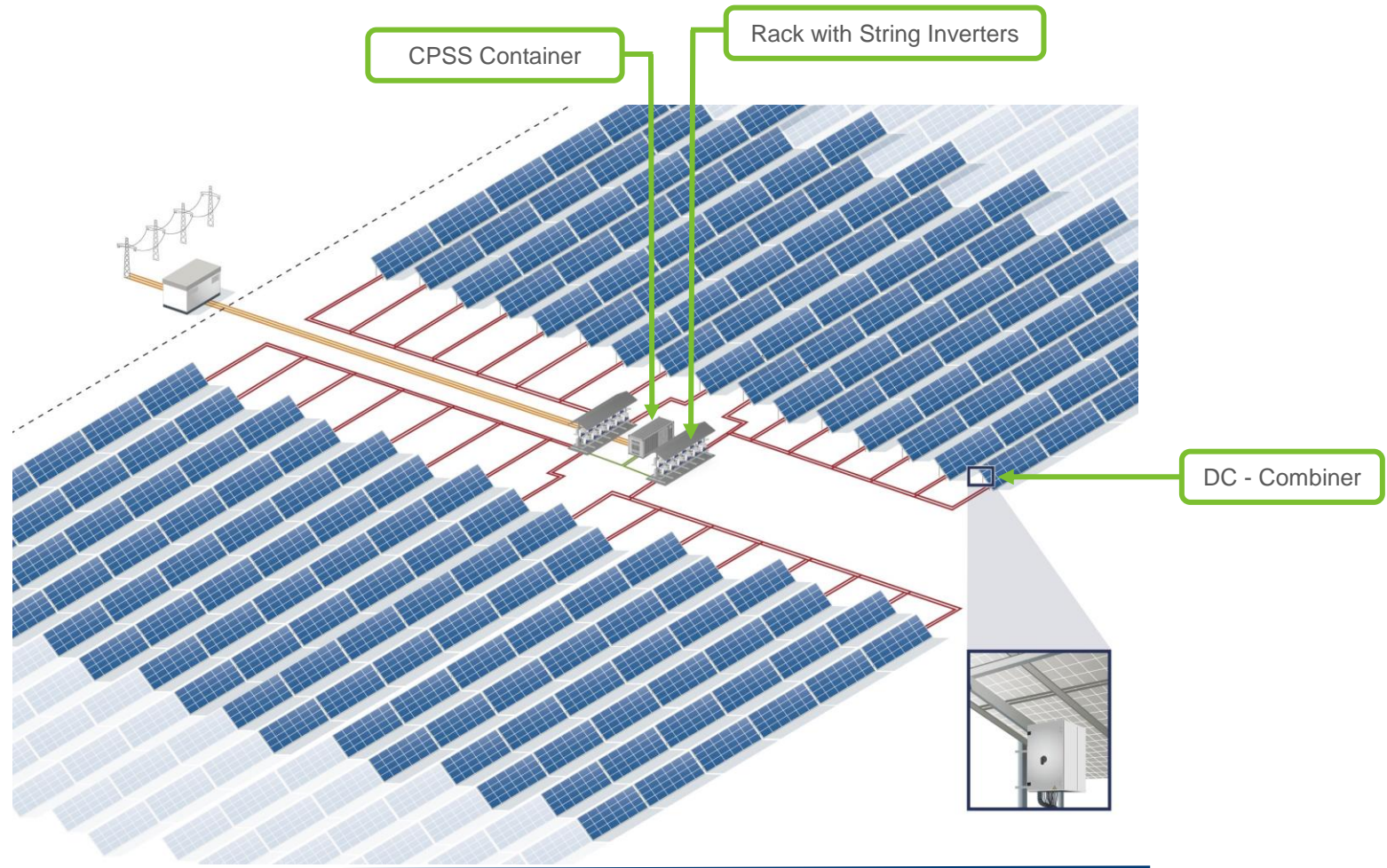




blueplanet 50.0 TL3
CENTRAL POWER
STRING SOLUTION

System Overview

2.5 MVA CPSS | blueplanet 50.0 TL3



System Components

blueplanet 50.0 TL3 | 2.5 MVA CPSS

50 X bp 50
Inverters

20 ft. Container
including

Rack for mounting
bp 50

Low voltage AC
distribution board

Medium Voltage
Transformer

Switch gear



Details

blueplanet 50.0 TL3 | 2.5 MVA CPSS

No.	Components	Quantity	Details
1.	DC Combiner box	50	BP50–MiniArgus-10-SPD-I/II-E-DCS-FR
2.	Inverter	50	Blueplanet 50.0 TL3 M INT
3.	Inverter Mounting Rack	1	Steel frame–Designed specially for BP50
4.	Low voltage AC distribution board	1	50 piece Circuit Breaker Gr NH00 1 piece Circuit Breaker 4000 A
5.	Medium Voltage Transformer	1	Dy11 with up to 36kV/400V
6.	Switch-gear	1	Siemens 8DJH – RRT
7.	20 ft container enclosure	1	20ft high cube container with 40 mm thick isolated walls

Highlights

blueplanet 50.0 TL3



SIMPLE & COST-EFFICIENT

Simple and extremely cost-efficient interface protection in conjunction with Powador-protect.



LOWER COSTS

Minimizes material, installation and operating costs in comparison to using external coupler circuit breakers



SURGE PROTECTION

AC and DC surge protection - SPD Types I+II can be easily retrofitted (optional M Version)



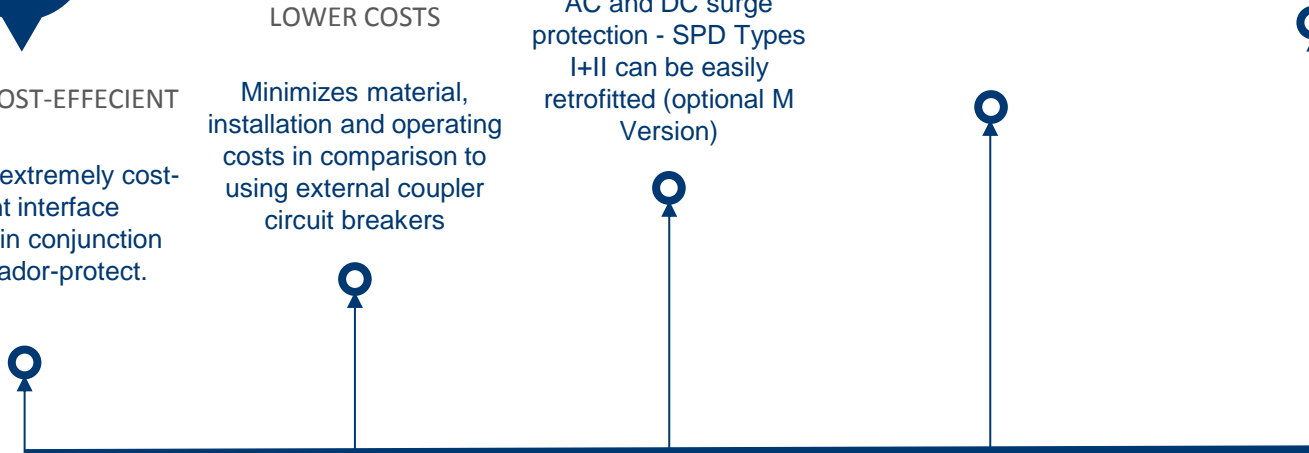
EFFICIENT

98.5% Max. rate of efficiency for higher yields



EASIER & CHEAPER INSTALLATION

Up to 95mm² Cu and Al cables can be used for the AC connection and up to 120 mm² for the DC connections



Highlights

blueplanet 50.0 TL3



STRONG PROTECTION

Functional IP65 outdoor housing made of aluminum



NO LOAD VOLTAGE = 1,100 V

Longer strings and better protection at particularly low temperatures



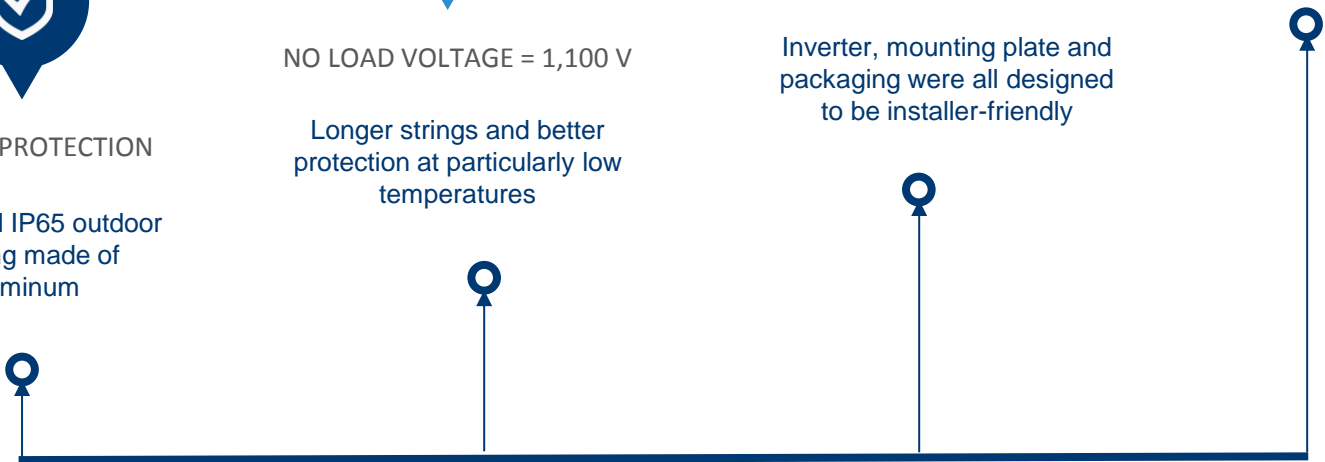
QUICK & EASY INSTALLATION

Inverter, mounting plate and packaging were all designed to be installer-friendly



SIMPLE MAINTENANCE

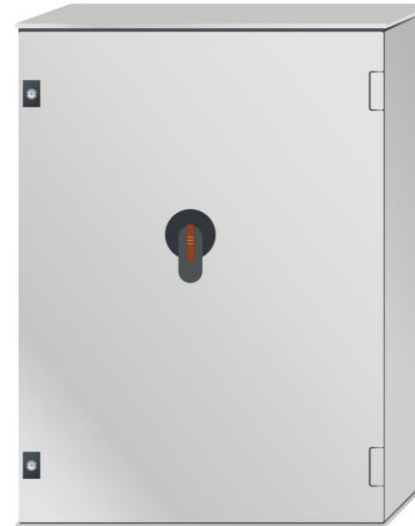
Simple maintenance because of good accessibility



Components

DC Combiner

- External generator junction box for the blueplanet 50.0 TL3 INT,
- Basic and M versions
- Surge protection, DC switch (160 A)
- String fuse plus and minus
- Designed for DC system voltage of 1,100 V
- IP65 protection rating
- Extra safety feature: Door opens only after DC switch is OFF
- String Monitoring optional



Components

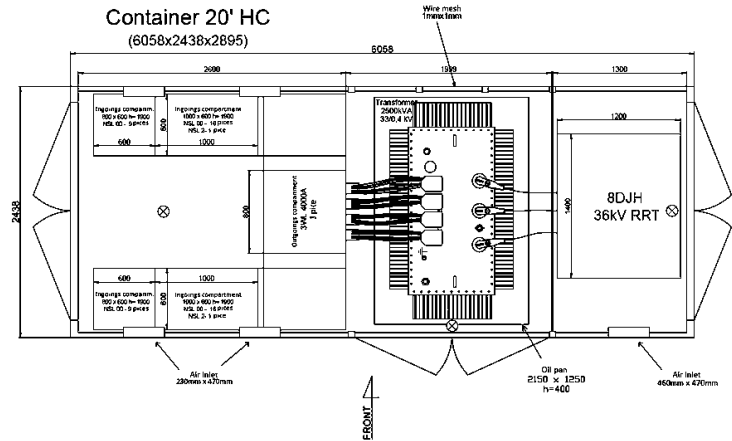
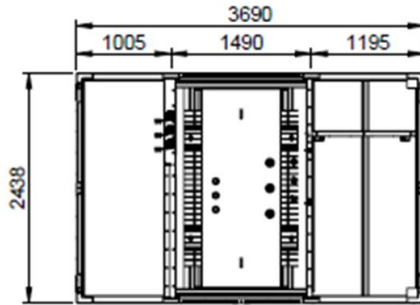
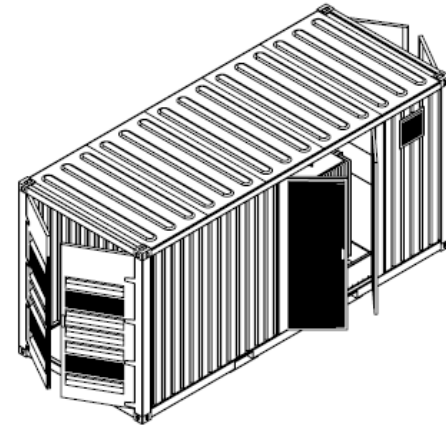
Mounting Rack

- Available from KACO
- Coated steel
- Flexible length
- Stable installation
- Rooftop
- Cable trays
- Fixing points at the rooftop for fabric to protect the inverters against weather influences



Components

CPSS Container



Components

12 feet & 20 feet Container

- Steel housing
- Thermal insulation (40 mm insulation)
- Ready for sea freight
- Surface coating (grade 5 for harsh environmental optional)
- Integrated oil sump for environmental protection
- Pre-assembled components include:
 - Low voltage AC distribution
 - Medium voltage transformer
 - Medium voltage switch gear



Components

Low voltage AC distribution

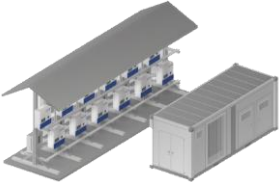
- 50 Strip-type-fuse-switch-disconnectors, type NH 00
- Protection against arc fault
- Load breaker 4000A
- Overcurrent release with selective protection
- Buffer unit for buffering the control voltage
- Surge protection Type 1 + 2
- Auxiliary panel for illumination, wall socket, monitoring/SCADA etc.

Medium voltage switch gear

- Similar to Siemens 8djH
- SF6 gas insulated
- Ring feeders
- Transformer feeder
- Remote trip connection between MV switchgear and LV load breaker
- Shunt release (magnet coil for tripping by protection device or electrical actuation)
- Integrated voltage detection

CPSS Variations

CPSS – Central Power String Solution | CPSS0.75 – CPSS1.0 | 12 feet Container



0.75 MVA

1.0 MVA

INVERTER

- 15 x blueplanet 50.0 TL3 M or Basic
- 15 x blueplanet 50 MiniArgus

- 20 x blueplanet 50.0 TL3 M or Basic
- 20 x blueplanet 50 MiniArgus

LV DISTRIBUTION BOARD

- Circuit breaker 1250A 4 pole
- SPD I+II, 18 x strip fuse breaker NH00, UPS 18 Ah 230V AC

- Circuit breaker 1600A 4 pole
- SPD I+II, 20 x strip fuse breaker NH00, UPS 18 Ah 230V AC

MV TRANSFORMER

24 kV, Oil, ECO | 36 kV, Oil, ECO

24 kV, Oil, ECO | 36 kV, Oil, ECO

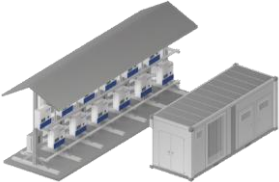
MV SWITCH-GEAR

RRL, | RRT

RRL, | RRT

CPSS Variations

CPSS – Central Power String Solution | CPSS2.0 – CPSS2.5 | 20 feet Container



2.00 MVA

2.5 MVA

INVERTER

- 40 x blueplanet 50.0 TL3 M or Basic
- 40 x blueplanet 50 MiniArgus

- 50 x blueplanet 50.0 TL3 M or Basic
- 50 x blueplanet 50 MiniArgus

LV DISTRIBUTION BOARD

- Circuit breaker 1250A 4 pole
- SPD I+II, 40 x strip fuse breaker NH00, UPS 18 Ah 230V AC

- Circuit breaker 4000A 4 pole
- SPD I+II, 50 x strip fuse breaker NH00, UPS 18 Ah 230V AC

MV TRANSFORMER

24 kV, Oil, ECO | 36 kV, Oil, ECO

24 kV, Oil, ECO | 36 kV, Oil, ECO

MV SWITCH-GEAR

RRL, | RRT

RRL, | RRT

Comparison

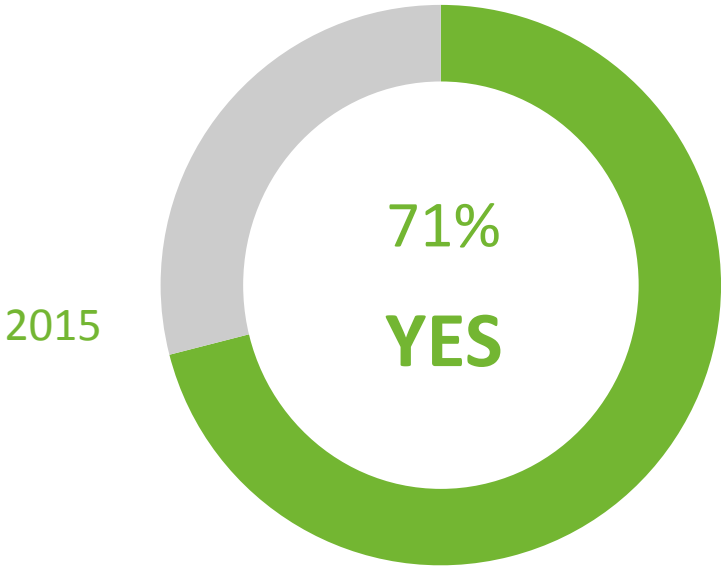
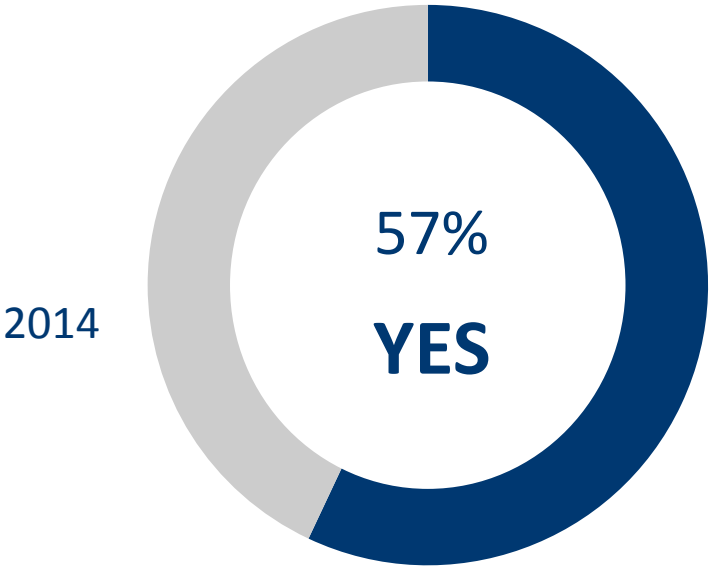
Central Inverter Solution



No.	Factor	BP 50 CPSS	Central
1.	PV Field Layout	😊	😊
2.	DC Cabling	😊	😊
3.	AC Cabling	😐	😊
4.	Serviceability	😊	😞
5.	Service cost	😊	😞
6.	Replacement cost	😊	😞
7.	Downtime losses	😊	😞
8.	Flexibility in design	😊	😞
9.	Mismatch losses	😊	😞

Survey Question

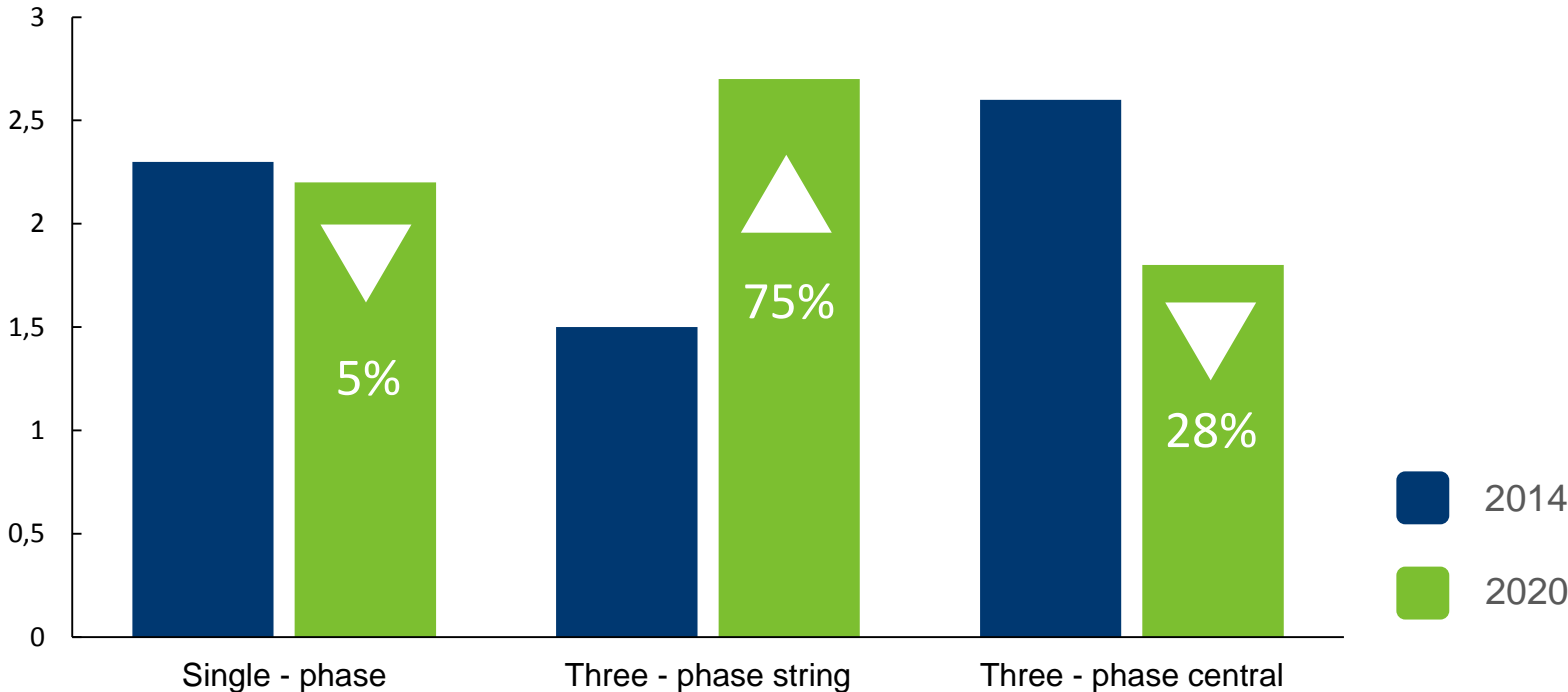
Would you use a string inverter in a system larger than 1 MW ?



Note: Responses from EPCs and integrators only considered. Source: IHS PV Inverter Customer Insight Survey – 2015 © 2016 IHS: 1683836

Survey Question

PV inverter revenue forecast by type (\$ million)



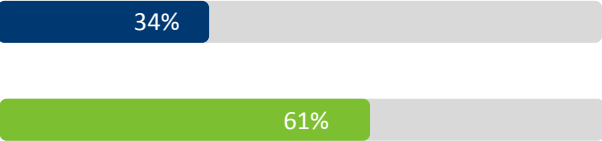
Note: Microinverters included in single-phase. String inverters = < 100 kW, Central = 100 kW +.

Source: IHS PV Inverter Customer Insight Survey – 2015 © 2016 IHS: 1683842

Survey Question

% share of string inverters in utility-scale PV inverter shipments

China



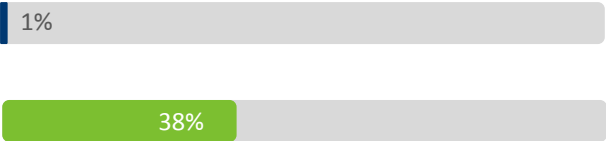
Europe



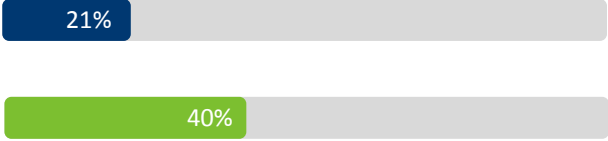
2014

2020

USA



Global



Note: Utility-scale PV systems defined as systems larger than 5 MW. 'String inverters' defined as three-phase <250 kW.

Source: IHS

© 2016 IHS

Benefits

blueplanet 50.0 TL3 | 2.5 MVA CPSS | 5 MVA Solution



Flexible design possibility due to 100 string inverters



100 MPP trackers available, resulting in lower mismatch losses



String monitoring solution not required due to use of string inverters



Expert service technician not required



Easier, faster and cheaper service possible



Much lower downtime losses and hence faster return on investment



Compatible with all available monitoring and park control systems



5 years warranty for all components depending from project and location

We turn
passion into
power.

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WALTHER

THANK YOU FOR YOUR
ATTENTION!

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