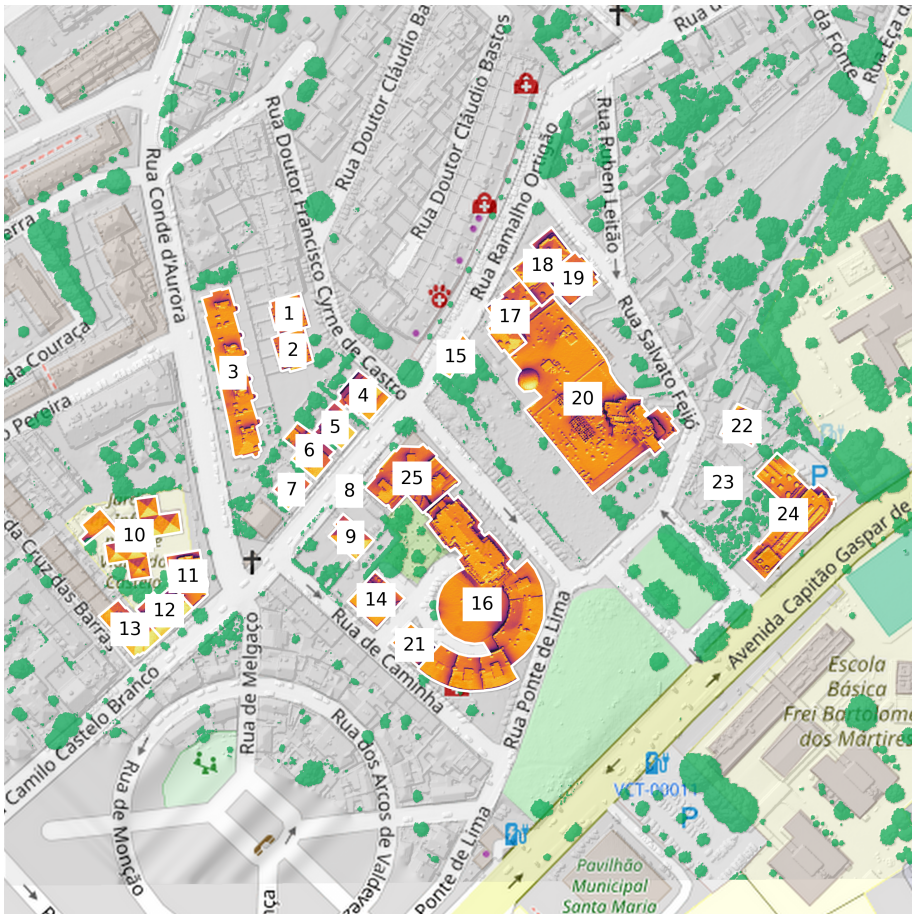
# Analysis of Solar Energy Potential of Real Estate Properties

This report presents a data-driven assessment of the solar energy generation potential of selected buildings.




This document contains the results of a preliminary analytical assessment of rooftop solar energy potential based on high-resolution LiDAR data and meteorological datasets.

LiDAR (Light Detection and Ranging) is a remote sensing technology that uses laser scanning to create a highly detailed 3D model of the terrain, buildings, and surrounding objects. This allows accurate estimation of roof geometry, slope, orientation, and shading conditions.

For each building, the available roof area, tilt angle, orientation, and shading from terrain, nearby buildings, and vegetation were analyzed. Annual and monthly energy generation forecasts were calculated using PVGIS meteorological data for 2024.

Each property is presented on a separate report page.

© Sun Potential 3D, 2026

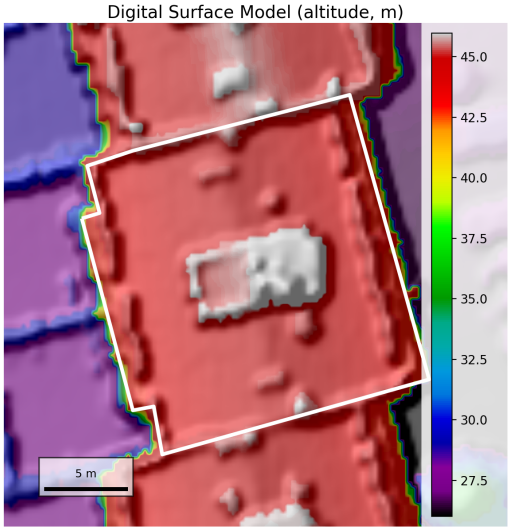
# Rua Doutor Francisco Cyrne de Castro 21, 4900-430 Viana do Castelo, Portugal

1

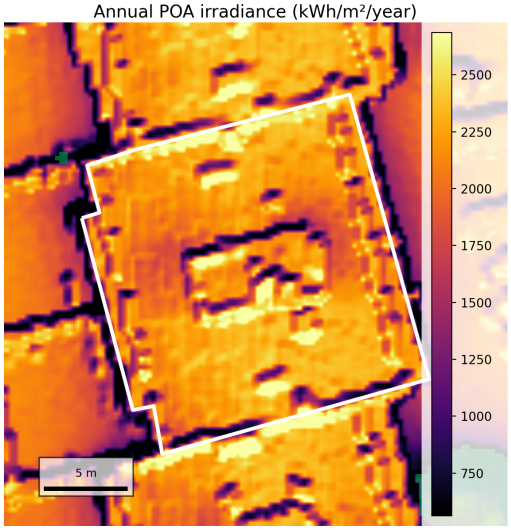
Pseudo Orthophotomap



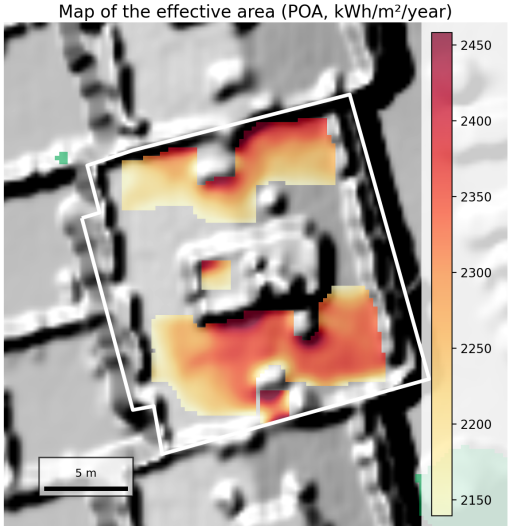

Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)



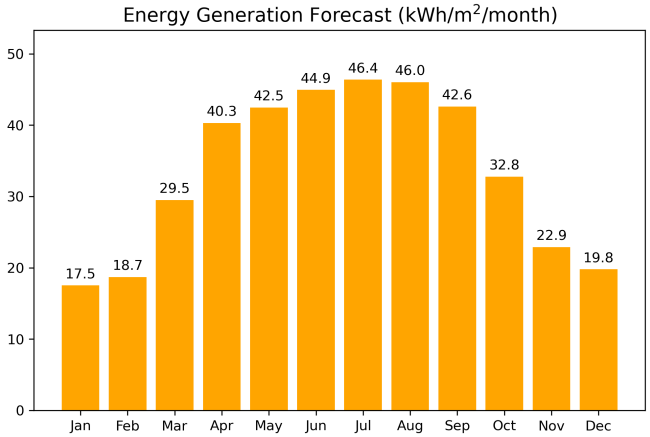

The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps

Latitude: 41.70321, Longitude: -8.82455

| | |
|---|---|
| Total Roof Area (m²) | 304.45 |
| Effective Area (m²) | 116.88 |
| Average POA Over Effective Area (kWh/m²/year) | 2283 |
| Total POA Over Effective Area (kWh/year) | 266823 |
| Average Energy Generation Forecast (kWh/m²/year) | 402 |
| Total Energy Generation Forecast (kWh/year) | 46961 |
| Average Slope Angle of the Effective Area (degrees) | 16 |

Energy Generation Forecast (kWh/m$^2$/month)




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

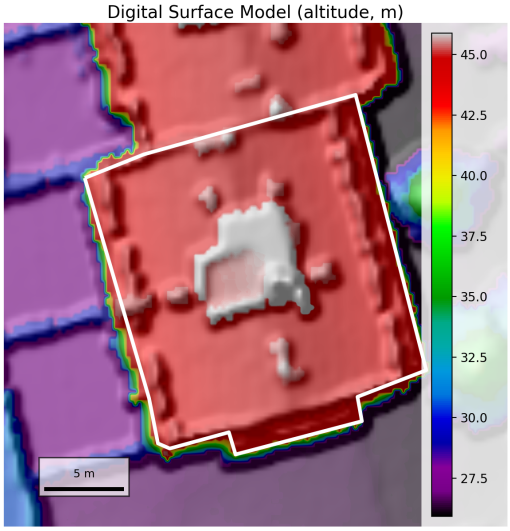
# Rua Doutor Francisco Cyrne de Castro 7, 4900-430 Viana do Castelo, Portugal

2

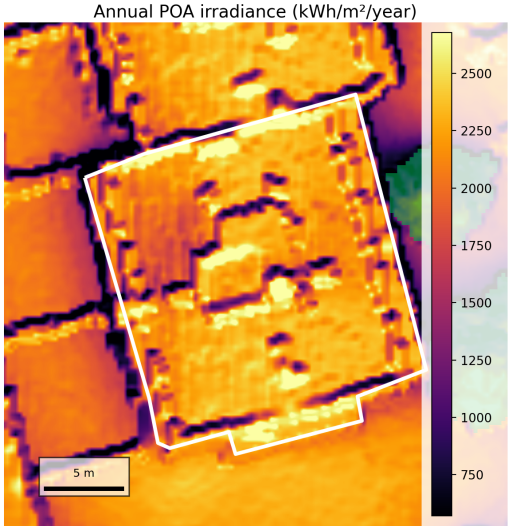
Pseudo Orthophotomap



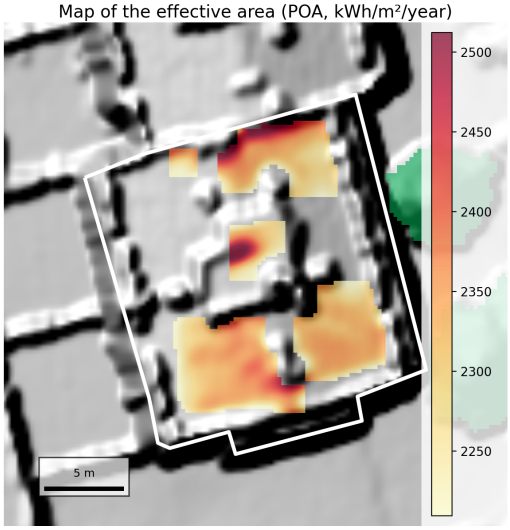

Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)



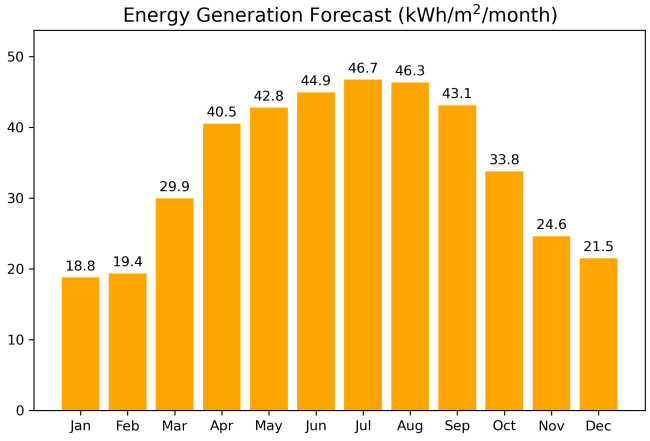

The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps

Latitude: 41.70306, Longitude: -8.82453

| | |
|---|---|
| Total Roof Area (m²) | 327.52 |
| Effective Area (m²) | 105.38 |
| Average POA Over Effective Area (kWh/m²/year) | 2325 |
| Total POA Over Effective Area (kWh/year) | 244998 |
| Average Energy Generation Forecast (kWh/m²/year) | 409 |
| Total Energy Generation Forecast (kWh/year) | 43120 |
| Average Slope Angle of the Effective Area (degrees) | 15 |

Energy Generation Forecast (kWh/m$^2$/month)




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

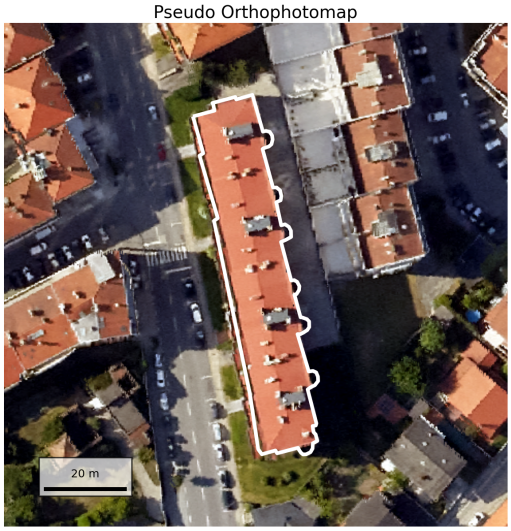
PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

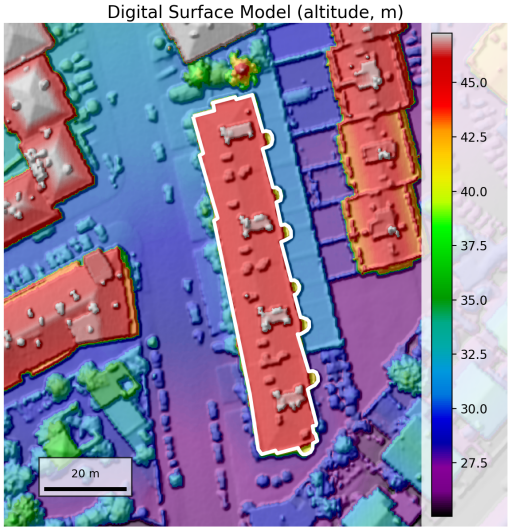
# Rua Conde Dona Aurora 762, 4900-443 Viana do Castelo, Portugal

3

Pseudo Orthophotomap




Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)



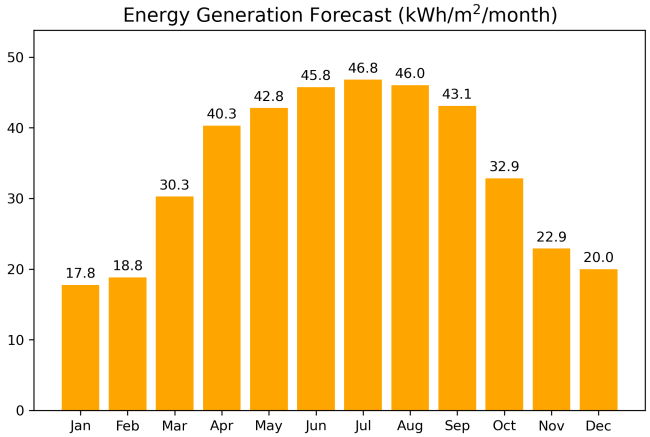

The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps

Latitude: 41.70298, Longitude: -8.82491

| | |
|---|---|
| Total Roof Area (m²) | 1324.56 |
| Effective Area (m²) | 888.81 |
| Average POA Over Effective Area (kWh/m²/year) | 2305 |
| Total POA Over Effective Area (kWh/year) | 2048369 |
| Average Energy Generation Forecast (kWh/m²/year) | 406 |
| Total Energy Generation Forecast (kWh/year) | 360513 |
| Average Slope Angle of the Effective Area (degrees) | 9 |

Energy Generation Forecast (kWh/m$^2$/month)




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

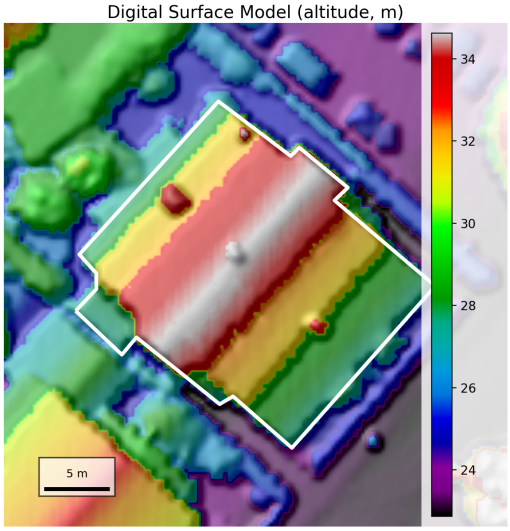
# Rua Ramalho Ortigão 79, 4900-422 Viana do Castelo, Portugal

4

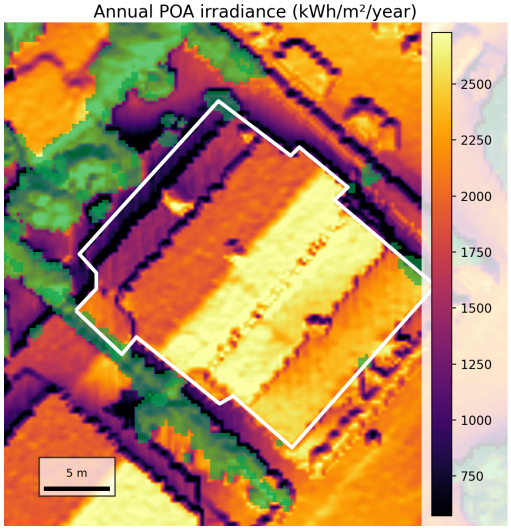
Pseudo Orthophotomap



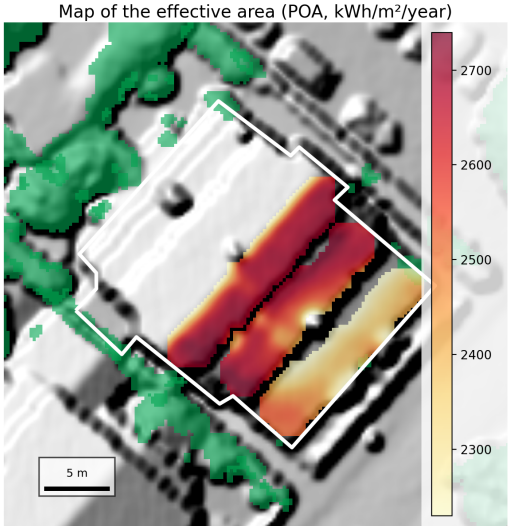

Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)



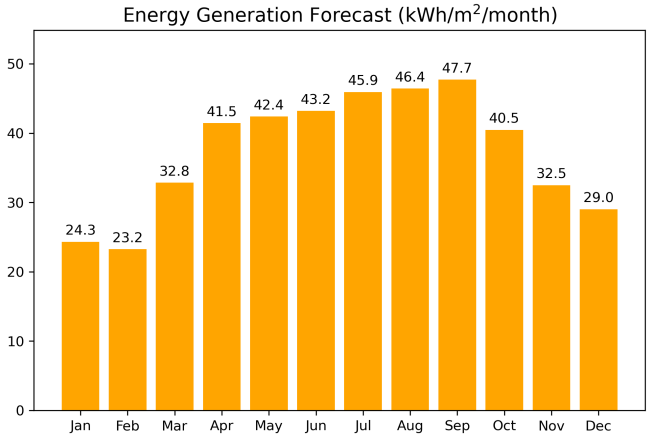

The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps

Latitude: 41.70284, Longitude: -8.82408

| | |
|---|---|
| Total Roof Area (m²) | 387.56 |
| Effective Area (m²) | 174.38 |
| Average POA Over Effective Area (kWh/m²/year) | 2541 |
| Total POA Over Effective Area (kWh/year) | 443073 |
| Average Energy Generation Forecast (kWh/m²/year) | 447 |
| Total Energy Generation Forecast (kWh/year) | 77981 |
| Average Slope Angle of the Effective Area (degrees) | 18 |

Energy Generation Forecast (kWh/m$^2$/month)




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

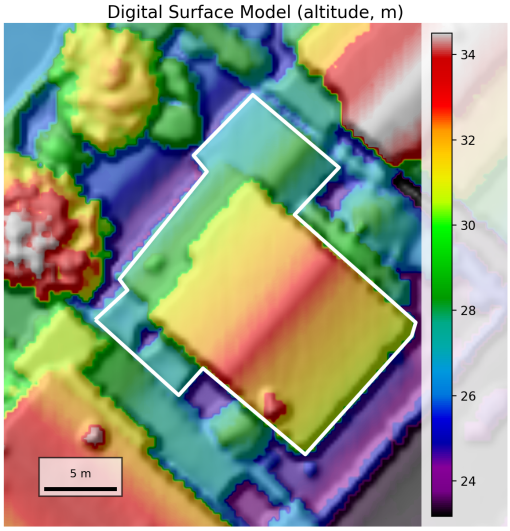
# Rua Ramalho Ortigão 73, 4900-422 Viana do Castelo, Portugal

5

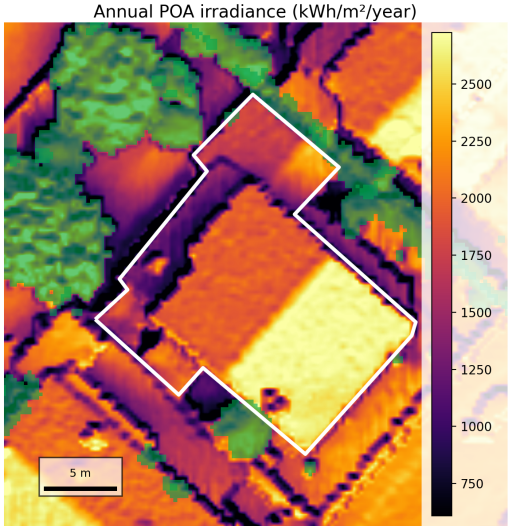
Pseudo Orthophotomap



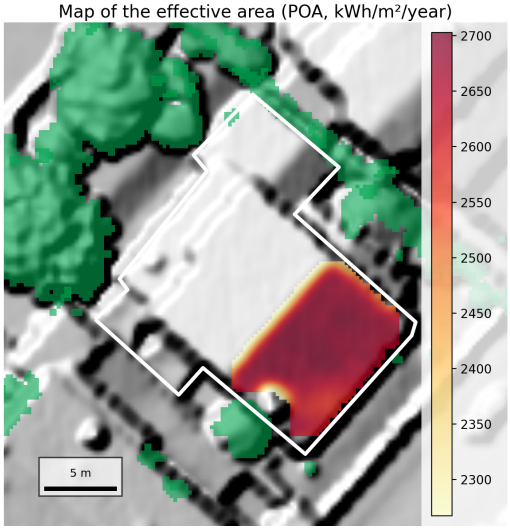

Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)



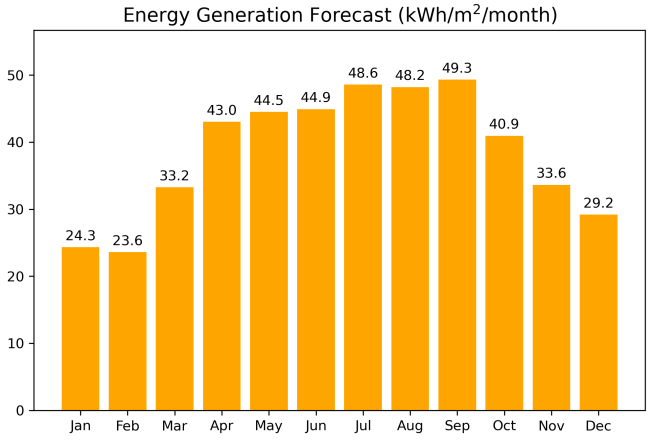

The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps

Latitude: 41.70272, Longitude: -8.82428

| | |
|---|---|
| Total Roof Area (m²) | 267.06 |
| Effective Area (m²) | 80.38 |
| Average POA Over Effective Area (kWh/m²/year) | 2625 |
| Total POA Over Effective Area (kWh/year) | 210967 |
| Average Energy Generation Forecast (kWh/m²/year) | 462 |
| Total Energy Generation Forecast (kWh/year) | 37130 |
| Average Slope Angle of the Effective Area (degrees) | 17 |

Energy Generation Forecast (kWh/m$^2$/month)



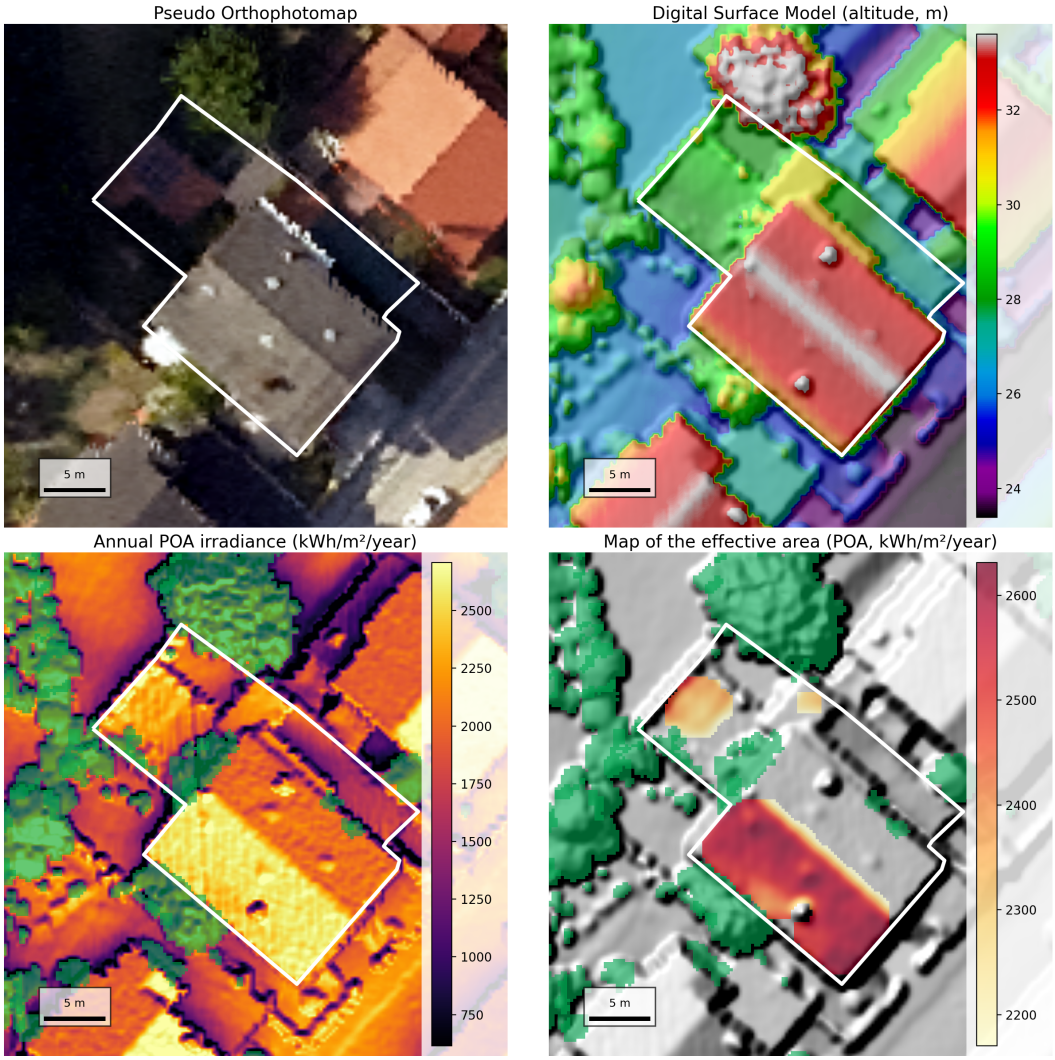

The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

# Rua Ramalho Ortigão 55, 4900-422 Viana do Castelo, Portugal

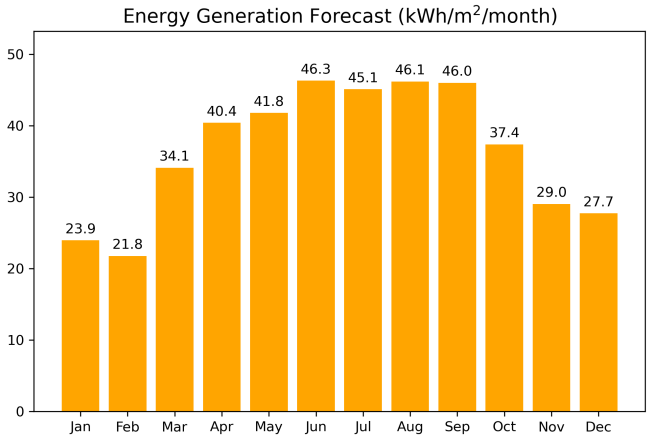
6




The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps
Latitude: 41.70261, Longitude: -8.82442

| | |
|---|---|
| Total Roof Area (m²) | 384.03 |
| Effective Area (m²) | 137.5 |
| Average POA Over Effective Area (kWh/m²/year) | 2491 |
| Total POA Over Effective Area (kWh/year) | 342452 |
| Average Energy Generation Forecast (kWh/m²/year) | 438 |
| Total Energy Generation Forecast (kWh/year) | 60272 |
| Average Slope Angle of the Effective Area (degrees) | 17 |



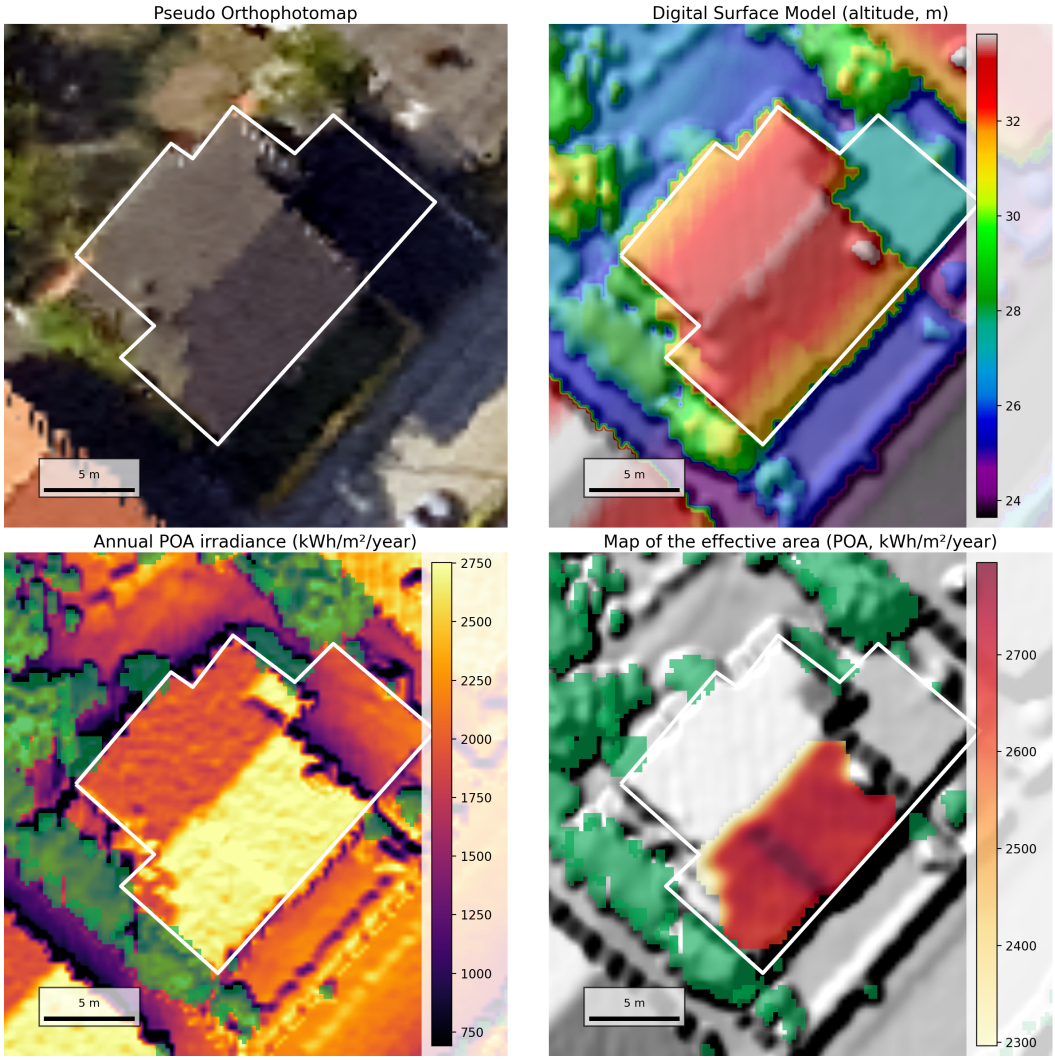

The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

# Rua Ramalho Ortigão 31, 4900-422 Viana do Castelo, Portugal

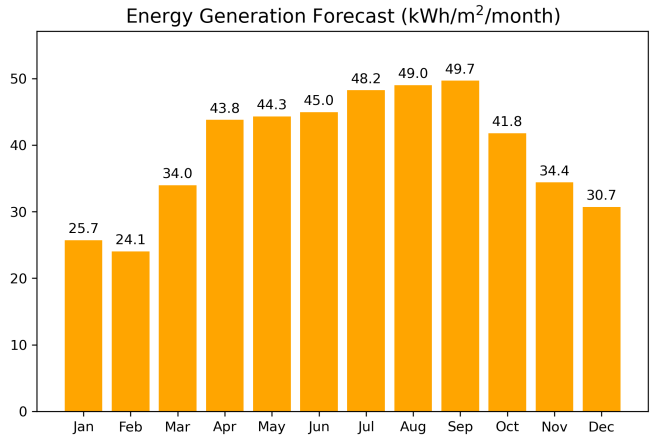
7




The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps
Latitude: 41.7024, Longitude: -8.82454

| | |
|---|---|
| Total Roof Area (m²) | 194.47 |
| Effective Area (m²) | 71.69 |
| Average POA Over Effective Area (kWh/m²/year) | 2658 |
| Total POA Over Effective Area (kWh/year) | 190569 |
| Average Energy Generation Forecast (kWh/m²/year) | 468 |
| Total Energy Generation Forecast (kWh/year) | 33540 |
| Average Slope Angle of the Effective Area (degrees) | 19 |



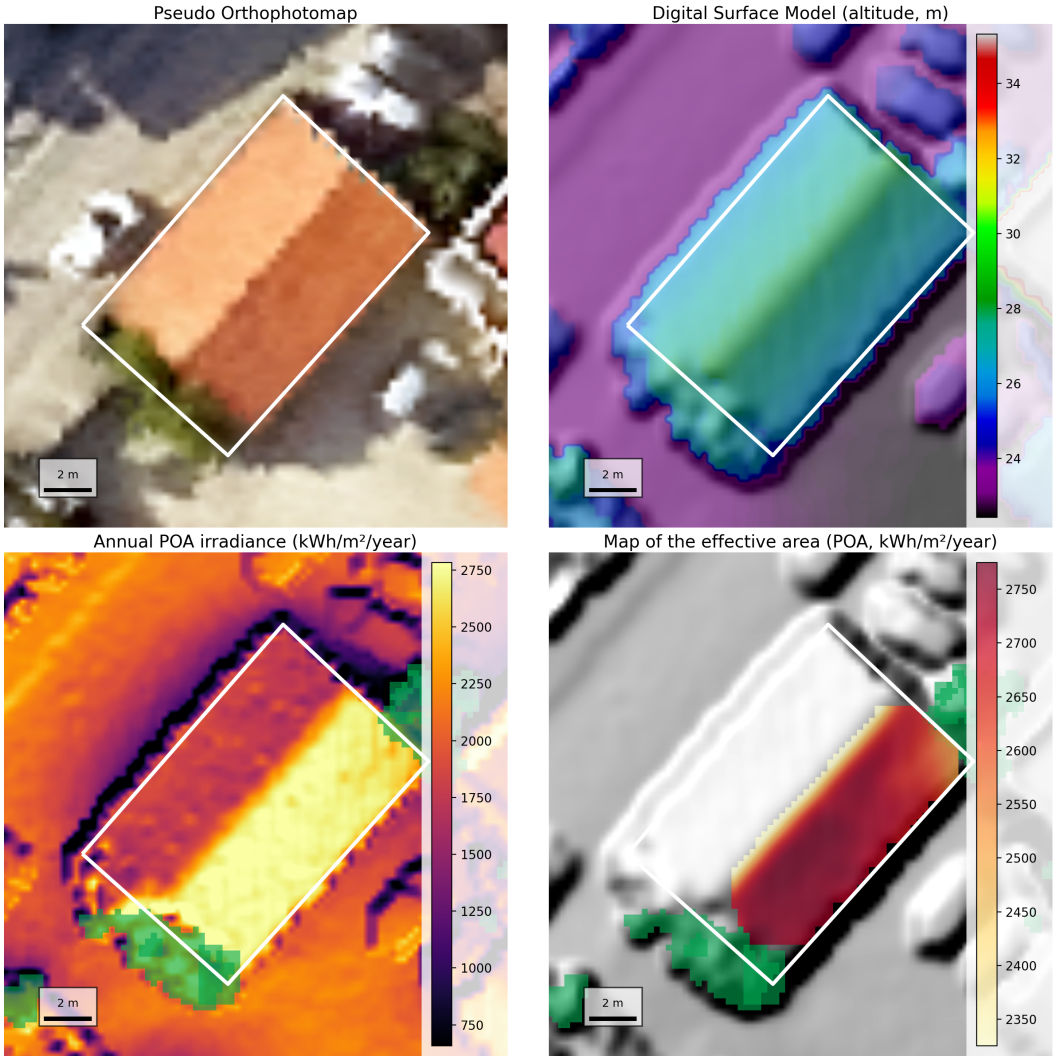

The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

# Rua Ramalho Ortigão 78, 4900-422 Viana do Castelo, Portugal

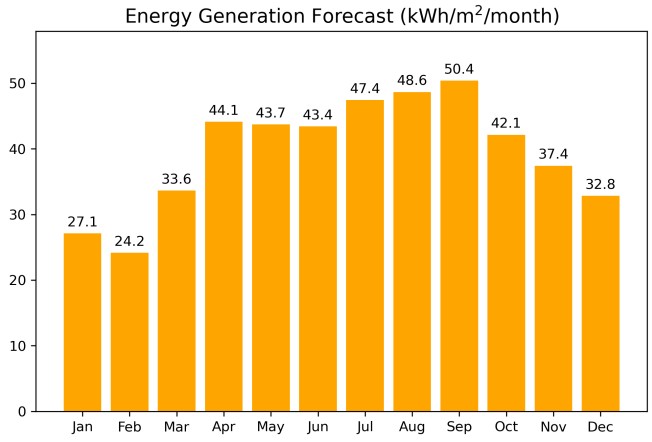
8




The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps
Latitude: 41.7024, Longitude: -8.82418

| | |
|---|---|
| Total Roof Area (m²) | 104.82 |
| Effective Area (m²) | 48.81 |
| Average POA Over Effective Area (kWh/m²/year) | 2677 |
| Total POA Over Effective Area (kWh/year) | 130680 |
| Average Energy Generation Forecast (kWh/m²/year) | 471 |
| Total Energy Generation Forecast (kWh/year) | 23000 |
| Average Slope Angle of the Effective Area (degrees) | 23 |




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

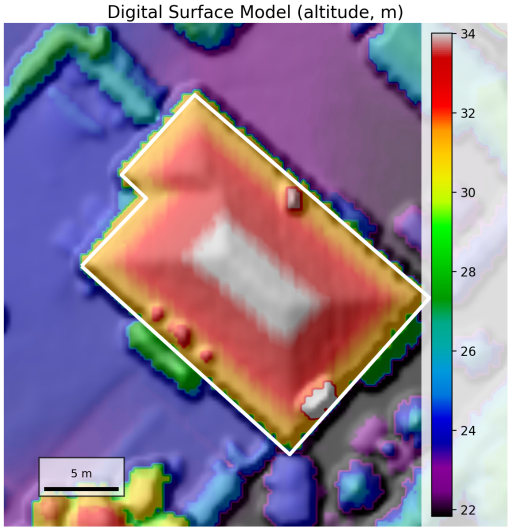
# Rua Ramalho Ortigão 124, 4900-422 Viana do Castelo, Portugal

9

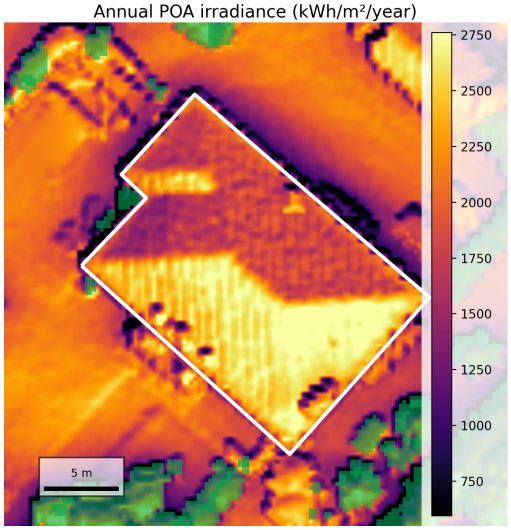
Pseudo Orthophotomap



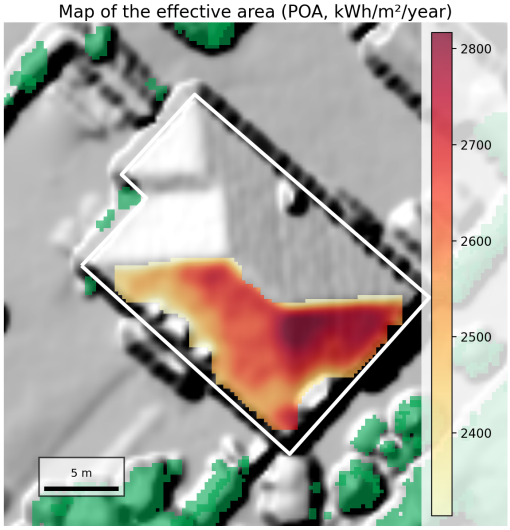

Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)



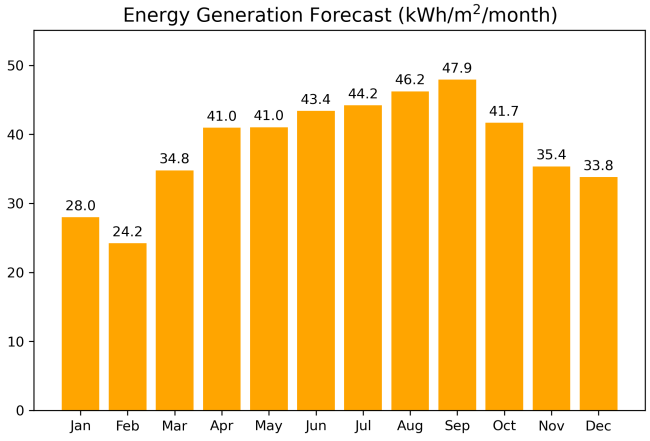

The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps

Latitude: 41.70219, Longitude: -8.82417

| | |
|---|---|
| Total Roof Area (m²) | 274.09 |
| Effective Area (m²) | 105.25 |
| Average POA Over Effective Area (kWh/m²/year) | 2601 |
| Total POA Over Effective Area (kWh/year) | 273712 |
| Average Energy Generation Forecast (kWh/m²/year) | 458 |
| Total Energy Generation Forecast (kWh/year) | 48173 |
| Average Slope Angle of the Effective Area (degrees) | 27 |

Energy Generation Forecast (kWh/m$^2$/month)




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

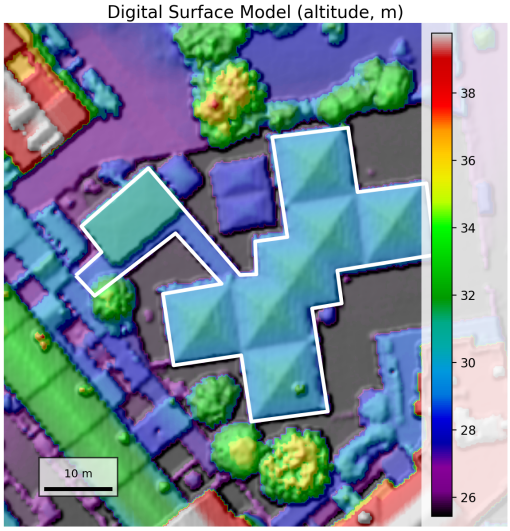
# Rua Monsenhor José Corucho, 4900 Viana do Castelo, Portugal

10

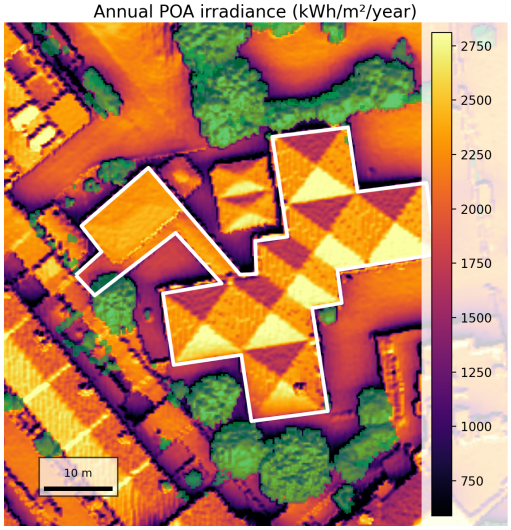
Pseudo Orthophotomap



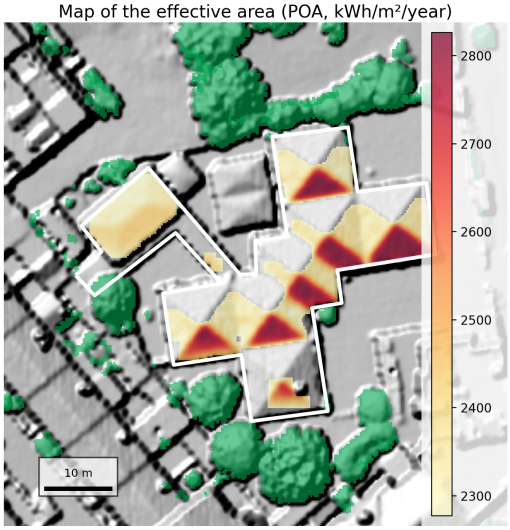

Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)

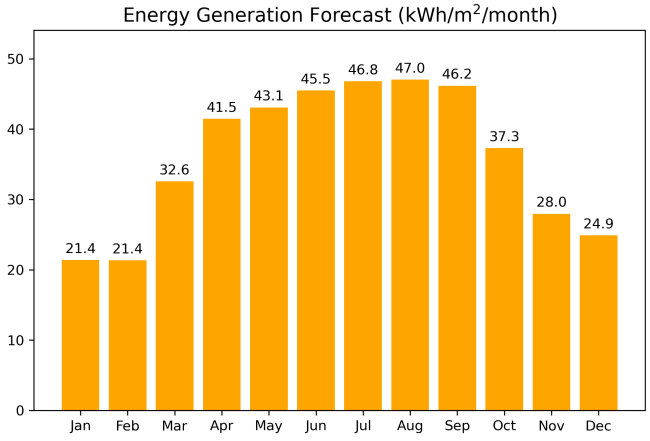



The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps
Latitude: 41.70219, Longitude: -8.82546

| | |
|---|---|
| Total Roof Area (m²) | 904.72 |
| Effective Area (m²) | 498.38 |
| Average POA Over Effective Area (kWh/m²/year) | 2462 |
| Total POA Over Effective Area (kWh/year) | 1226892 |
| Average Energy Generation Forecast (kWh/m²/year) | 433 |
| Total Energy Generation Forecast (kWh/year) | 215933 |
| Average Slope Angle of the Effective Area (degrees) | 17 |

Energy Generation Forecast (kWh/m$^2$/month)



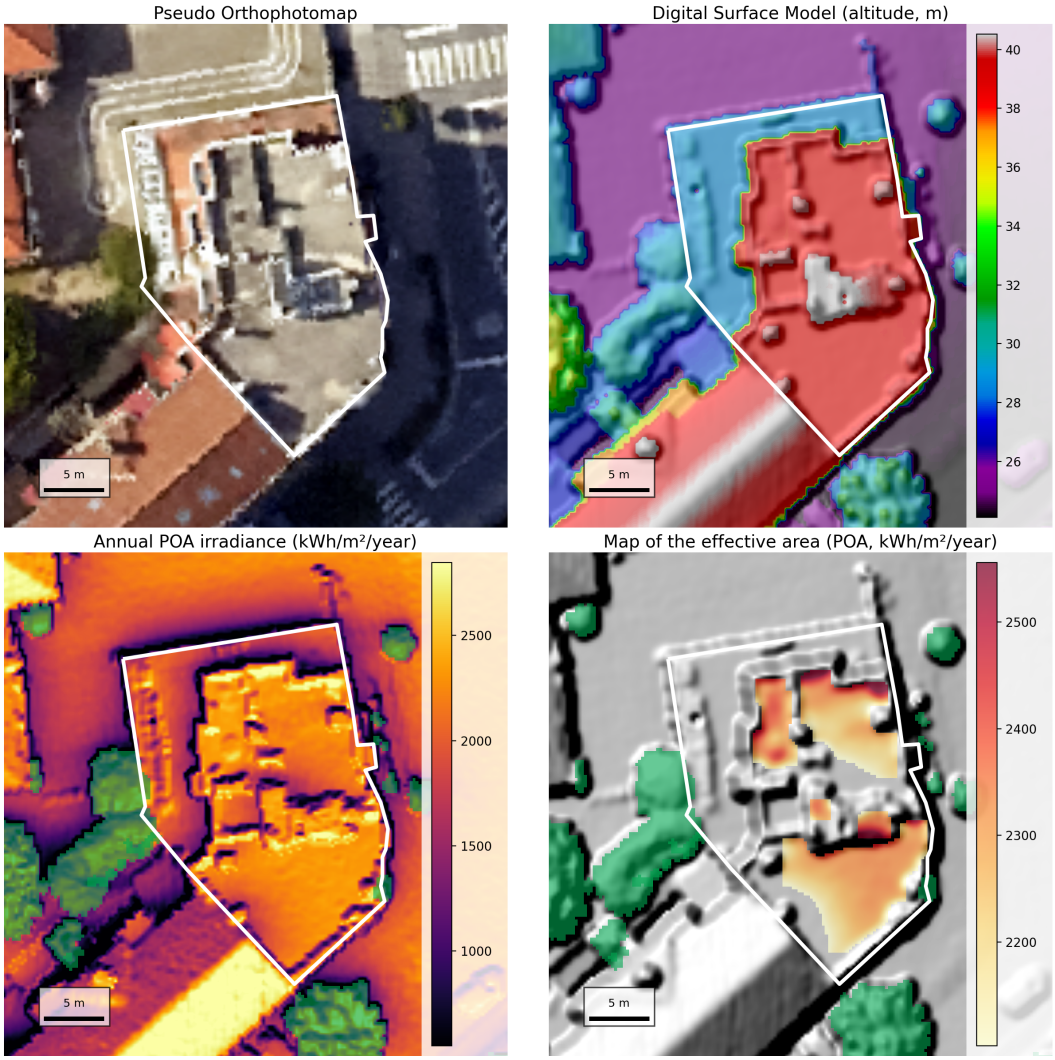

The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

# Rua Conde Dona Aurora 15, 4900 Viana do Castelo, Portugal

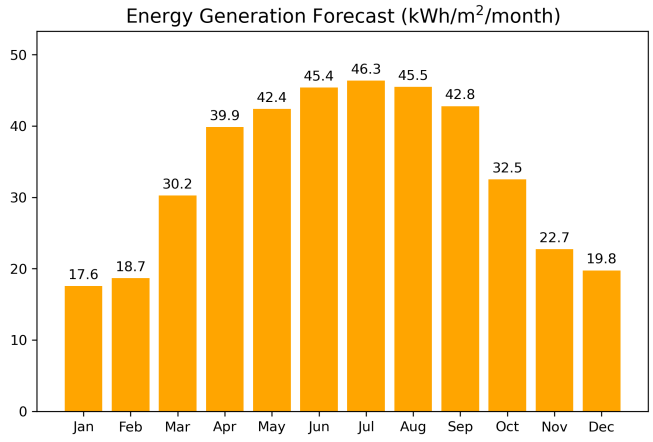
11




The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps
Latitude: 41.702, Longitude: -8.82518

| | |
|---|---|
| Total Roof Area (m²) | 440.9 |
| Effective Area (m²) | 148.38 |
| Average POA Over Effective Area (kWh/m²/year) | 2282 |
| Total POA Over Effective Area (kWh/year) | 338651 |
| Average Energy Generation Forecast (kWh/m²/year) | 402 |
| Total Energy Generation Forecast (kWh/year) | 59603 |
| Average Slope Angle of the Effective Area (degrees) | 7 |




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

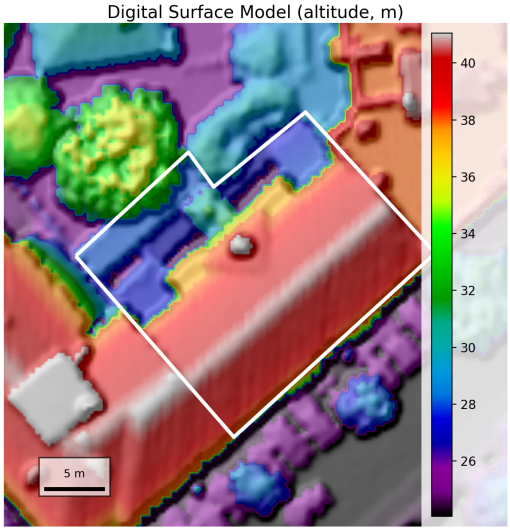
# Rua Camilo Castelo Branco 643, 4900-437 Viana do Castelo, Portugal

12

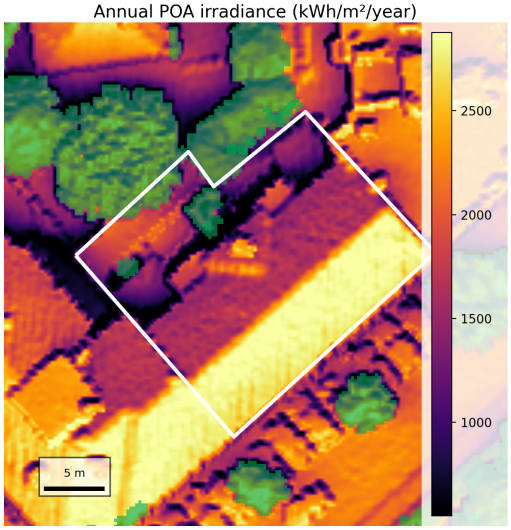
Pseudo Orthophotomap



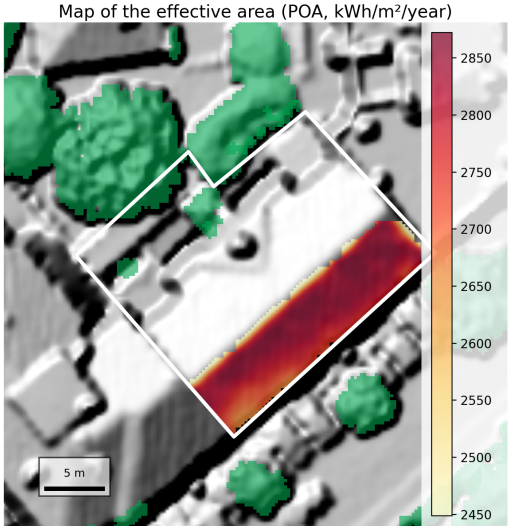

Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)



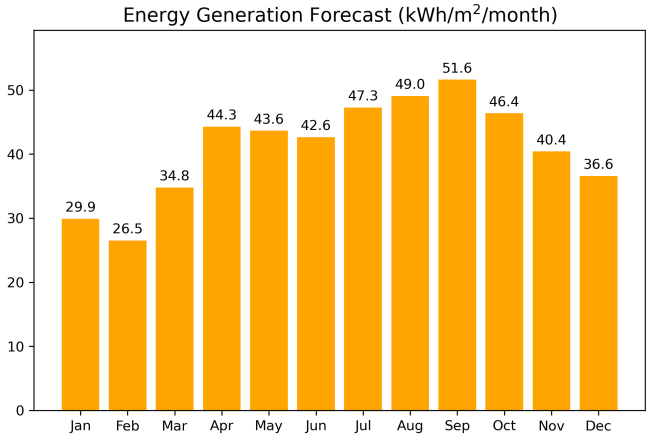

The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps

Latitude: 41.70179, Longitude: -8.82533

| | |
|---|---|
| Total Roof Area (m²) | 404.51 |
| Effective Area (m²) | 117.81 |
| Average POA Over Effective Area (kWh/m²/year) | 2784 |
| Total POA Over Effective Area (kWh/year) | 327981 |
| Average Energy Generation Forecast (kWh/m²/year) | 490 |
| Total Energy Generation Forecast (kWh/year) | 57725 |
| Average Slope Angle of the Effective Area (degrees) | 27 |

Energy Generation Forecast (kWh/m$^2$/month)



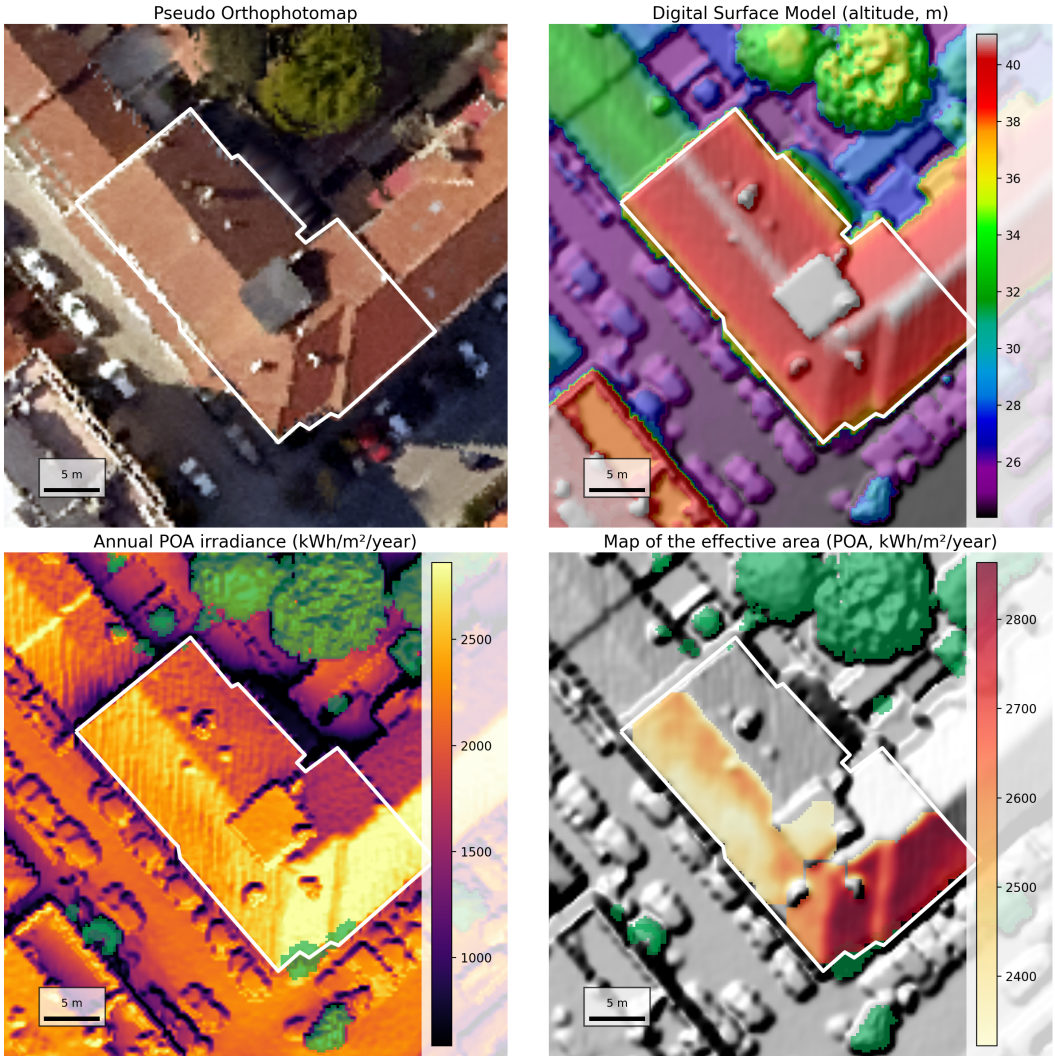

The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

# Rua Cruz das Barras 16, 4900-433 Viana do Castelo, Portugal

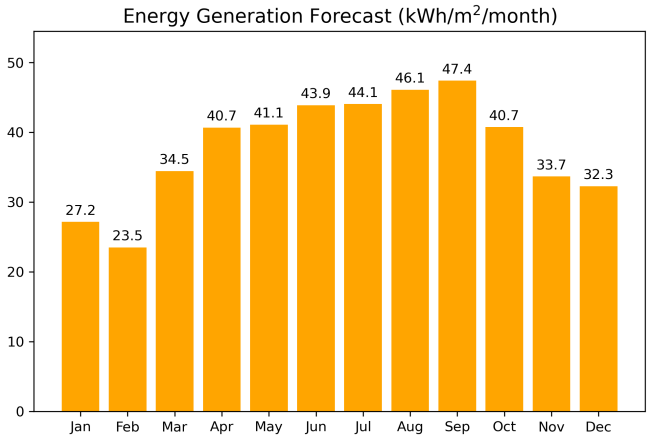
13




The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps
Latitude: 41.70177, Longitude: -8.82553

| | |
|---|---|
| Total Roof Area (m²) | 444.58 |
| Effective Area (m²) | 257.06 |
| Average POA Over Effective Area (kWh/m²/year) | 2578 |
| Total POA Over Effective Area (kWh/year) | 662600 |
| Average Energy Generation Forecast (kWh/m²/year) | 454 |
| Total Energy Generation Forecast (kWh/year) | 116618 |
| Average Slope Angle of the Effective Area (degrees) | 24 |




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

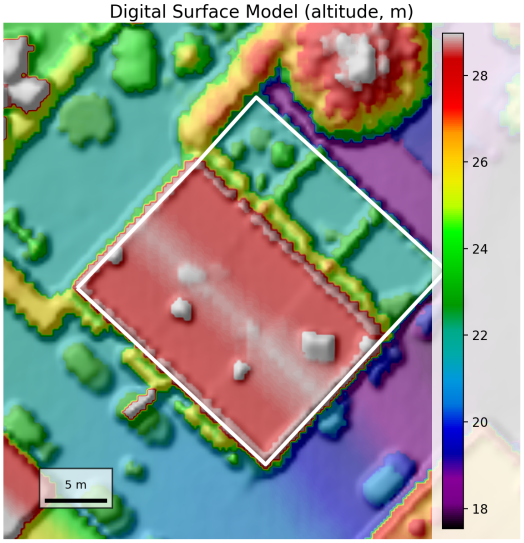
# Rua de Caminha 84, 4900-468 Viana do Castelo, Portugal

14

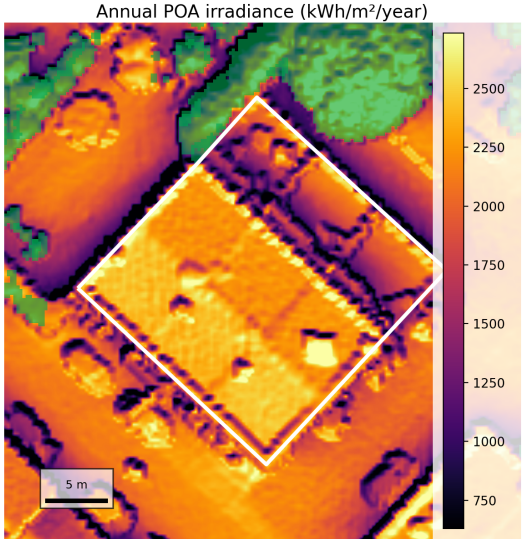
Pseudo Orthophotomap



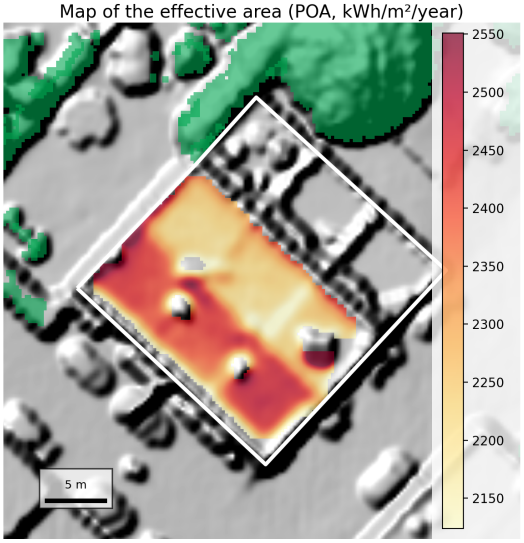

Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)



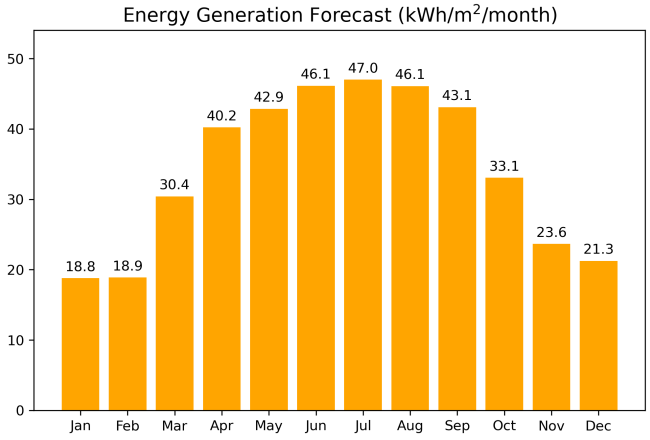

The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps

Latitude: 41.7019, Longitude: -8.82401

| | |
|---|---|
| Total Roof Area (m²) | 433.46 |
| Effective Area (m²) | 231.5 |
| Average POA Over Effective Area (kWh/m²/year) | 2326 |
| Total POA Over Effective Area (kWh/year) | 538460 |
| Average Energy Generation Forecast (kWh/m²/year) | 409 |
| Total Energy Generation Forecast (kWh/year) | 94769 |
| Average Slope Angle of the Effective Area (degrees) | 11 |

Energy Generation Forecast (kWh/m$^2$/month)




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

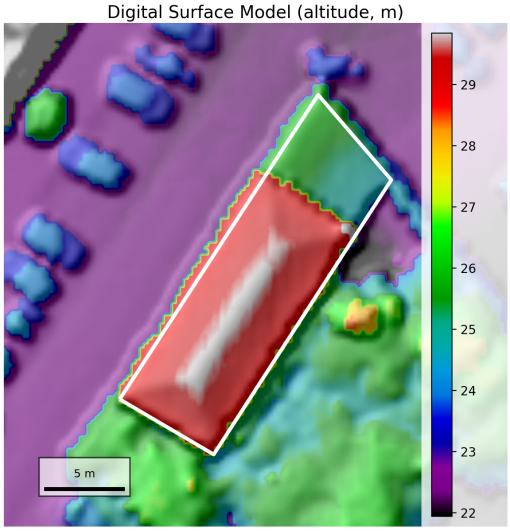
# Rua Ramalho Ortigão 108, 4900-422 Viana do Castelo, Portugal

15

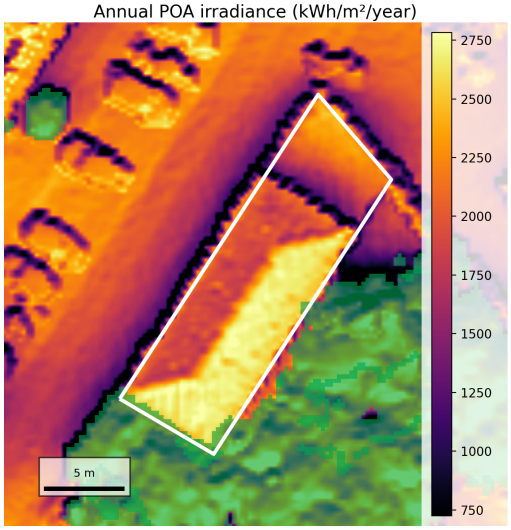
Pseudo Orthophotomap



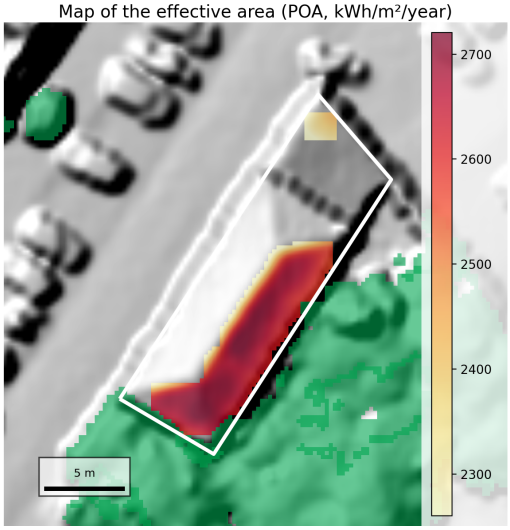

Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)



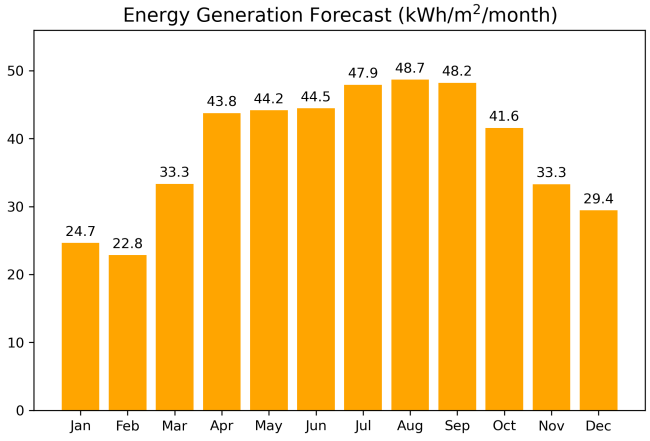

The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps

Latitude: 41.70302, Longitude: -8.82352

| | |
|---|---|
| Total Roof Area (m²) | 143.4 |
| Effective Area (m²) | 54.69 |
| Average POA Over Effective Area (kWh/m²/year) | 2597 |
| Total POA Over Effective Area (kWh/year) | 142028 |
| Average Energy Generation Forecast (kWh/m²/year) | 457 |
| Total Energy Generation Forecast (kWh/year) | 24997 |
| Average Slope Angle of the Effective Area (degrees) | 21 |

Energy Generation Forecast (kWh/m$^2$/month)




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

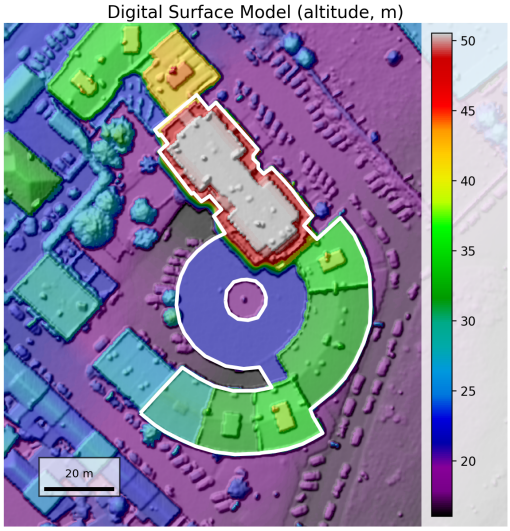
# Rua Doutor Ribeiro Silva 257, 4900-454 Viana do Castelo, Portugal

16

Pseudo Orthophotomap



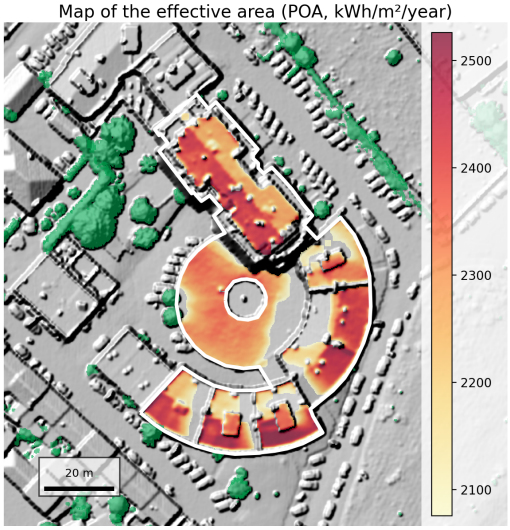

Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)

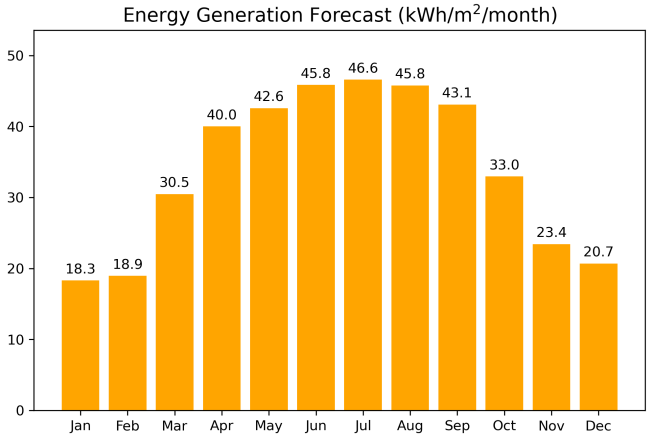



The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps
Latitude: 41.70196, Longitude: -8.8233

| | |
|---|---|
| Total Roof Area (m²) | 3663.34 |
| Effective Area (m²) | 2255.31 |
| Average POA Over Effective Area (kWh/m²/year) | 2313 |
| Total POA Over Effective Area (kWh/year) | 5217344 |
| Average Energy Generation Forecast (kWh/m²/year) | 407 |
| Total Energy Generation Forecast (kWh/year) | 918253 |
| Average Slope Angle of the Effective Area (degrees) | 7 |

Energy Generation Forecast (kWh/m$^2$/month)



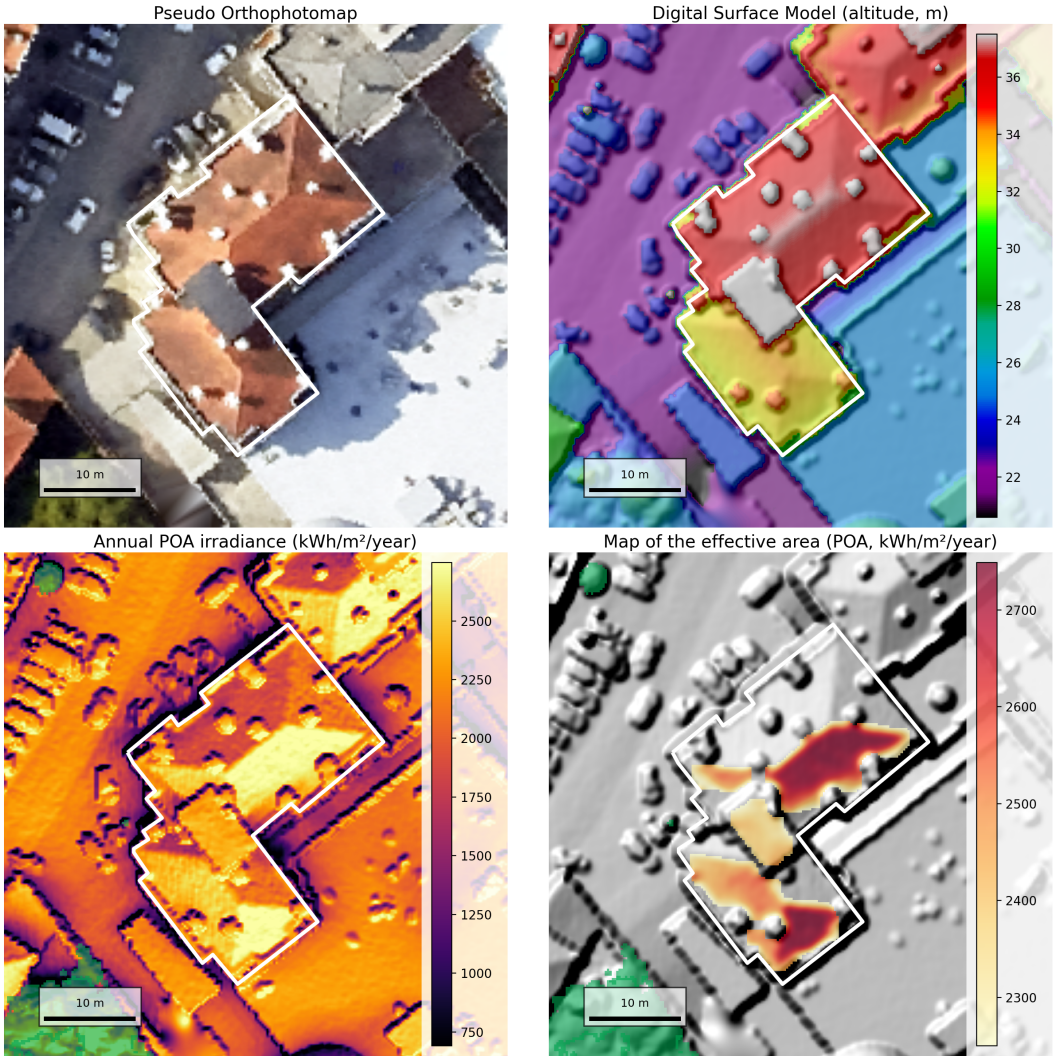

The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

# Rua Ramalho Ortigão 164, 4900-422 Viana do Castelo, Portugal

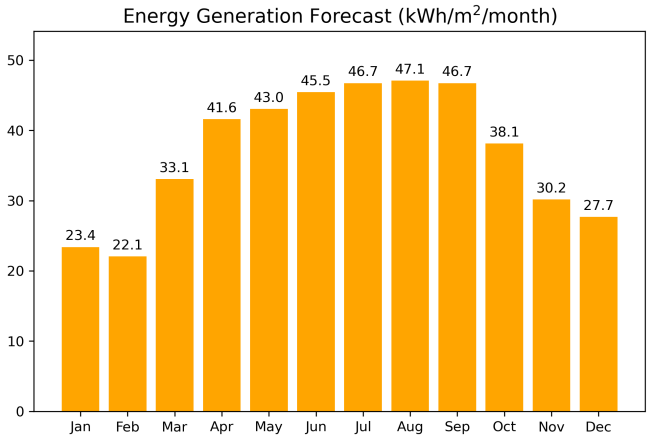
17




The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps
Latitude: 41.7032, Longitude: -8.82321

| | |
|---|---|
| Total Roof Area (m²) | 558.07 |
| Effective Area (m²) | 225.62 |
| Average POA Over Effective Area (kWh/m²/year) | 2510 |
| Total POA Over Effective Area (kWh/year) | 566295 |
| Average Energy Generation Forecast (kWh/m²/year) | 442 |
| Total Energy Generation Forecast (kWh/year) | 99668 |
| Average Slope Angle of the Effective Area (degrees) | 16 |




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

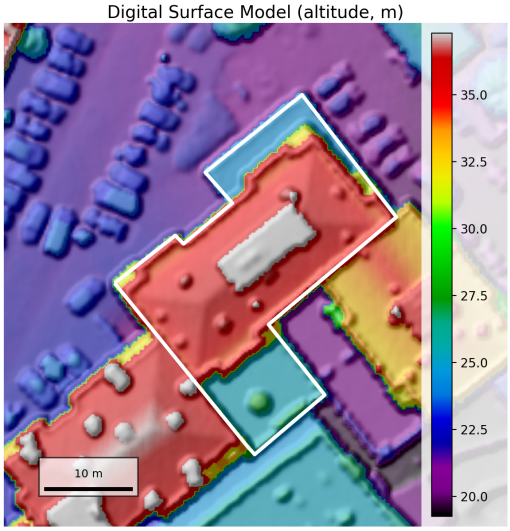
# Rua Ramalho Ortigão 196, 4900-422 Viana do Castelo, Portugal

18

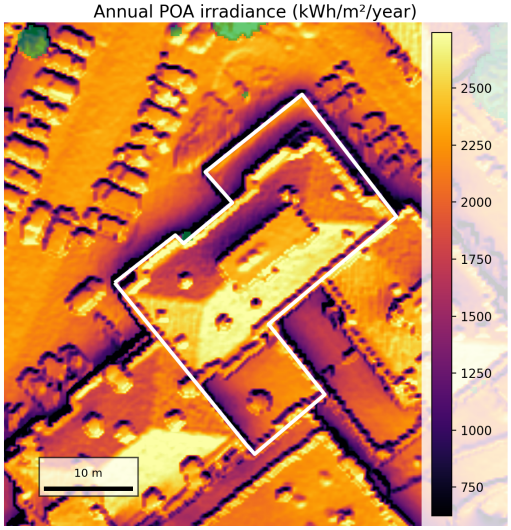
Pseudo Orthophotomap



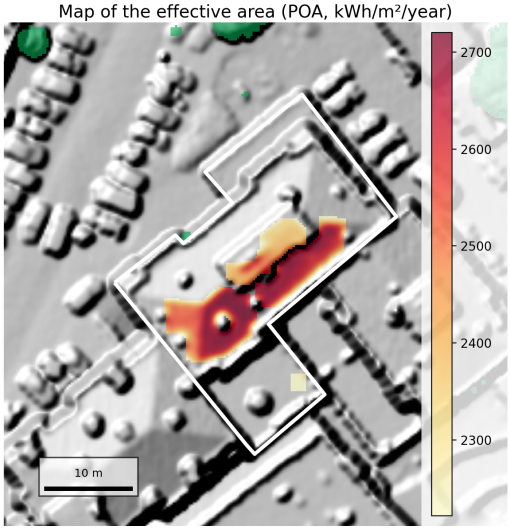

Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)

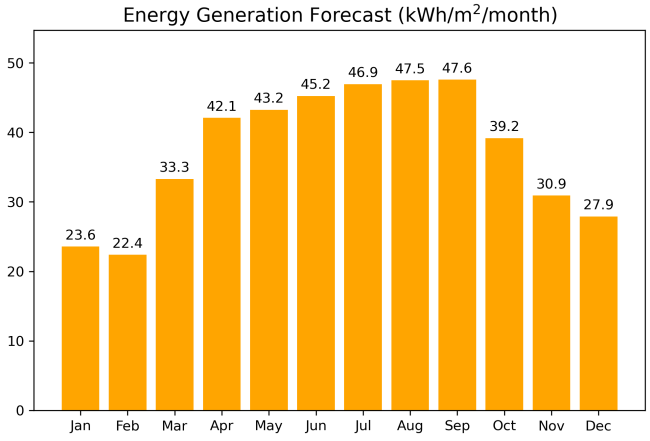



The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps
Latitude: 41.70345, Longitude: -8.82301

| | |
|---|---|
| Total Roof Area (m²) | 567.29 |
| Effective Area (m²) | 134.69 |
| Average POA Over Effective Area (kWh/m²/year) | 2527 |
| Total POA Over Effective Area (kWh/year) | 340343 |
| Average Energy Generation Forecast (kWh/m²/year) | 445 |
| Total Energy Generation Forecast (kWh/year) | 59900 |
| Average Slope Angle of the Effective Area (degrees) | 15 |

Energy Generation Forecast (kWh/m$^2$/month)




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

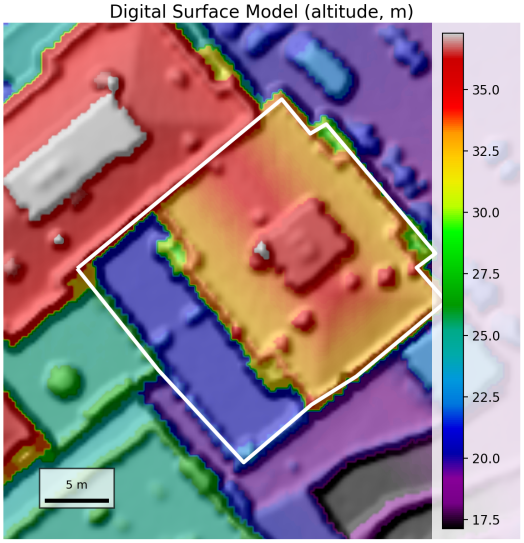
# Rua Salvato Feijó 3A, 4900-415 Viana do Castelo, Portugal

19

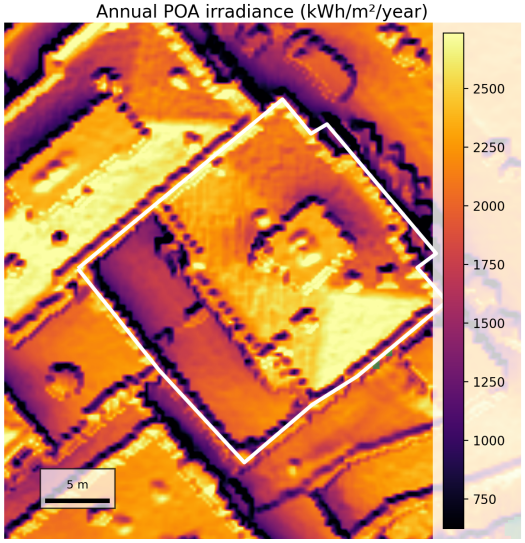
Pseudo Orthophotomap



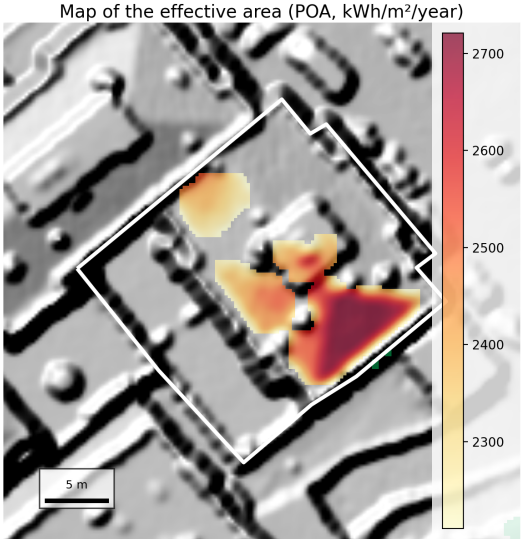

Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)



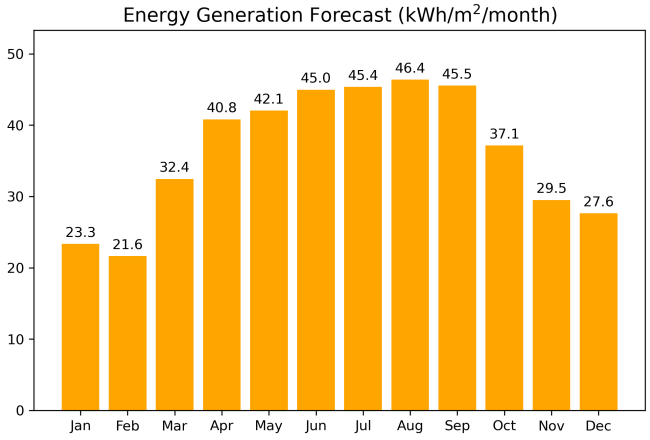

The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps

Latitude: 41.70338, Longitude: -8.8228

| | |
|---|---|
| Total Roof Area (m²) | 435.02 |
| Effective Area (m²) | 112.81 |
| Average POA Over Effective Area (kWh/m²/year) | 2463 |
| Total POA Over Effective Area (kWh/year) | 277858 |
| Average Energy Generation Forecast (kWh/m²/year) | 434 |
| Total Energy Generation Forecast (kWh/year) | 48903 |
| Average Slope Angle of the Effective Area (degrees) | 16 |

Energy Generation Forecast (kWh/m$^2$/month)




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

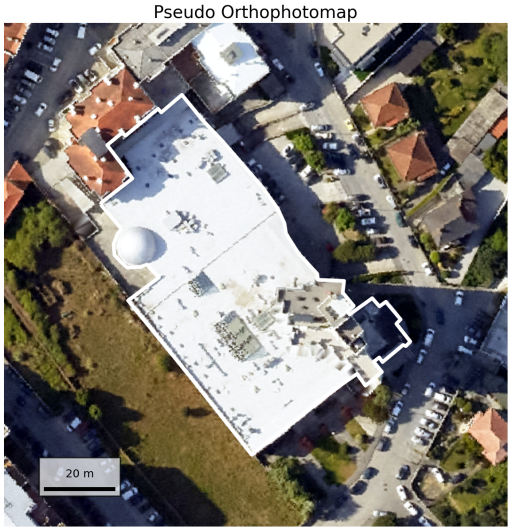
PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

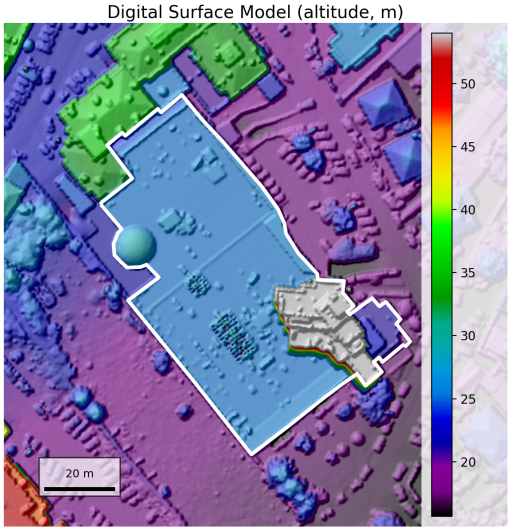
# Rua Salvato Feijó, Edifício Torre do Liceu, 4900-415 Viana do Castelo, Portugal

20

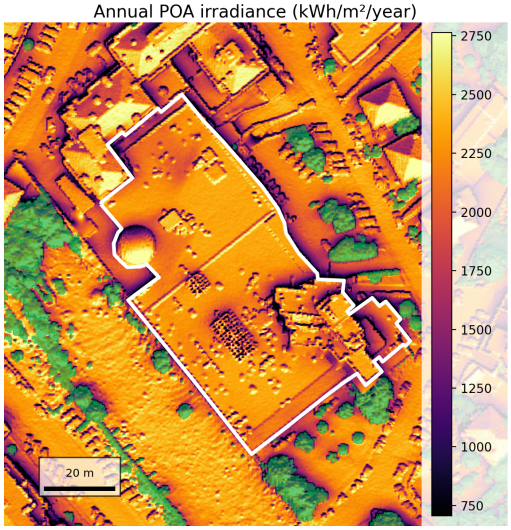
Pseudo Orthophotomap



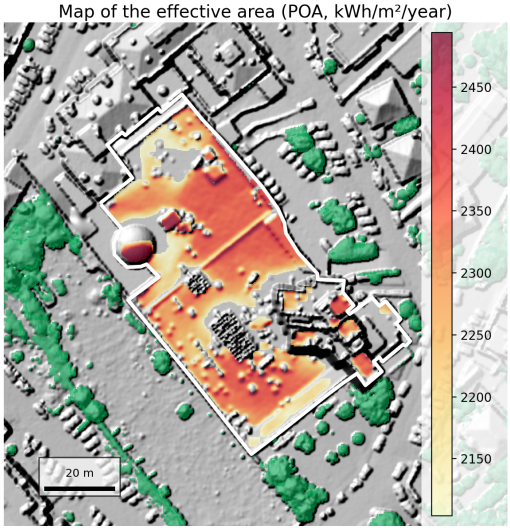

Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)



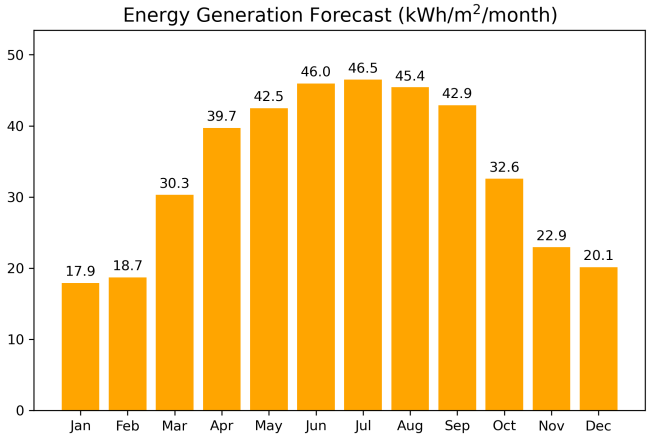

The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps

Latitude: 41.70285, Longitude: -8.82273

| | |
|---|---|
| Total Roof Area (m²) | 4121.33 |
| Effective Area (m²) | 2390.19 |
| Average POA Over Effective Area (kWh/m²/year) | 2294 |
| Total POA Over Effective Area (kWh/year) | 5482642 |
| Average Energy Generation Forecast (kWh/m²/year) | 404 |
| Total Energy Generation Forecast (kWh/year) | 964945 |
| Average Slope Angle of the Effective Area (degrees) | 5 |

Energy Generation Forecast (kWh/m$^2$/month)




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

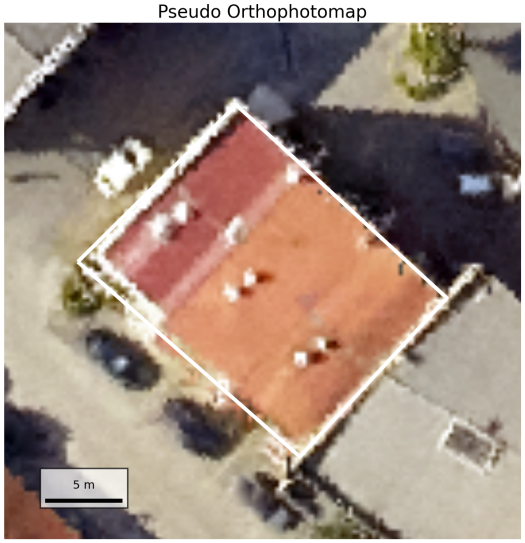
PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

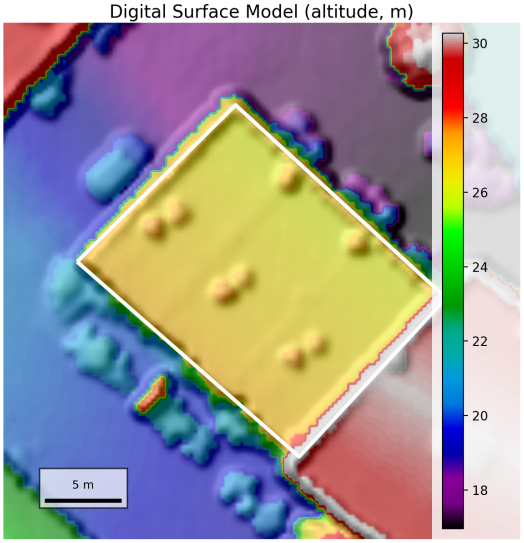
# Rua de Caminha 62, 4900-468 Viana do Castelo, Portugal

21

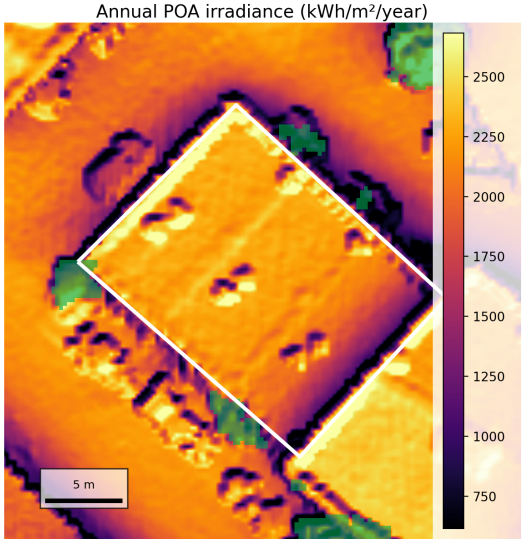
Pseudo Orthophotomap



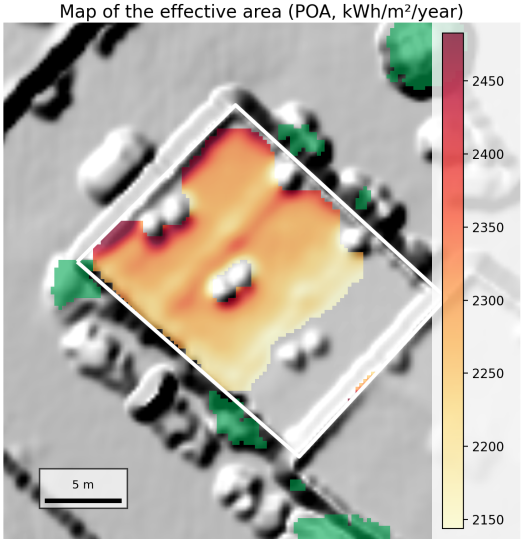

Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)



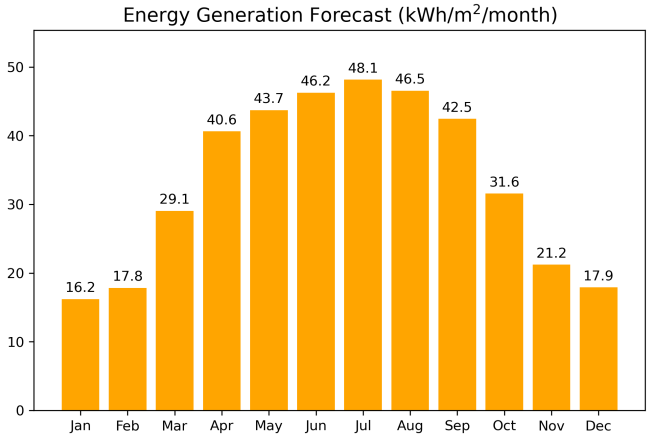

The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps

Latitude: 41.70169, Longitude: -8.82378

| | |
|---|---|
| Total Roof Area (m²) | 267.77 |
| Effective Area (m²) | 157.31 |
| Average POA Over Effective Area (kWh/m²/year) | 2273 |
| Total POA Over Effective Area (kWh/year) | 357572 |
| Average Energy Generation Forecast (kWh/m²/year) | 400 |
| Total Energy Generation Forecast (kWh/year) | 62933 |
| Average Slope Angle of the Effective Area (degrees) | 8 |

Energy Generation Forecast (kWh/m$^2$/month)




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

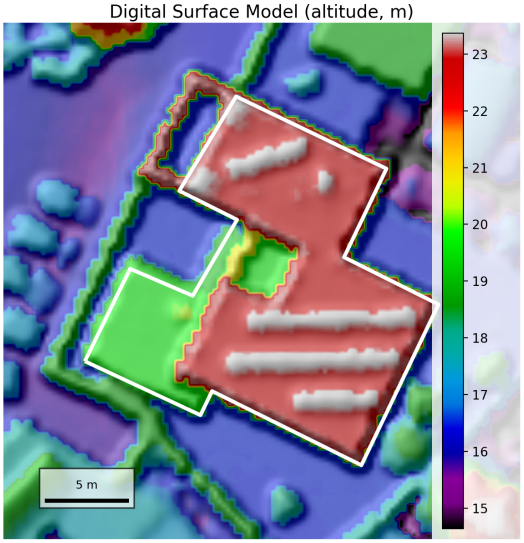
# Rua Salvato Feijó 50, 4900-415 Viana do Castelo, Portugal

22

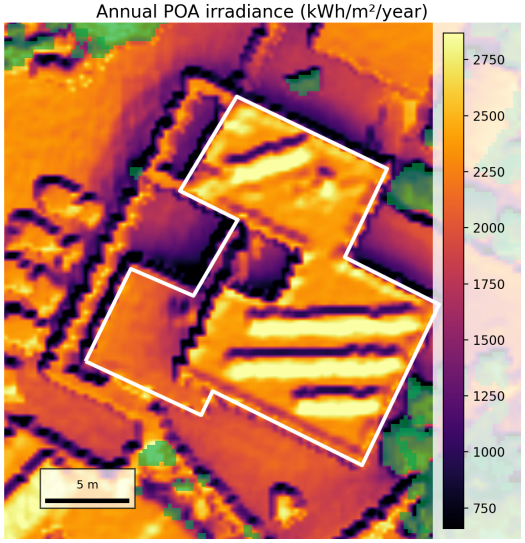
Pseudo Orthophotomap



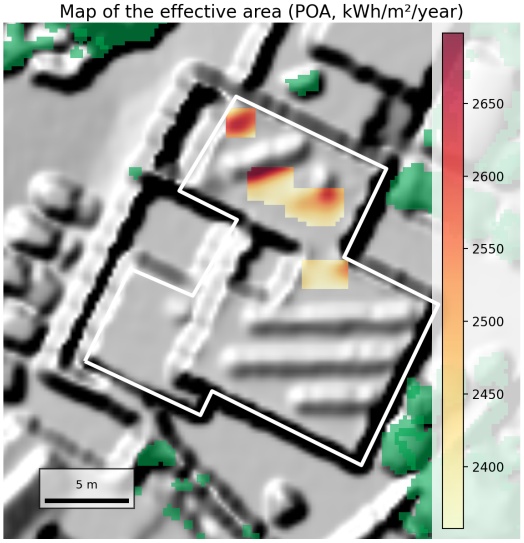

Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)



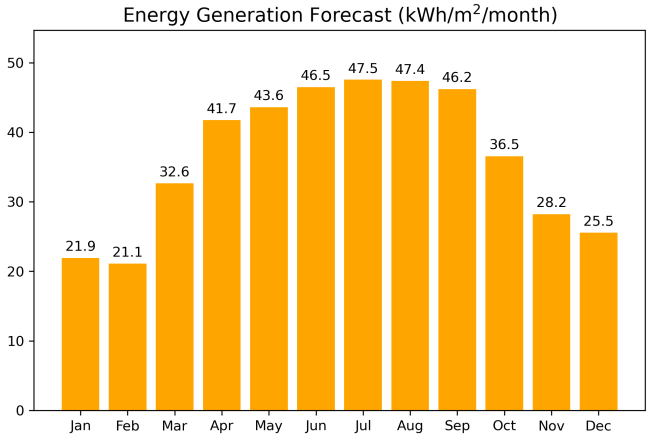

The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps

Latitude: 41.70271, Longitude: -8.82173

| | |
|---|---|
| Total Roof Area (m²) | 233.31 |
| Effective Area (m²) | 20.44 |
| Average POA Over Effective Area (kWh/m²/year) | 2466 |
| Total POA Over Effective Area (kWh/year) | 50395 |
| Average Energy Generation Forecast (kWh/m²/year) | 434 |
| Total Energy Generation Forecast (kWh/year) | 8869 |
| Average Slope Angle of the Effective Area (degrees) | 9 |

Energy Generation Forecast (kWh/m$^2$/month)




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

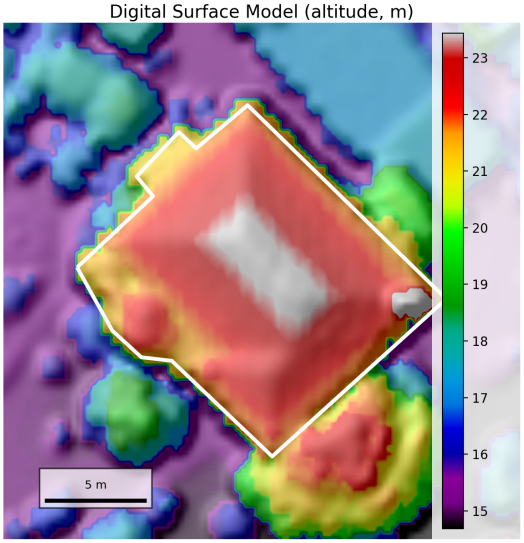
# Rua Salvato Feijó 12, 4900-415 Viana do Castelo, Portugal

23

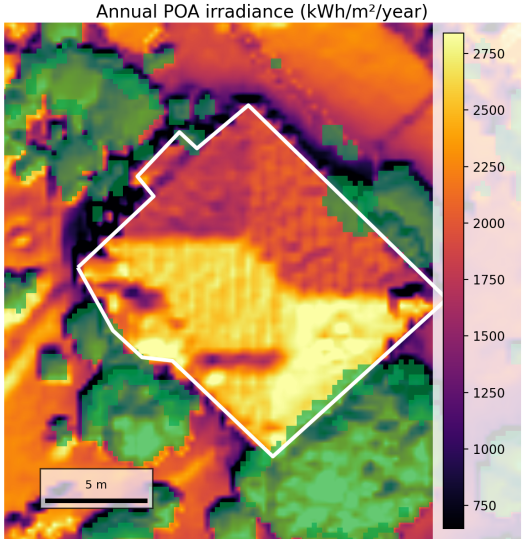
Pseudo Orthophotomap



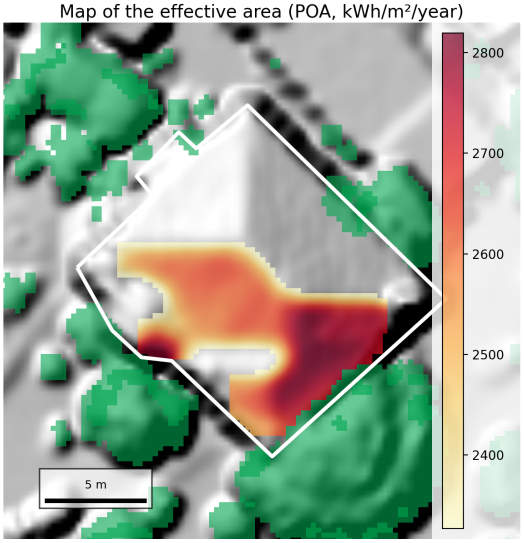

Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)



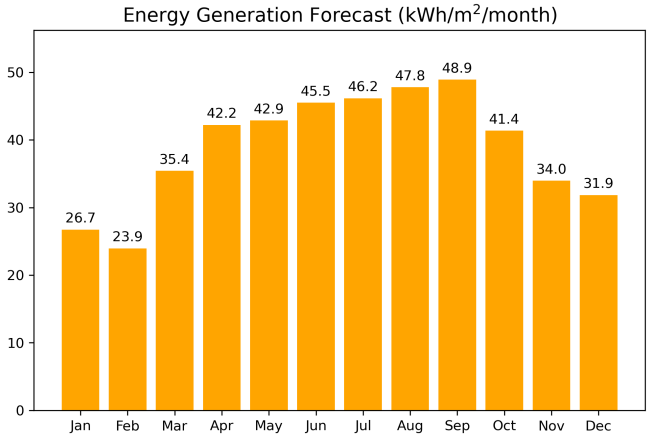

The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps

Latitude: 41.70244, Longitude: -8.82186

| | |
|---|---|
| Total Roof Area (m²) | 163.59 |
| Effective Area (m²) | 68.44 |
| Average POA Over Effective Area (kWh/m²/year) | 2610 |
| Total POA Over Effective Area (kWh/year) | 178659 |
| Average Energy Generation Forecast (kWh/m²/year) | 459 |
| Total Energy Generation Forecast (kWh/year) | 31444 |
| Average Slope Angle of the Effective Area (degrees) | 22 |

Energy Generation Forecast (kWh/m$^2$/month)



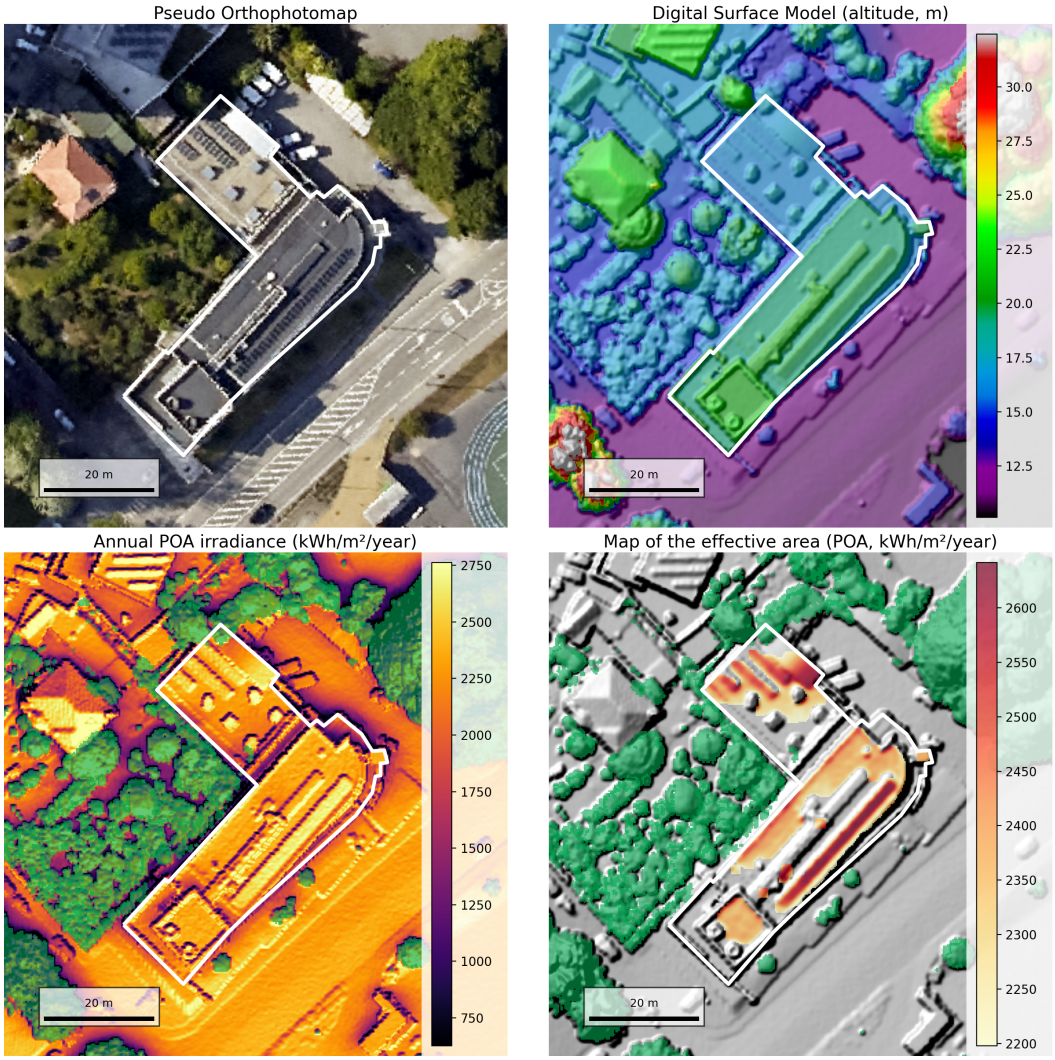

The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

# Avenida Capitão Gaspar de Castro, 4900 Viana do Castelo, Portugal

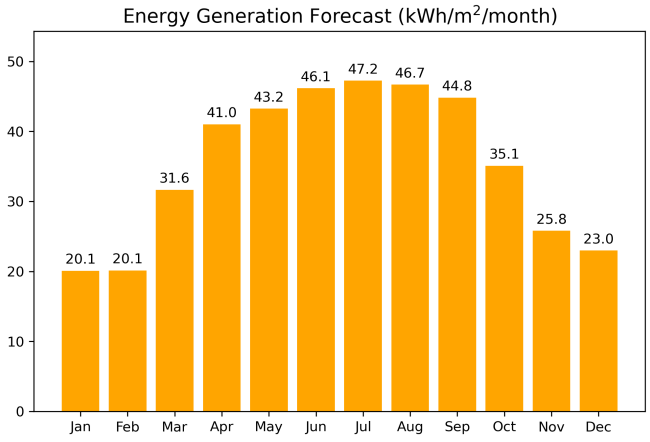
24




The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps
Latitude: 41.70229, Longitude: -8.82135

| | |
|---|---|
| Total Roof Area (m²) | 1237.82 |
| Effective Area (m²) | 521.0 |
| Average POA Over Effective Area (kWh/m²/year) | 2390 |
| Total POA Over Effective Area (kWh/year) | 1245320 |
| Average Energy Generation Forecast (kWh/m²/year) | 421 |
| Total Energy Generation Forecast (kWh/year) | 219176 |
| Average Slope Angle of the Effective Area (degrees) | 10 |




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

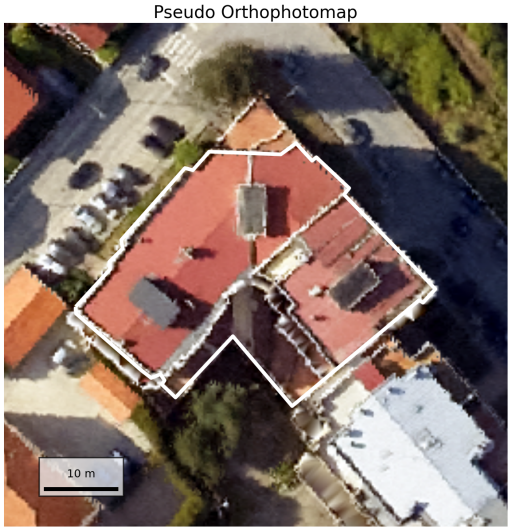
PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

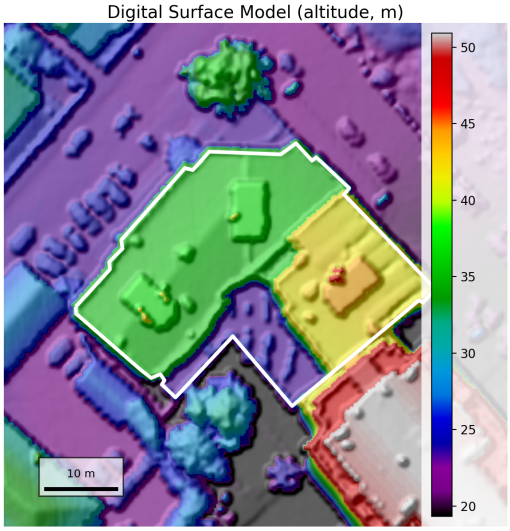
# Rua Doutor Ribeiro Silva 49, 4900-454 Viana do Castelo, Portugal

25

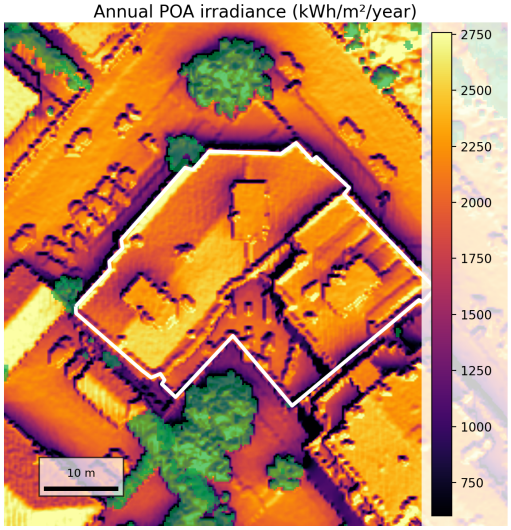
Pseudo Orthophotomap



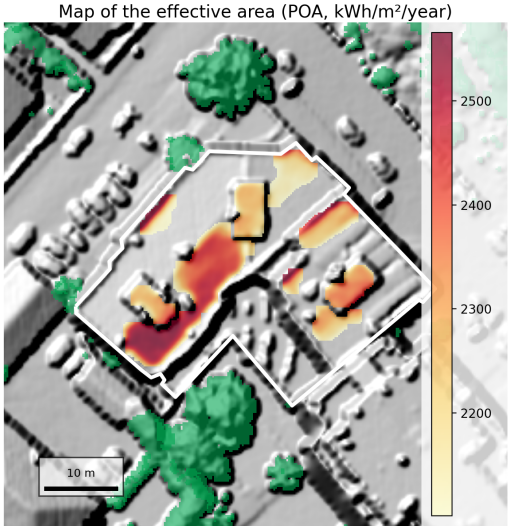

Digital Surface Model (altitude, m)




Annual POA irradiance (kWh/m²/year)




Map of the effective area (POA, kWh/m²/year)



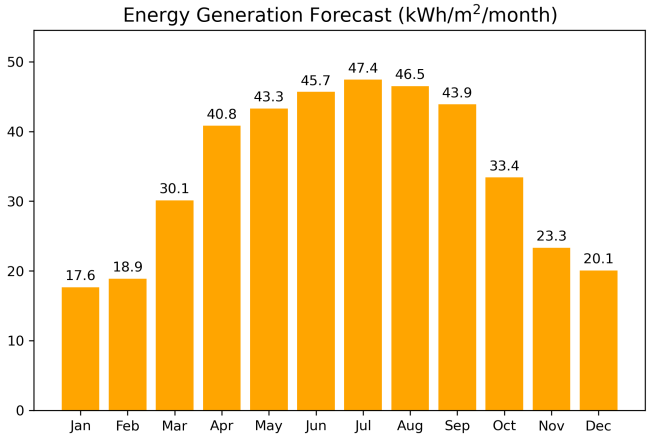

The result of determining the effective area may not be accurate if PV panels are already installed on the roof.

Link to Google Maps

Latitude: 41.70246, Longitude: -8.82377

| | |
|---|---|
| Total Roof Area (m²) | 1008.36 |
| Effective Area (m²) | 293.25 |
| Average POA Over Effective Area (kWh/m²/year) | 2319 |
| Total POA Over Effective Area (kWh/year) | 680129 |
| Average Energy Generation Forecast (kWh/m²/year) | 408 |
| Total Energy Generation Forecast (kWh/year) | 119703 |
| Average Slope Angle of the Effective Area (degrees) | 9 |

Energy Generation Forecast (kWh/m$^2$/month)




The Energy Generation Forecast is calculated as POA irradiation multiplied by the PV module efficiency (22%) and the system Performance Ratio (0.80), for the respective time period.

PVGIS meteorological data for 2024 were used to calculate the POA and forecast energy generation.

© Sun Potential 3D, 2026

# ⚠ IMPORTANT LEGAL NOTICE

This document constitutes a preliminary analytical study based on remote sensing data and modeling techniques.

It is provided for informational and illustrative purposes only and does not constitute:

- an electrical engineering design,
- a photovoltaic system project,
- a technical installation plan,
- a structural assessment,
- a grid-connection study,
- or any document required under applicable national or European legislation for the authorization, permitting, or installation of a photovoltaic system.

No physical site inspection, structural verification, electrical compliance analysis, or regulatory approval assessment has been performed.

The results are estimates derived from geospatial datasets and modeling assumptions. Actual technical feasibility, system performance, investment costs, regulatory compliance, and return on investment may differ and must be verified by licensed engineers and qualified installers prior to implementation.

Sun Potential 3D assumes no liability for decisions made based solely on this analytical report without independent professional verification.

© Sun Potential 3D, 2026