

# MEET THE GAME-CHANGER IN THE SOLAR SIMULATION WORLD

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on behalf of the PV teams



# PV IS BECOMING A MAJOR ENERGY SOURCE



Invention of PV

1954

2000

2010

2020



100 GW<sub>p</sub>

TODAY:  
500 GW<sub>p</sub>

1 TW<sub>p</sub>

Large-scale manufacturing

Digitalization of PV

R. Van Overstraeten

R. Mertens



Start of PV at imec

Opening of PhotoVoltech

Opening of EnergyVille

1984

1989

1999

2002

2018

imec

1954

2000

2010

2020



IMEC HAS BEEN A PIONEER  
OF GAME-CHANGING INNOVATIONS  
IN THE PV SECTOR

HOW ARE WE CHANGING  
THE DIGITALIZATION OF PV?



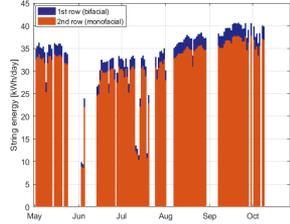
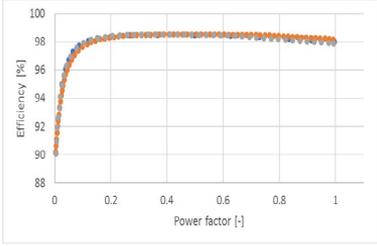
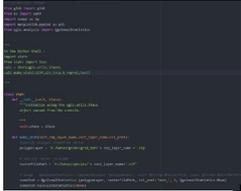
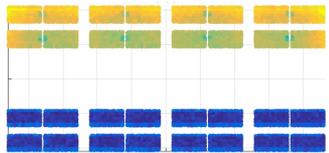
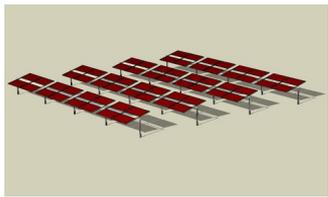
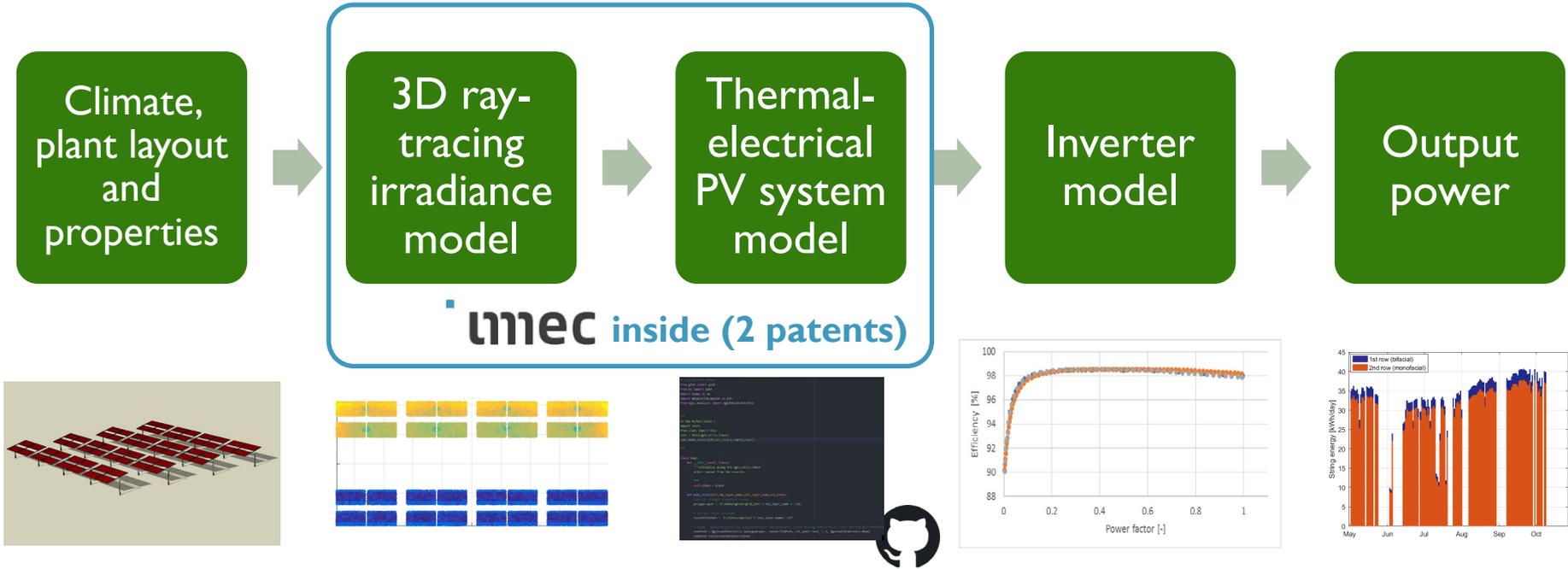
300MW Sakaka PV power plant, Saudi Arabia

Lowest ever bid  
(1.78\$/kWh)

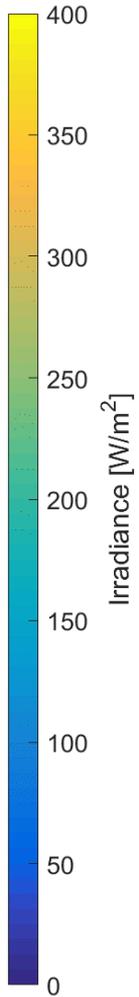
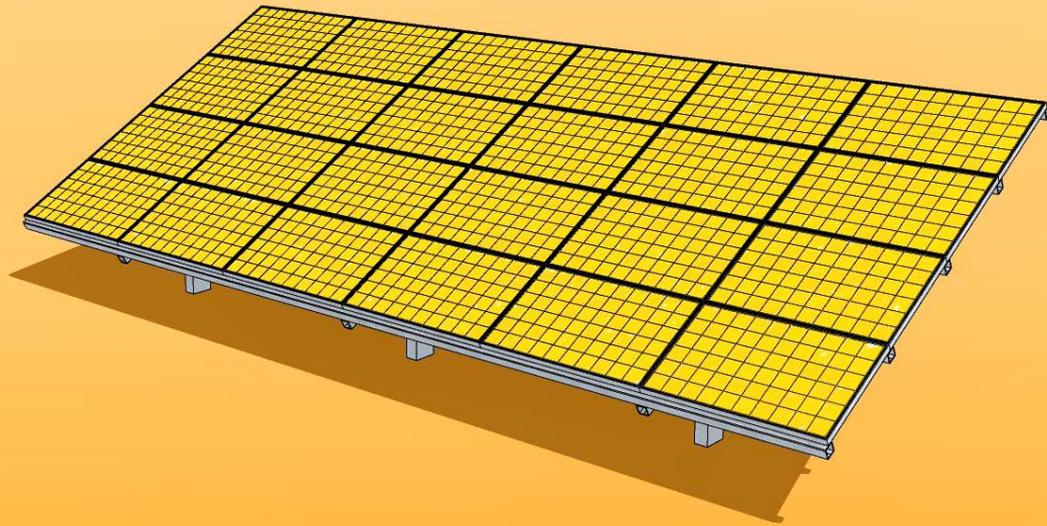
**rejected due to  
uncertain yield**

**5-10% error in  
yield estimation**

# PHYSICS-BASED ENERGY YIELD SIMULATION TOOL

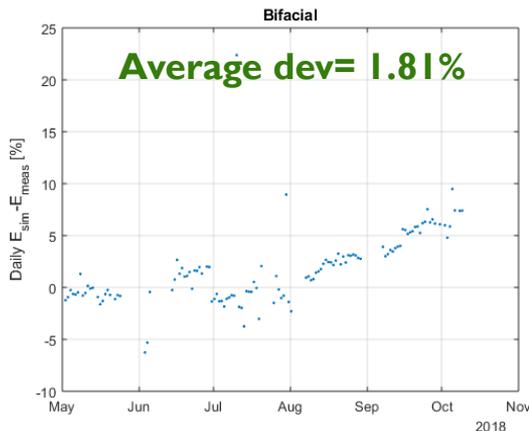


# UNIQUE RESOLUTION OF SHADING FOR BIFACIAL SYSTEMS

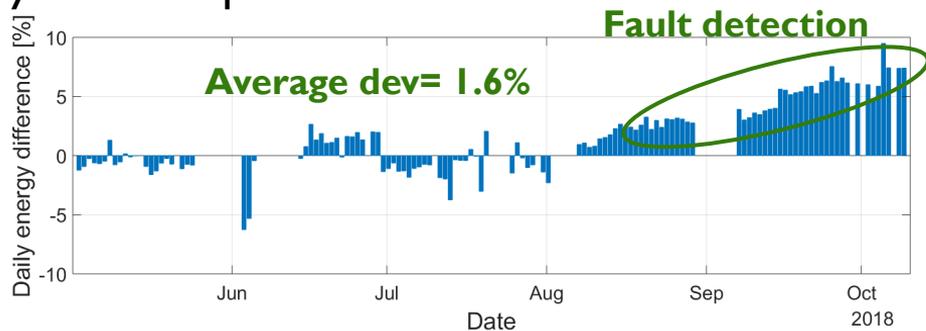


# VALIDATION (I.E. SIMULATION VS. MEASURED DATA)

- Commercial PV plants



- Utility-scale PV plants





3D pv plant mechanical  
software design platform



Physics-based yield  
simulator

# OUR MINIMUM VIABLE PRODUCT IS VALIDATED!

## Yields Application

IMEC - PVCCase

Longitude:  
8.18

Latitude:  
53.14

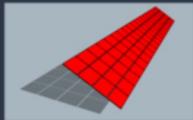
Albedo:  
0.2

Sampling resolution:  
hour

Tilt angle (monofacial):  
35

Azimuth angle (monofacial):  
188

Calculate Bifacial    Calculate Monofacial





**NEXT STEP: GAME-CHANGING PRODUCT TO DELIVER!**

from the EnergyVille Miners ;)



THANK YOU to  
All Contributors,  
Supporters!

SUNNY REGARDS