

SolarGik Unlocking the Potential of Solar Energy

- Founded in 2021 in Jerusalem, Israel.
- 120+ years of accumulated solar energy experience in the management team
- Dual-use solar tracking solutions to reduce energy cost and achieve RE100 CE 24/7
- 74+ Projects across USA, Mexico, Europe, Israel & Asia



Unilever



solar**edge**



ORMAT



Solegreen
Renewable Energy



EDF
renewables



ICL



edilenergia
ECOSOSTENIBILITÀ INTELLIGENTE



COLGATE-PALMOLIVE



ABInBev



THE
Coca-Cola
COMPANY

AgriPV will need to adhere to the following principles:

True Agricultural focus, not byproduct

maximize agricultural yields, not just provide a location for “growing” solar energy

Flexibility in Time of Production and seasonality

Deep understanding of solar and agricultural seasonal patterns

Optimization through Data Analytics

measure actual agricultural behavior, changes, and output

Real time dynamic optimization model

Competitive LCOE

AgriPV needs to be cost competitive with other forms of energy in terms of LCOE

There will be short-term incentives, but long term need to be independently competitive



AgriPV – Primary Challenges

Sharing the sunlight

The crops must have access to and benefit from the sunlight, hence solar PV modules cannot utilize all the sunlight. They have to share!

Structure

AgriPV requires structures that allow farmers and agricultural machines access to the fields

Cost effective

Higher off the ground and exposed to winds

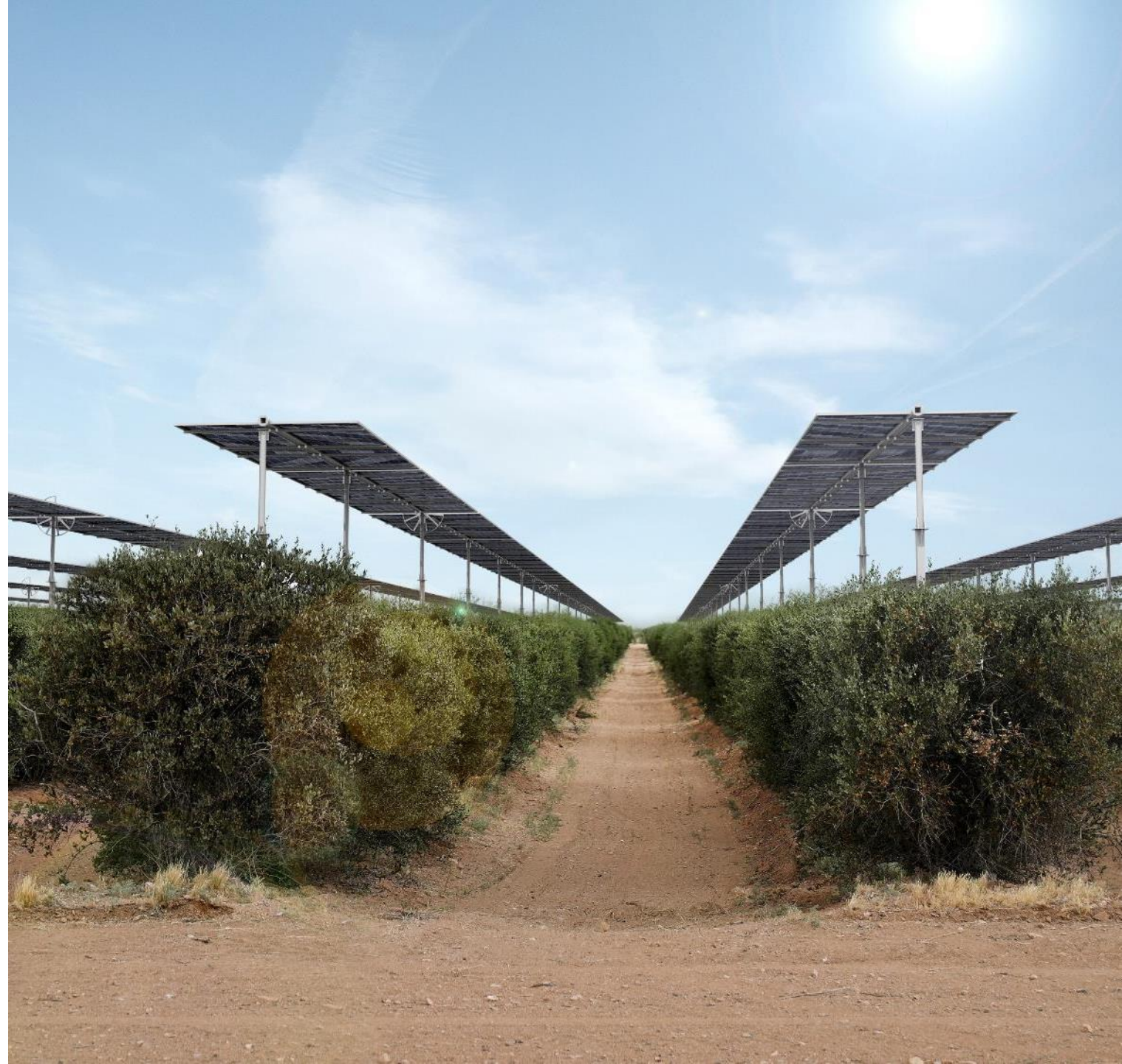
Need more reinforcement

More complicated to clean

Competitive LCOE

Since the AgriPV system is usually a more expensive structure, it is critical to optimize the system financially.

Otherwise, AgriPV will not be cost-competitive with other forms of energy





Our Approach

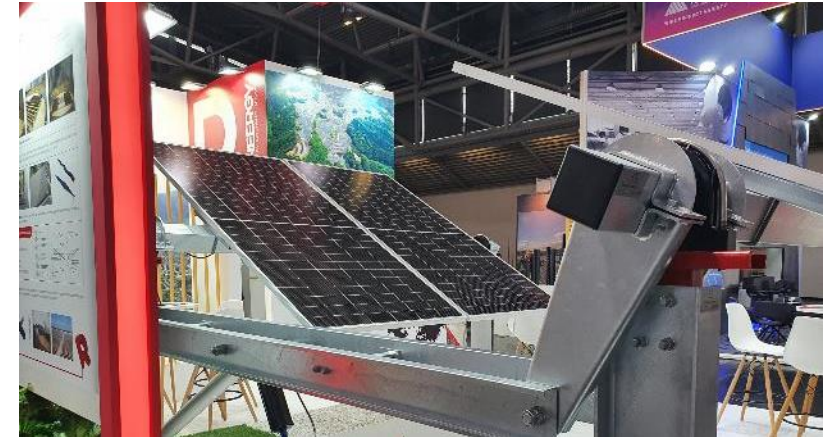
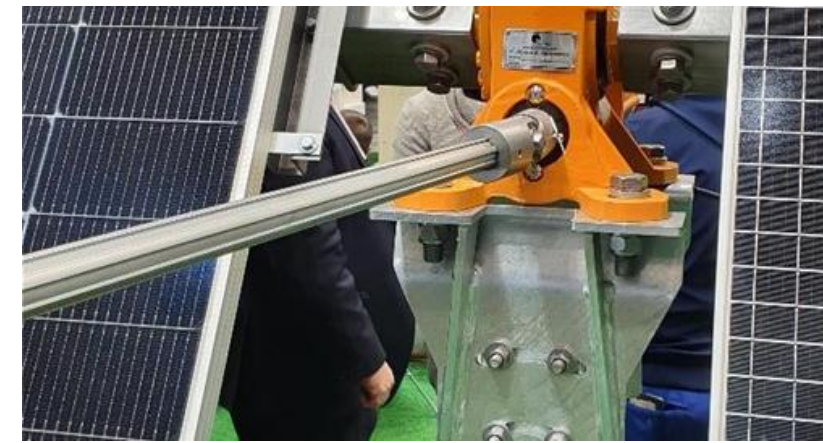
- Sharing the sunlight
 - Balance sun utilization between crops and panels
 - Optimize combination of agricultural and financial outcomes
- Structure
 - Allow agricultural machines access to fields
 - Light, easy to install & maintain
 - No grading needed
 - lower CAPEX cost
 - driven into the ground without concrete foundations in a “Stand Alone” format
 - Can adjust the structure to fit specific crops and ground conditions

Lightweight Smart Versatile

Lightweight

Standard Trackers:

- Large, heavy, complex
- Optimized for neatly structured lands
- Require onsite fixing
- 50-60 Kg/kWp



AgriPV Racking System – Crops

Panels can flip upside-down (240°) for easier cleaning and access to panels

Unobstructed access for agricultural machines

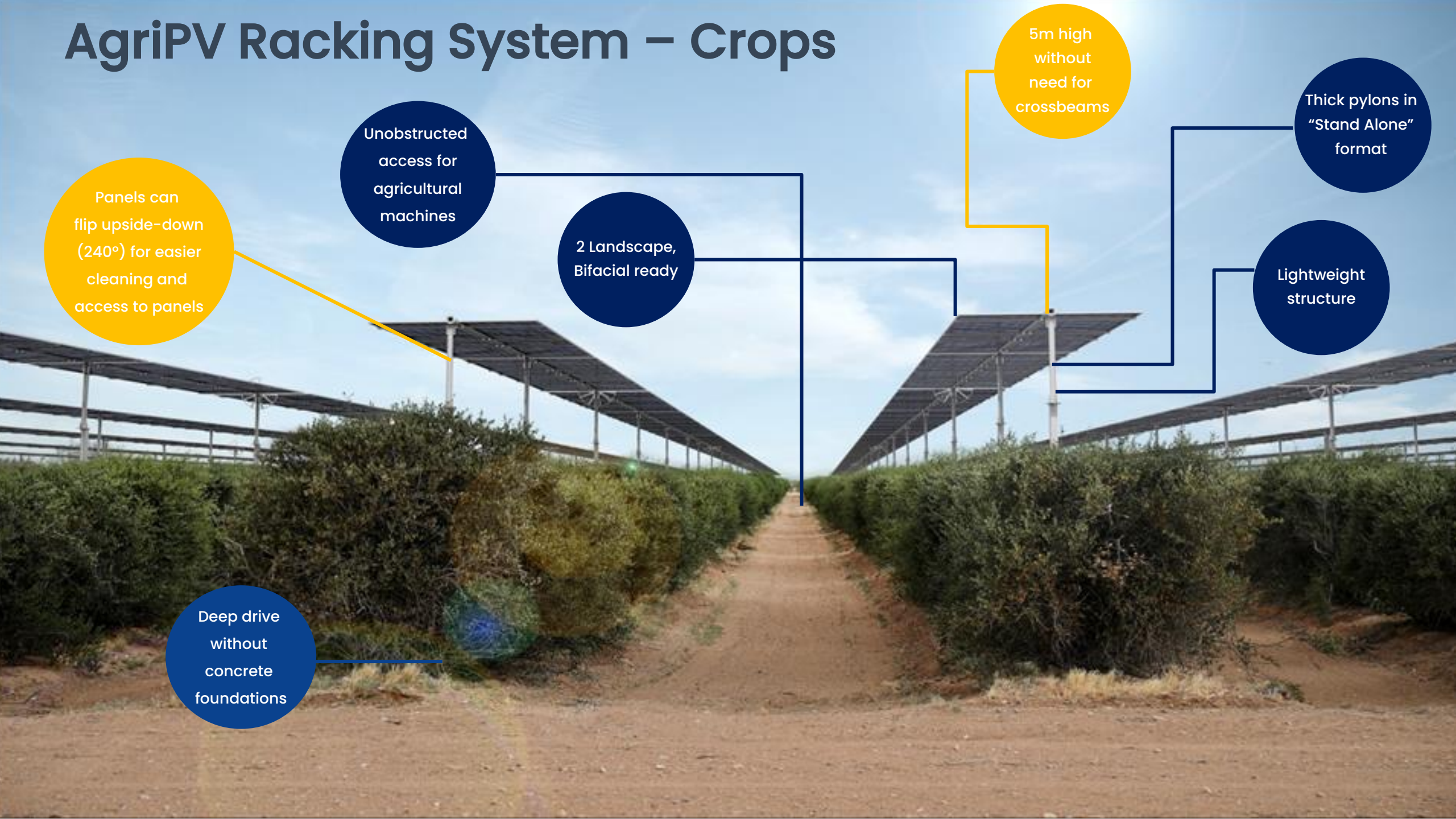
2 Landscape, Bifacial ready

5m high without need for crossbeams

Thick pylons in "Stand Alone" format

Lightweight structure

Deep drive without concrete foundations

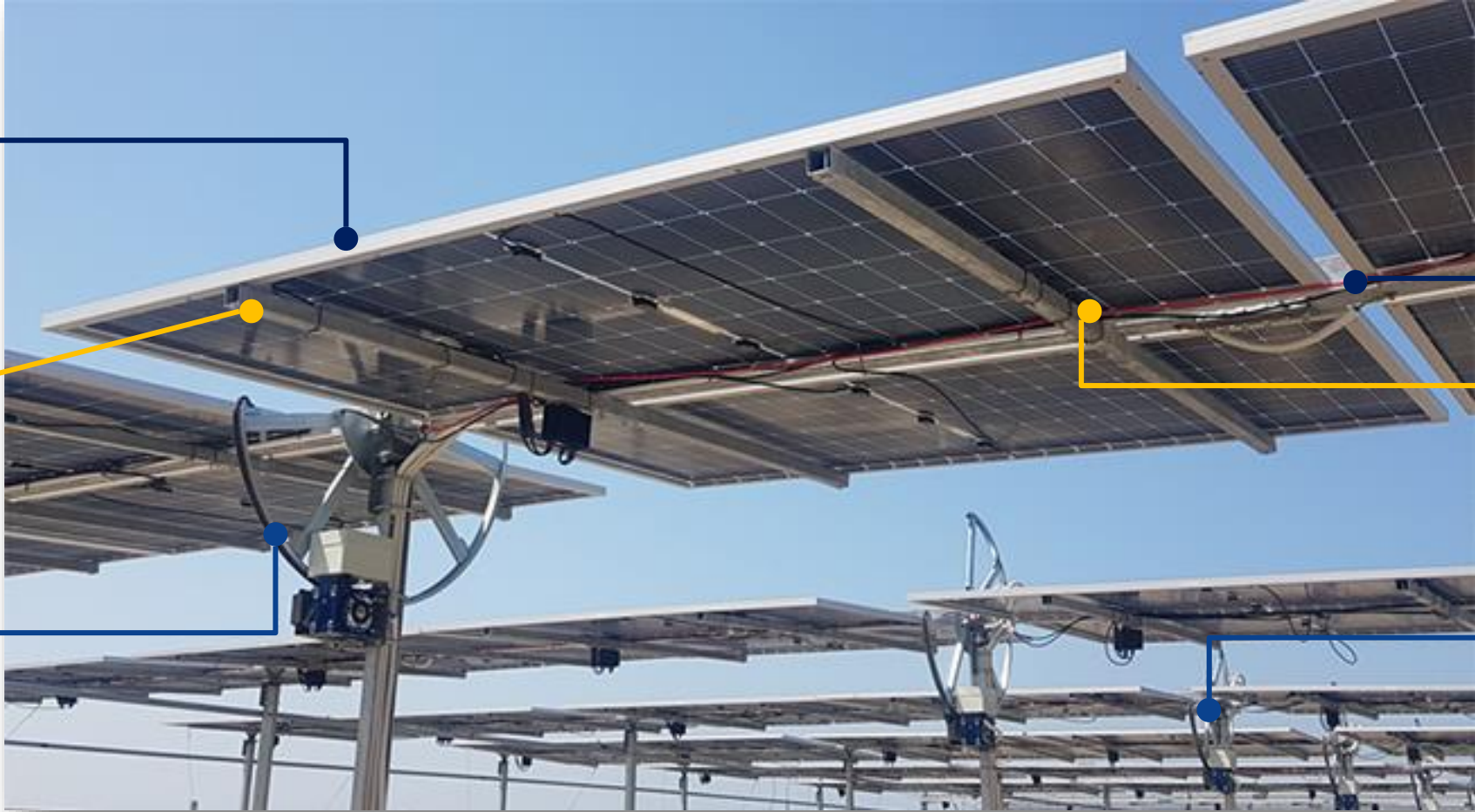


Tracker Racking System – lightweight Design

2 Landscape,
Bifacial ready

25-30 Kg/kWp

Enhanced
Degree of
rotation



Lightweight
structure

Easy to install

Reduced
LCOE

Tracker Motion Unit – small, reliable and cost-effective

In-house designed PCB



6W self-powered Stepper motor with high MTBF



Primary, secondary, and tertiary gear – no pneumatics or hydraulics

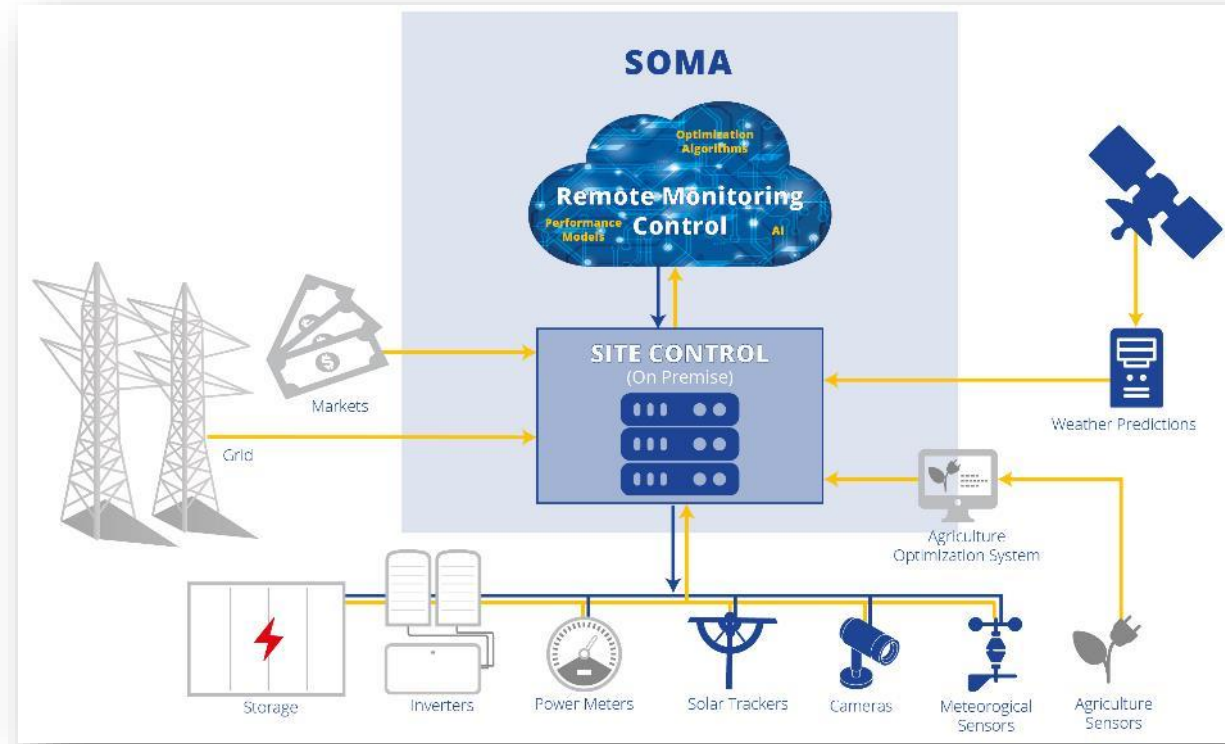


Efficient Design = Less material = lower LCOE

- Wireless operated controller
- Li-ion Battery backup
- Drive Unit is powered from a PV panel
- Communicates via wireless at 2.4 GHZ
- Power Consumption: Typical – 2W, Maximum 20W
- Wi-Fi 802.11b/g/n

Smart

Centralized control of PV plants to increase profitability, flexibility and predictability



Dirt reduction and cleaning optimization



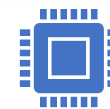
Intermittency mitigation based on weather forecasting



Smart energy shifting based on time-of-day pricing



Anomaly detection



Mechanical clipping to reduce hardware degradation



Electric verification of optimal tracking algorithms



Agricultural Sensors

TCS – Tracker Control System



Benefits of two in Landscape (2L) Configuration

- Southern tilt increases generation by 1%
- Rotation around center of gravity
- Backtracking accuracy (non-linear losses)
- Avoiding torque tube shading (bi-facial)



SolarGik's Structural Solution – Greenhouses



SolarGik's Structural Solution – shading structure



SolarGik's Structural Solution – Light farm roofs



SolarGik's Structural Solution – Various structures



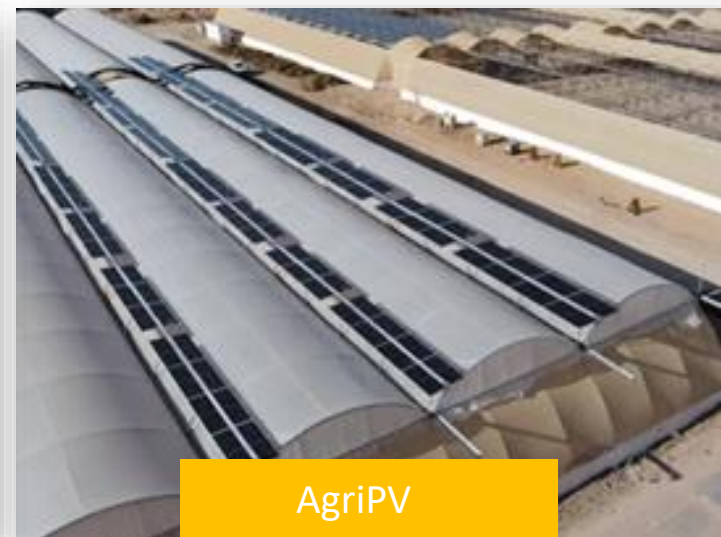
74 Projects across USA, Europe, Israel & Asia



Rooftop



Ground



AgriPV



Versatile

We don't always get to build where we want...



Smaller LEGO pieces lead to more accuracy

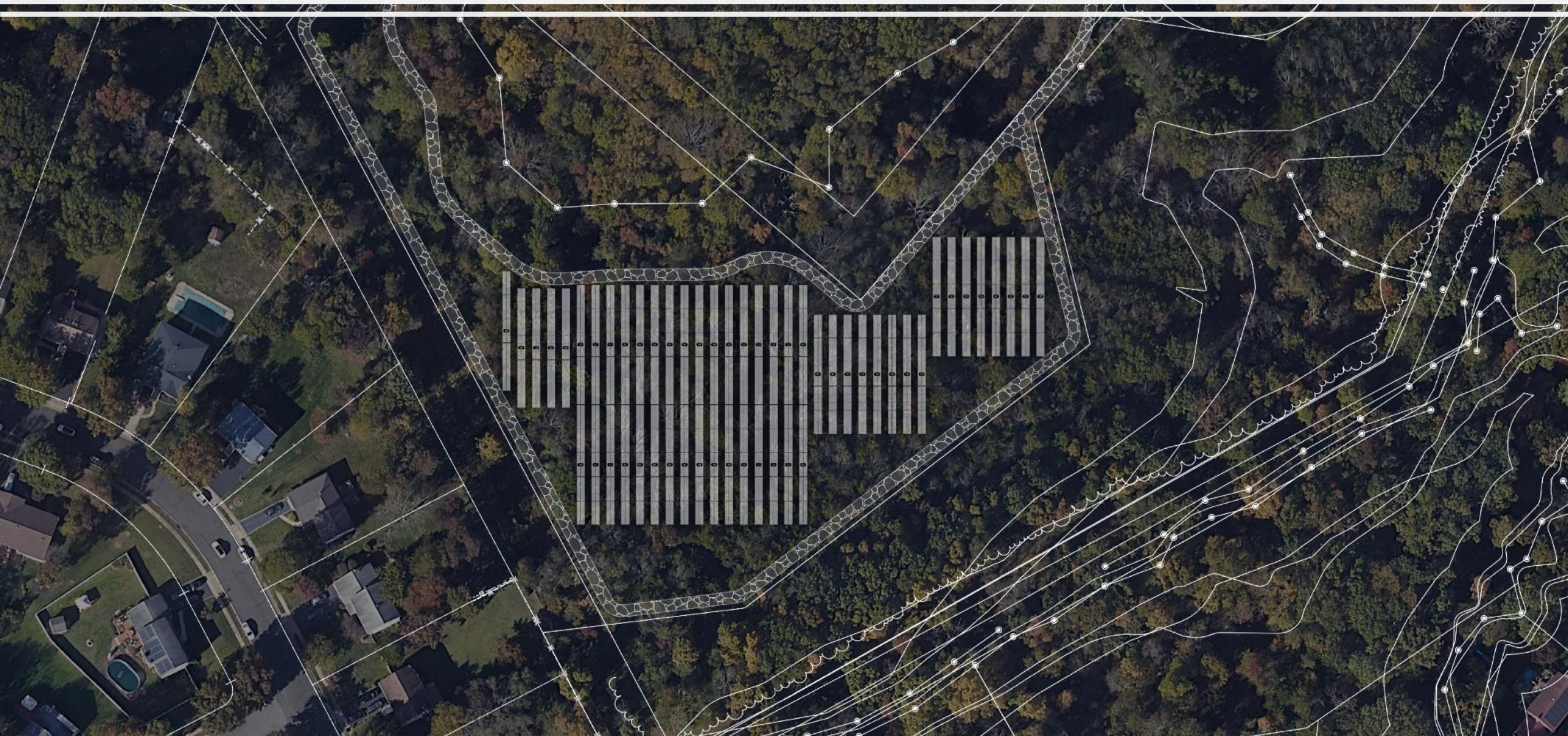


Big Blocks, less versatility



Smaller blocks, more accuracy

Standard Trackers with longer table lengths cannot maximize land utilization, reducing power density and installed capacity

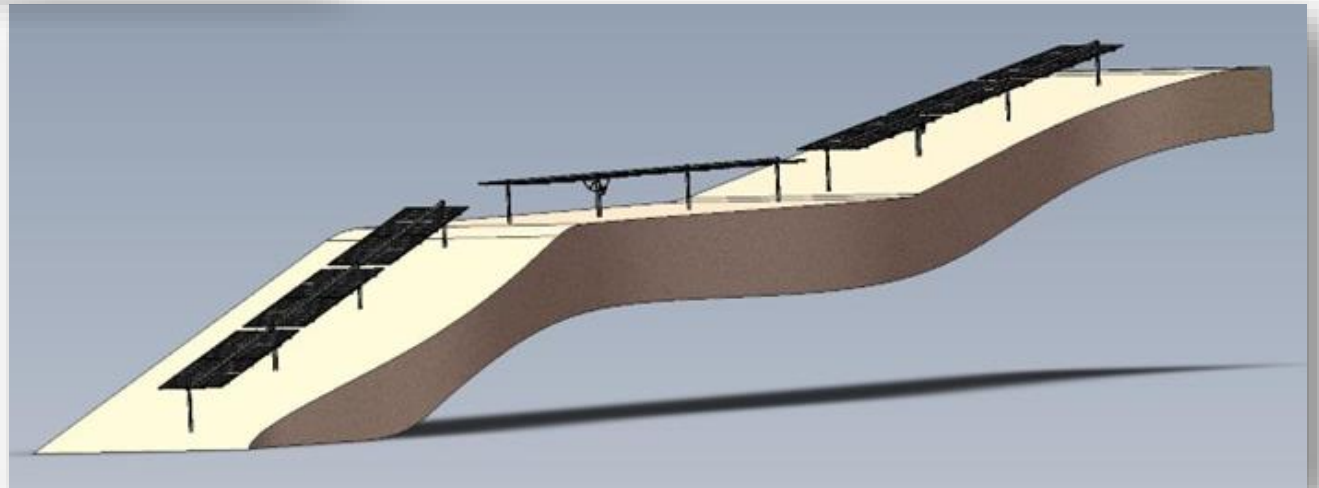
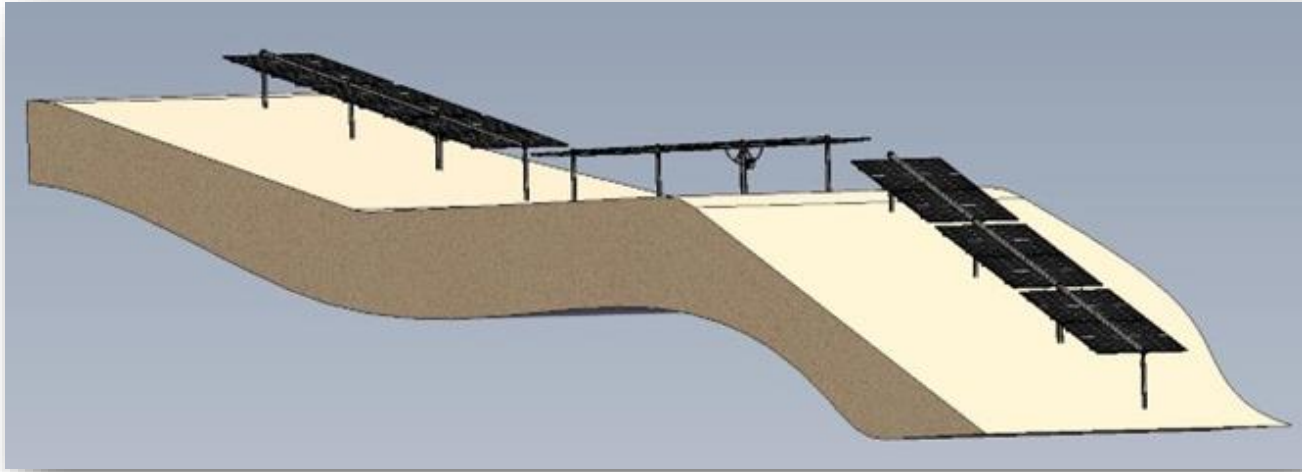




Shorter, versatile Tracker tables can be installed around obstacles in the field, increase power density and maximize installed capacity and land utilization

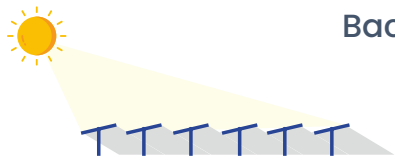


Slope capabilities – Up to 30%



... But DON'T always track the sun!

More energy



Backtracking

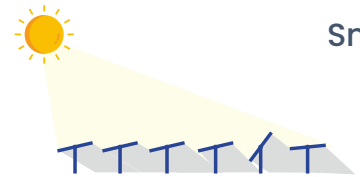
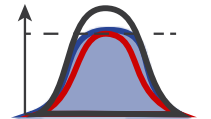
- Increased generation
- Minimal shading

Less energy/cost



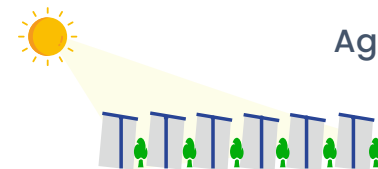
Mechanical Clipping (Patent Pending)

- Reduced O&M
- Minimizes overheating of panels



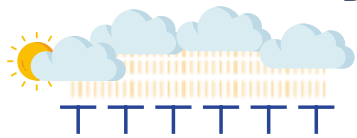
Smart Backtracking

- Optimal energy generation per string
- Minimal shading



AgriPV

- Balancing energy generation and sunlight for the crops



Diffuse Optimization

- DNI-DHI optimization
- Weather forecasting, dynamic



90°

Dirt Minimization

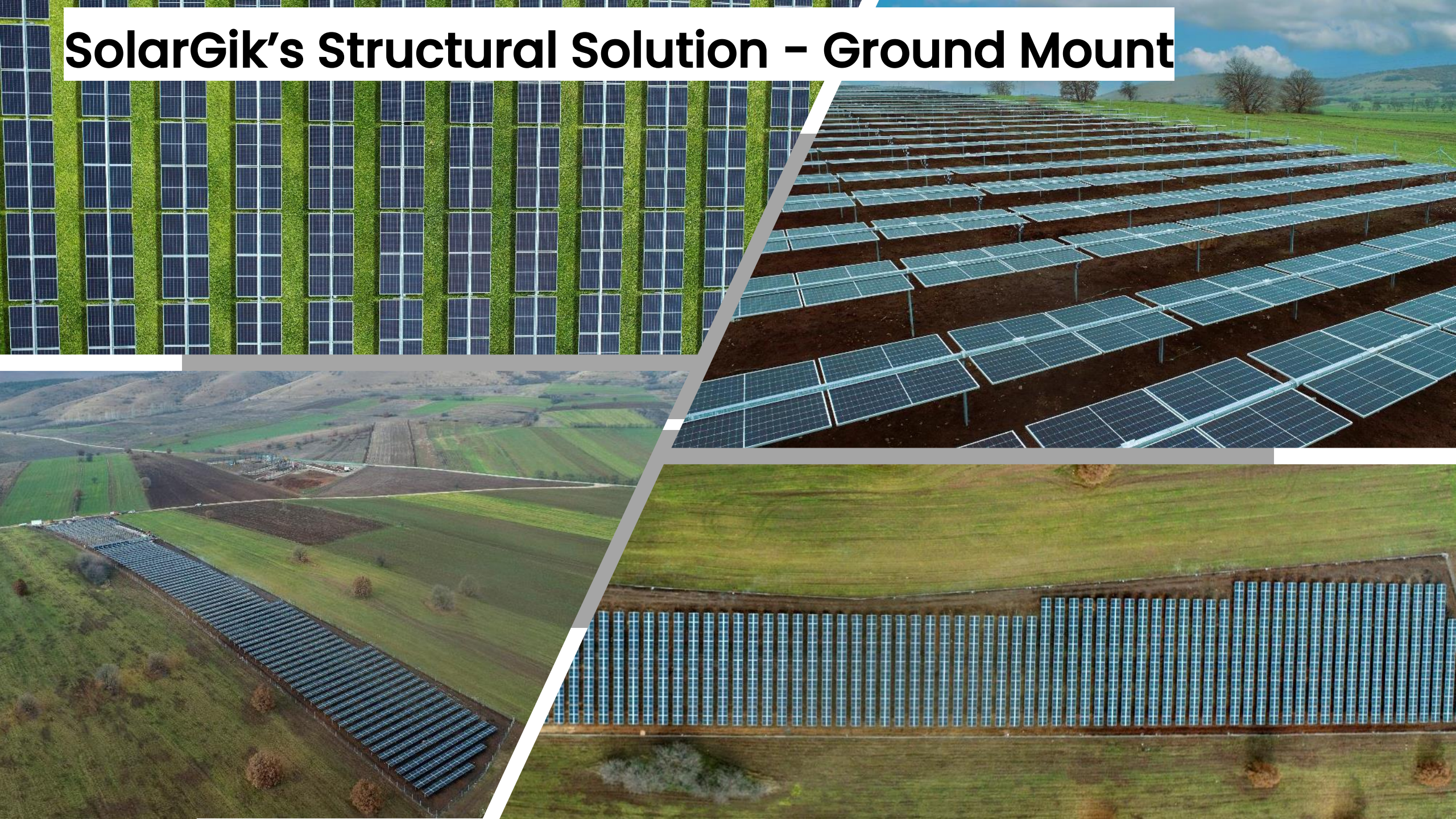
- Dirt and dew minimization
- Reducing cleaning costs



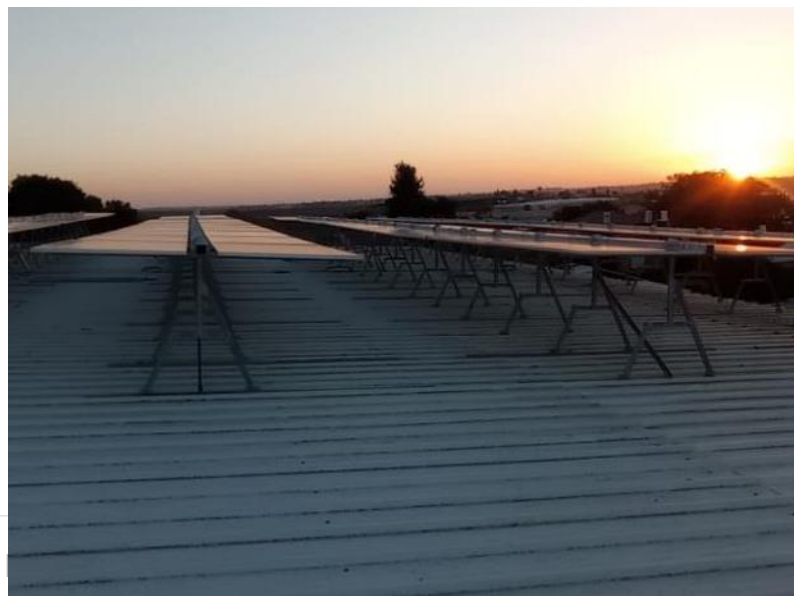
Unlock sloped terrain by utilizing short, versatile, tracker that can handle industry-leading 30% gradient. Reduce land grading costs



SolarGik's Structural Solution - Ground Mount



Rooftop Mounting – Light Roof



d.

SolarGik Value Proposition – Summary

Reduced CAPEX

- Lightweight structure that is +30% lighter
- 25-30KG per kWp
- Easy to install – no need for special machinery
- No required grading
- Comparable cost to fix-tilt racking

Increased Energy Generation

- Increased tracking accuracy from smaller tracker tables
- Improvement of Standard algorithms (backtracking, smart backtracking, diffuse optimization)
- Proprietary Satellite Data & Weather analytics
- Reduced torque Tube shading on bi-facial panels
- Ability to add southern-facing tilt to 2L configuration

Reduced OPEX

- High MTBF
- Dirt & Dew minimization
- Mechanical Clipping reduces Panel degradation
- “Zero Maintenance” Design
- Smart & Predictive O&M

Versatility

- Can be installed in nearly all dual-use scenarios (roof, greenhouses, agri)
- Small tracker tables allows for increased power density and land utilization
- Build around obstacles
- Sloped terrains up to 30%

Optimized Solar Plant Control

- Data Analytics
- Real-Time Plant Model
- Smart Energy shifting (TOD, Tariff)
- Cleaning Optimization
- Intermittency reduction



Hagai@solargik.com

+972-502744422

Solargik

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SolarGik's Solutions – Elevated platforms/fish ponds



SolarGik's Structural Solution – Light farm roofs



AgriPV above vineyards is one of the most challenging scenarios

It creates significant agricultural, technical and financial challenges

- **Agricultural challenges:**
 - Vines are fragile and sensitive
 - Vineyard Irradiation needs are dynamic (depending on location, climate, season, time of the day)
 - Harvesting is sometimes done with machinery above the crops
- **Design and Structural challenges:**
 - Spacings between rows are small (~2.5m)
 - Spacings between vines in the row are small (~20-30cm)
 - Vines are a tall crop (2.5-3.5m)
 - Row orientation can vary (North-South/West-East)
- **Financial challenges:**
 - Maintaining competitive LCOE
 - Not hurting, and even improving agricultural production



A lightweight, versatile and smart solution to overcome the challenges

No obstructions for agricultural machines

No need for civil works

5m, lightweight
No need for crossbeams

2L Bifacial,
Smart Monitoring

Thick piles
In "Stand Alone"
No concrete foundations

Flexible positioning
over/between crops
with any orientation

