

# **Irradiation and Production reporting**

## Irradiation data



The irradiation results in the report are the irradiation on the inclined plane and horizontal irradiation can be viewed based on the following steps:

1. Go back to main page and click on "MAPS"

**MAPS** LOCATION FINDER **PV-ezDesign**

VIEW OPTIONS

address:

LATITUDE: -33.9140 LONGITUDE: 151.2194 ELEVATION: 49 ADDRESS: 1 Tunstall Avenue, Kensington NSW 2033, Australia

GOOGLE MAPS

ROAD  
SATELLITE  
HYBRID  
TERRAIN

SOLAR-CLIMATE DATA

**VIEW DATA**

WIND ZONE

WIND ZONES

powered by Digi Plan s.r.l. SELECT AND CLOSE CLOSE

After clicking on Maps, it will turn to this page, shown as above:

2. Click on "VIEW DATA"

VIEW OPTIONS

GOOGLE MAPS

- ROAD
- SATELLITE
- HYBRID
- TERRAIN

SOLAR-CLIMATE DATA

VIEW DATA

WIND ZONE

WIND ZONES

address

LATITUDE : -33.9140 LONGITUDE : 151.2194 ELEVATION : 49 ADDRESS : 1 Tunstall Avenue, Kensington NSW 2033, Australia

SOLAR-CLIMATE DATA

**HORIZONTAL IRRADIATION**

Irradiation on horizontal plane (kWh/m<sup>2</sup>/day)

JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	ANNUAL
5.94	5.28	4.55	3.59	2.79	2.52	2.72	3.61	4.65	5.54	5.91	6.28	4.45

Database : NASA

<http://eosweb.larc.nasa.gov/sse/>

**DAILY IRRADIATION**

Average daily sum of global irradiation per square meter received by the modules of the given system (kWh/m<sup>2</sup>)

JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	ANNUAL
5.44	5.21	4.99	4.53	4.05	4	4.19	4.97	5.55	5.69	5.53	5.61	4.98

Database : NASA

<http://eosweb.larc.nasa.gov/sse/>

**MONTHLY IRRADIATION**

Average monthly sum of global irradiation per square meter received by the modules of the given system (kWh/m<sup>2</sup>)

JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	ANNUAL
168.64	145.88	154.69	135.9	125.55	120	129.89	154.07	166.5	176.39	165.9	173.91	151

Database : NASA

<http://eosweb.larc.nasa.gov/sse/>

TOTAL 1817

**AVERAGE TEMPERATURE**

Average temperature (°C)

JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	ANNUAL
25	24.5	23	20.5	16.5	14	12.5	13.5	17	18.5	20.5	22.5	19

Database : EMP Climate

<http://www.mines-paristech.eu/researcher/fields-of-research/energy-and-process-engineering/csp/>

**OPTIMAL INCLINATION**

Optimal inclination (deg.)

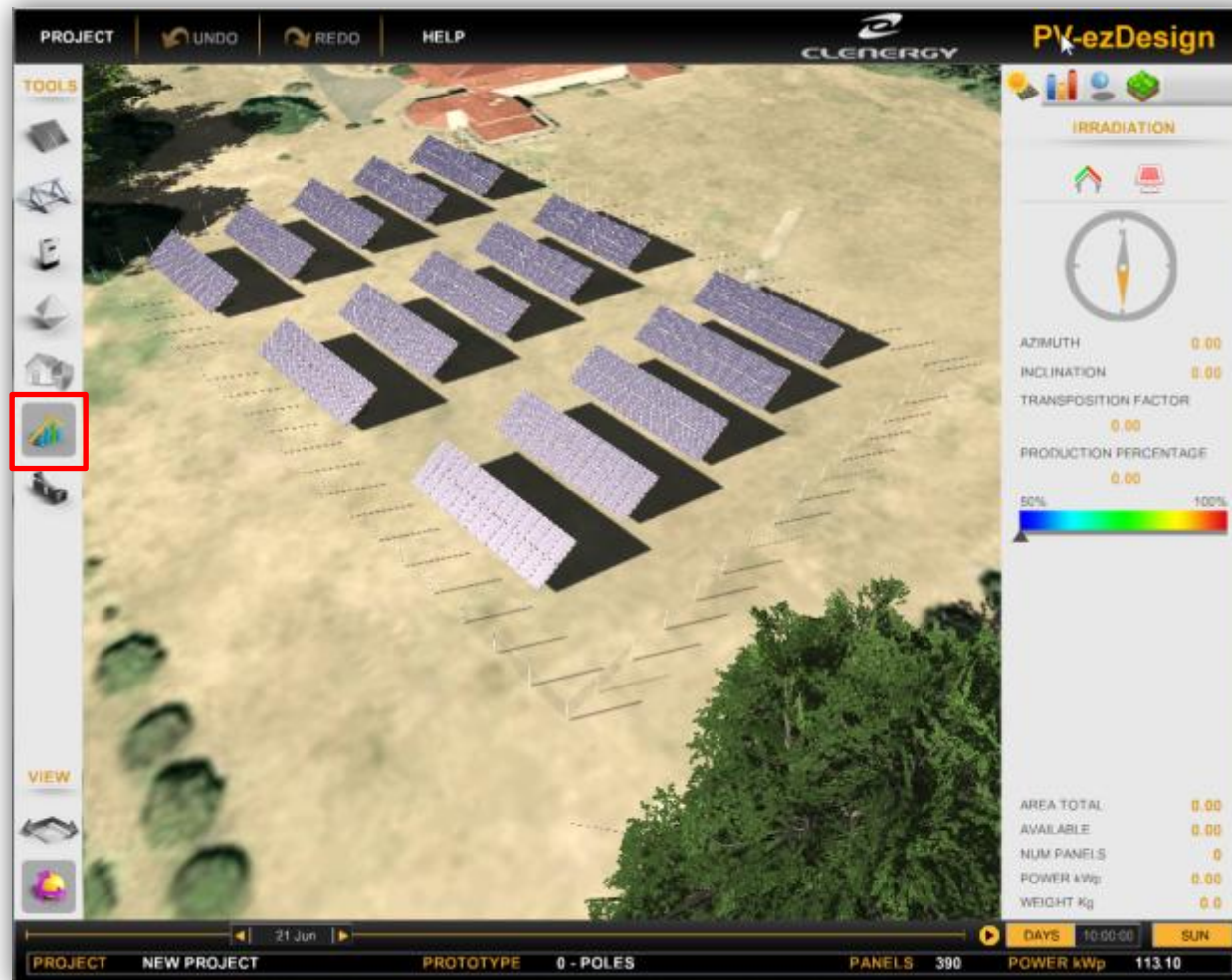
JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	ANNUAL
13	22	33	45	54	57	54	45	33	22	13	10	26

Database : InSun

DOWNLOAD

All the irradiation analysis results are given and this report can be downloaded as PDF format.

## Irradiation analyse



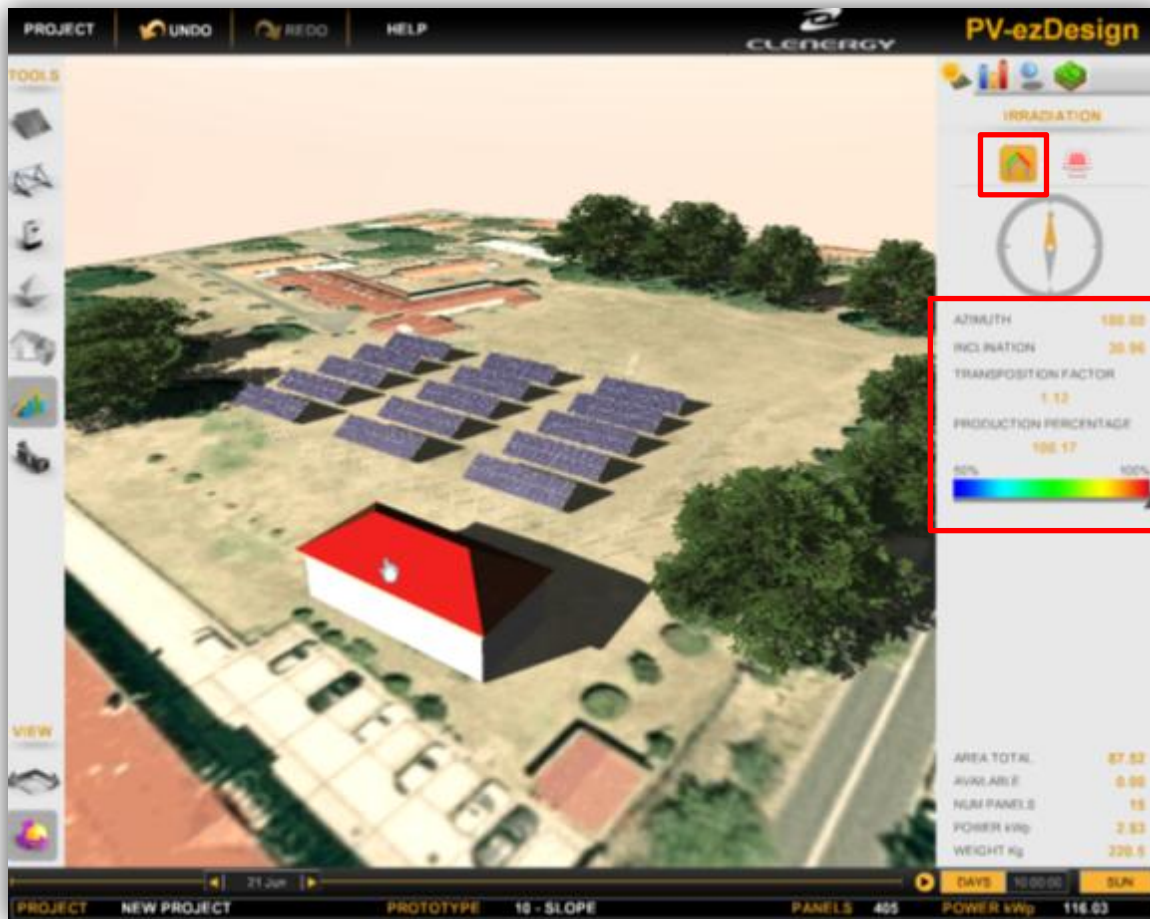
- After completing your design, click on "ANALYZE". The irradiation menu will be shown on the right.



: Slope selection. It used for a face of a pitch roof and the irradiation data for the selected roof will be given by clicking on this icon.



: Panel selection. Click on the panels no matter which racking system they are using and the irradiation data is able to be given.



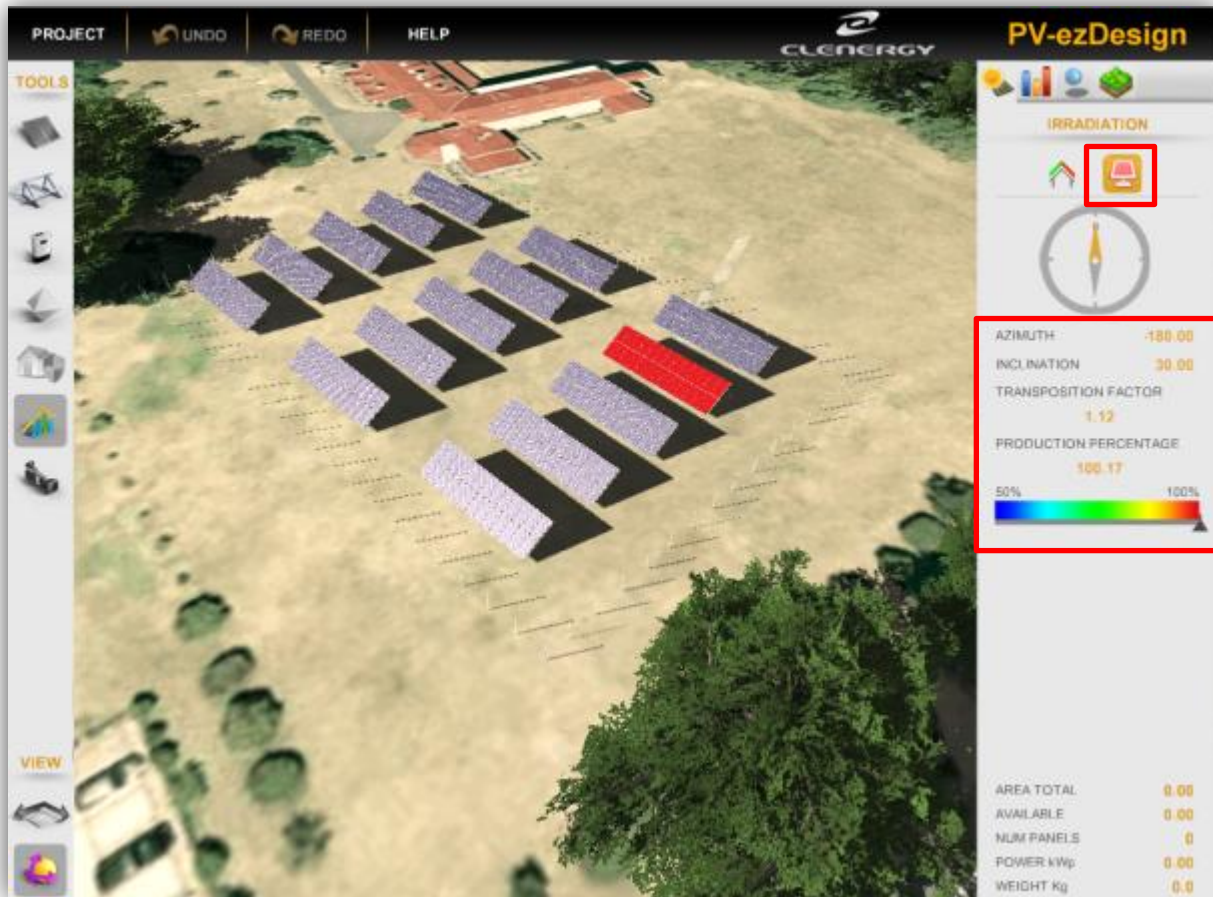
: Slope selection

Click on "Slope selection" and then select the slope that you are looking for.

The panels will be hidden temporarily if you select the slope where you installing the system.

To quit this mode, click on "slope selection" again.

No matter which selection you use, please remember to quit this mode, otherwise the colour shown on the roof and panel will still be there.



: Panel selection

Click on "Panel selection" first and then select the panel that you are looking for. The analysis result will be provided.

Please be aware that the production percentage depends on the azimuth and inclination angle. The number of panel per array and the height of system will not affect the irradiation results.

If you want to check the production percentage of the array installed in a different angle, please choose a new array instead of rotating or duplicating the original one as it will give you a same result.





- Definition of Transposition Factor:

FT is a dimensionless quantity given by the ratio between the incident solar energy over a differently oriented and inclined plane (the reference yield  $Y_r$ ) and the solar energy incident on the horizontal plane (the ground reference yield  $Y_{rg}$ ):

$$TF = \frac{Y_r}{Y_{rg}}$$

It describes the higher amount of energy which is possible to receive with a modules orientation and inclination different than respect to the horizontal position.

## Output analyses



A report illustrating a comparison between the designed system and optimal condition in terms of global irradiation and electricity production can be given by clicking on "PVGIS ENERGY".




Used for Ground mounting system;



Used for SolarRoof system;



Used for the particular slope of SolarRoof system.

**ANALYSIS**  **YIELDS** **PV-ezDesign** [DOWNLOAD PDF](#)

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**ANALYSES**

- YIELD**
- INSTALLATION IRRADIATION YIELDS**

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**INSTALLATION**

INSTALLED POWER	113.10 kWp
AVERAGE ANNUAL RADIATION	1,820 kWh/year
TOTAL YIELD	158,457 kWh/year

**INSTALLATION 1**

TYPE OF INSTALLATION	Photovoltaic ground system
INSTALLED POWER	113.10 kWp
AVERAGE ANNUAL RADIATION	1,820 kWh/year
YIELD	158,457 kWh/year

*TERRA -180*

INSTALLED POWER	113.10 kWp
AVERAGE ANNUAL RADIATION	1,820 kWh/year
YIELD	158,457 kWh/year
ANGLE	30.00 °
AZIMUTH	-180.00 °

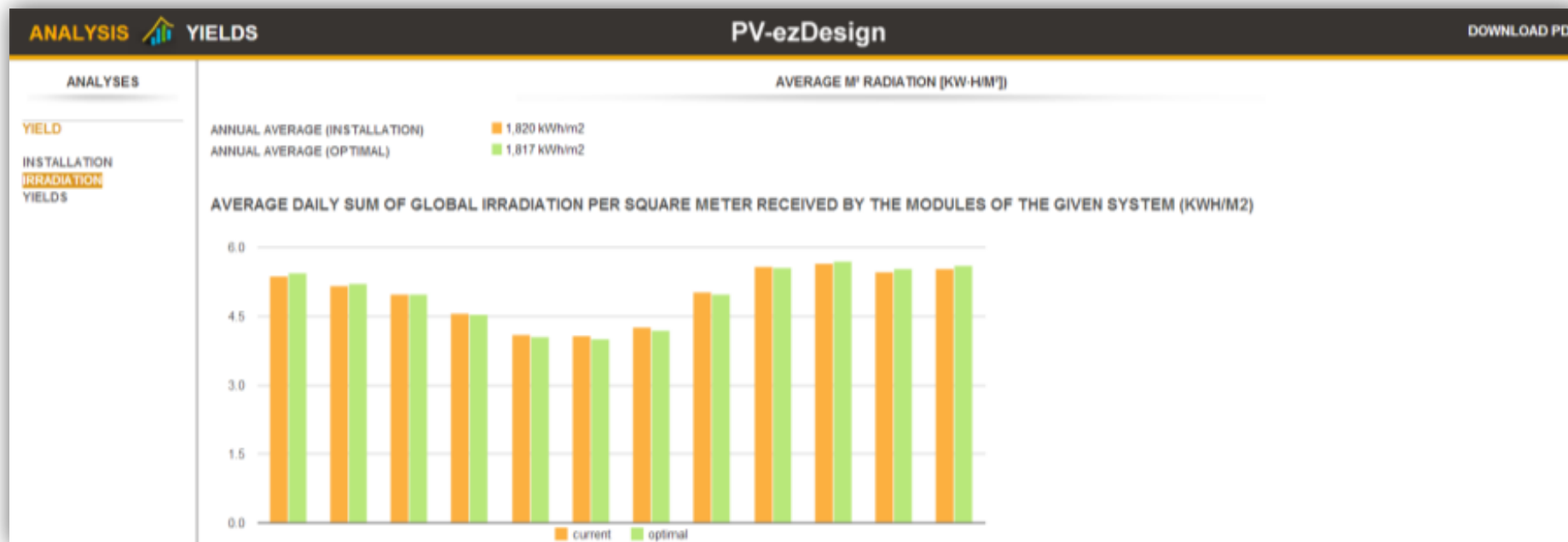
powered by Digi Plan s.r.l. [CLOSE](#)

In this case, Ground mounting system acts as an example. Therefore,

Click on "GROUND PROD" and the analysis page shall be shown as this picture.

On the left, three results are able to be viewed separately. You can also click on "DOWNLOAD PDF" at the top-right corner to export a full report.

Irradiation report on the panels



## Production report of the system

