

PVsyst updates

PVPMC Workshop

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Overview



In this presentation

- Batch mode in PVsystCLI (8.0.12)
- Orientation analysis tool (current status)
- Updated guidelines for partition shading
- Future outlook

Summary of PVsyst 8 features

See also our PVPMC 2024 presentation

System design

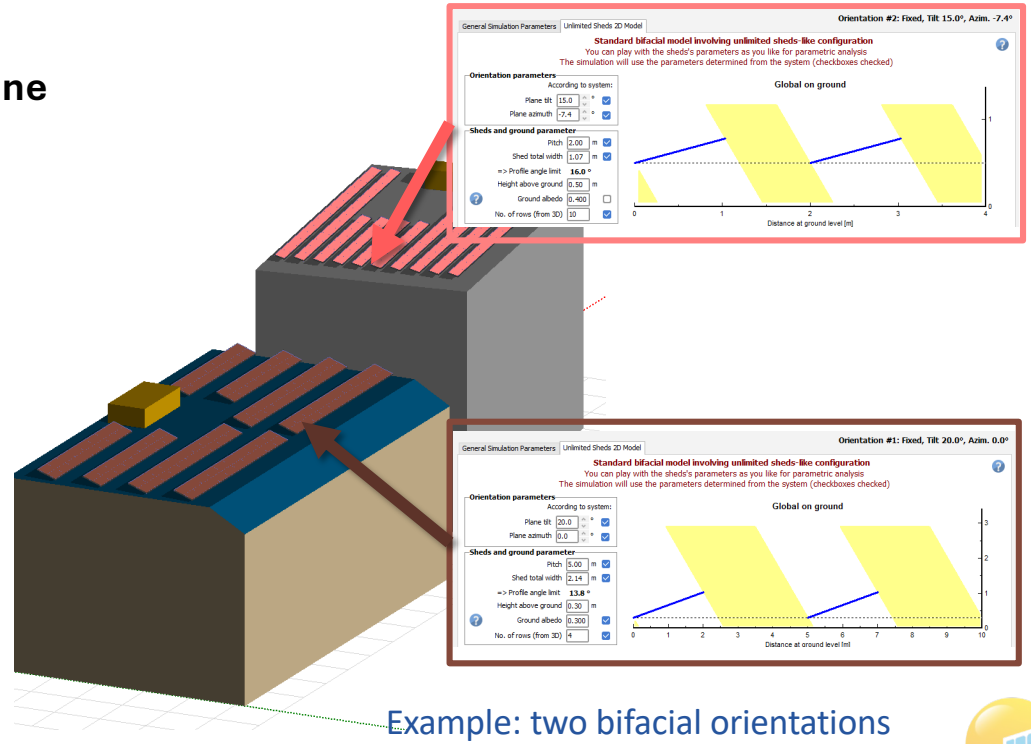
- **Any orientation number / type within one system**
- More flexible bifacial modeling
- More flexible tracker modeling

User interface improvements

- New 3D scene tools (quality of life)

Modeling

- Optional sub-hourly clipping correction
- General model improvements

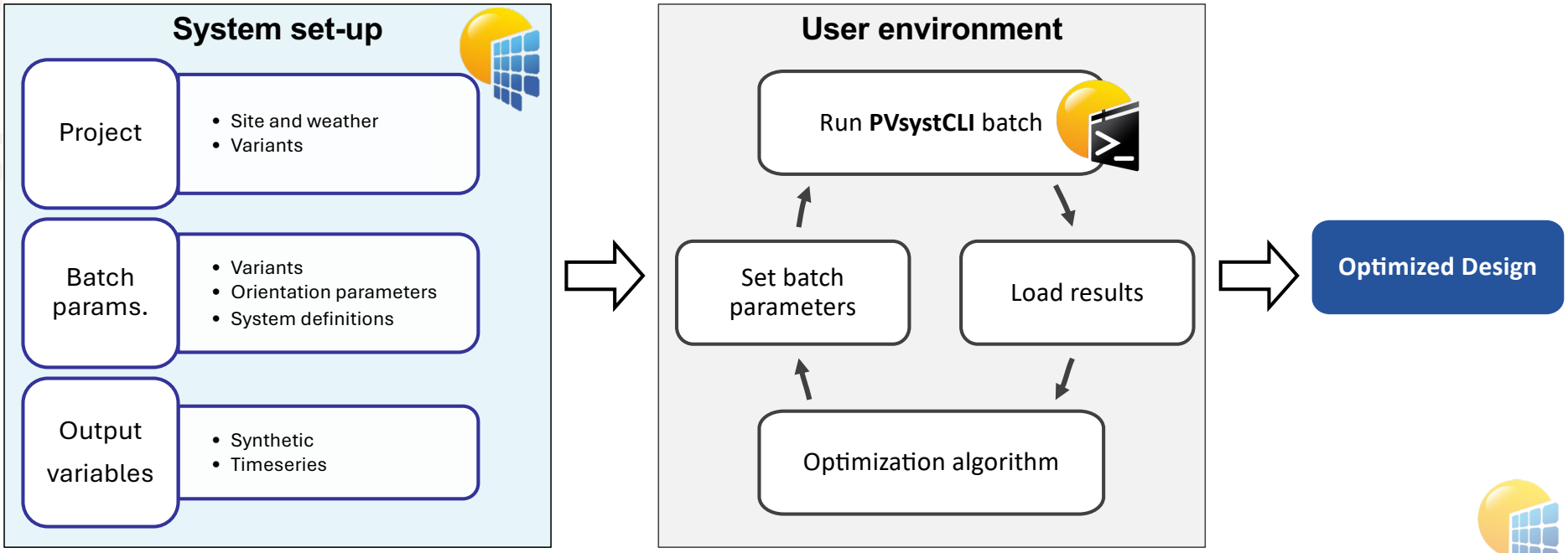


Example: two bifacial orientations

PVsystCLI + batch (8.0.12)

PVsystCLI + batch allows for automated parametric simulation

Use case example : System optimization with custom algorithm

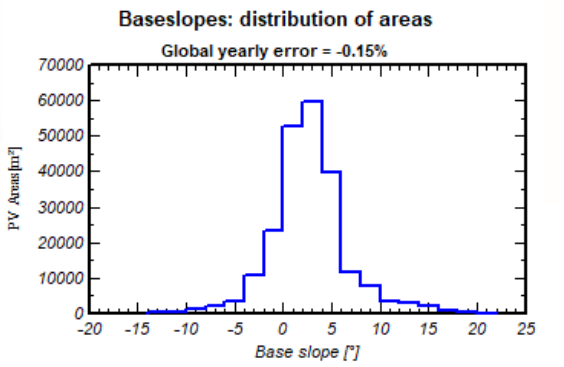


Orientation analysis tool

On **uneven terrains**: Individual table orientation is impacted by the base slope.

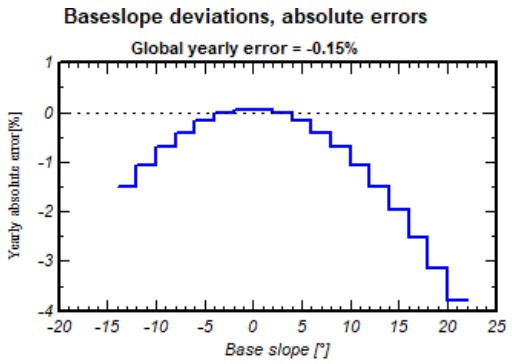
Yet, tables are modeled with an **averaged orientation** → modeling error.

Orientation Analysis Tool (stage 1) **: Analysis of impact on POA irradiance**



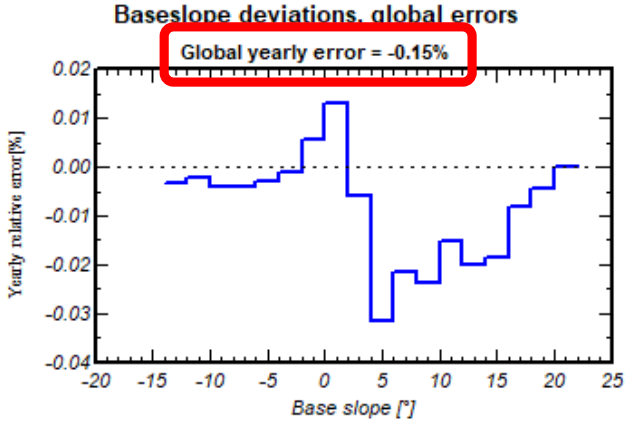
Field orientation distribution :

Base slope spread across all tables



Transposition error :

Error variation with the base slope



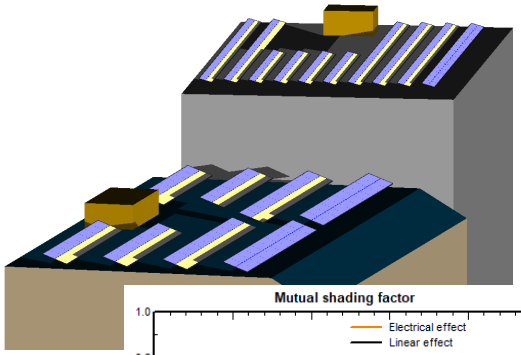
Weighted Transposition error:

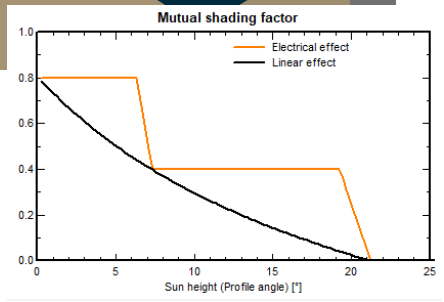
How each bin contributes to the global error

Future development step: **Analysis of impact via electrical mismatch**

Updated guidelines for partial shading 1/2

- **PVsyst shading models:**
  - Detailed IV curve evaluation (not discussed here)
  - **Faster "partition" approximation** for regular PV rows





- **Partition** divides PV surfaces in "partitions" and apply a shading factor, according to partial shading

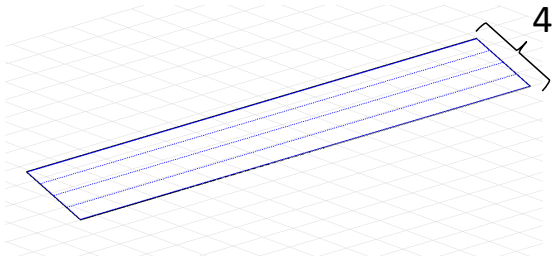
- See also e.g.

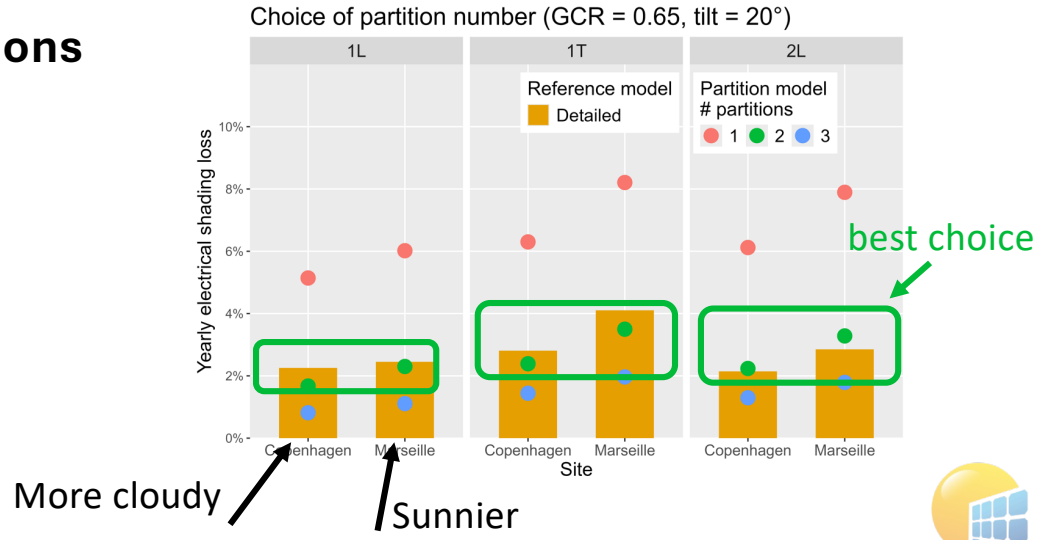
Hobbs, Anderson, Mikofski, Ghiz, "An approach to modeling linear and non-linear self-shading losses with pvlib", 2024, PVPMC
Martínez-Moreno, Muñoz, Lorenzo, "Experimental model to estimate shading losses on PV arrays", 2010, Sol. Energy Mater. Sol. Cells
Oliosi, Bridel, Mermoud, Wittmer, "Modeling Electrical Shading Effects in PVsyst", 2022, PVPMC
Oliosi, Mermoud, Wittmer, "Analysis of Electrical Shading Effects in PV Systems", 2021, PVSEC

Updated guidelines for partial shading 2/2

- **Main parameter : # of partitions**
- **Shadings depend on :**
  - DC array components and layout
  - Weather (e.g. diffuse fraction)
- **Updated guidelines for # of partitions**

Configuration	# of part.
1 row landscape (1L)	2
1 row half-cut portrait (1T)	2
2 rows landscape in // (2L)	2
…	…
See rest of table in the PVsyst help	





Exciting features for 8.1

- 🌦️ New interface for the weather data import
- 🌦️ Major update of meteonorm
- ⏱️ Sub-hourly import and simulation
- ⛱️ Bifacial 3D
- 🔌 Expanded AC circuit
- 📚 Novelties for the batch mode

Outlook

End 2025

PVsyst 8.1

- Full sub-hourly simulation
- New batch mode
- New AC circuit
- 3D bifacial model
- New weather data import
- Solar glare
- Measured data analysis
- Mismatch from orientations
- and more...

📣 **Office hours on Thursday !**

😊 **Thank you !**