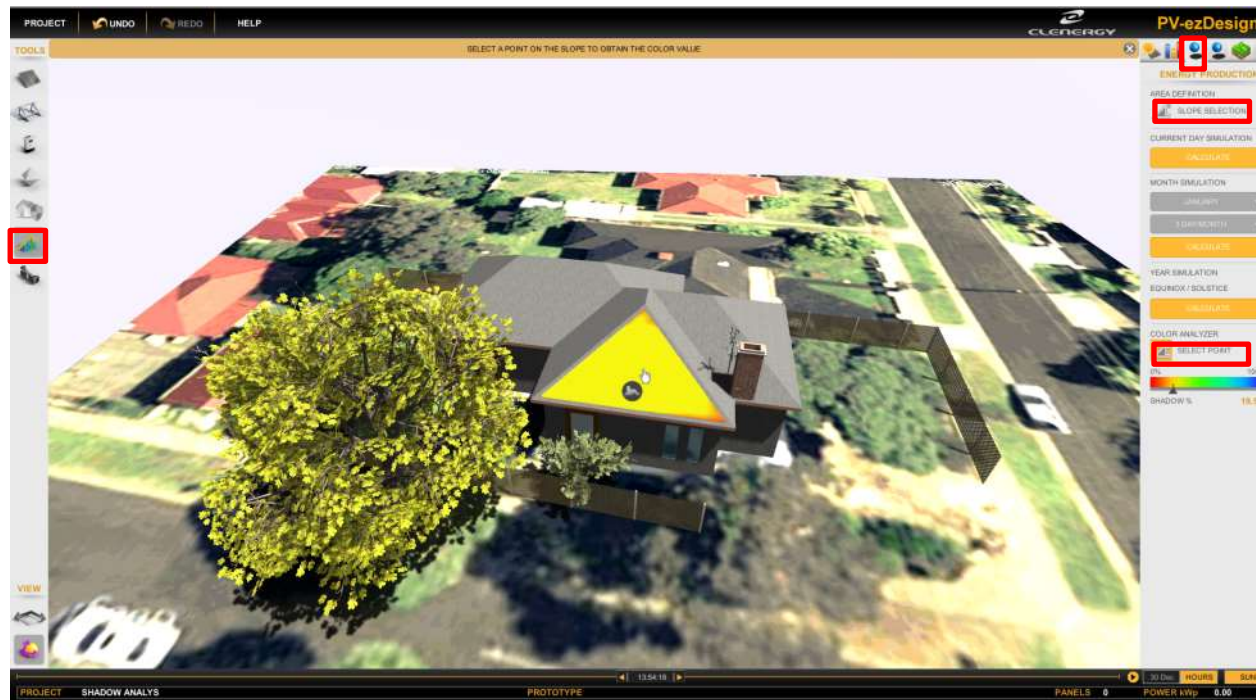


■ *PV-ezDesign*
Shadow and Irradiation analysis



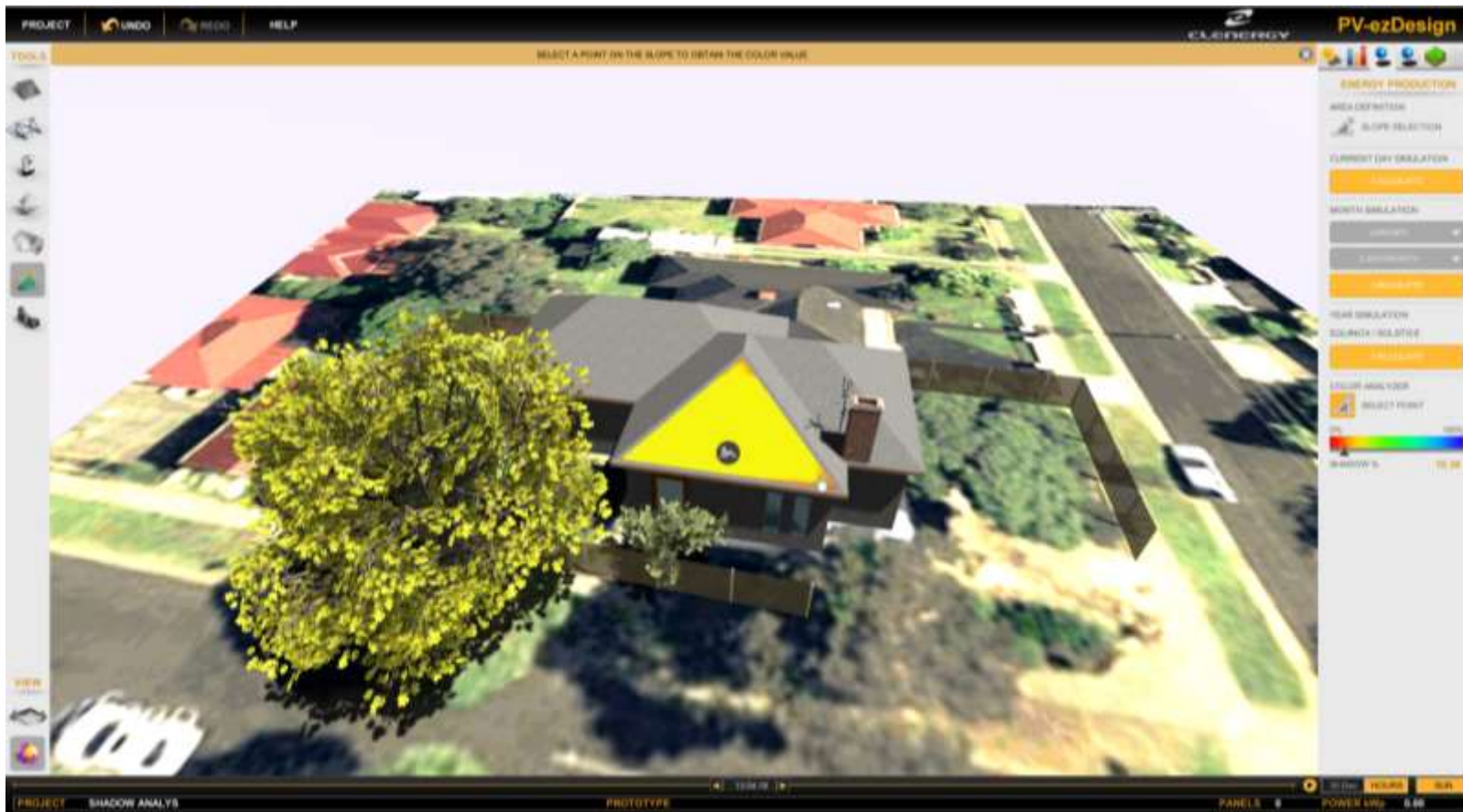
Roof analysis:



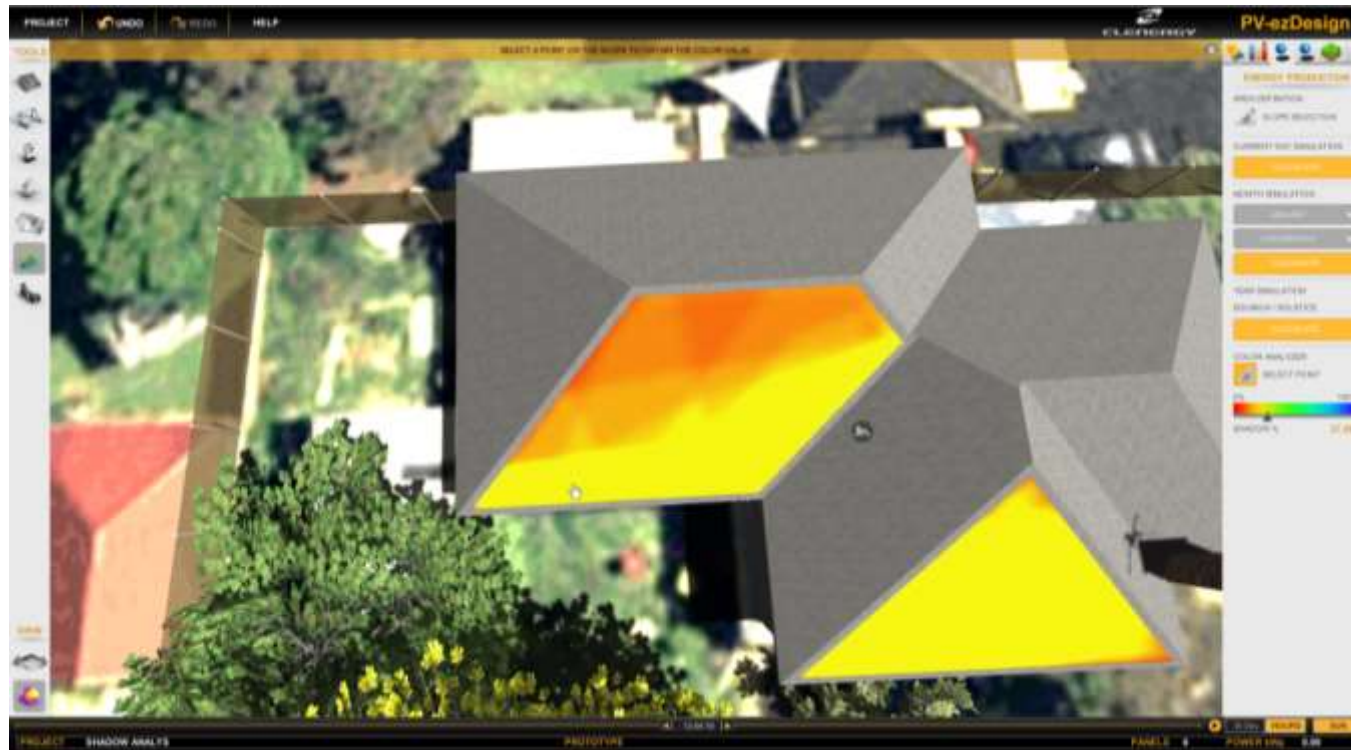
- Click on "ANALYZE" on the right list to access irradiation analysis page
- Click on "SHADOW EVAL" and then choose "SLOPE SELECTION"
- Select the slope that you want to analyse
- You can analyse a particular day, a month or get a yearly average.
- Click on "SELECT POINT" and then click on the point where you want to know the percentage of shadow



- Click on a different point of the selected slope, it will give you its corresponding energy loss in percentage. It can be seen in this image that the energy losses in the lower left corner of the selected roof are 25.17%.



- In the lower right corner of the selected roof, the energy loss is 10.38% because of the shadow



- To check the different roof, click on "SLOPE SELECTION" and then select the preferred slope
- Click on "CALCULATE" below "CURRENT DAY SIMULATION"



- By clicking on "SELEC POINT" to check the energy loss in percentage
- The energy loss in that point is 6.87% on 30 Dec

System analyse:



The screenshot displays the PV-ezDesign software interface. The main window shows a 3D aerial view of a residential property with a house and solar panels installed on the roof. A large tree is visible in the foreground. The interface includes a top menu bar with 'PROJECT', 'UNDO', 'REDO', and 'HELP'. A sidebar on the left contains 'TOOLS' and 'VIEW' sections. The right sidebar is titled 'TERRAIN' and includes 'TERRAIN MODE', 'BACKGROUND', 'MAPS', 'MEDIA', and 'LOCATION' sections. The 'LOCATION' section displays the following data:

LOCATION	
LATITUDE °	-37.9402
LONGITUDE °	145.0574
ALTITUDE m	44.17
TIMEZONE	10.00

Below the 'LOCATION' section is a 'NASA DATA' section with the following data:

NASA DATA	
HORIZ. IRRADIATION	1493
OPT. IRRADIATION	1670
OPT. ANGLE °	31.0
AVG. TEMPERATURE	0.0

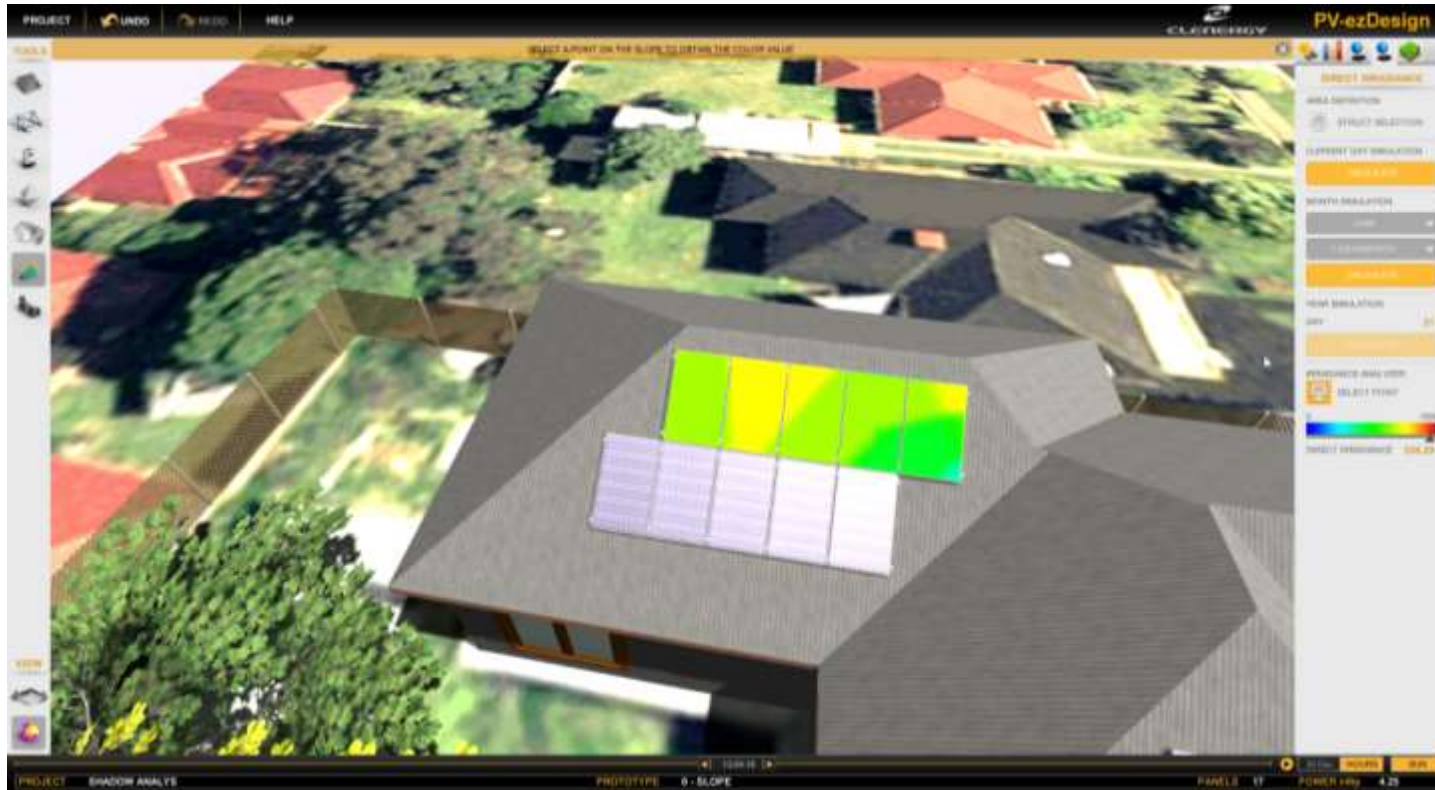
The bottom status bar shows 'PROJECT SHADOW ANALYS', 'PROTOTYPE 0 - SLOPE', a time display of '13:54:18', 'PANELS 17', and 'POWER kWp 4.25'. The top right corner of the interface shows the 'CLEENERGY' logo and the text 'PV-ezDesign'.



- Click on "ANALYZE" on the right list to access irradiation analysis page
- And select "Direct Irradiance"
- Click on "STRUCT SELECTION" and then select the array that you want check
- Click on "CALCULATE" under "MONTH SIMULATION"
- The array will be demonstrated as above image and it also allow you to check the irradiation results in Kwh/m² by clicking on "SELECT POINT"
- In this case, the direct irradiance is 1047.61Kwh/m² out of 1400Kwh/m² for that selected point in January



- Change the January to June in “MONTH SIMULATION”
- Click on “CALCULATE” and it will give you the yield result in June
- Click on “SELECT POINT” and then select the point where you want to check the yield
- In that point, the yield in June is 936.69 Kwh/m² out of 1000 Kwh/m²



- If you want to check the other arrays, directly click on "STRUCT SELECTION" to do the re-selection
- Click on "CALCULATE" under "MONTH SIMULATION" and select the point to obtain the yield
- By clicking on the "CALCULATE" below "CURRENT DAY SIMULATION" and it will give the yield in that day