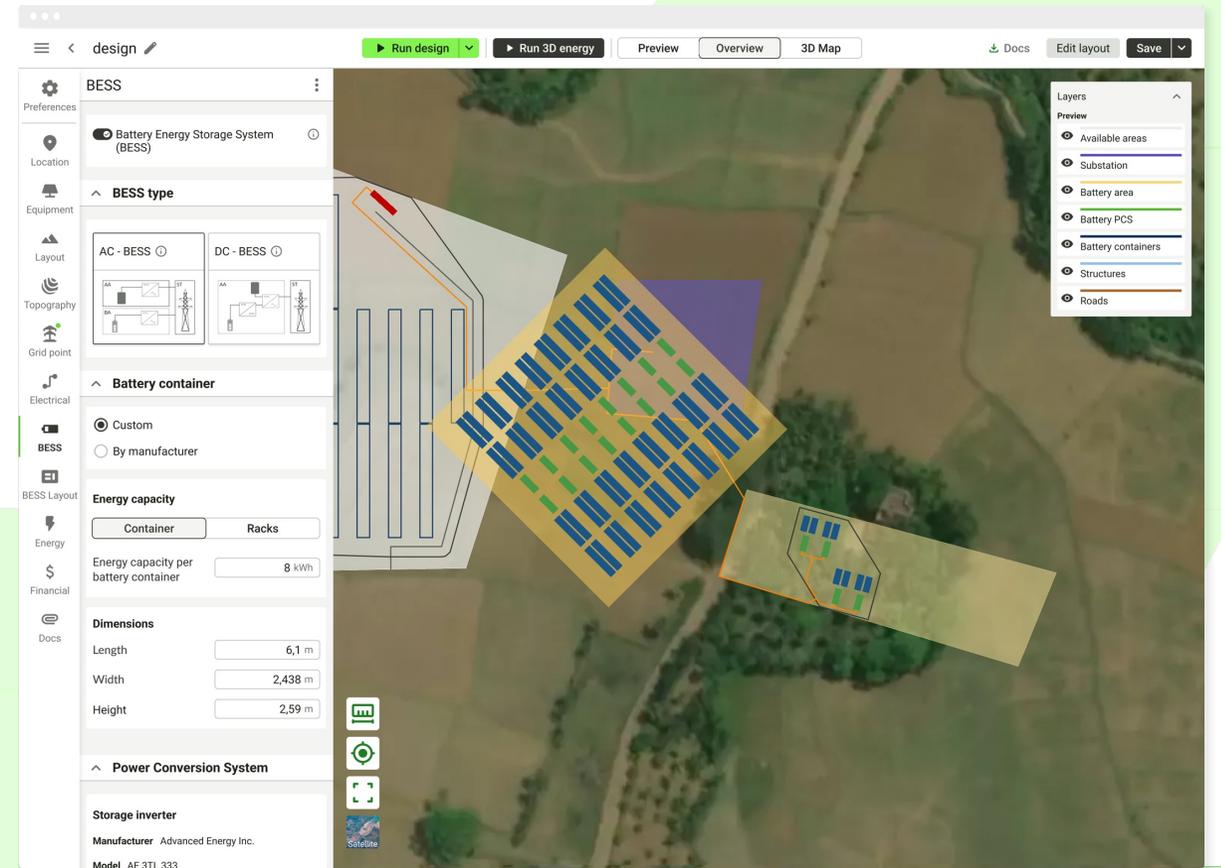


Beyond *preliminary design*



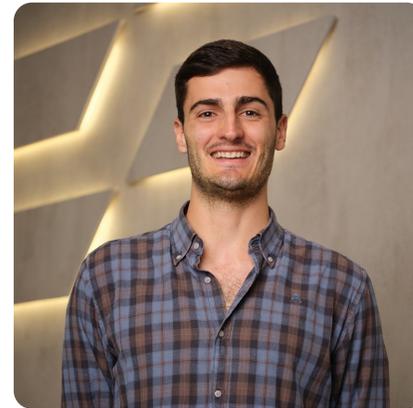
Your speaker today



Juan Carlos Zamorano Sr. Product Owner

PV engineer with 10+ years in PV industry. Working for the Product team as Product Owner.

jzamorano@ratedpower.com



Álvaro Pajares Sr. Product Owner

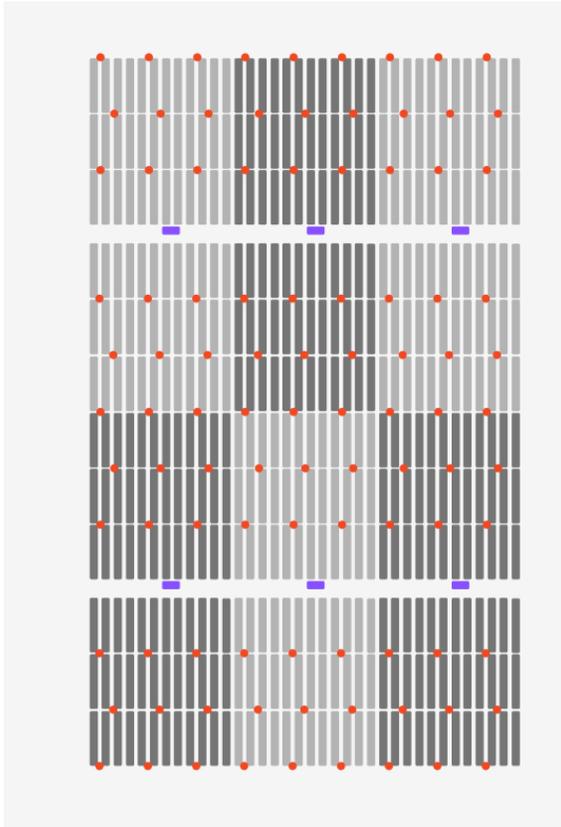
Passionate about engineering and renewable energies. Working for the Product team as Product Owner.

apajares@ratedpower.com

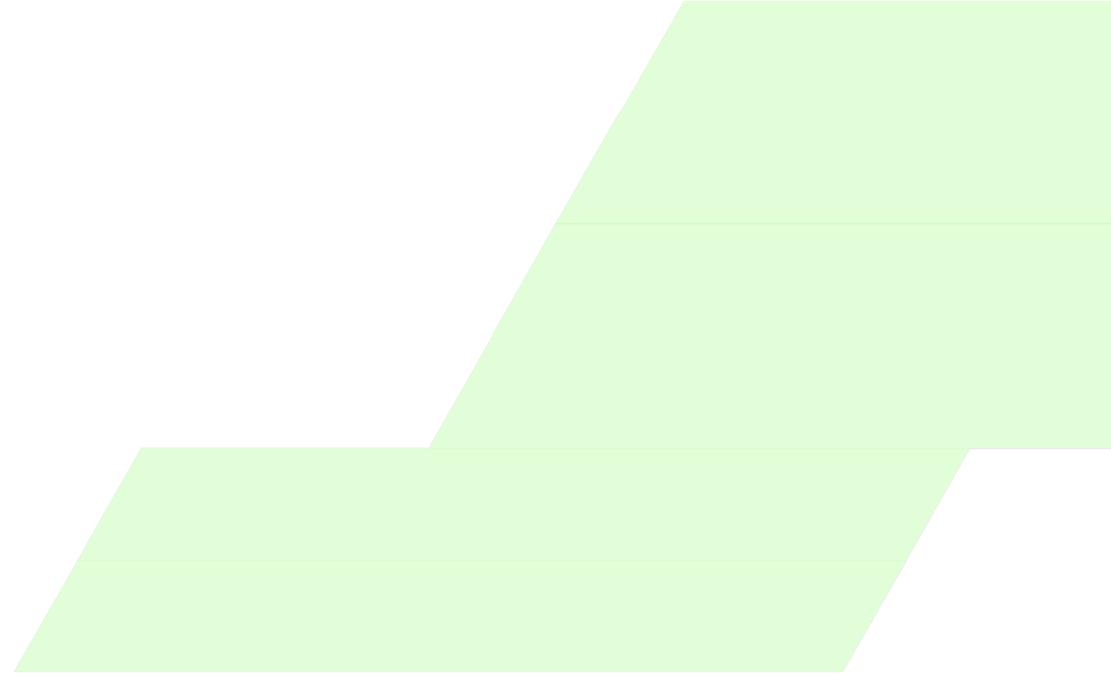
01. New grouping algorithms in RatedPower
02. LV groups in Layout editor
03. Q&A

01. New grouping algorithms in RatedPower

Minimize DC

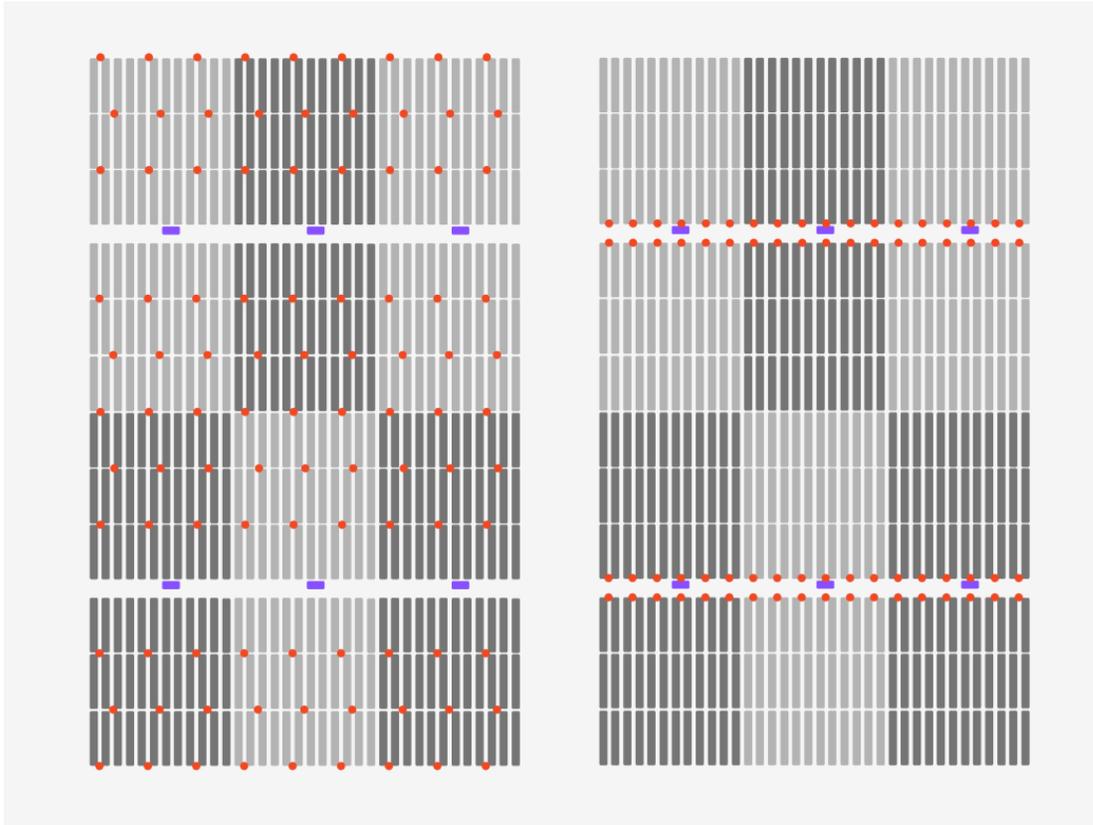


- Distributed LV Equipment
- (-) String cabling, (+) LV Cabling
- (+) trenching

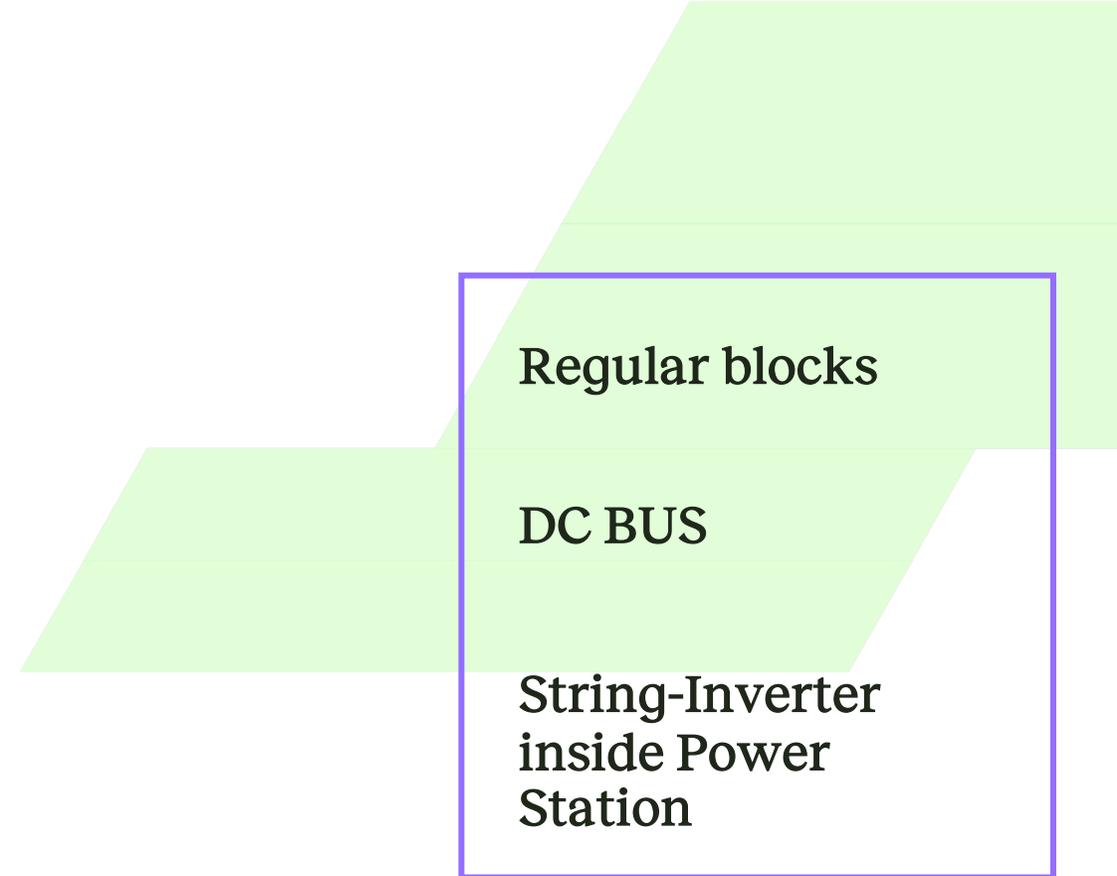


Minimize DC

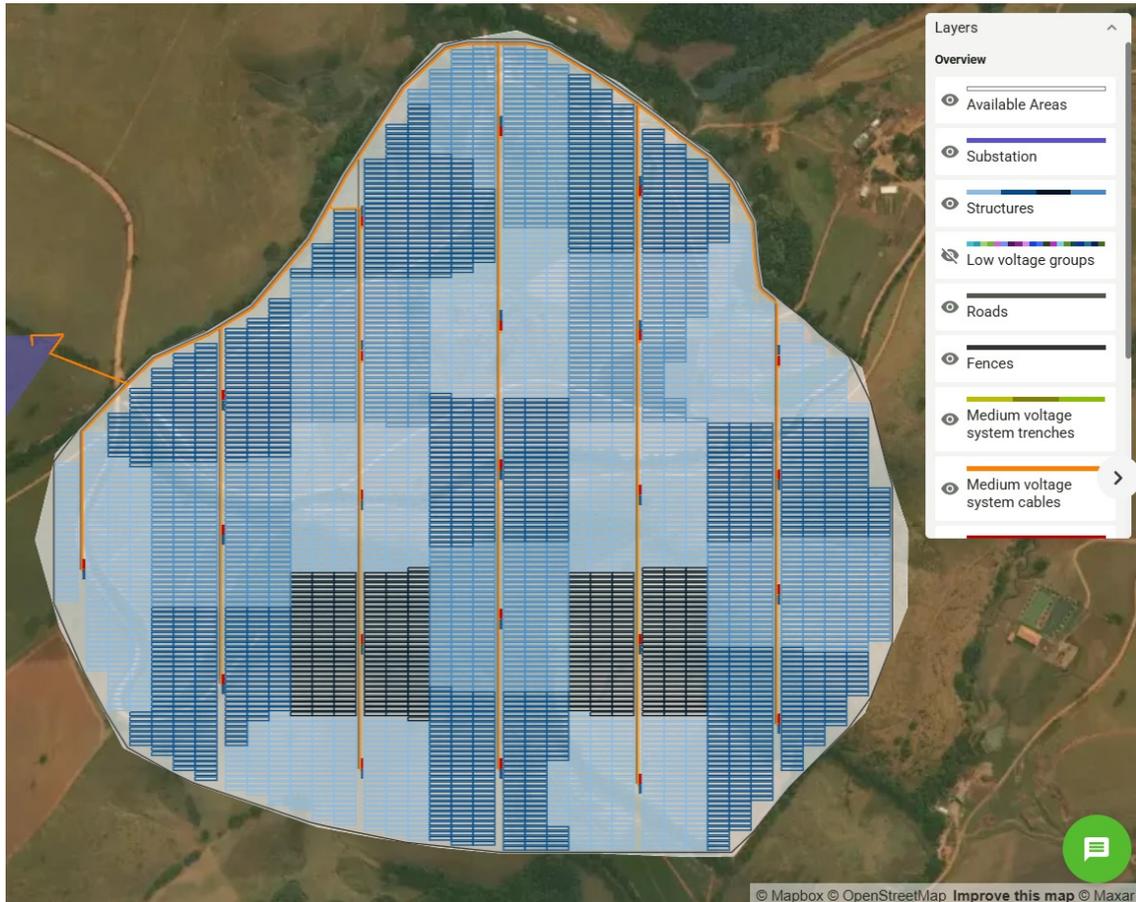
Minimize AC



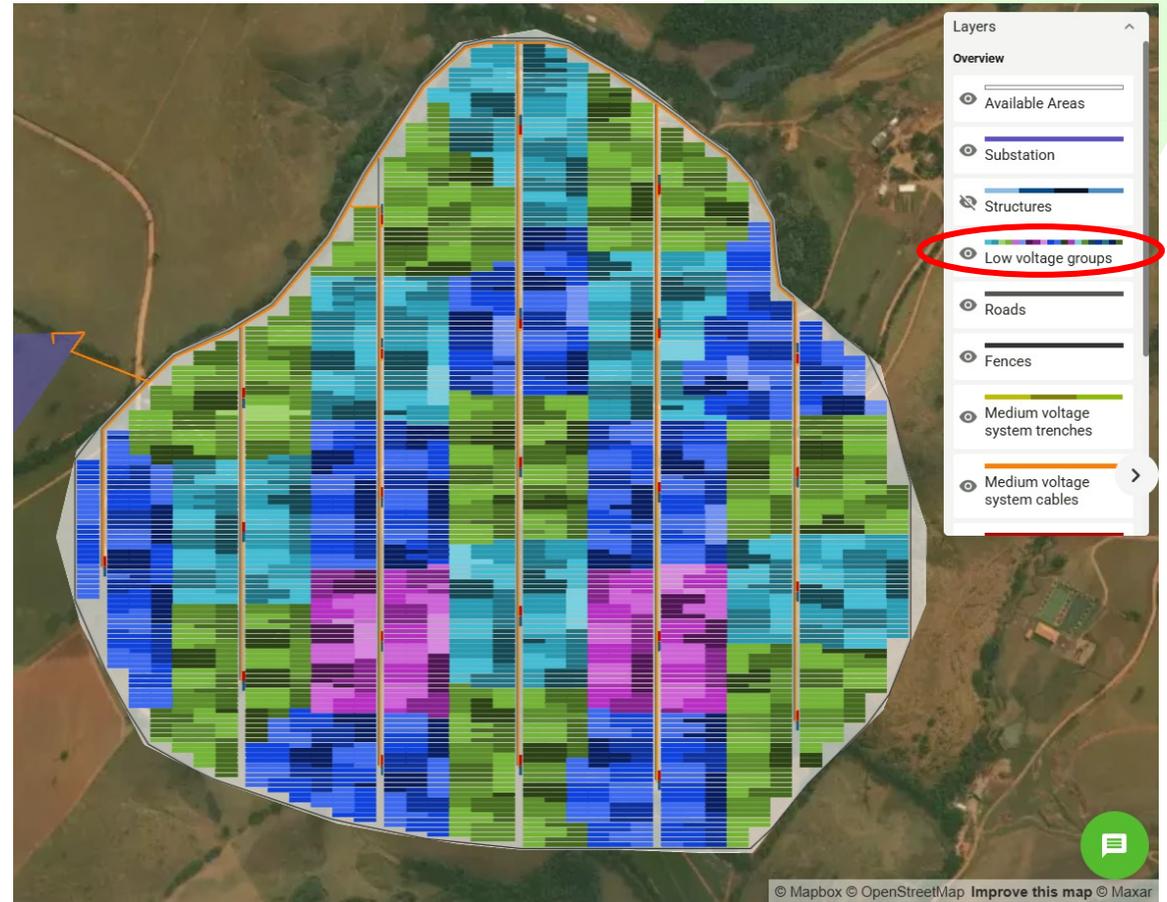
- Distributed LV Equipment
- (-) String cabling, (+) LV Cabling
- (+) trenching
- LV Equipment along roads
- (+) String cabling, (-) LV Cabling
- (-) Trenching



Overview & CAD view



Structures Layer

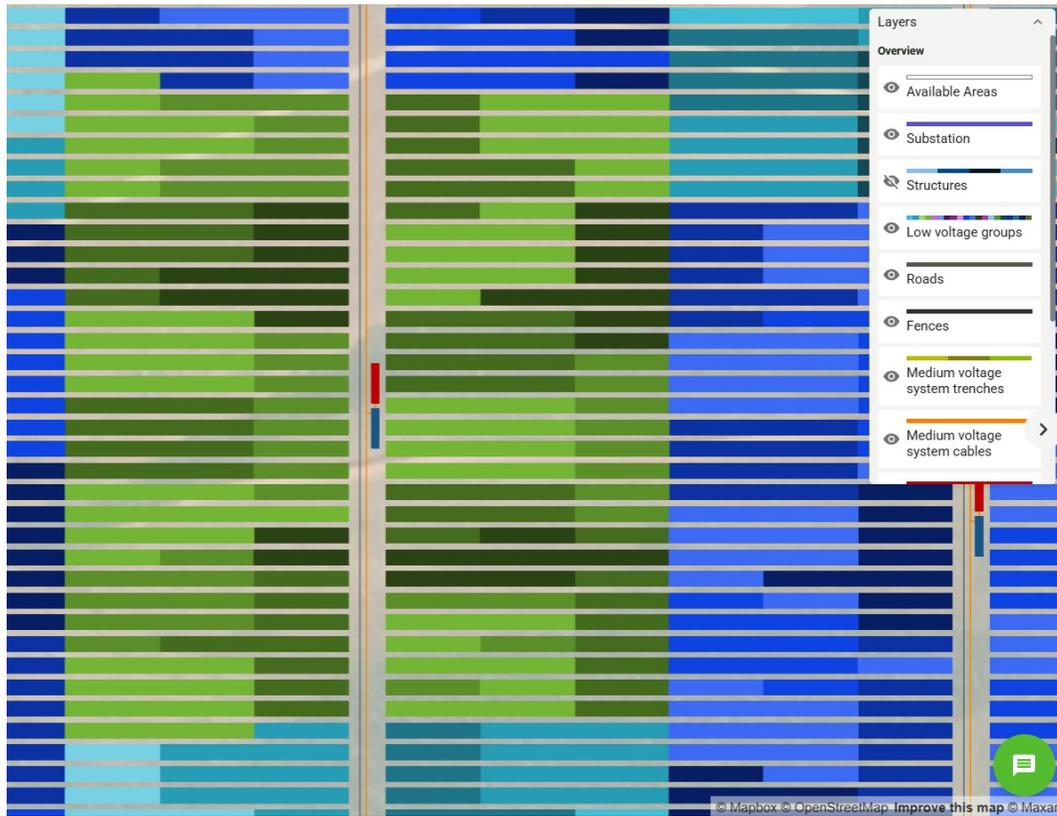


Low voltage groups Layer

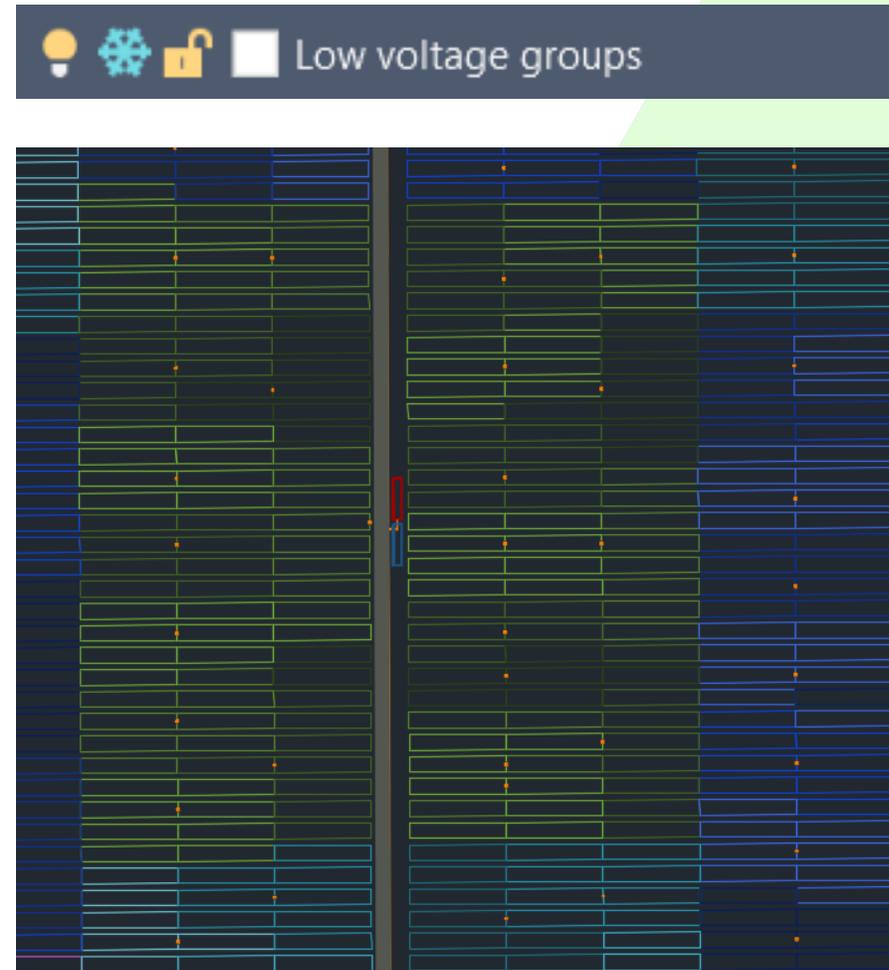
New grouping algorithm in Rated Power

Overview & CAD view

Low voltage groups Layer



CAD Layer



New Top-down approach

Central inverter case

NEW

Power Station



LV Blocks



Inverter (inside PS)

OLD

Power Station



Inverter



LV Blocks

String inverter case

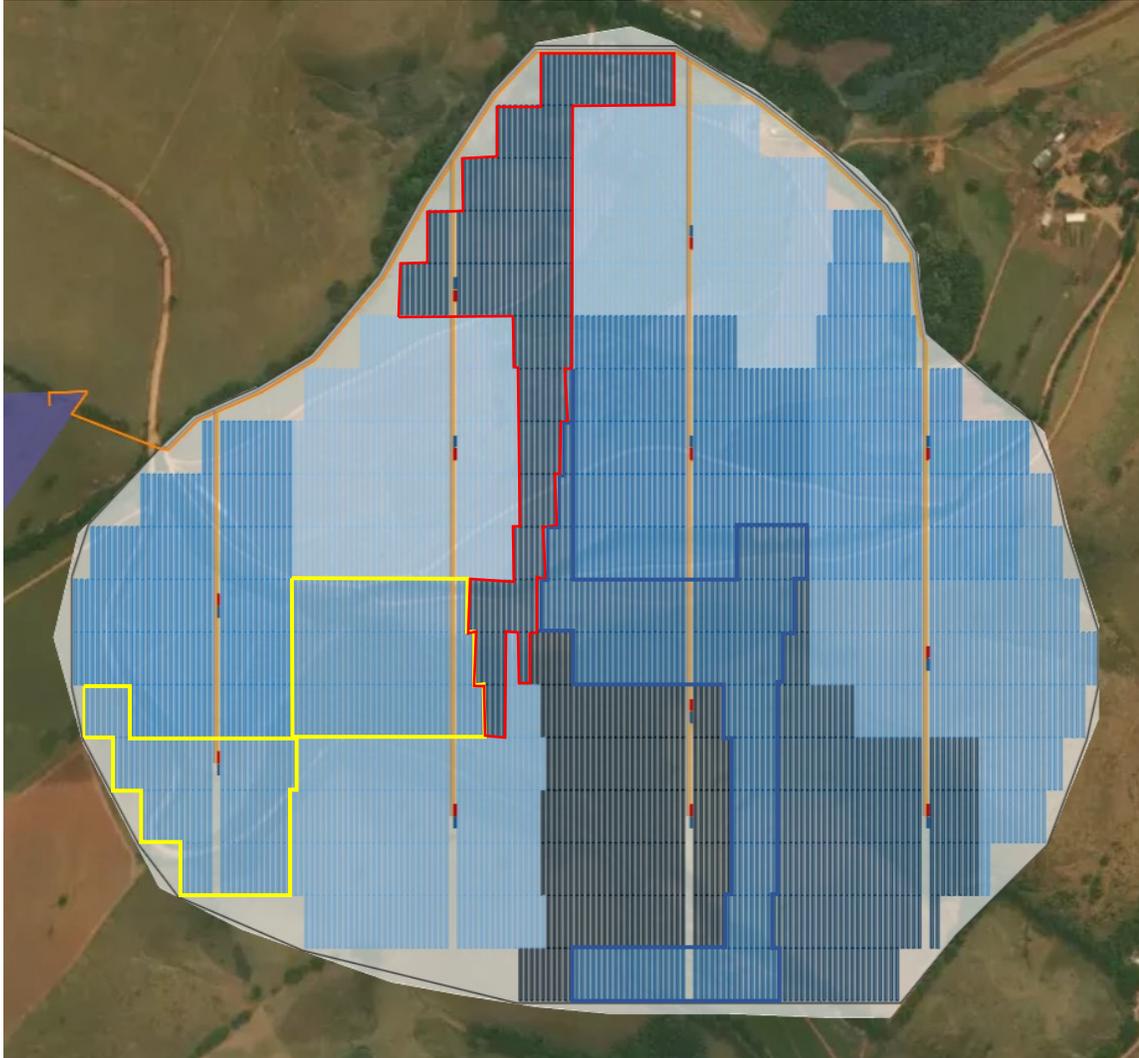
NEW/OLD

Power Station

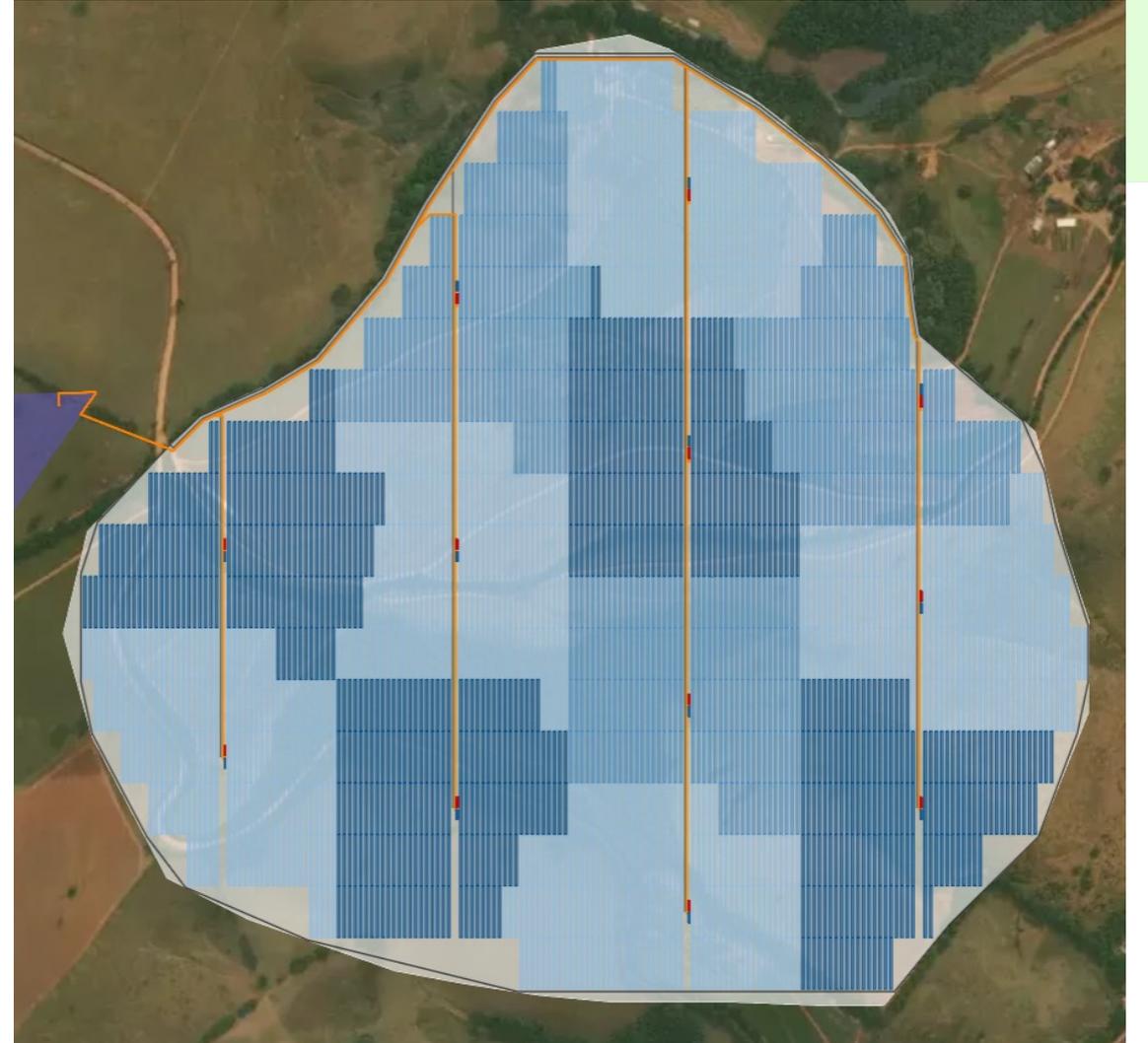


LV Blocks

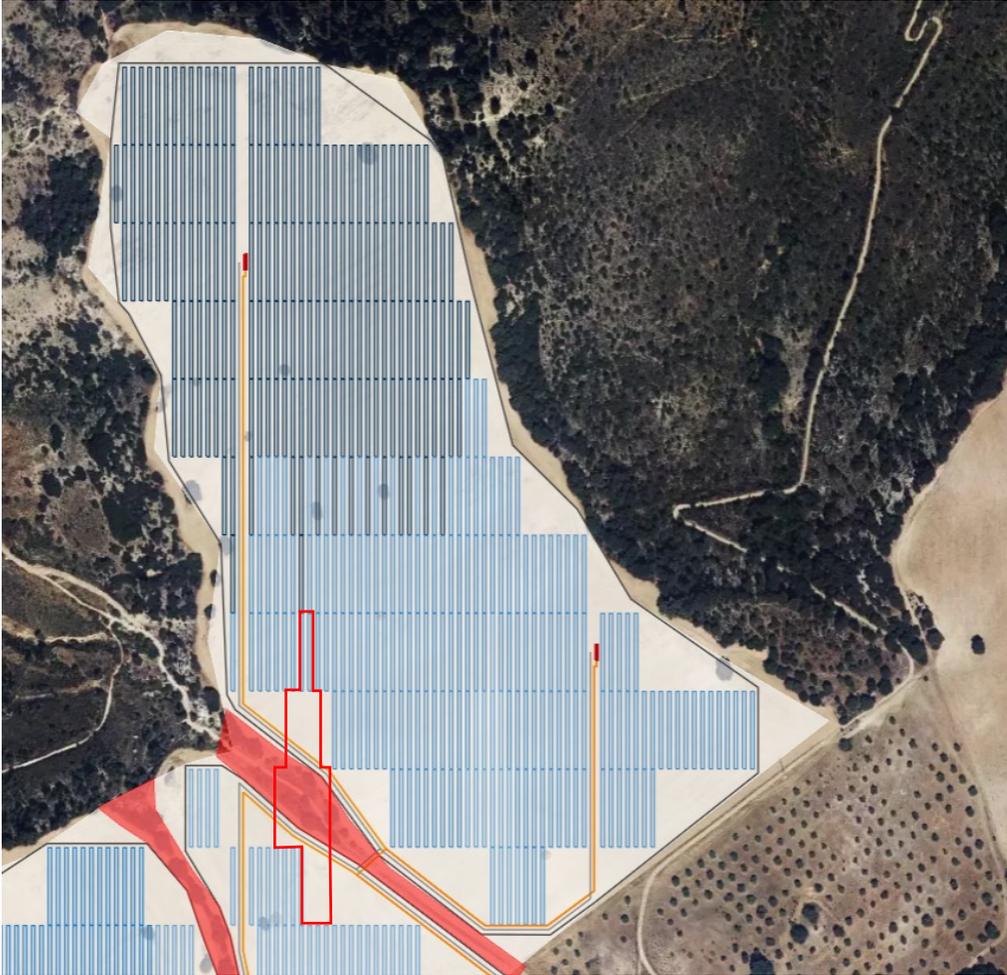
OLD



NEW



OLD



NEW



Liquid PS

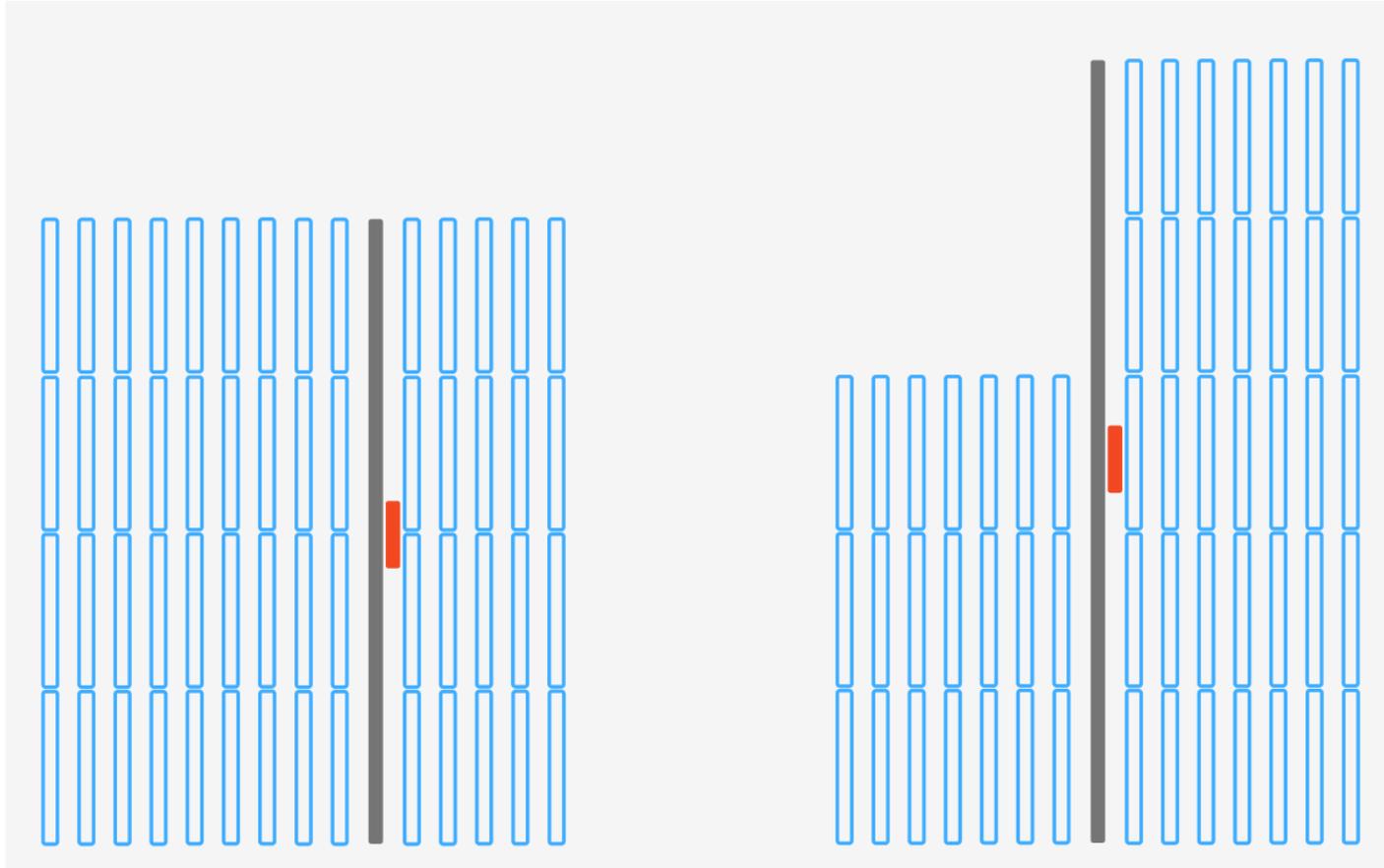


LV Lines: 1779mts



LV Lines: 1221mts

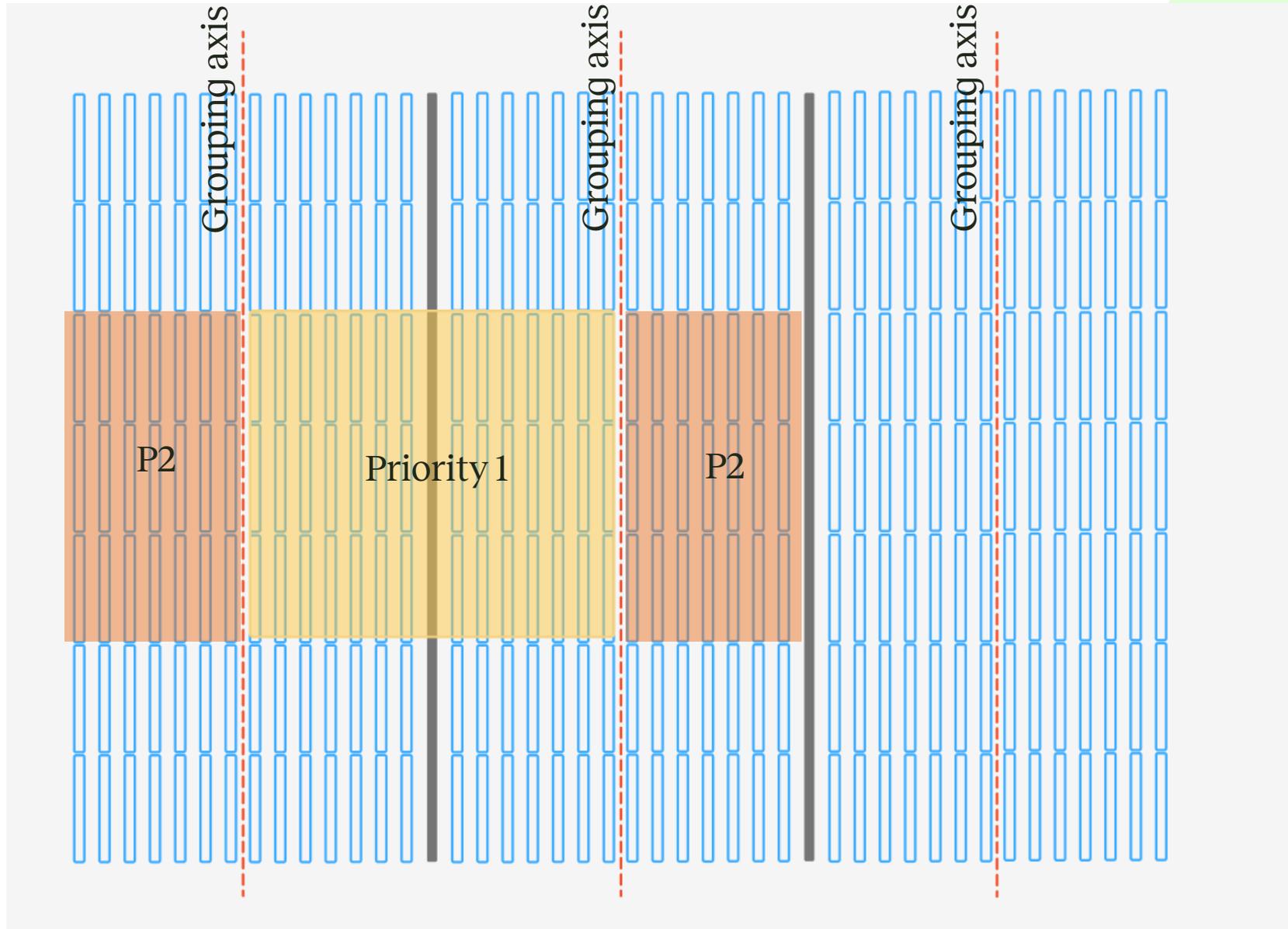
MV Grouping



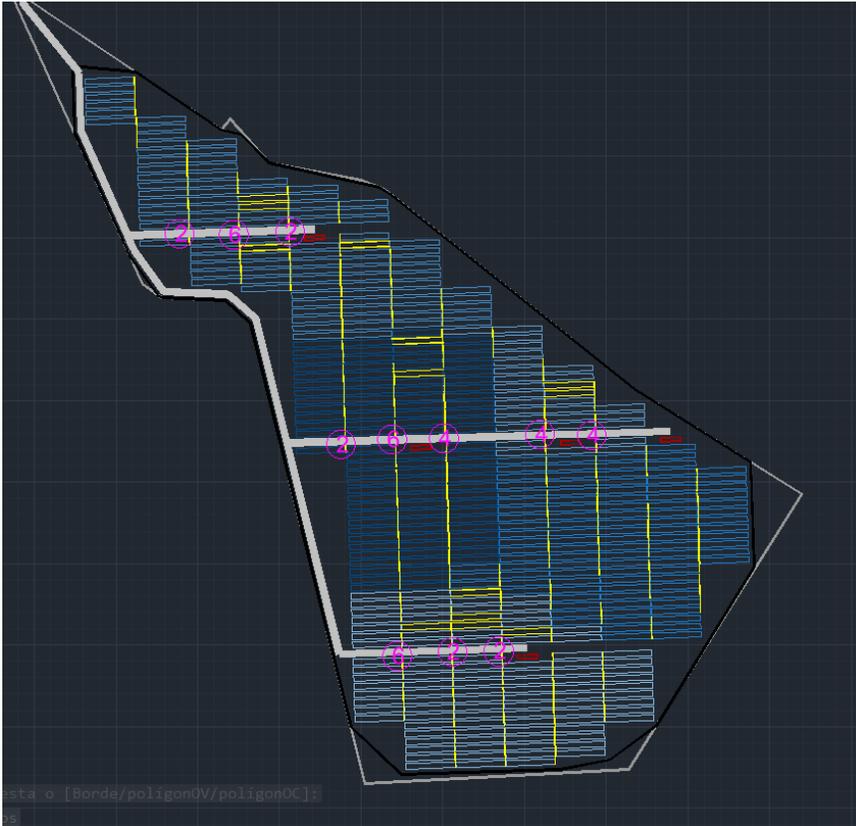
Squarish symmetric group - off centered PS

Asymmetric group - centered PS

MV Grouping



ROAD Crossing

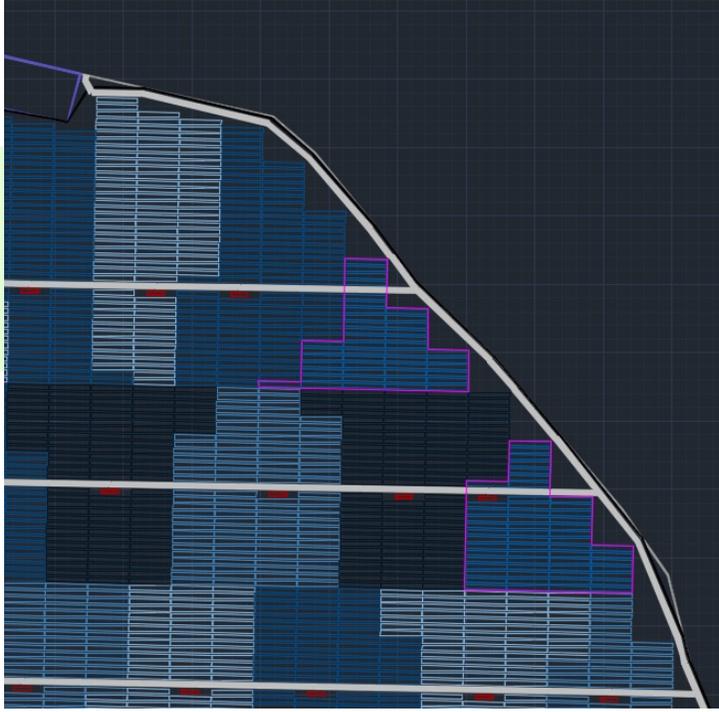
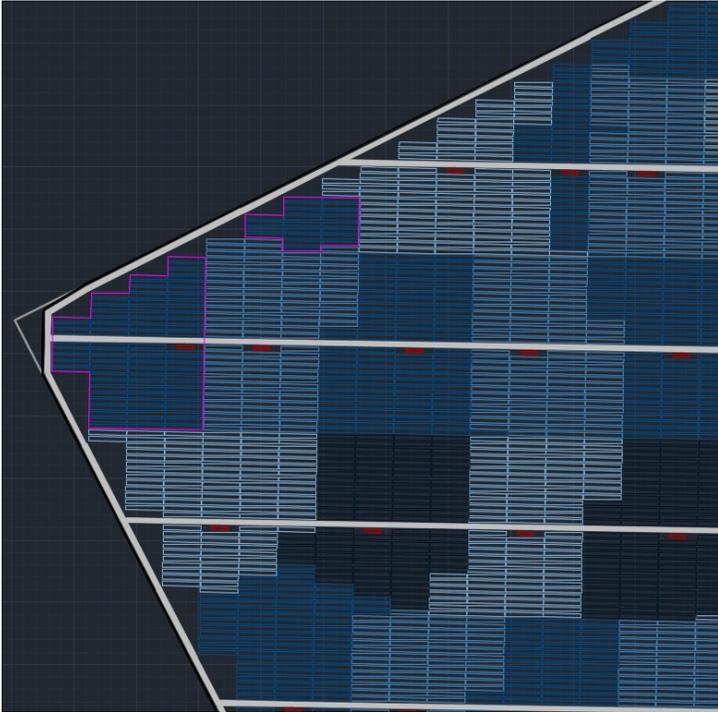
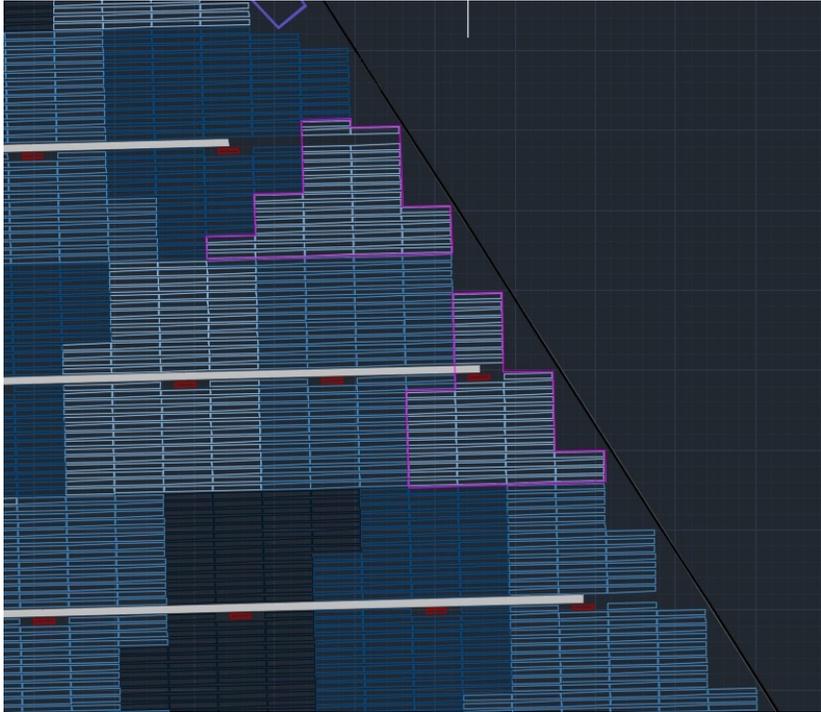


OLD: 40 crossing lines



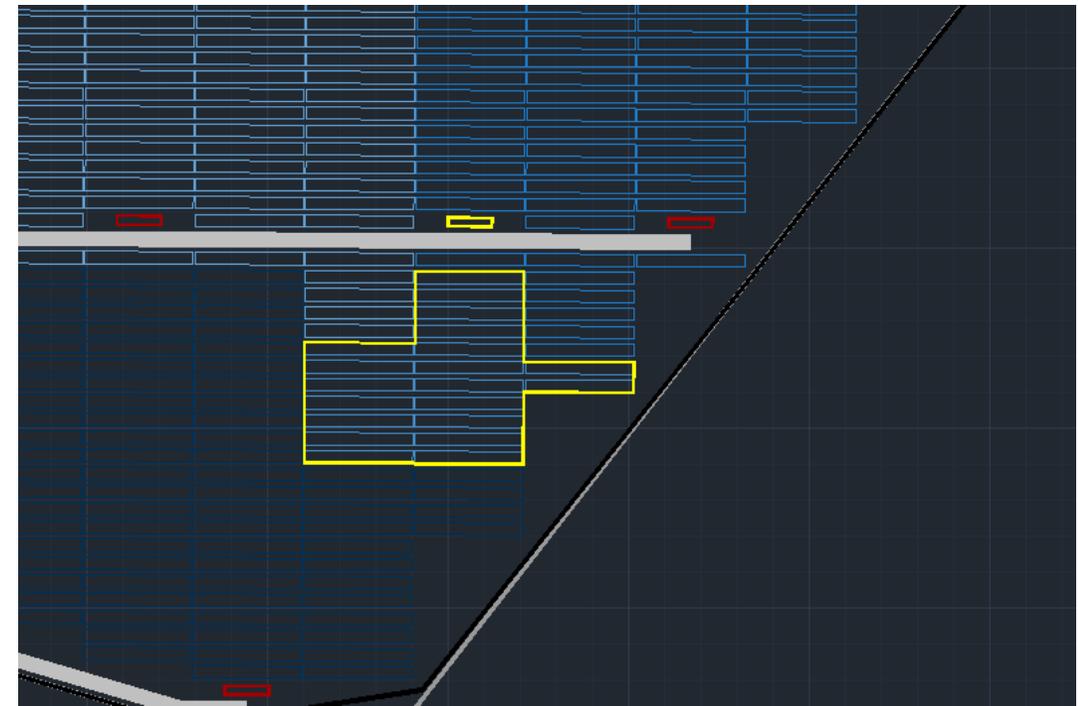
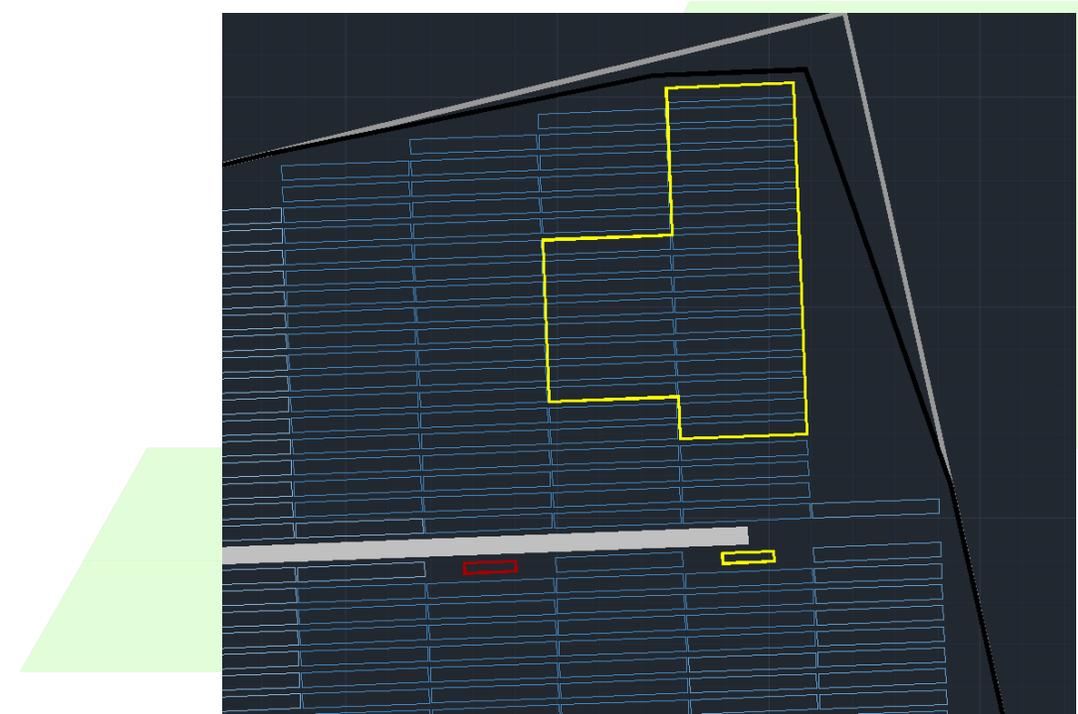
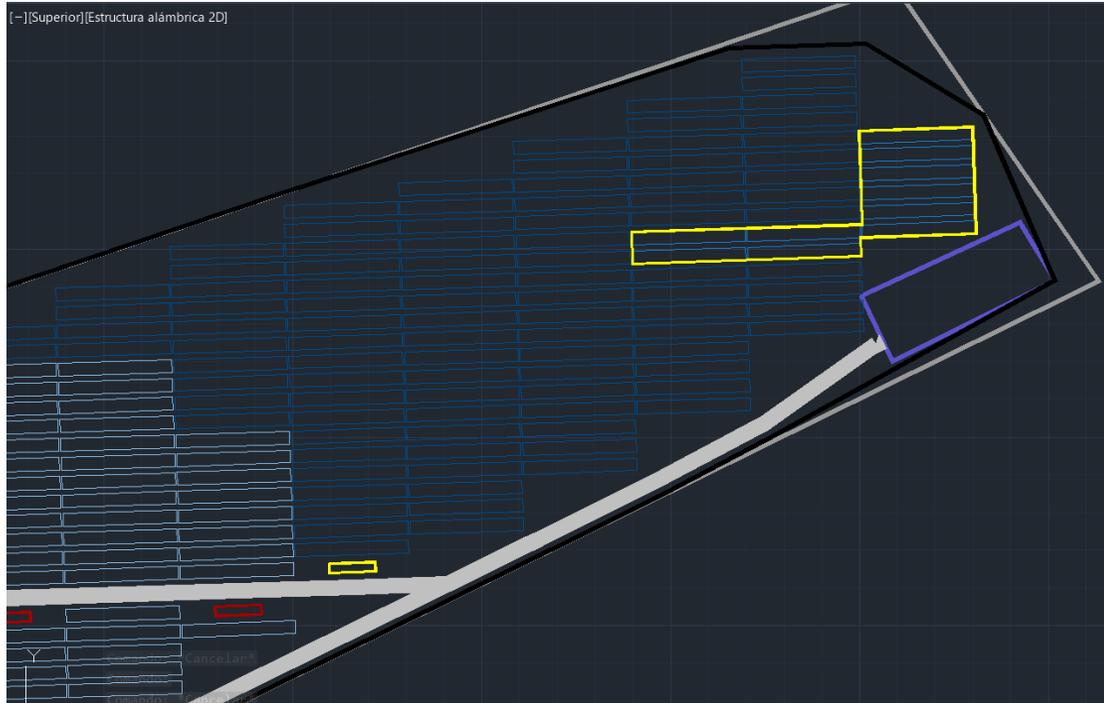
NEW: 18 crossing lines

PS Divided

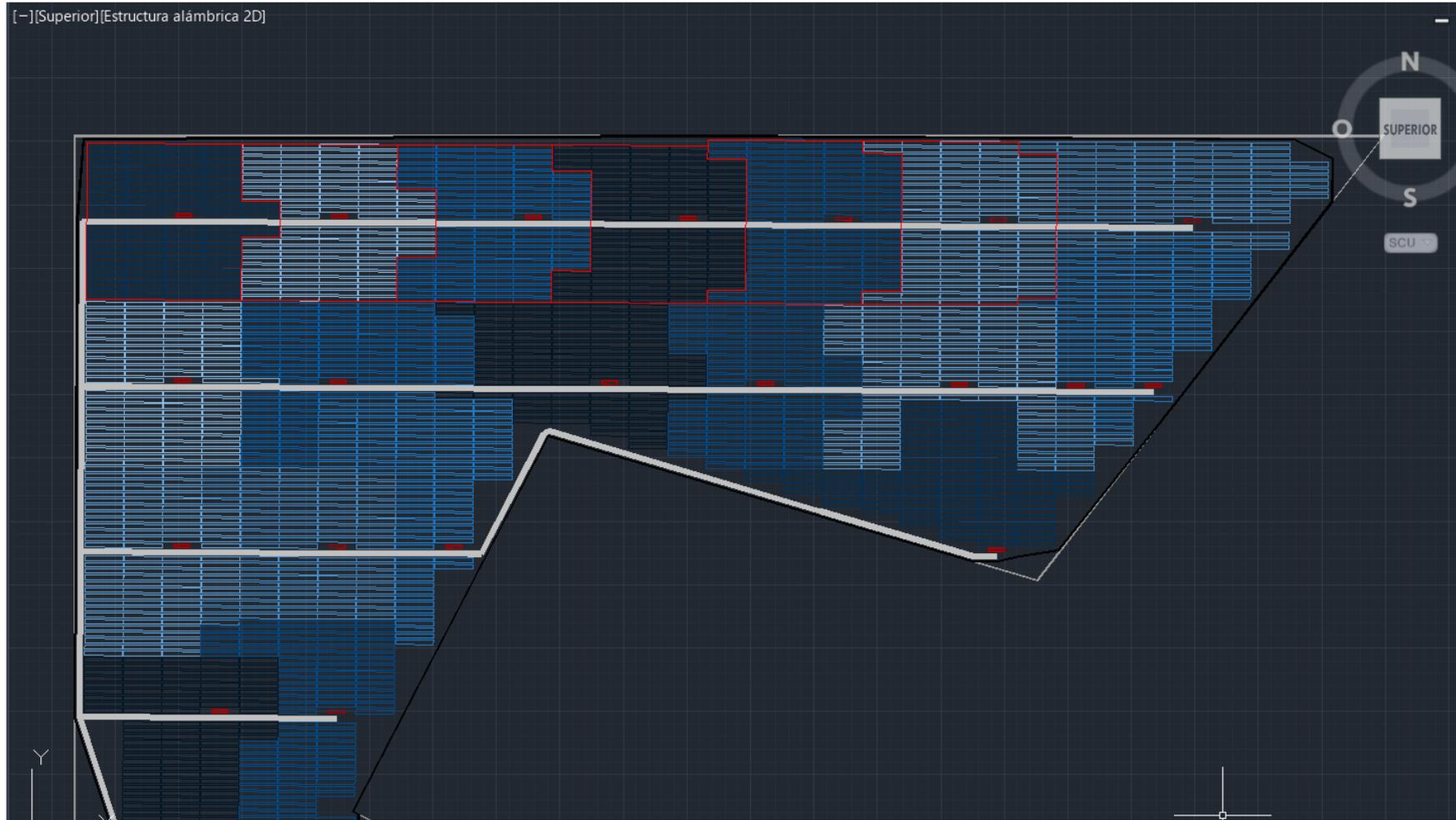


New grouping algorithm in Rated Power

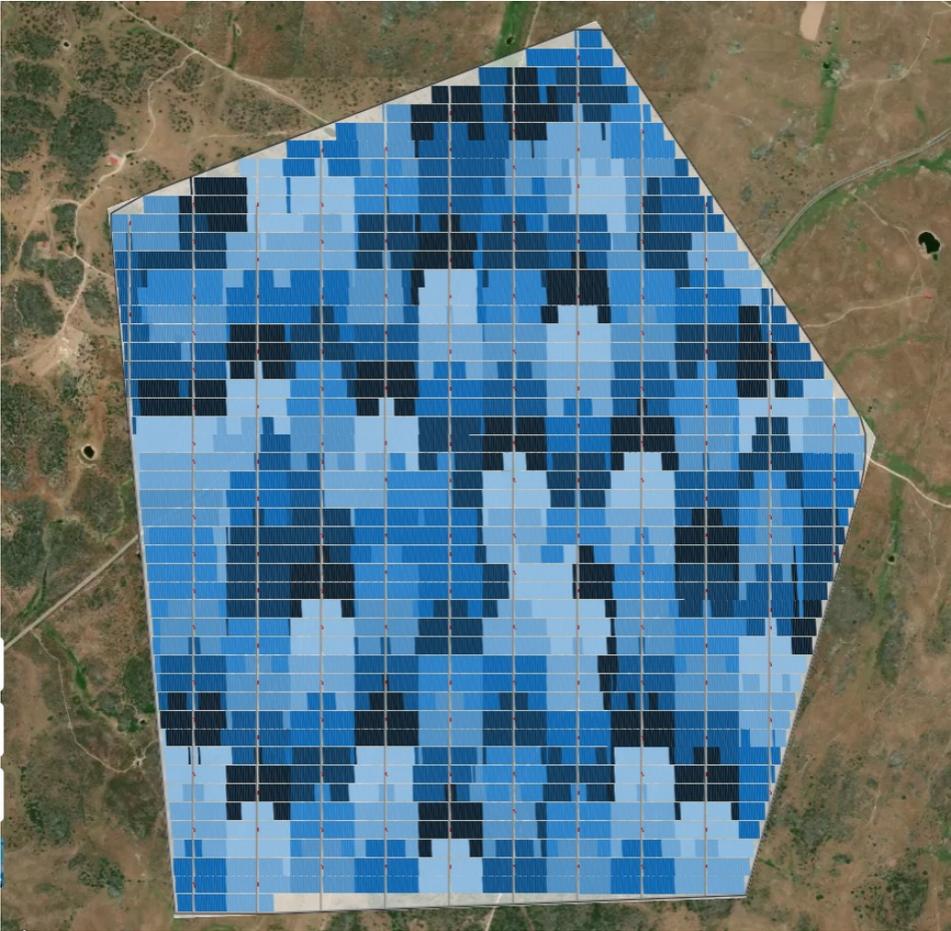
Eccentric PS



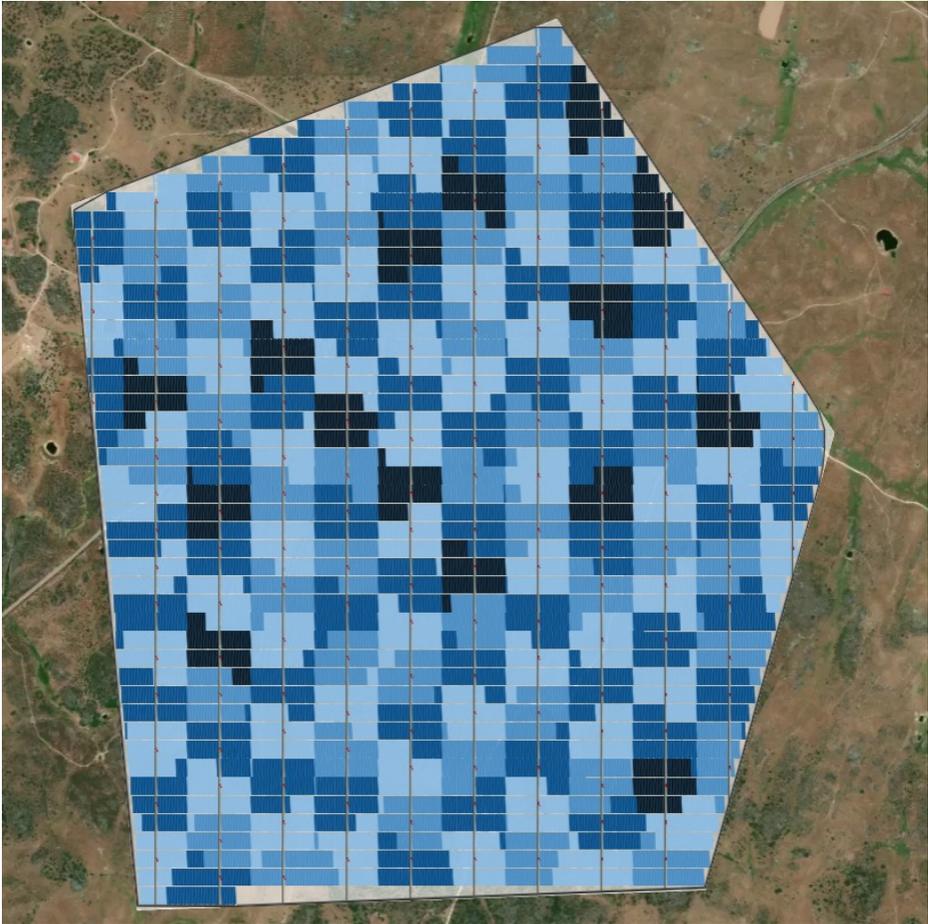
C-shape PS



OLD



NEW



02. LV groups in Layout editor

How it works

→ **Enjoy layout design flexibility and create optimal layouts:**

- Edit LV groups and equipment in Layout editor manually with tools adapted for it.
- Let the software automatically reconfigure LV groups and equipment positioning, in just a click, for an optimized electrical layout configuration.

→ **Get real-time layout data:**

- Access inverter-level results, including DC and AC power of string boxes and inverters.

→ **Take advantage of the new UX improvements:**

- Use right-click to perform any action with the **contextual menu**.
- Use **layers** to block or hide any element of your PV layout, and to show additional data or not in the map.
- Use **views** to see in the map the different connections between elements.
- Use **validations tab** to validate your design and differentiate mechanical and electrical validations.

→ **Run 3D energy simulations for a detailed analysis.**

Overview of the LV groups and LV equipment in layout editor

☰ < Demo-1 Generate design

Structures Roads Power Stations **String inverters** Manage multiple Automate

Add | Edit MV group | Move to | Delete | Axial: Pitch:

Results

All AA1

Power

Rated power 4.945 MWac

Peak power 6.039 MWdc

DC/AC ratio 1.221

Connection tree

- AA1-1 DC/AC ratio 1.234
 - 2.15 MWac
 - 2.653 MWdc
 - Maximum total inverters is (10).
 - Primary inverter (10)
 - Inverter 1 DC/AC ratio 1.277

Active area:
UTM Zone: 30N
X: 345959.11
Y: 4069771.2

Overview 3D Map

Results

Power

Rated Power	Peak Power	DC/AC Ratio
6.02 MWac	7.203 MWdc	1.196
Total Unshed Peak Power	Maximum Peak Power	
0 Wac	7.203 MWdc	

Power flow analysis

Active power at PPA	DC/AC ratio at PPA
5.849 MWac	1.231

Show values per area

Energy

Energy	Specific Production	Performance Ratio
13.416 GWh	1862.7 kWh/wp	85.2 %

Show losses and monthly values

Financial

Total price	Specific price	LCOS
0 US\$	0 US\$/wp	6.97 US\$/MWh
NPV	IRR	ROI
15.984 US\$	-	-
Payback	Disc. Payback	
6.00	6.00	

History of designs

2. Edited design

1. Initial design

Different strategies evaluation (case with combiner boxes)

[Same design](#), different strategies:

→ Minimize string cables:

- String cables: sections of 6 and 10 mm² and a total length of 38384.25 m.
 - 63% of cables with the smaller section (6 mm²).
- LV DC cables: sections of 240 (61%) and 400 mm² and a total length of 9806.88 m.
 - 61% of cables with the smaller section (240 mm²).

→ Minimize LV DC cables:

- String cables: sections of 6 and 10 mm² and a total length of 80756.27 m (+110.4%).
 - 16% of cables with the smaller section (6 mm²).
- LV DC cables: sections of 240 and 400 mm² and a total length of 4109.61 m (-58.1%).
 - 61% of cables with the smaller section (240 mm²).

03. Q&A

Questions?

We're all ears!

Drop yours in the question box!



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