



“NPC/P”  
nano paste coating  
printing technology

revolutionizing the generation & storage of solar energy

nano-paste  
coating /  
printing  
systems

## **NPC/P - ENERGY SYSTEMS**

- ground-breaking
- sustainable & green
- economically reasonable
- environmentally responsible

*“Let’s redefine the way we produce, store & use energy in the future!”*

A decorative graphic consisting of several thick, dark grey, curved dashes arranged in a roughly circular pattern in the bottom right corner of the slide.



step 1:

## NPC/P technology - working principal

- German supplier is the developer and owner of a technology for the production of functional, printable pastes containing nanoparticles with specific physical, electrochemical and photomechanical properties that allow to generate electrical energy from sunlight, to store this energy and to convert energy into light and heat. Supplier positions itself as a technology company and possesses a worldwide unique, highly innovative manufacturing and process technology to sustainably produce nanoparticles.
- The unique know-how lies in the process engineering for the production/integration of the nano-particles, which are the basis for all functional printing pastes. This proprietary process makes it possible to produce different nanoparticles from different starting materials quickly, safely and most cost-effectively and in such large quantities as are needed for industrial scale. The raw materials as well as their extraction and the paste production itself are completely non-toxic and therefore environmentally responsible.
- The production of nanoparticles and application-specific printing pastes containing them is based on various specific formulations and proprietary manufacturing processes, which are the most important USP.
- In order to produce the desired NPC/P products, a highly special screen-printing process is required, which makes it possible to print the respective functional pastes homogeneously and with high precision on different carrier materials.



step 2:

## NPC/P printing technology - working principal

- A special, patented screen-printing process is required to print the functional pastes homogeneously and with high precision on almost any material - rigid or flexible - as required for the manufacturing of high-quality products.
  - The basis for the application of the nano-paste systems on surfaces for the specific fields of application is a precision printing process that allows exact and homogeneous layers with a predetermined accuracy in the micrometer range. The precision of the coating is the prerequisite for controlling and guaranteeing the required performance characteristics of the pastes. Such precision is only achieved by using special screen-printing machines. The screen-printing equipment used is a proprietary development of a highly specialist producer of printing machines and the supplier of the NPC/P technology. R&D takes place in a tight iterative process between the partners to enable the demanding print quality required for functional nano-paste printing/coating under industrial conditions of mass production.
  - One single production line consists of a minimum of 4 modules, each equipped with a robot for the application of the materials to be printed, a 10-axis CNC special screen-printing machine and a high-performance dryer, which allows to dry the printing pastes within seconds with a flash of light. The development of this modular 4-in-1 system, reduced the total cycle time to less than 15 seconds, allowing a high output in a fully automated and integrated production process.
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# step 2: NPC/P technology & production - sustainability

- **TECHNOLOGY:** no hazardous substances! Unlike common solar/battery technologies, NPC/P products are non-toxic, environmentally friendly and sustainable. No negative impact on the environment due to the mining, extraction or processing of the raw materials/chemicals used for the energy production/storage.
- **SUPPLY CHAIN:** The licensed technology transfer and the deliberate location of the entire value chain locally ensure a massive reduction of the company's own carbon footprint and the creation of sustainable value through impact investments. All raw materials used for the nano-pastes and the screen-printing process are environmentally friendly sourced and produced. Local materials are strictly preferred for the manufacturing of the NPC/P products to reduce transport and resulting negative CO<sub>2</sub> emissions. (i.e.: own glass production can be added on)
- **OPERATIONS:** Whole factory operation, as well as the company's own EV-fleet are driven by self-generated solar power only, in order to reduce the overall carbon footprint of the factory and the products manufactured. The screen-printing equipment used is highly energy effective and therefore many times more sustainable than common PV solar products.
- **PRODUCTS:** The consistent use of environmentally friendly materials and renewable energy for the production, together with the guaranteed long service life of 30 years and more, ensure sustainable use of all NPC/P products.

## The UN Social Development Goals:

The easy-to-install, plug & play concept of the NPC/P solar-battery panels, with the in-built power storage makes them the ultimate Single-Home-Solution. Communities and individuals now have permanent year-round access to cheap, green energy, even in remote areas, allowing their personal lives to develop sustainably and their well-being to flourish.

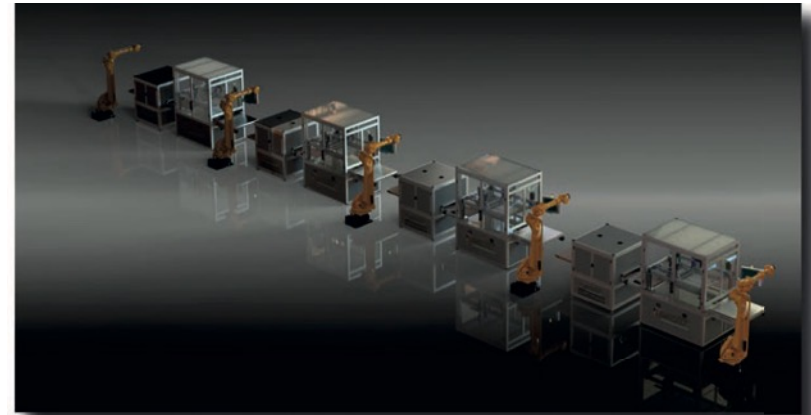


step 2:

## NPC/P solar-battery panel production plant

### nano paste coating / printing

- patented printing technology - Made in Germany
- fully automated & scalable mass-production line
- self-sufficient & operated with green energy
- 1x4 production-line: 1.2m x 400m = 480 sqm/h
- capacity / h: 480 sqm or 96 kW (240 W / panel)
- capacity / h: 480 sqm or 96 kW battery storage
- capacity / y: +/-3,500,000 sqm or +/- 800 MWh



# step 3: NPC/P products & application

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## URBAN & ARCHITACTUAL ASPECTS OF THE USE OF NPC/P SOLAR-BATTERY PANELS

Designing the supply of buildings autonomously and thus making them completely independent of external influences promotes the stress resilience of individuals, communities, and entire societies. Heating/cooling, cooking, lighting, and other home appliances - fully electrified buildings that are self-sufficiently supplied with renewable energy.

The ability of this technology to work with even weak sunlight and low angle of incidence enables efficient and space-saving use on walls and facades of buildings, which is typically denied to conventional solar modules. The onboard control and AC/DC-conversion unit enables an inexpensive and uncomplicated installation and the maintenance-free use of these products.

**cost- & performance efficiency:** off-grid building connection saves effort, costs, and project lead-time - low acquisition, installation & maintenance costs ensure a quick ROI - flexible application due to separated or combined installation. Any punctual damage does not affect the general performance of the entire panel.

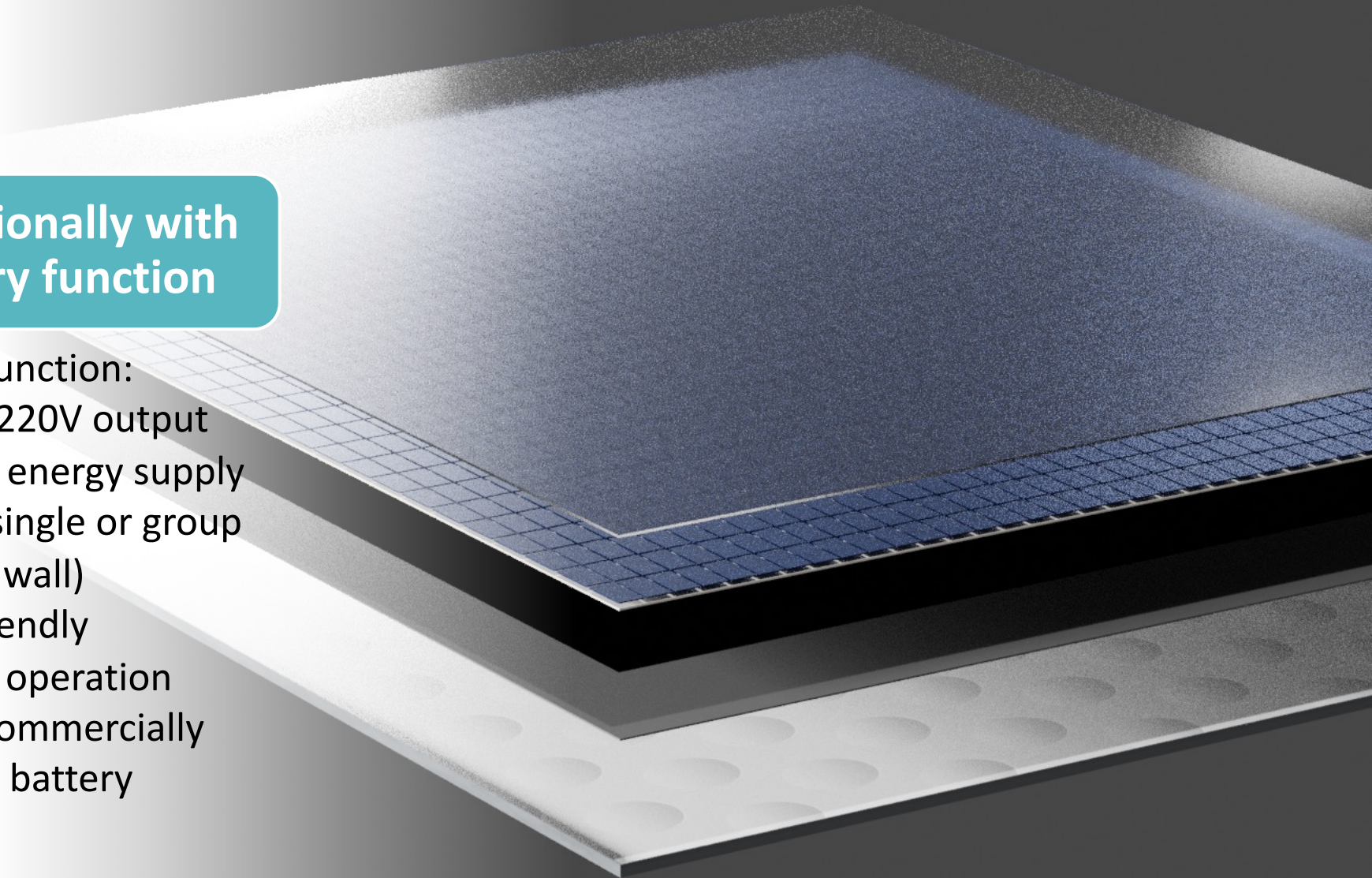
**aesthetics & design:** colour printable panel surfaces and seamless mounting-sets enable an attractive facade design without compromising on efficiency, size: slim and small footprint

**sustainability & stress-resilience:** decentralised, independent year-round power supply for all kind of buildings

## step 3: NPC/P products

### **NPC/P solar panel optionally with a built-in NPC/P battery function**

- combined solar/battery function:  
1.2 sqm/240W with 110/220V output
- year-round efficient solar energy supply
- modular & independent single or group  
installation (floor, roof or wall)
- 100% environmentally friendly
- sustainable production & operation
- cheaper than any other commercially  
available solar panel with battery





step 3:  
NPC/P products

## NPC/P battery technology

- 100% toxic-free and thus fully environmental responsible
- sustainable: no harmful extraction/mining & processing
- efficient: high power storage capacity (200W/m<sup>2</sup> layer)
- durable: >500,000 times fast charging/discharging (0-100%)
- resilient: no degeneration due to heat or long storage time
- 100% safe: non-toxic, non-explosive and no overheating
- flexible: built-in/external use, scalable for big consumption
- cheaper than any other commercially available battery technology today



# step 4: independent green energy (RE) storage

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## NPC/P battery solutions for old & new RE-projects

for in-built or external installation

- private households (SHS)  
single/apartment house, EVs, etc.
- commercial consumers  
bigger electricity consumption
- industrial setups (solar parks)  
regional supply/mini-grid solution





## step 4: independent solar power production

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### CO<sub>2</sub>e-free solar energy projects

- variable solar panel configurations & uses possible:  
available with built-in or external storage options  
coloured front glass designs for wall installation
- private households (power supply for single home / apartment house, EV charging, etc.) - SHS application
  - commercial consumers (bigger / large electricity consumption) - single building/complex application
  - industrial & distribution setups (solar parks with regional mini-grid based power distribution solutions)

step 4:

other applications of NPC/P technology



## nano printed light modules

- affordable & long-lasting lighting solutions
- independent solar energy driven operation
- 24/7/365 available through battery solution
- slim and variable decorative design options
- certified, high-efficient CO<sub>2</sub>e-free operation

step 4:

other applications of NPC/P technology

## nano printed heater/ac-modules

- affordable CO<sub>2</sub>e-free heating / air conditioning
- independent solar energy driven operation
- 24/7/365 available through battery solution
- slim and variable decorative design options
- certified, high-efficient CO<sub>2</sub>e-free operation



step 4:

other applications of NPC/P technology

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## nano printed cooker - modules

- electric cooking stoves with 600°C heat in seconds
- independent solar energy driven operation
- 24/7/365 available through battery solution
- slim and variable decorative design options
- certified, high-efficient, safe & convenient operation
- CO<sub>2</sub>e-free & woodless, 100% non-toxic operation





we thank  
you for  
your  
attention!

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