

Solar Energy Balance of System Solutions

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MADE FOR REAL[®]

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Overview



Introduction



Weathering / UV Materials



Quality, Cost & LCOE



Hidden Cost of Wire Management



Lifetime Risks



Solutions & Key Benefits



Unfavorable Examples



Tools & further Information



Conclusions

Product range

Thousands of inventive product solutions to help improve your operational excellence.



Cable ties & fixings



Electrical installation



Insulation



Cable protection systems



Identification systems



Application tooling

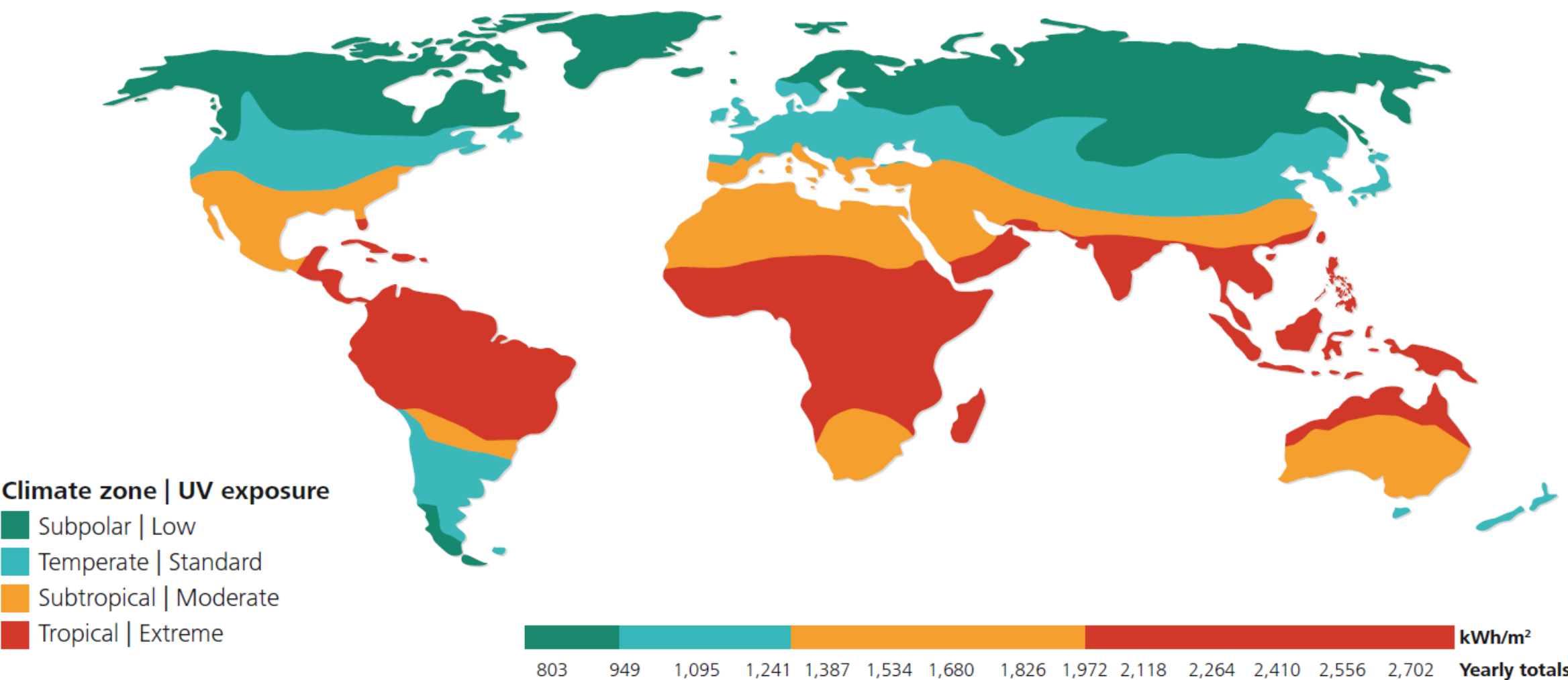


LAN & broadband connectivity

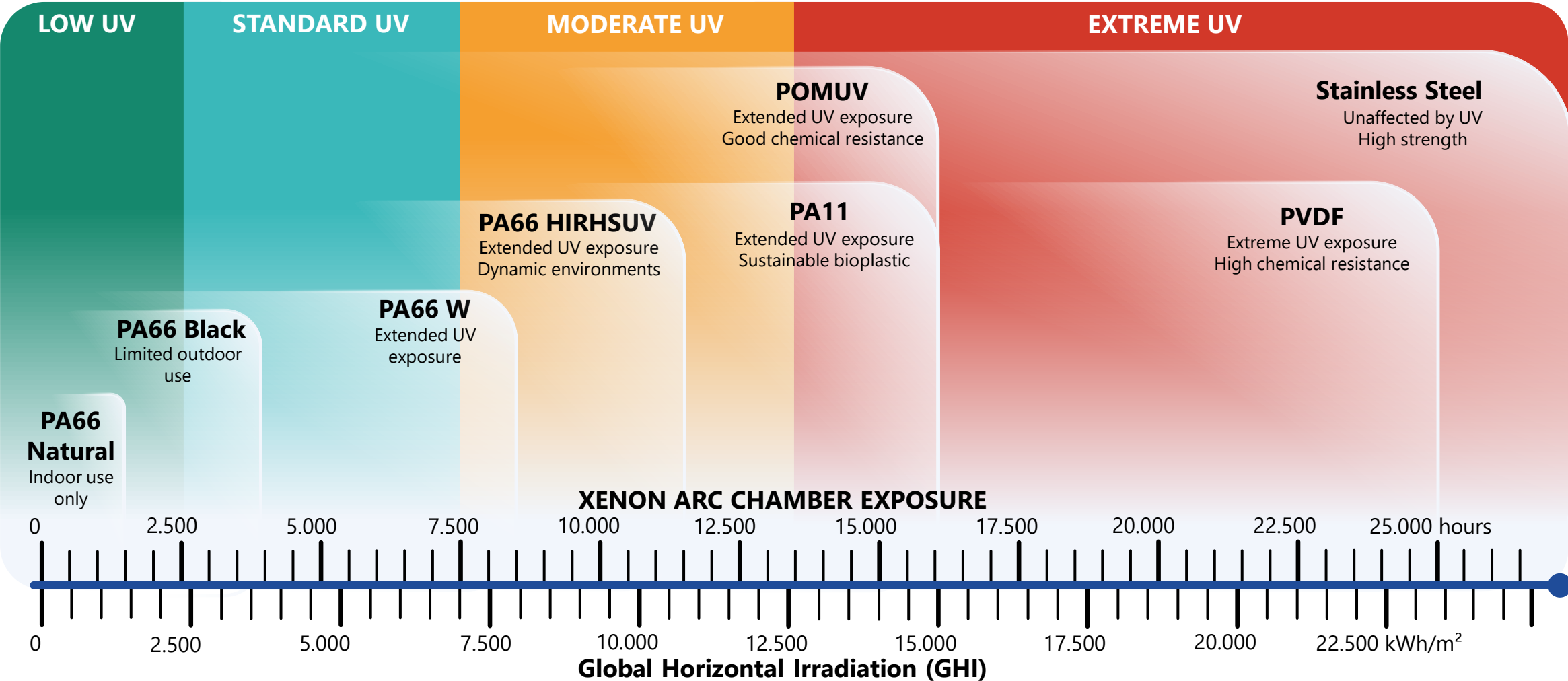


Climate Considerations

Long-term average of global UV horizontal irradiation (GHI)



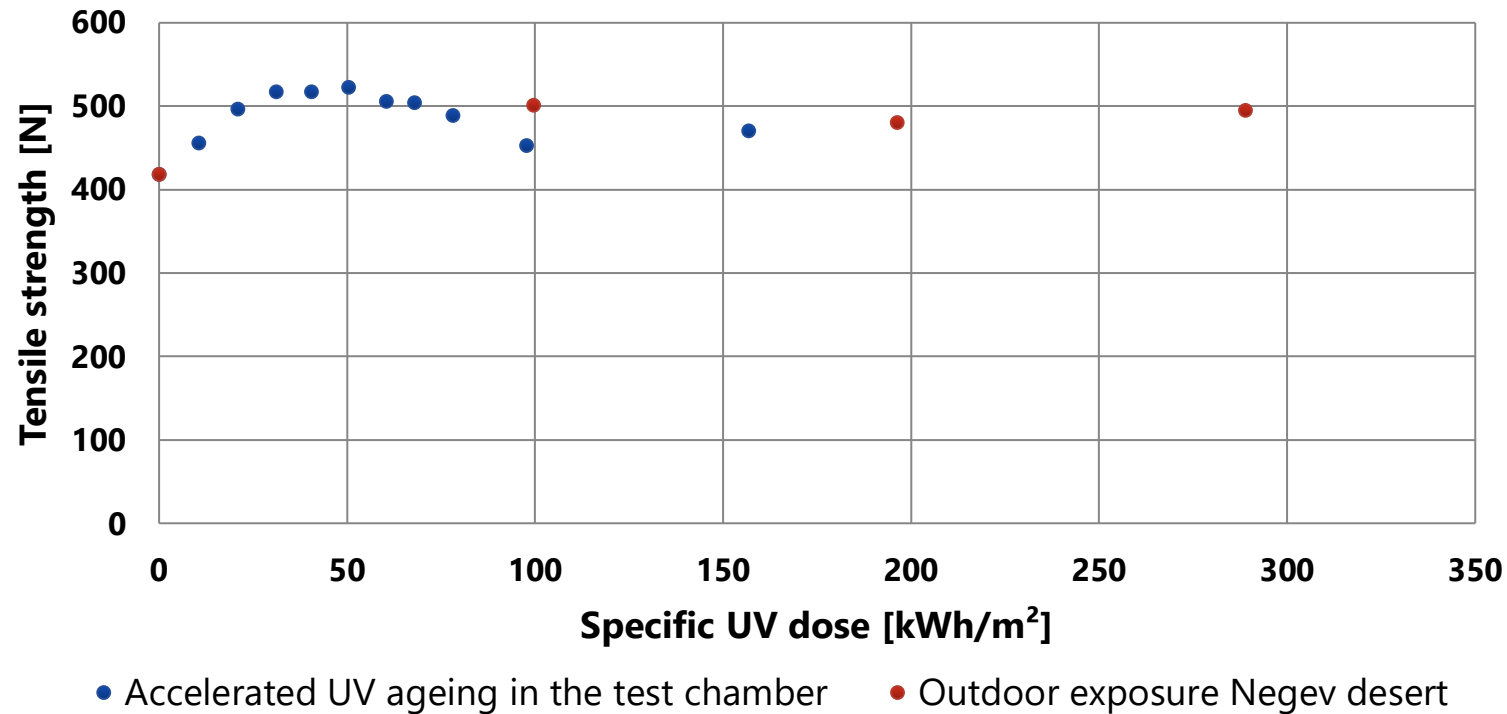
Lifespan of Materials



UV Testing

Outdoor testing

T80R-W Exposures



3 years of solar irradiation exposure in the Negev Desert with a specific UV dose of 289 kWh/m² equals approximately **6 years** in Central Europe

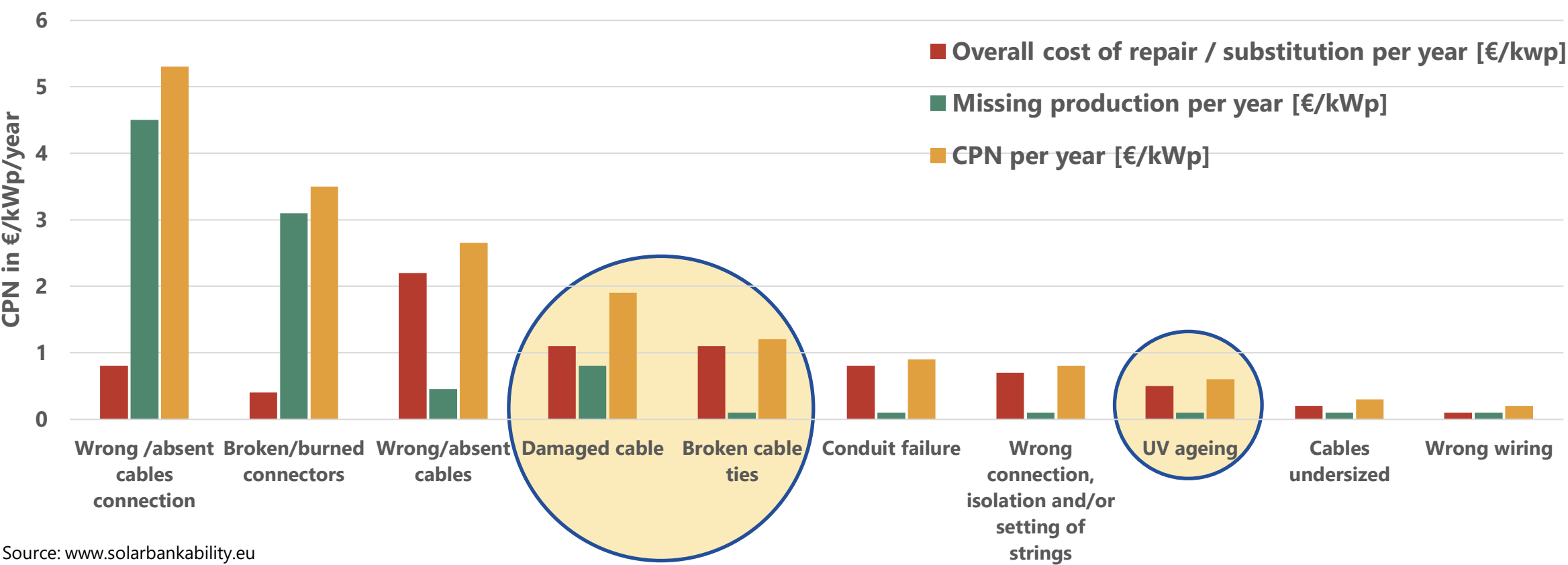


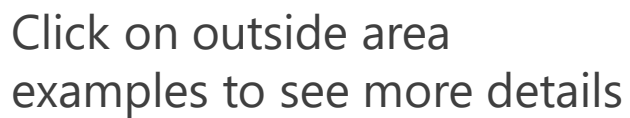
Exposed specimen in Negev desert

Cabling Top 10 Risks – Loss due to failure

CPN (Cost Priority Number)

Cost consideration related to risk assessment is the sum of cost of repair and missing production





Why is solar wire management so important?

Top 3 Concerns



Most

solar engineers ...

believe quality and proven life expectancy of solar wire management are of utmost importance

Top 3 concerns for engineers:

1. Quality parts (won't break/not defective)
2. Life expectancy of parts
3. Testing results/proven performance



Most

solar installers ...

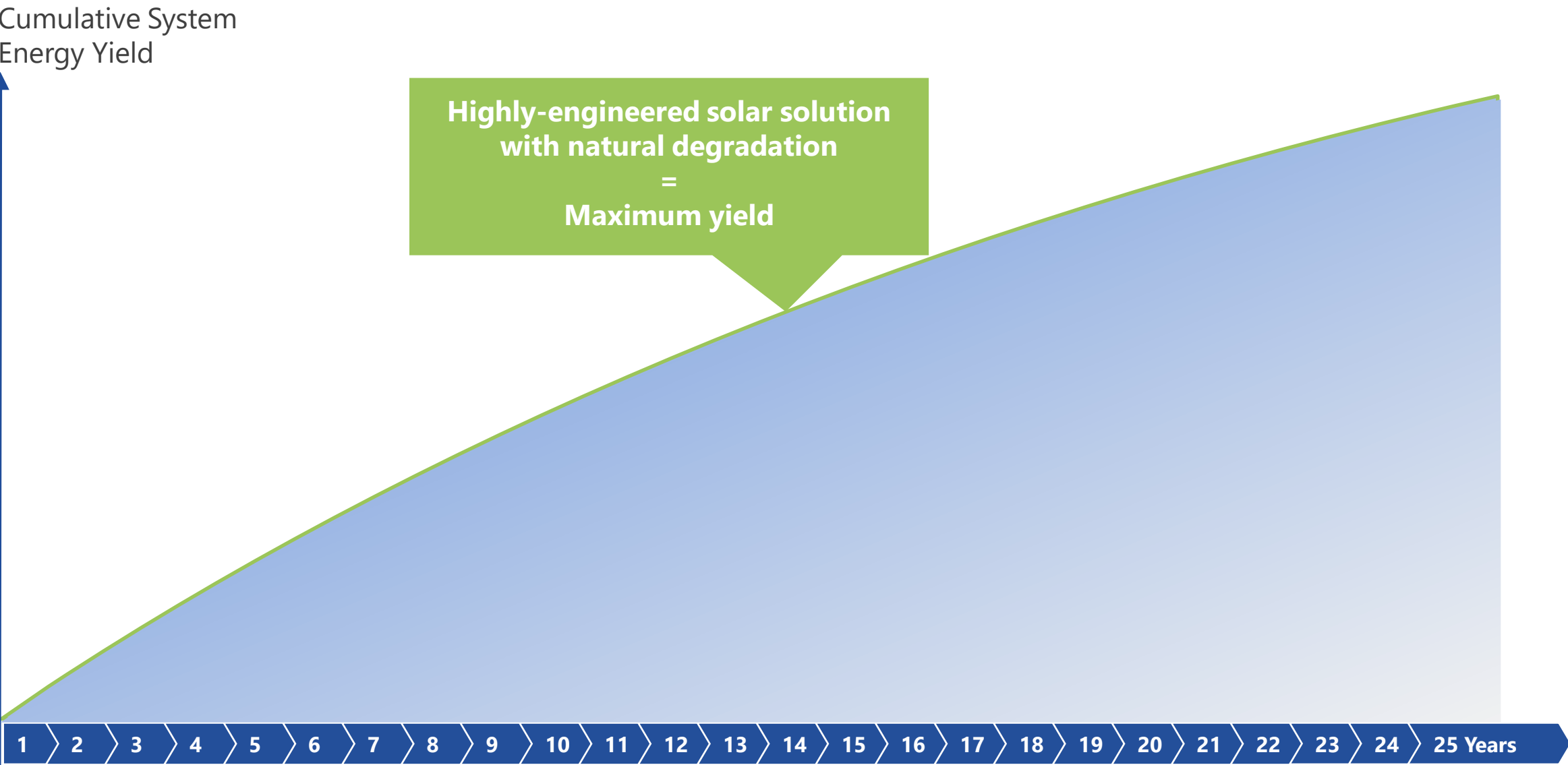
agree getting the job done right the first time is of utmost importance

Top 3 concerns for installers:

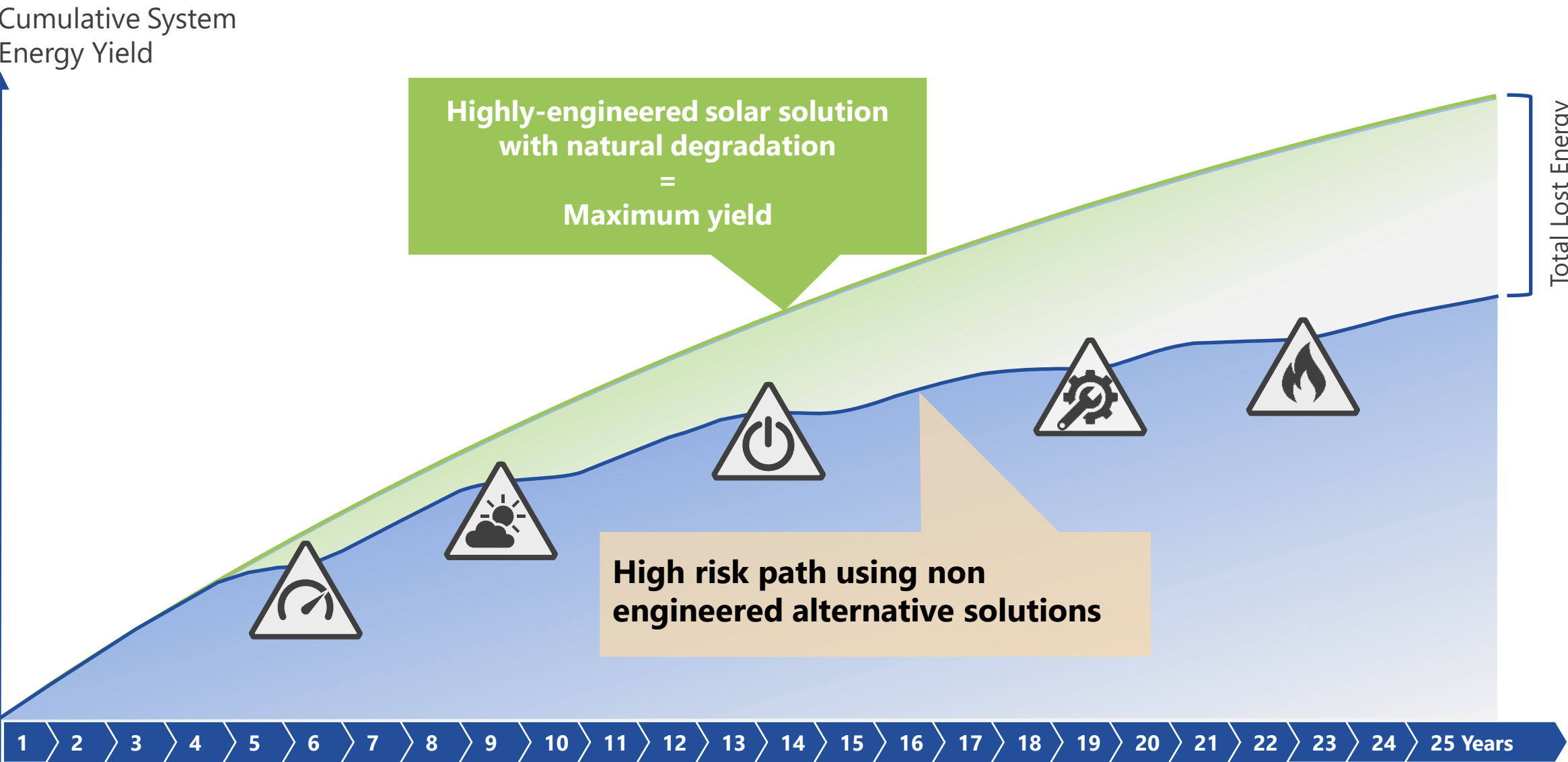
1. Job done right the first time
2. Quality parts (won't break/not defective)
3. Installation time and cost

Source: HellermannTyton Solar Engineer Survey

Lifetime Risks

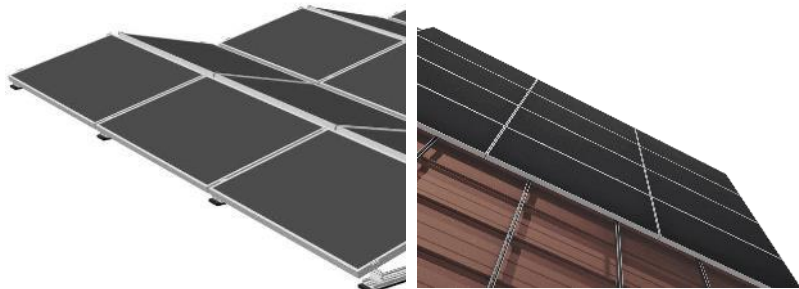


Lifetime Risks



Application areas

Rooftop & BIPV



Fixed tilt



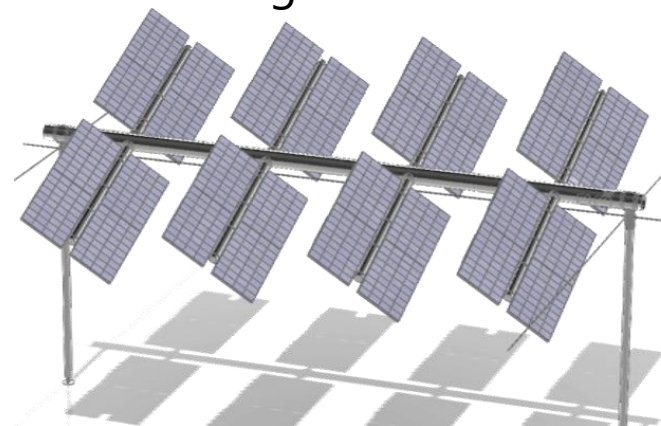
Horizontal tracker



Floating PV



Agrivoltaic



Cable Tie Solutions

PA66W ties



UV resistant black cable tie for standard UV and subpolar/temperate climate zones



100% high quality compounded plastic
2% carbon black according ASTM D6779
IEC 62275 tested



Available in a wide range of sizes



Plastic solution adding security for
1500V DC systems



Fixing solar cables onto PV racking structure

Module Hole Mounting Solutions

Push Button Mount PBM9



Highly-engineered UV resistant material for standard UV and subpolar/temperate climate zones



Fits most standard framed modules, i.e. Trina, Yingli, REC, Hanwha Q Cell, Canadian Solar and many others



Adapts to tracker movement



No stress load on cables



Defined distance to metal, ideal for 1500V DC



Optimised fixing on a moving tracker application

Module Hole Mounting Solutions

Locking Clamp LOC1014FT9X12



Highly-engineered UV resistant material for standard UV and subpolar/temperate climate zones



Extremely easy to install with one hand



Fits many oval mounting holes



Holds 2 - 4 solar module cables or more with optional tie through saddle



Releasable by hand



Defined distance to metal (1.500V DC)



Utilising module mounting hole for cable management

Edge mounting solutions

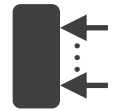
Edgeclip



UV resistant material for standard UV and subpolar/temperate climate zones



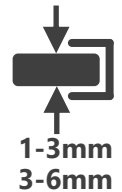
Extremely easy to install by hand



Flexibility to pick any mounting position along module or substructure metallic edges



4 main cable orientations



Panel thickness range



Defined distance to metal, ideal for 1500V DC



Most flexible solar cable management on the market

Edge mounting solutions

MSC series

HellermannTyton



MSC2 in extreme UV environment



MSC2LP in fixed tilt installation

Screw mounting solutions

Ratchet P Clamp series – the game changer

HellermannTyton



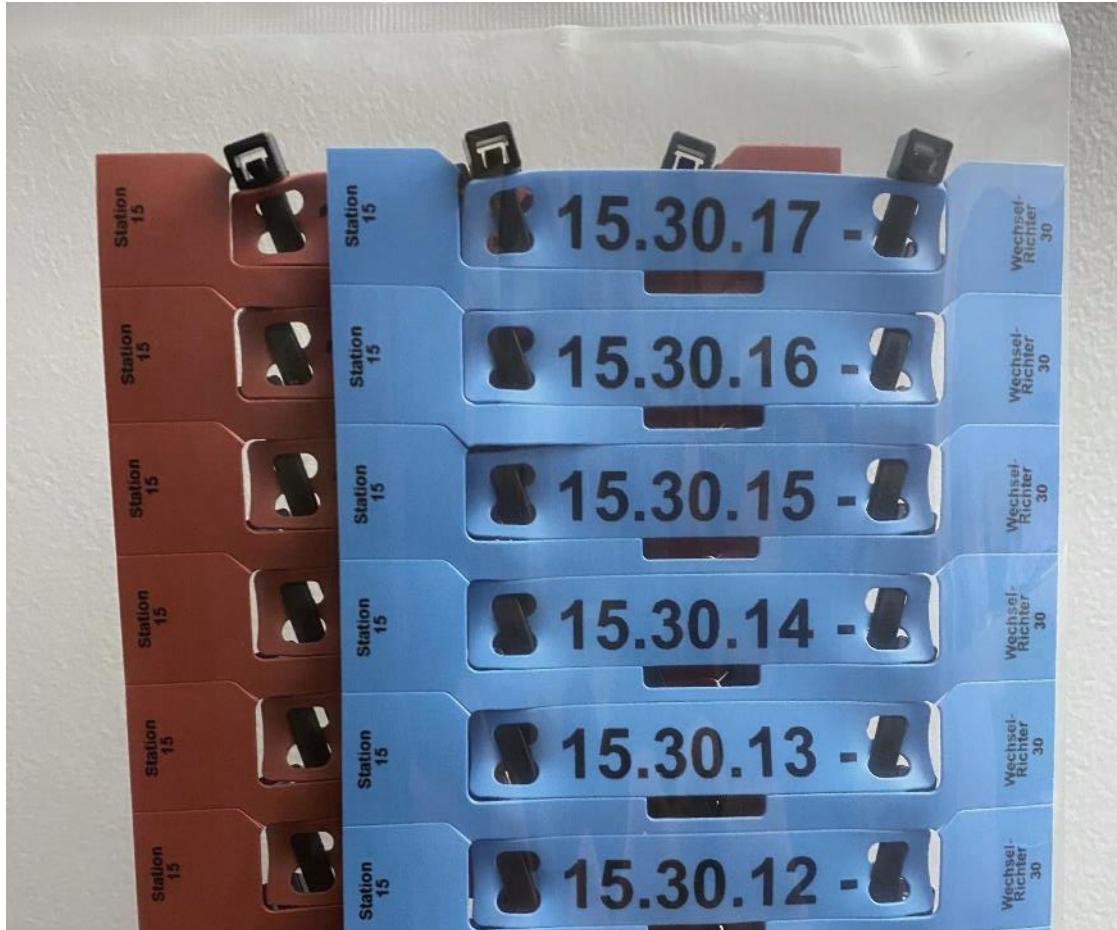
Managing tracker gearbox



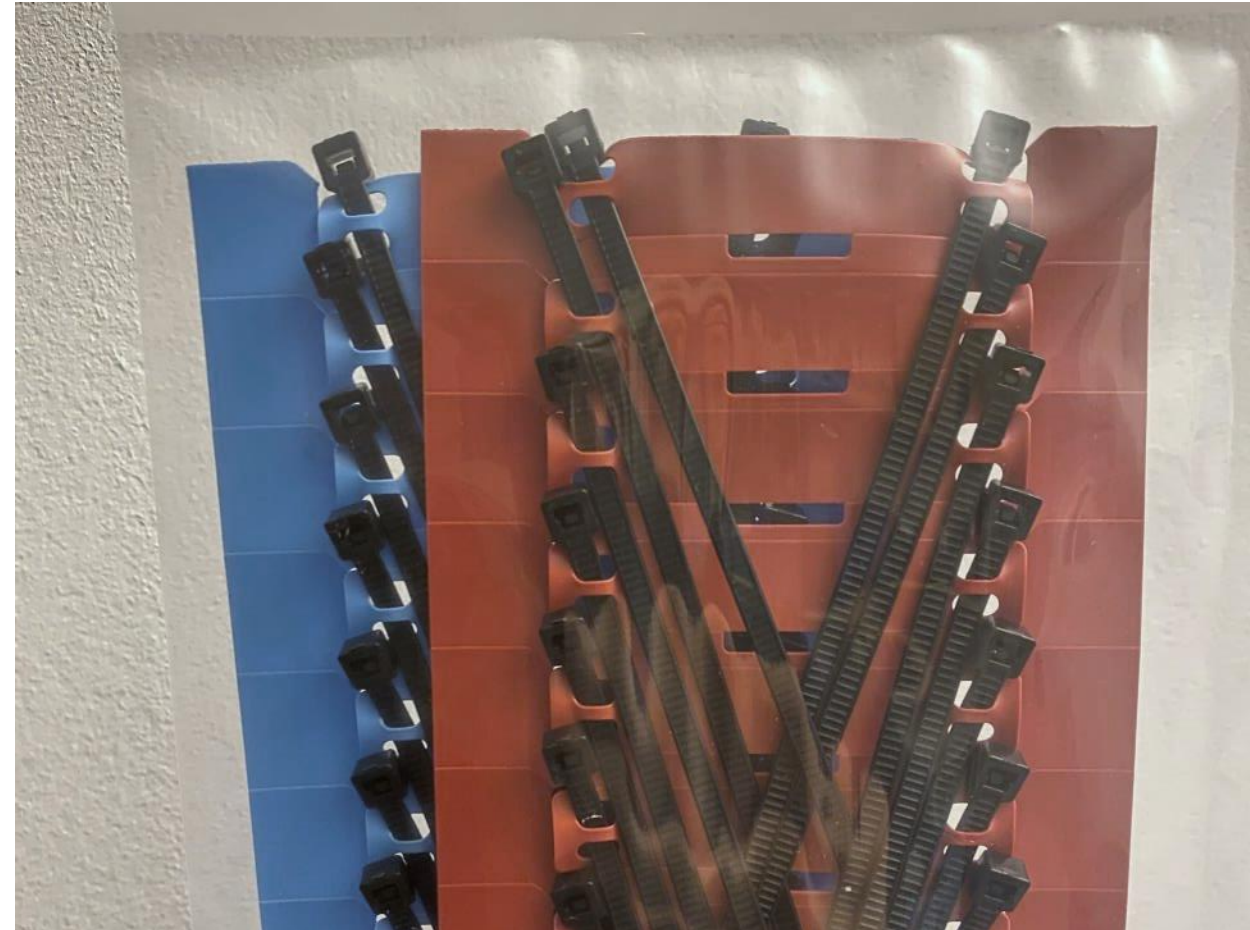
Optimal bridging of table gaps

Identification

TIPTAGS



Printing service with pre-assembled ties



Identification

MBOSS



Unlimited outdoor performance
Embossed marking



Adapts to any cable size, using standard cable ties or metal cable ties



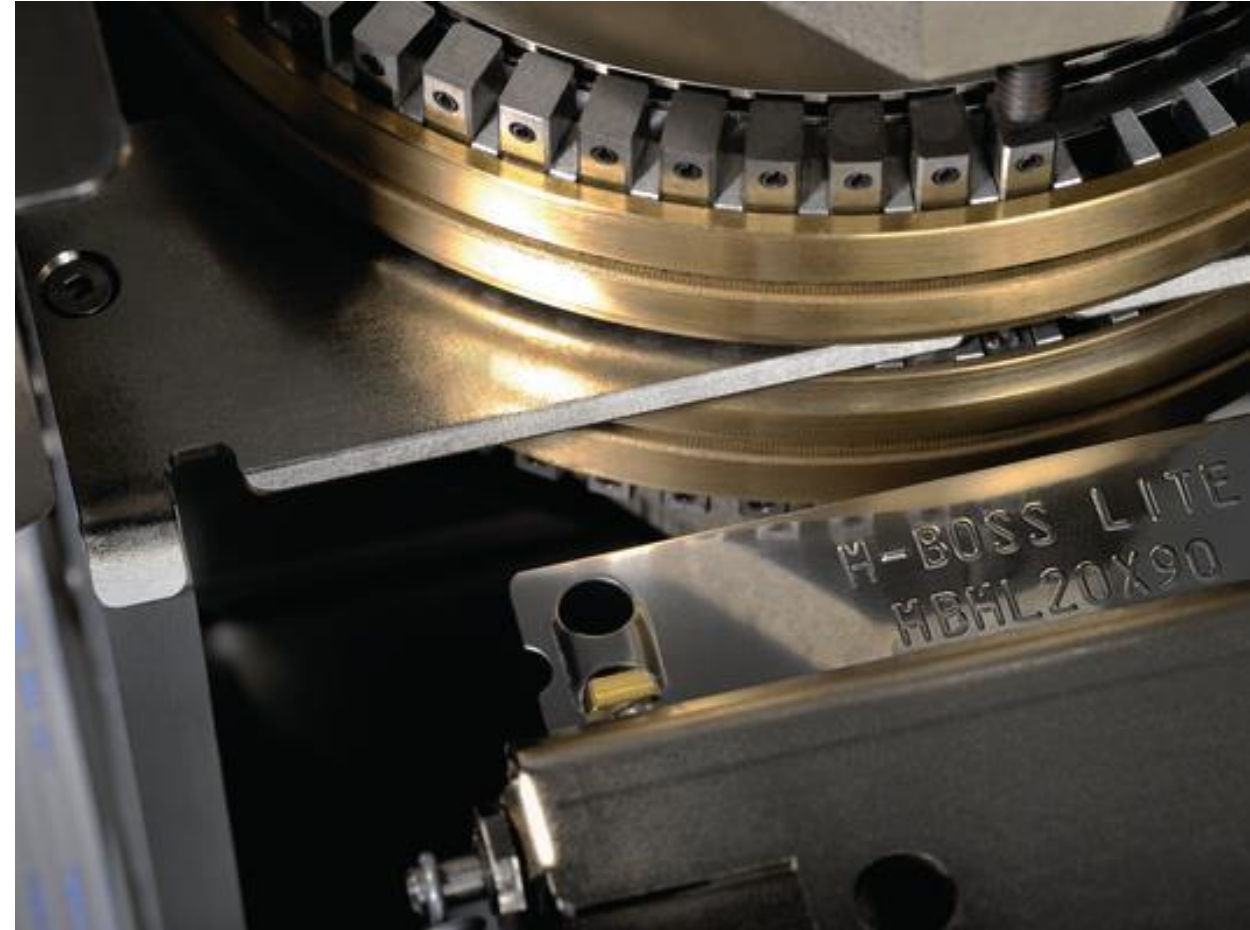
On- or off-site printing with embossing printing system MBOSS



Import tag data with TAGPRINT PRO printing software



Optional embossing service of tags



Embossing tag in MBOSS printer

Unfavorable examples

Cable ties through module mounting and grounding holes



Sharp laser cut oval mounting or grounding hole will cut into cable tie over time due to thermal expansion movements and tracker movements



Unfavorable for both cable bundle and cable tie, which has not been designed for this extreme application



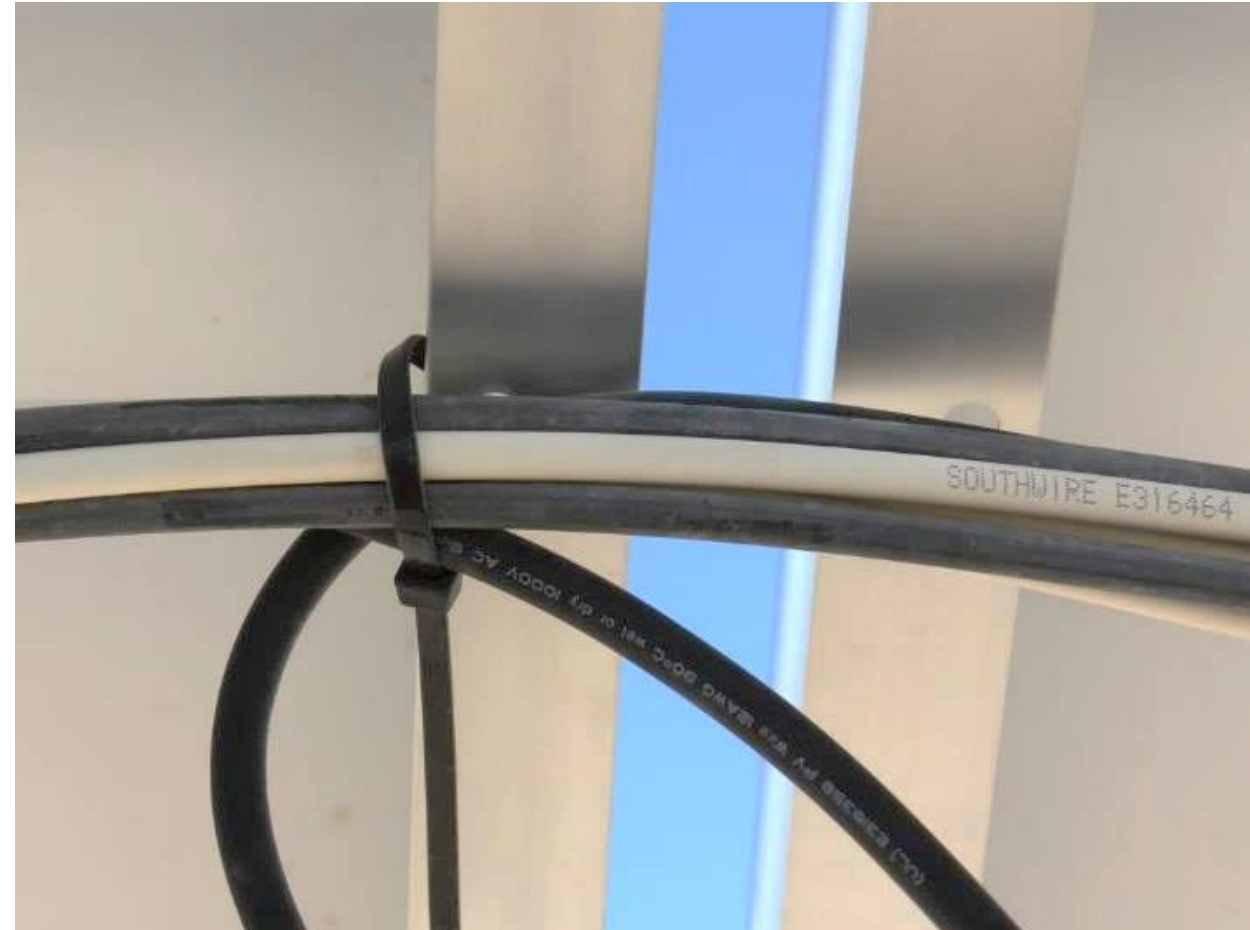
Cables close to metal edge

Solution



Engineered retainer solution

See Edgeclip, MSC Series, LOC Series, PBM9



One of the most common causes of premature failure

Unfavorable examples

Exposure to sharp edges



Cables will be damaged, considering weather and constant thermocycling movement stress



Shortcut and grounding faults



Solution

Avoid exposed edges by deploying proper cable management.



Even edge protection can fail!



Failure is imminent

Picture: PI Berlin

Solar Brochure

UNS Order code 040-00018

Contains 36 pages

New Solar hub on HellermannTyton websites including:

Customer stories

Webinars

Whitepapers

Frequently Asked Questions (FAQ)

Typical issues in solar installations

... and much more !



Solar Display

UNS Order code 905-50079

Size: 200x145mm



Scan here for
more information!



LCOE

Proper cable management solutions can greatly influence the equation

Reduce risks to avoid loss of energy

Quality is not everything, but everything without quality is nothing

Importance of deploying highly-engineered solar solutions

Depends on site conditions

Application (fixed tilt / tracker / floating PV / agrivoltaic)

HellermannTyton offers a wide range of optimal solutions for your projects!

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