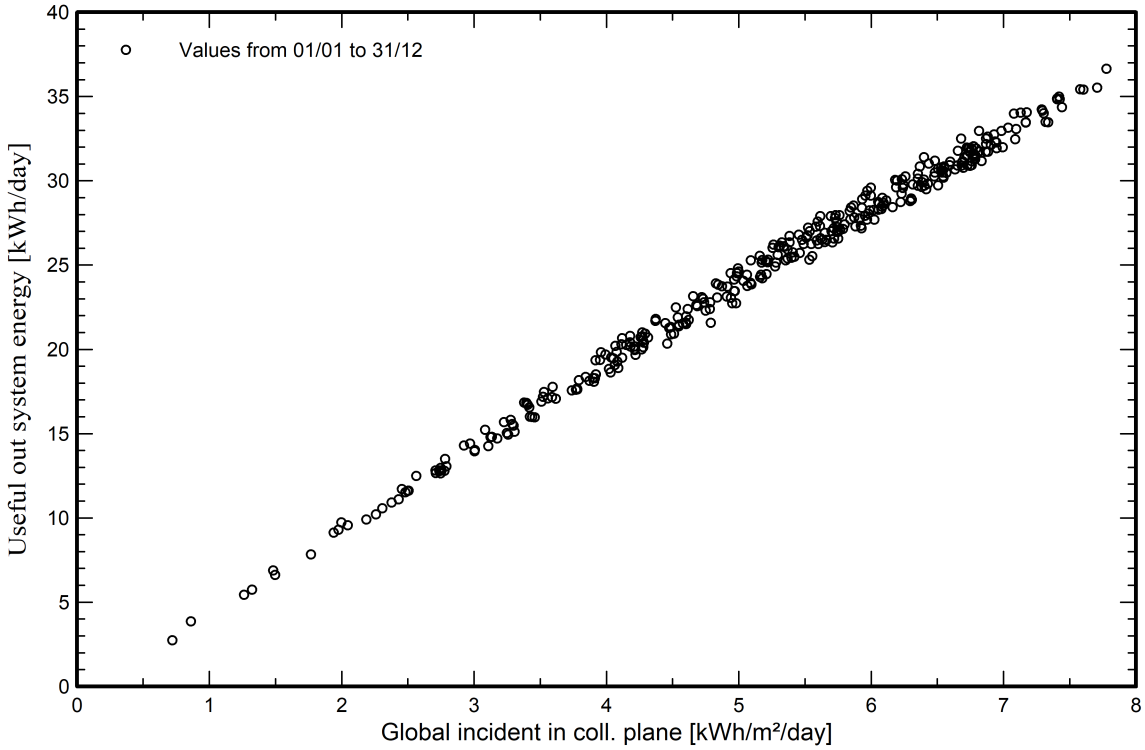
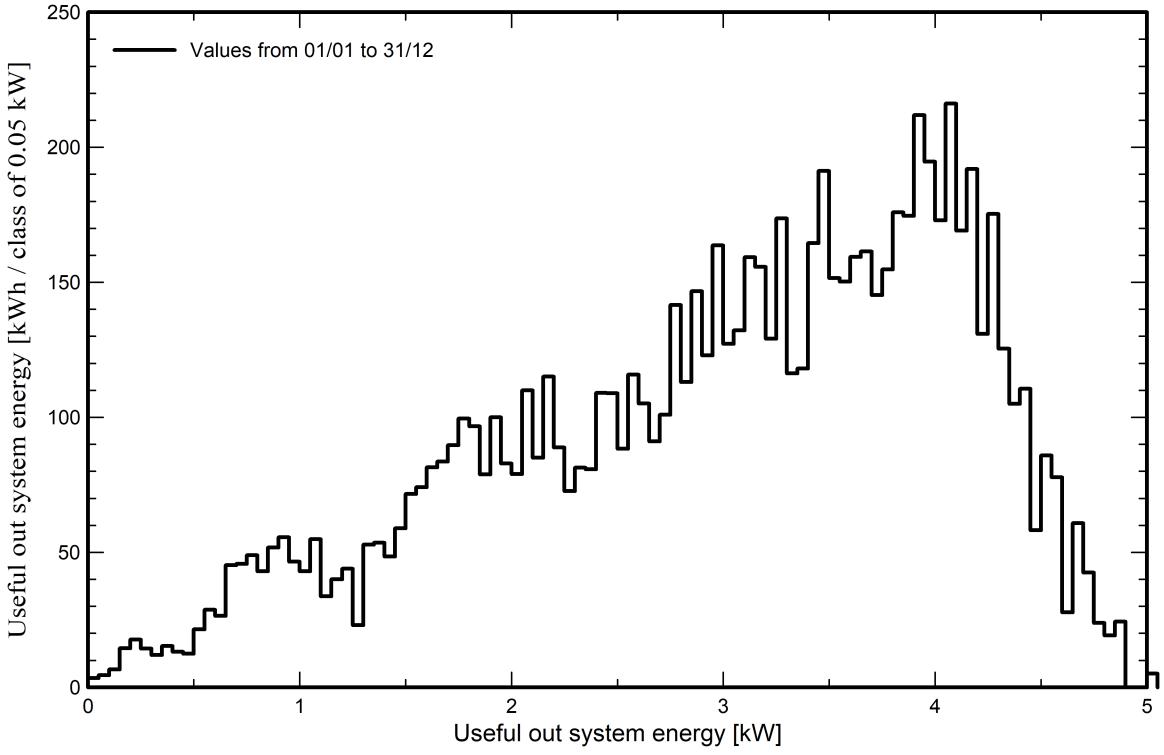
## Predef. graphs

### Daily Input/Output diagram




### System Output Power Distribution



# Single-line diagram

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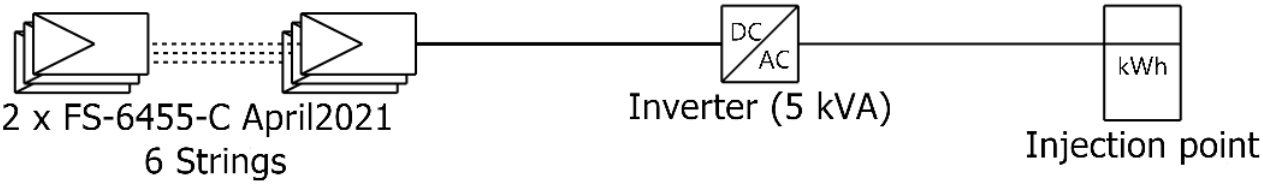


| | |
|---|---|
| PV module | FS-6455-C April2021 |
| Inverter | SE 5KTL-D1 |
| String | 2 x FS-6455-C April2021 |

| | | |
|---|---|---|
| | House_Project_saransh | |
| | VC0 : New simulation variant | 30/08/24 |