

# ENERGY STORAGE SOLUTIONS BY SMA



# COMMERCIAL STORAGE SOLUTIONS



# COMMERCIAL STORAGE SOLUTIONS – MOTIVATION



## **Monetary drivers**

Energy cost reduction  
Security of supply



## **Business development**

New business models  
Customer retention



## **Visionary drivers**

Differentiation  
Sustainability  
Future proof business concepts

# COMMERCIAL STORAGE SOLUTIONS – SYSTEM COMPONENTS



1

PV INVERTER

# COMMERCIAL STORAGE SOLUTIONS – SYSTEM COMPONENTS



# COMMERCIAL STORAGE SOLUTIONS – SYSTEM COMPONENTS



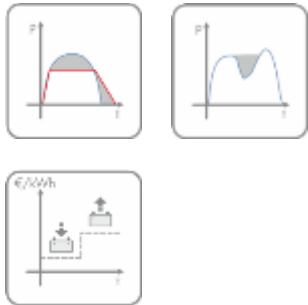
# 3a SUNNY ISLAND 6.0/8.0 H

## 3-phase configured battery inverter

- > For private and commercial applications
- > 18/24 kVA 30-min power
- > For low voltage batteries
- > Modular expandable to 100 kVA
- > Modbus TCP/IP interface
- > Automatized operation



## BUSINESS CASES – SERVICES FOR THE COMMERCIAL AND PRIVATE SEGMENT



### **Demand Management – Optimization of your energy costs**

- > Increased self consumption (in combination with a PV system)
- > Commercial „Smart Home“
- > “Time of Use” – Time dependent energy purchase



### **Innovative services – Development of new business models**

- > Support e-mobility
- > Direct marketing



### **Backup – Protect your productivity**

- > Emergency power supply





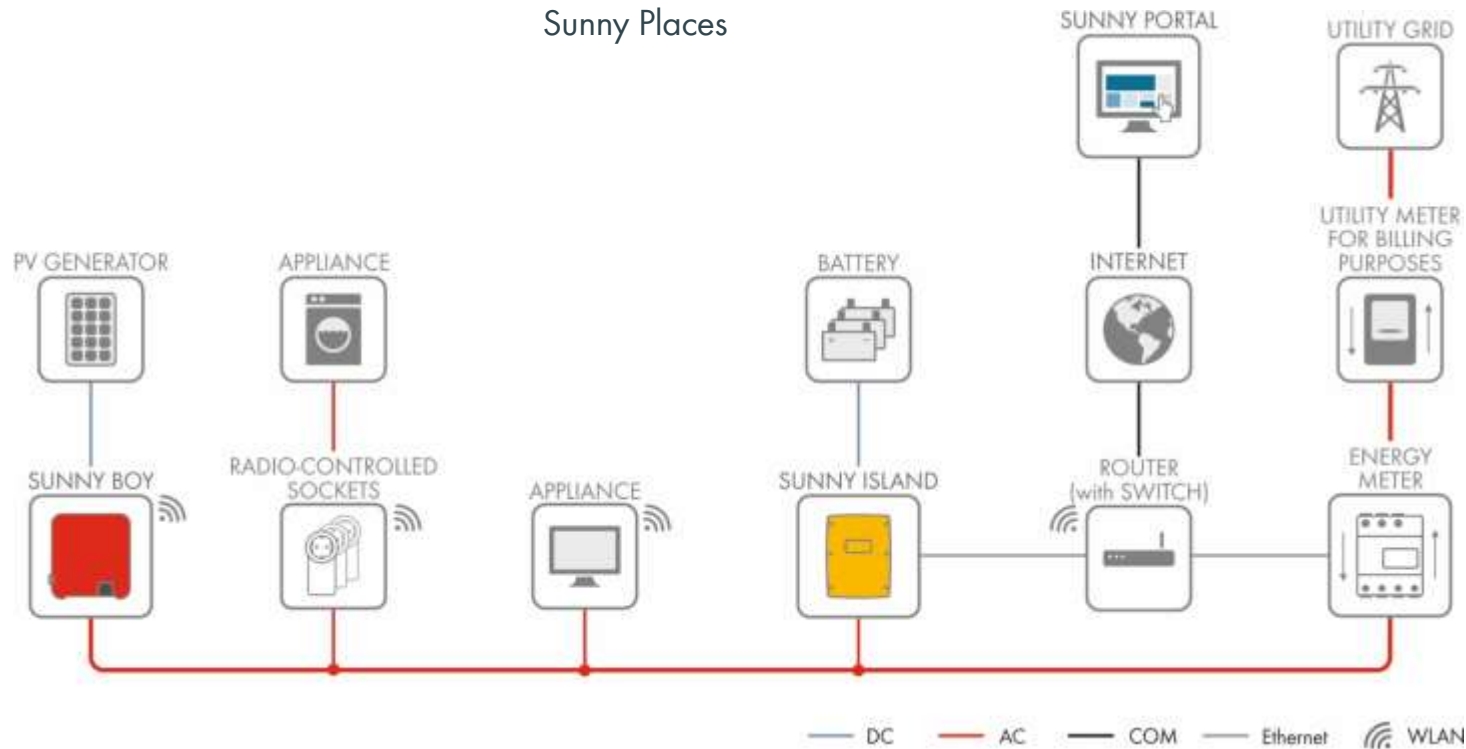
# SUNNY ISLAND 4.4M/6.0H/8.0H-12 ON-GRID SYSTEM SCOPE - BASIC SYSTEM

## System Components

- > Sunny Island 4.4M/6.0H/8.0H
- > SMA Energy Meter
- > SMA 1ph./3ph. PV-inverter with Webconnect

## Functions

- > Control of grid connection point via E-Meter
- > Dynamic limit of export to the grid between 0-100%
- > Visualization in Sunny Portal / Sunny Places
- > Modbus as an external interface
- > Battery-backup function (via additional retrofit kit)



# SUNNY ISLAND 4.4M/6.0H/8.0H-12

## ON-GRID SYSTEM SCOPE - ADVANCED SYSTEM

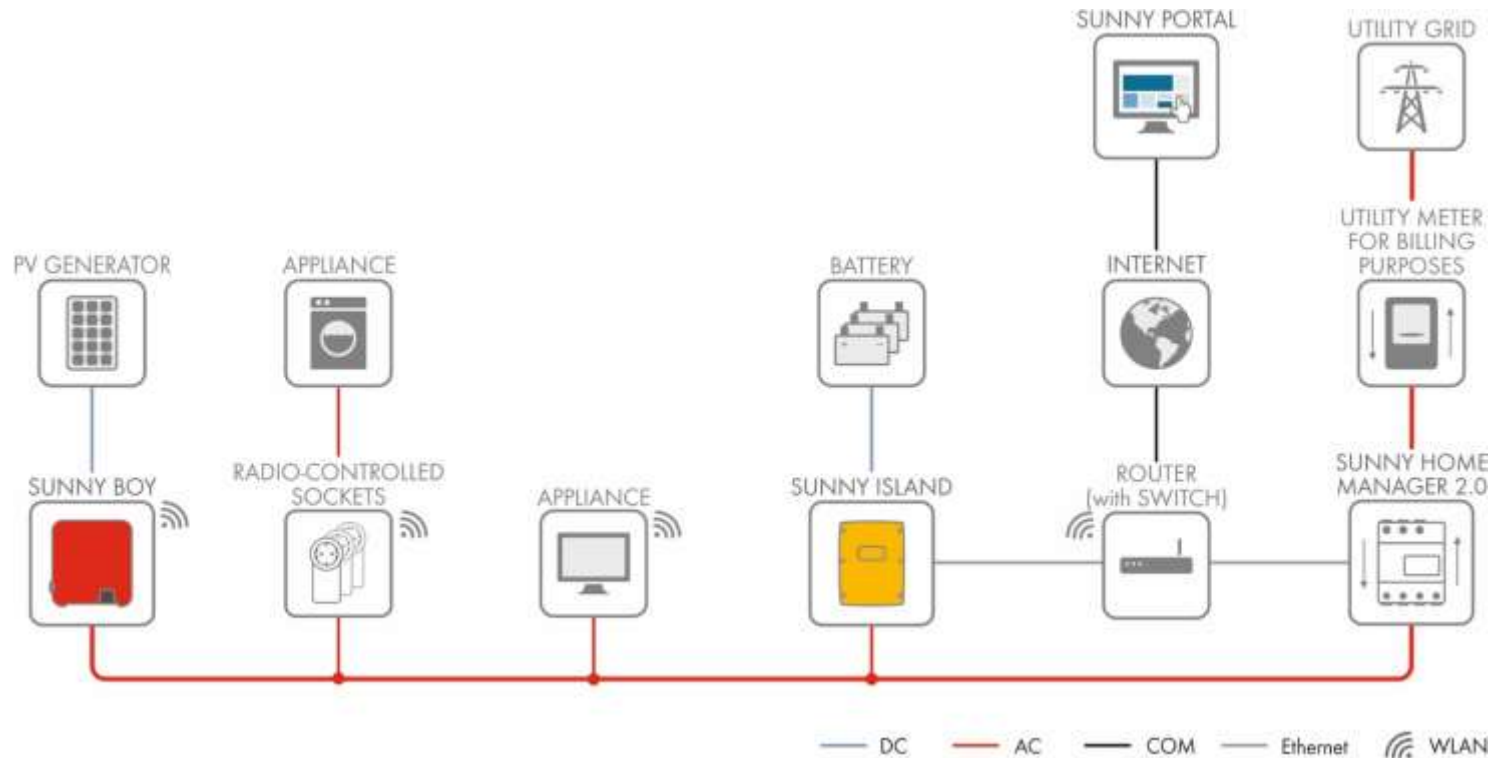


### System Components

- > Sunny Island 4.4M/6.0H/8.0H
- > SMA Energy Meter
- > SMA 1ph./3ph. PV-inverter with or without Webconnect
- > Sunny Home Manager 2.0

### Additional Functions

- > Charge batteries from the grid at specific times
- > Weather forecast based charging
- > Automated Load Control



# SUNNY ISLAND 6.0H/8.0H-12

## ON-GRID SYSTEM SCOPE – MULTICLUSTER SYSTEM

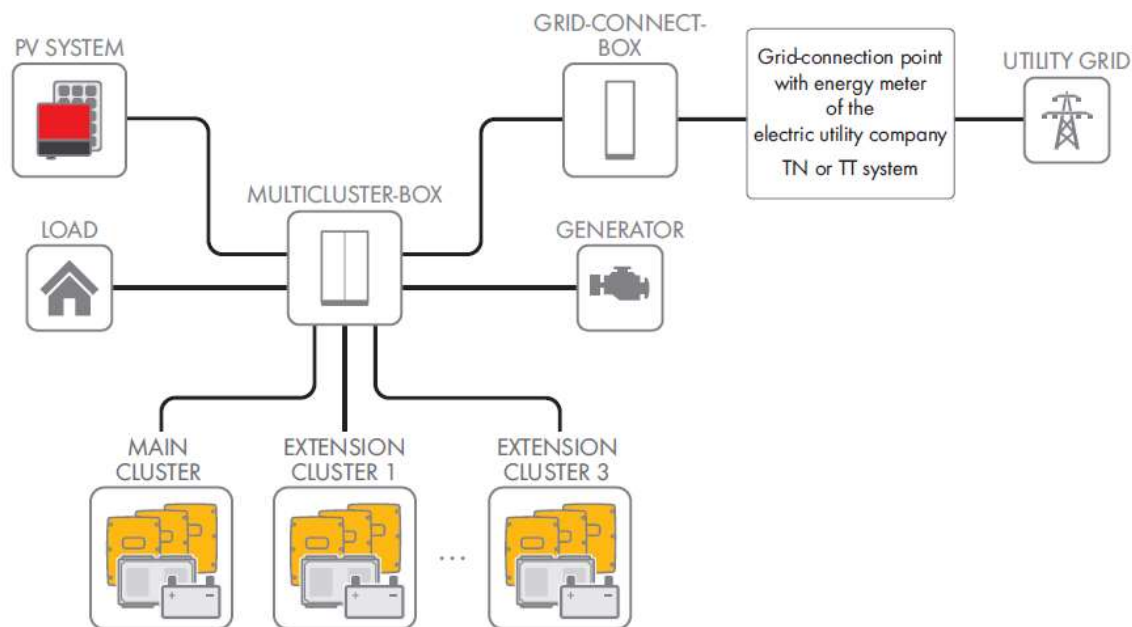


### System Components

- > Sunny Island 6.0H/8.0H
- > SMA 1ph./3ph. PV-inverter with Webconnect

### Functions

- > Control of grid connection point (Control value adjustable)
- > Battery-backup function (with Combustion-generator support)
- > Visualization in Sunny Portal



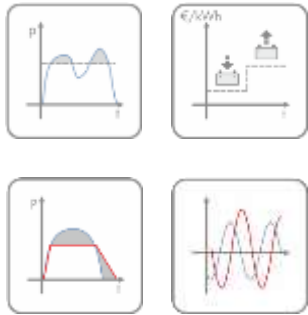
# 3b SUNNY TRIPOWER STORAGE

## 3-phase battery inverter

- > For commercial and industrial applications
- > 75 kVA nominal power
- > For high voltage batteries
- > Modular expandable to 1.5 MVA
- > Modbus TCP/IP interface
- > Automatized operation



## BUSINESS CASES – SERVICES FOR THE COMMERCIAL AND INDUSTRIAL SEGMENT



### Demand Management – Optimization of your energy costs

- > Peak load shaving
- > “Time of Use” – Time dependent energy purchase
- > Increased self consumption (in combination with a PV system)
- > Reactive power compensation



### Innovative services – Development of new business models

- > Support e-mobility
- > Direct marketing
- > Grid services



# SUNNY TRIPOWER STORAGE 60

SMA'S NEW SOLUTION FOR COMMERCIAL & INDUSTRIAL STORAGE APPLICATIONS



# SUNNY TRIPower STORAGE 60

## MOTIVATION FOR C&I STORAGE APPLICATIONS



- ..... FUTURE PROOF BUSINESS CONCEPT
- ..... NEW BUSINESS MODELS
- ..... SUSTAINABILITY
- ..... ENERGY COST REDUCTION
- ..... DIFFERENTIATION
- ..... SECURITY OF SUPPLY
- ..... CUSTOMER RETENTION

# SUNNY TRIPOWER STORAGE 60

## KEY PRODUCT FACTS & BENEFITS

**THE IDEAL SOLUTION FOR  
C&I STORAGE  
APPLICATIONS**

**MODULAR SCALABLE TO  
THE MW CLASS**

**ENABLES NEW  
BUSINESS CASES**

**PROFESSIONAL  
MONITORING &  
CONTROL MADE EASY**

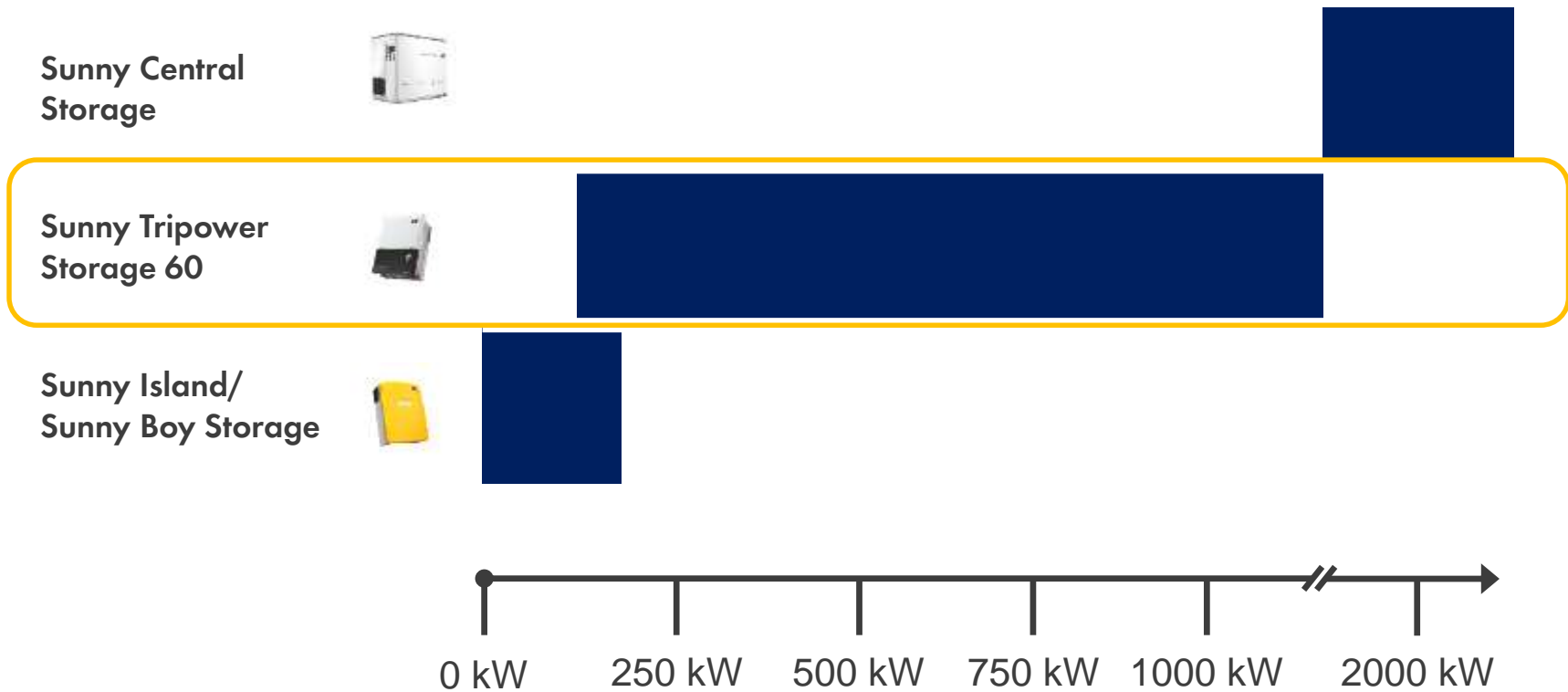


**PERFECT FOR HIGH VOLTAGE BATTERIES**



# SUNNY TRIPOWER STORAGE 60

THE IDEAL SOLUTION FOR C&I STORAGE APPLICATIONS



> Ideally positioned to bridge the gap between residential and utility scale applications

# SUNNY TRIPOWER STORAGE 60

THE IDEAL SOLUTION FOR C&I STORAGE APPLICATIONS

## SUNNY TRIPOWER STORAGE 60



- Bidirectional battery inverter
- 100% SHP 75 hardware
- Optimized for C & I storage applications

## INVERTER MANAGER



- Central system management
- Manages up to 20 STPS 60
- Easy-to-use commissioning & service tool
- Core applications on-board

## POWER METER



- Professional power meter
- Proven industrial device
- Monitors power flow at grid connection point

> High quality components represent a professional system package

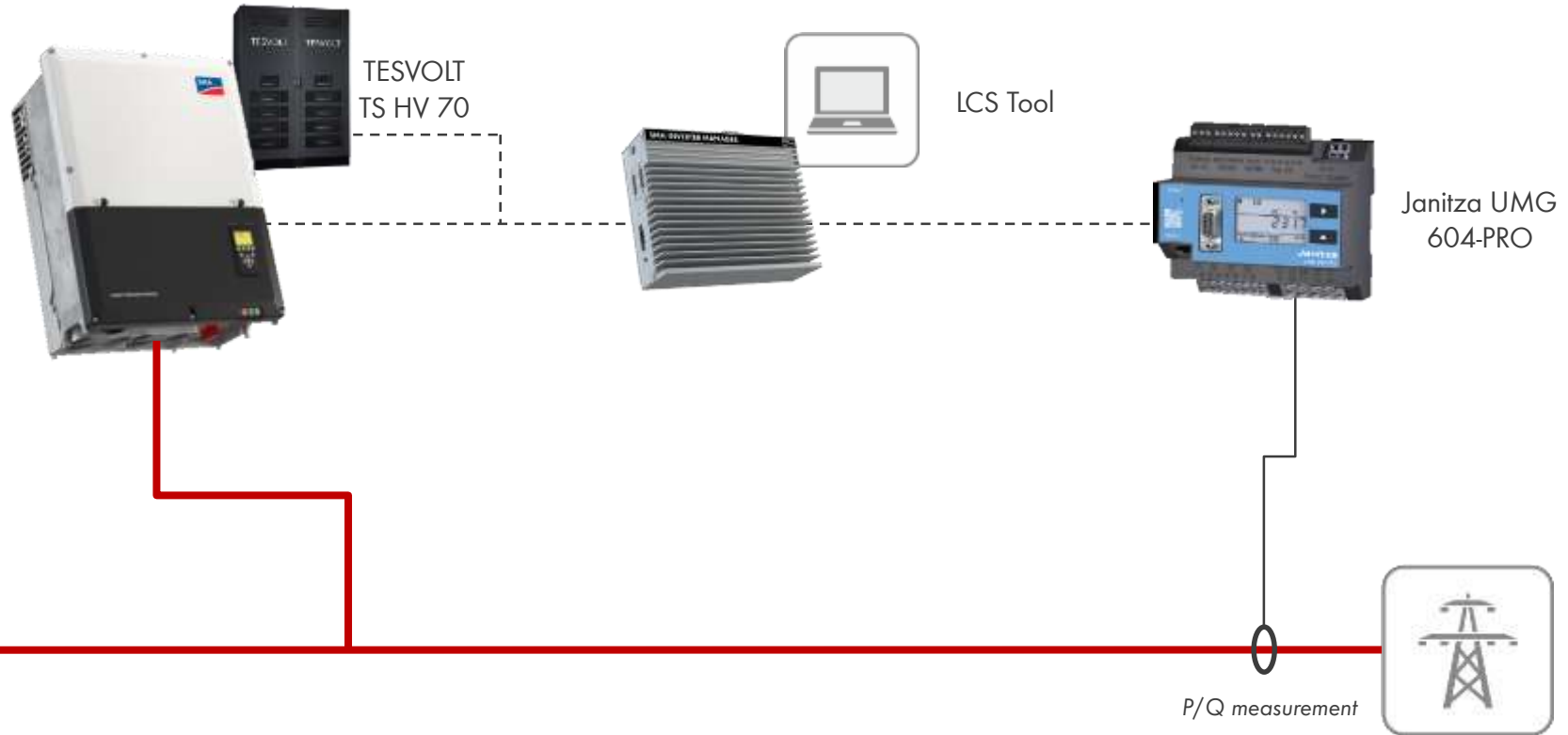
# SUNNY TRIPOWER STORAGE 60

THE IDEAL SOLUTION FOR C&I STORAGE APPLICATIONS

SUNNY TRIPOWER  
STORAGE 60

INVERTER MANAGER

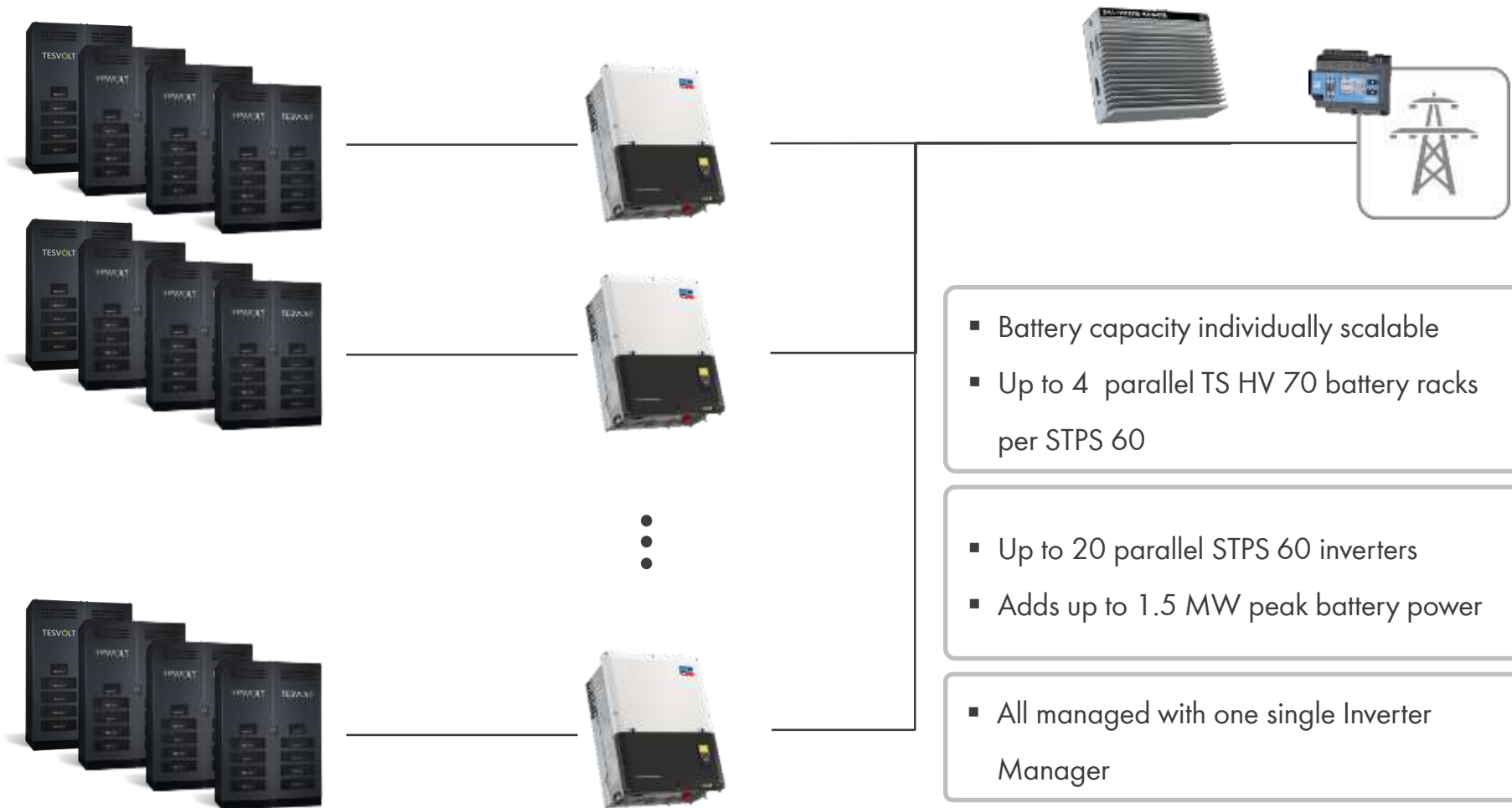
POWER METER



> Simple setup – greatest performance

# SUNNY TRIPOWER STORAGE 60

MODULAR SCALABLE TO THE MW CLASS



> Scalable plants to 1.5 MW battery power and more than 5 MWh battery capacity

# SUNNY TRIPOWER STORAGE 60

PROFESSIONAL MONITORING & CONTROL MADE EASY

## Inverter Manager with LCS Tool



- Central device for system monitoring & control
- Wizard for easy system commissioning
- Most relevant storage applications on board
- Controllable remotely

## Data Manager M



- Communication interface between Inverter Manager and Sunny Portal powered by ennexOS
- Plant monitoring & control<sup>1</sup> incl. solar system
- Access to SMA's new energy management platform

## Sunny Portal powered by ennexOS



- Professional plant monitoring & visualization
- Comprehensive Analyses
- Active Alarming

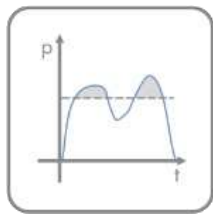
> Simple but professional system monitoring & control

# SUNNY TRIPOWER STORAGE 60

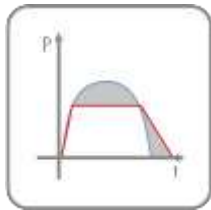
ENABLES NEW BUSINESS MODELS

## Core applications on-board

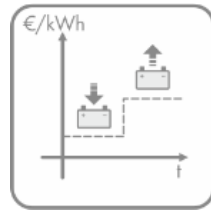
## Further applications can be realized via external system management



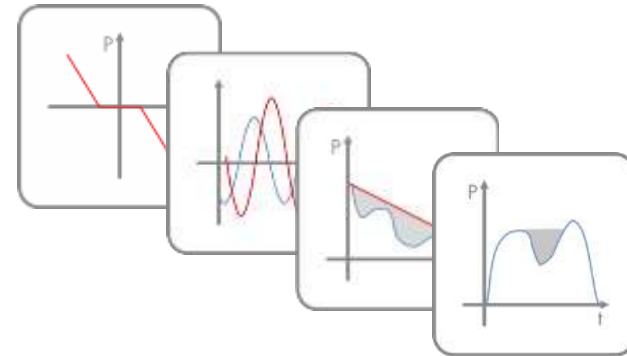
Peak Load Shaving



Increasing Solar Self Consumption



Time-of-use



Loads



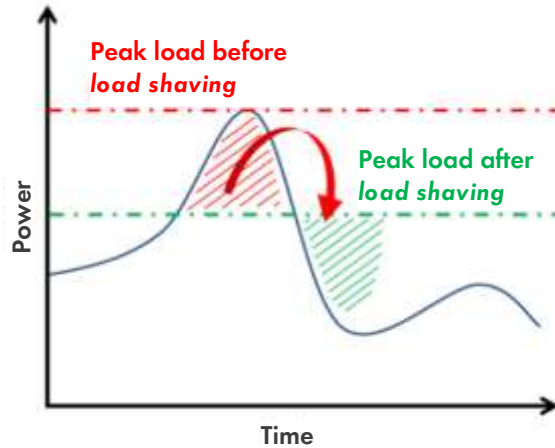
Meter



Electrical Grid

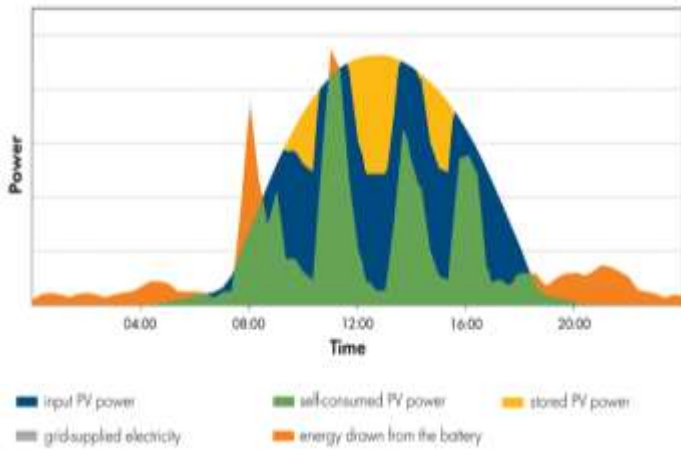
> STPS 60 provides access to attractive business models

# SUNNY TRIPower STORAGE 60 ENABLES NEW BUSINESS MODELS



## PEAK LOAD SHAVING

- Next to energy costs C & I businesses are charged for peak loads
- Peak Load charges in DE typically vary between 50 and 120 EUR per kW
- „Shaving“ these peak loads can easily improve business figures
- E.g. @100 EUR/kW one single STPS 60 can save 7500 EUR per year

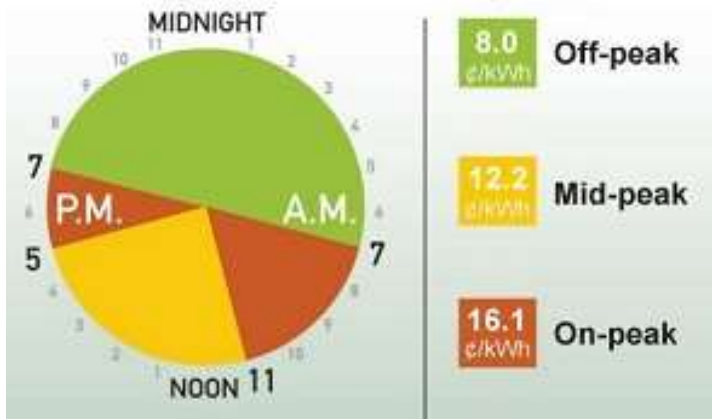


## INCREASING SOLAR SELF CONSUMPTION

- Self consumption of solar energy significantly reduces energy costs
- Sustainable investment in times of increasing energy prices
- Storage makes solar energy more dispatchable






# SUNNY TRIPOWER STORAGE 60

## ENABLES NEW BUSINESS MODELS



### TIME-OF-USE

- Managing energy costs with time-of-use rates
- Storing energy during Off-peak periods and use it On-peak
- On-peak and Off-peak price can vary significantly which opens attractive potential for cost savings

 <b>Grid services</b>	 <b>E-mobility</b>
 <b>Energy marketing</b>	 <b>Capacity increase</b>
 <b>Off-Grid applications</b>	...

### EXTERNAL CONTROL

- An integrated control interface allows further externally controlled use cases
- Easily controllable via Modbus TCP/IP
- Various options for on-grid and off-grid applications



# SUNNY TRIPOWER STORAGE 60

## PERFECT FOR HIGH VOLTAGE BATTERIES



### SMA – STPS 60

- Wide DC input voltage range of 570 – 1000 V
- Professional interface to Battery Management System
- Parallel battery racks possible
- Comprehensive battery protection functions
- Data logging of most important battery values



### TESVOLT – TS HV 70

- Proven and safe Samsung SDI cells
- Applicable as 67 kWh and 76 kWh rack version
- Up to 4 parallel racks per STPS 60 (ca. 280 kWh)
- Designed to provide instant full power
- Lowest costs per kWh stored

> SMA and Tesvolt – The perfect match

# SUNNY TRIPOWER STORAGE 60

## SUMMARY - C&I STORAGE SOLUTION

### NEW APPROACH FOR C&I STORAGE APPLICATIONS

PROVEN INVERTER TECHNOLOGY

INNOVATIVE FUNCTIONALITIES

ACCESS TO LUCRATIVE NEW BUSINESS MODELS



SCALABLE DESIGN

EASY COMMISSIONING


PROFESSIONAL MONITORING




# SUNNY CENTRAL STORAGE 2200/2475/2500-EV/2750-EV

### Turnkey solutions

500 to 5500<sup>1</sup> kW



MVPS 20 ft.



MVPS 40 ft.<sup>1</sup>

Tailored power conversion systems as **true turnkey container solution**

### Battery Inverters

500 to 2750 kW



- Battery inverters with high power density and wide battery voltage range.


### Medium Voltage Blocks

2200 to 5500<sup>1</sup> kW



- Specially qualified MV blocks for **ANSI** markets perfectly match SMA inverters.

### System components



- Plant Controller for on-grid application for reliable monitoring and control.

### Service

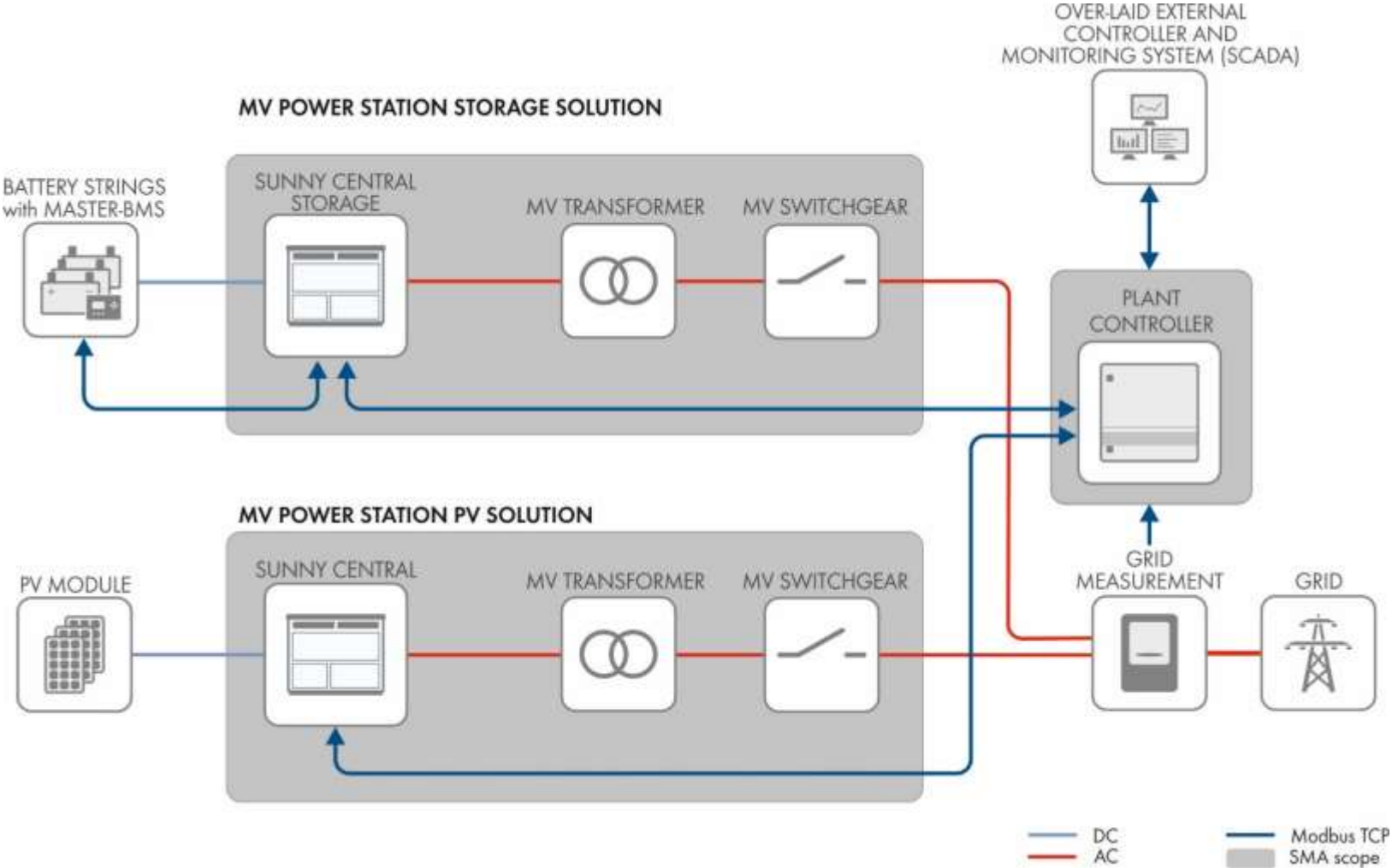


- Operation & Maintenance

> **SMA offers solutions for the entire value chain from DC to the MV grid worldwide.**

<sup>1</sup> Dec 2017 for SCS

# SUNNY CENTRAL STORAGE 2200/2475/2500-EV/2750-EV

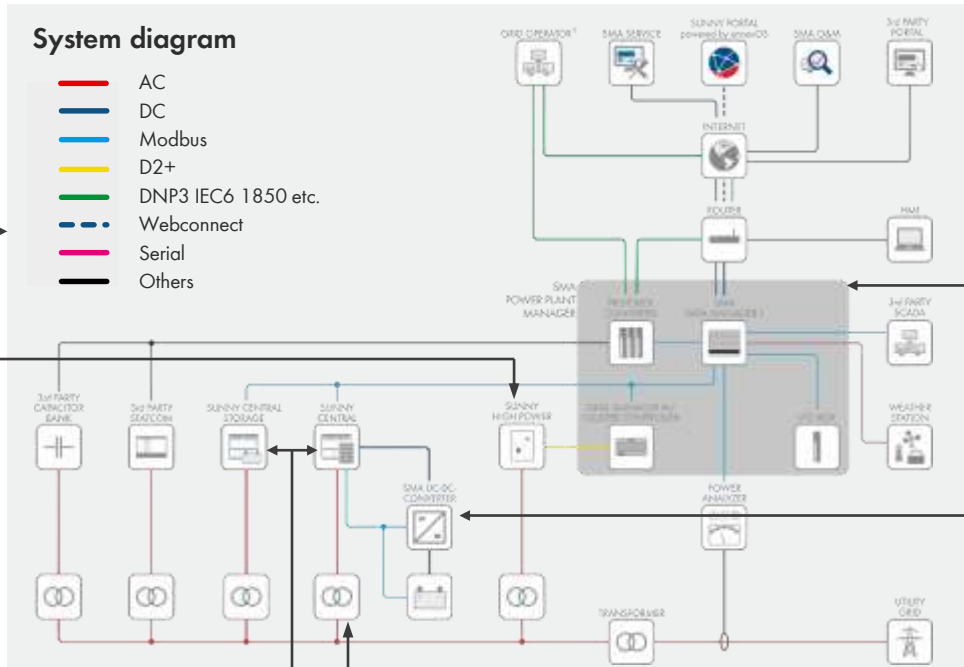


> SMA offers key system components to enable PV + Storage Solution.

# SUNNY CENTRAL UP CORE OF THE NEXT LEVEL SYSTEM

**Engineering Services**

**New Q3/2018**



**POWER PLANT MANAGER**

**New Q1/2019**

ennexOS

**SUNNY HIGHPOWER PEAK3**

**New Q1/2019**

- SHP 150
- SHP 125
- SHP 100

**SMA DC/DC Converter**

**New Q1/2019**

- DPS-500

**SUNNY CENTRAL UP**

**New Q3/2019**

- SC 4000-UP
- SC 4200-UP
- SC 4400-UP
- SC 4600-UP
- SC STORAGE

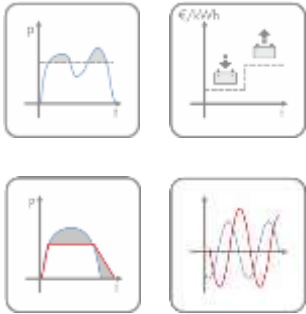
**MVPS**

**New Q3/2019**





draft

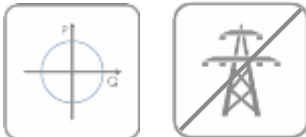
- MVPS-4000-X-XX
- MVPS-4200-X-XX
- MVPS-4400-X-XX
- MVPS-4600-X-XX

## BUSINESS CASES – SERVICES FOR THE UTILITY SEGMENT






### Demand Management – Optimization of your energy costs

- > Peak load shaving 
- > “Time of Use” – Time dependent energy purchase 
- > Increased self consumption (in combination with a PV system) 
- > Reactive power compensation 



### Innovative services – Development of new business models

- > Ancillary services (with or without renewables)  
- > Emergency power supply 

# COMMERCIAL STORAGE SOLUTIONS – SYSTEM COMPONENTS



# COMMERCIAL STORAGE SOLUTIONS – STRONG BATTERY PARTNERS



Mercedes-Benz Energy





# STRONG BATTERY PARTNERS



ENERGY  
THAT  
CHANGES



SOCIAL MEDIA  
[www.SMA.de/Newsroom](http://www.SMA.de/Newsroom)

