PEG®PV Racking System

High-Density & Significant CAPEX Savings

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VP Business Development

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Topics

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2. System Benefits
3. Design Characteristics
4. Installation
5. O&M
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PEG® Jurchen Technology Overview

- **Founded in 2008**
- **HQ in Germany**
- Designing and manufacturing **Solar racking systems and DC cabling**
- **Racking systems sold for >2.6GW** projects worldwide
- **DC cabling sold for >3GW** projects worldwide

Limondale (AUS)
Nominal capacity: 349 MWp
Components: DC Cabling

Barcaldine (AUS)
Nominal capacity: 10.8 MWp
Components: PEG Racking system

PEG® Jurchen Technology Product Line

Racking Systems

PEG

UniBase

TwinBase

DC Cabling

Cable Harnesses

Cabling for Floating PV

PEG® Main Benefits

- **Extremely high land use. Comparison per acre:**
    - ~225% more yield vs trackers & other fixed-tilt systems
    - ~3 times more DC vs trackers, ~twice more vs fixed-tilt
- **Extremely cost-effective CAPEX (supply, freight and installations)**
- **Low profile, shallow foundation, <3.3 ft (<1m) above & below ground**
- **Very light system, ~28 lbs (~12.5 kg) per kWp (400W modules)**
- **Proven globally, over 200MWp installed**

The PEG, an ocean of modules covering the complete site with small gaps between the blocks

PEG® Land Use

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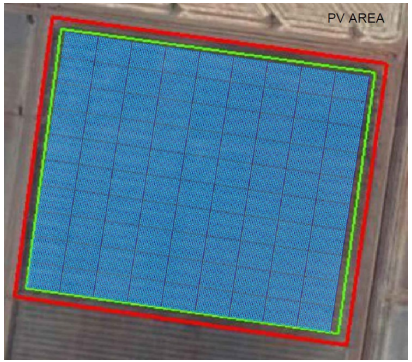
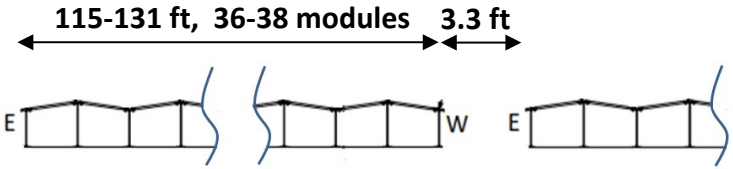
Layout example: **~3 times more DC with PEG vs Tracker**

PEG : ~20.5MWp



Mainly DC system…

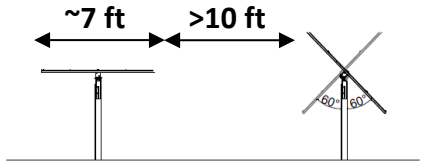
Only few gaps 3.3 ft each



Tracker : ~7.0MWp

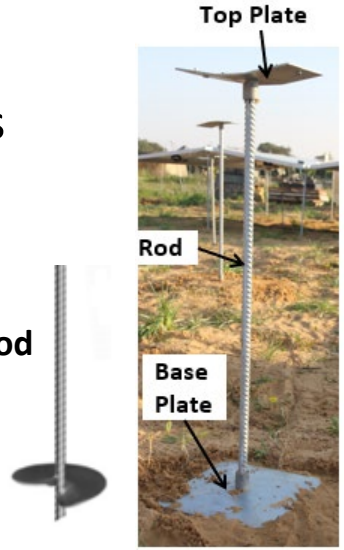
Mainly empty space…

Many large gaps > 10 ft each

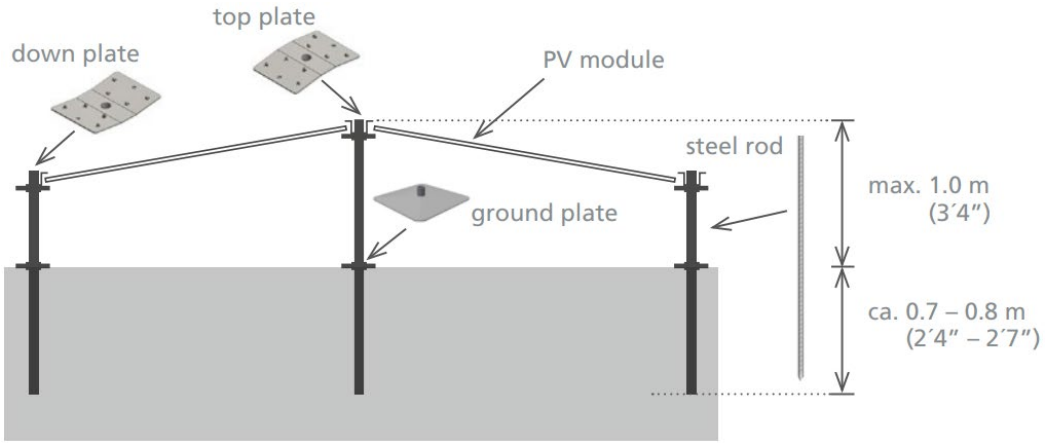


PEG® Standard Design Characteristics

- **Only 3 items: Steel rod, ground plate and top plate**
- **Modules at 8 deg E-W laid on the top plates** under the corners
- **Optional anchor rods** to deal with soft soil or requirement for shallow foundations (1.6 ft)
- **UL2703 compliant**



Optional anchor rod



PEG® Special Design for High Snow Loads

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Special PEG design for snow load >25-30PSF

- **Additional support** under the middle of the module's long edges
- The modules laid on the **additional support without clamps**
- **Suitable for North-East USA, up to 60PSF snow & 130mph wind**
- **Foundation unaffected by frost soil**, since the rods are very thin
- First project **installed in June 2020 in Austria**

PEG® Special Design for First Solar S6

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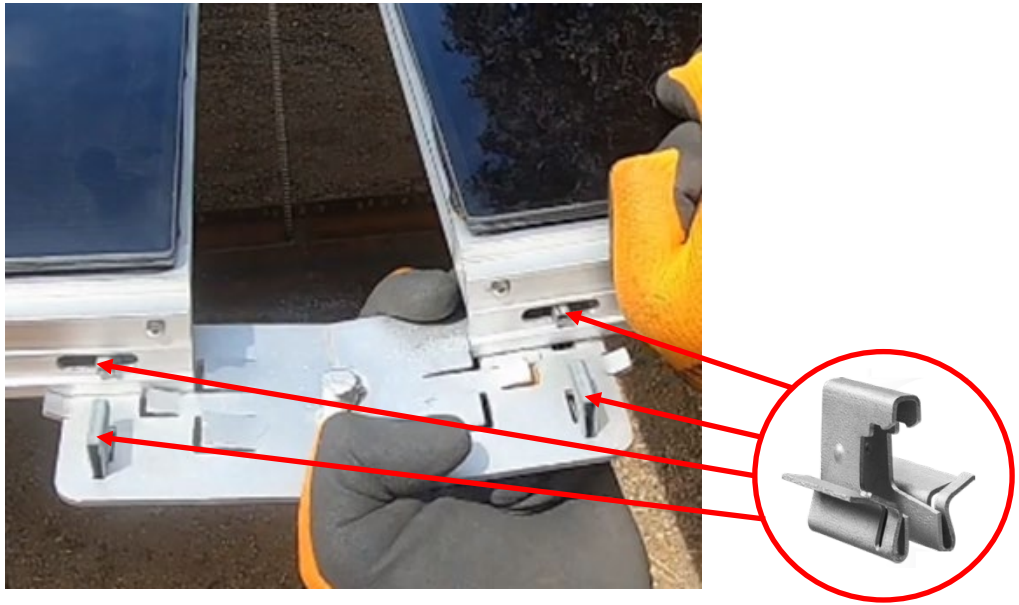
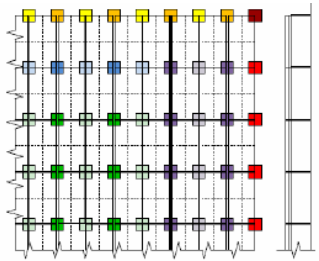
- **Special PEG top plate design** for First Solar S6
- **Special clamps** (supplier: ARaymond), **quick and easy installation**
- **Available** by the **end of 2020, UL2703 compliant**

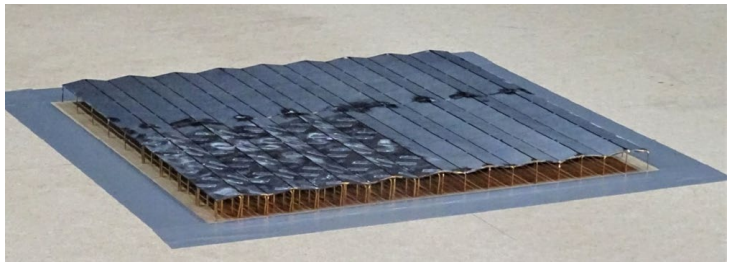


PEG® Design Robustness

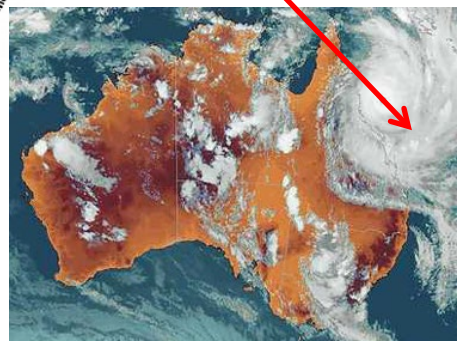
- **Wind Tunnel tests successfully completed** by IFI in Germany
- **Max wind speed** (ASCII 7-10): **160mph (~257km/hour)**
- **Compliance in tropical regions** (eg wind region C in Australia)

PEG wind tunnel tests done by IFI





Certified for tropical Australia **cyclone regions**!



PEG® Installation Methodology

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Construction practices are irrelevant!

From **E P C**onstruction:




- **Small amount of material and labor**
- **Without concrete, trenching and heavy machines**
- **Working height is ~3 ft** (~1m)
- **Lightweight racking system, <~6.6lb** (~3kg) **per item**

…to **E P I**nstallation:




PEG® Installation Process

- **Extremely simple, fast and safe installation**
- **Heavy machinery not required**. Tools: Electric hammer & hydraulic crimper
- **~0.8 man-hours / kWp** for all DC plant
- **Ramming depth up to 2.6ft** (800mm) underground
- **>1MWp installed per week**

1

2

3

PEG® O&M

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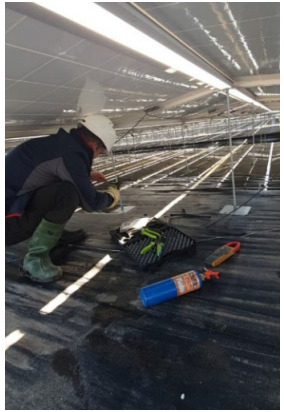
- "Gal-In", a lightweight and **efficient manual cleaning**, **40 lbs**, requires **one man-hour to clean 250 modules**
- System **access from underneath** using trolley, **along the walking paths** between the blocks and **remote access using drone**
- **Methods for vegetation control**: Fabric sheet, mowing robot, clover grass, chemicals and crusher dust in top soil

"Gal-In" cleaning system

Trolley to access underneath the PEG



Fabric sheet under the PEG

Mowing robot machine

PEG® Bankability

- **Debt finance already provided for PEG projects** in Australia
- **DNV-GL bankability report** completed in June 2020

DNV·GL

TECHNOLOGY ASSESSMENT

PEG Solar Racking

Jurchen Technology GmbH

Document No.: 10188745-OAL-R-01

PEG's main advantage is in the efficiency of land use (the energy output per acre) and CAPEX reduction.

the area-related energy harvest per acre is almost the same for either the fixed-tilt or single-axis tracker systems, while the PEG system exhibits a comparative 227% advantage over either of these types.

The PEG product has been installed in the field since 2014 and Jurchen has not received any warranty claims to date.

Jurchen has performed geotechnical and structural engineering which is typical for a product of this type,

Energy land-use efficiency (MWh/acre/yr)	
Location	Gain PEG vs. FT/SAT
St. Cloud, Minnesota	+217% FT +224% SAT
Las Vegas, Nevada	+227% FT +222% SAT
Raleigh, North Carolina	+231% FT +241% SAT

Mounting type	GCR (Ground Cover Ratio)
PEG	≈1.0
Fixed-tilt, ground-mount	US locations: 0.40 Tropical locations: 0.87-0.93
Single-axis tracker	0.33

PEG® Global Presence

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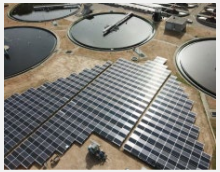
Over 210 MWp installed worldwide

Barcaldine, Qld, Australia, 10.8MWp

Hoensbroek, Netherlands, 2MWp

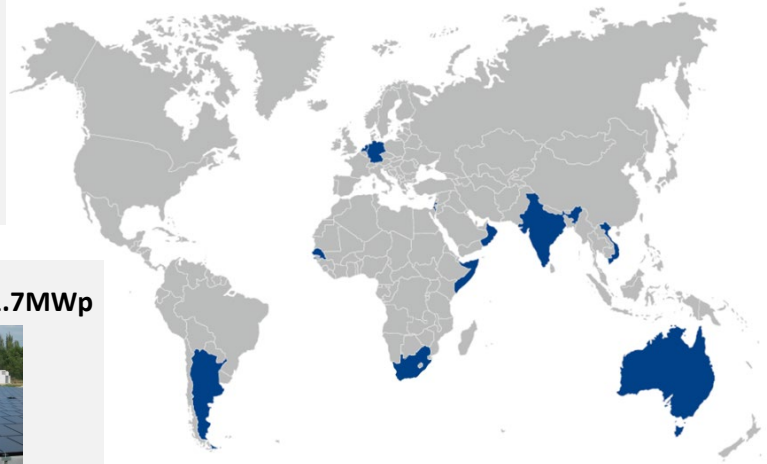


Adam, Oman, 500kWp

Somaliland, 500kWp

Goondiwindi, Qld, Australia, 4.8MWp

Coronel Suarez, Argentina, 333kWp



Mesilot, Israel, 4.6MWp

Tan Chau, Vietnam, 22kWp

Haidt, Germany, 1.7MWp

PEG® Case Studies

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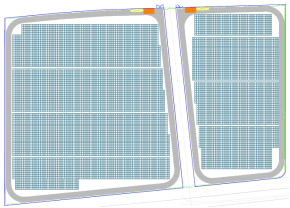
Example of PEG success stories:

Goondiwindi, Qld, Australia, 4.8MWp
The first unsubsidized commercial solar project in Australia

Dareton, NSW, Australia, 3.7MWp
Low profile PEG (<3.3 ft), essential for permit process & neighbors' consent

Mesilot, Israel, 4.6MWp
PEG the only system to achieve the required DC capacity and yield



Barcaldine, Qld, Australia, 10.8MWp
Government OH&S audit indicated PEG installation safety standards are exceptional

PEG® PEG Projects in the Netherlands

- **Volta Solar**: A Dutch EPC owned by Essent / EON, installing 60-80MW/Yr
- **More than 40MWp PEG** installed **in the Netherlands** on 17 sites

Key benefits of the PEG system:

- **Maximizing land use** through the PEG **flexible design**, for land constrained sites and sites with challenging shape
- **Reduction of council approval risks**, thank to the PEG low profile and visual impact
- **Reducing soil risks and tests**, due to the PEG **flexible foundation with 40cm (~1.3 ft) underground** ramming depth with anchor rods

PEG on 11.7MWp water utility sites (11 site in total)

PEG on 12MWp landfill site

PEG® Summary

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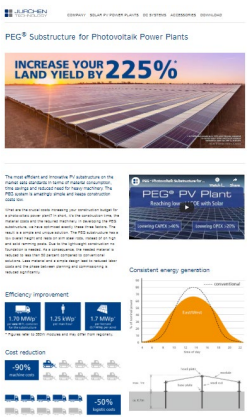
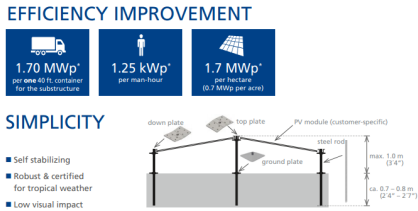
- **By far the most efficient land use** (MWh per acre), ~225% more than Trackers & Fixed-Tilt
- **Competitive LCOE vs Trackers and Fixed-Tilt** (AUS customers feedback)
- **Significant CAPEX reduction**, in both supply and installations
- **Simpler permit process**, due to lower profile & shallow foundation
- **The PEG online:**

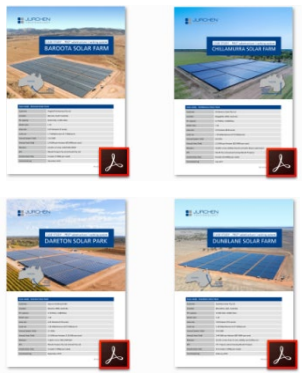
Web page:



Data sheet:



Case studies:



Projects list:

…and much more at:

www.jurchen-technology.com

Thank you!

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