

# Future local intelligent transactional energy node for EV charging & mobility hub

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Belgium, Luxembourg, China, India, United States, United Kingdom, France, Germany, United Arab Emirates, Russia, Malaysia, Australia.



# How will the grid face the increasing number of EVs\*?

The Brussels Times

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## End of an era: Petrol and diesel cars banned in EU from 2035

Thursday, 9 June 2022

By Liv Klingert



Credit: Belga

The time of petrol and diesel cars in Europe may soon be over after the European Parliament on Wednesday voted to end the sale of combustion engine cars by 2035.



\* EVs: Electric vehicles

# **STABILITI RELIEVES THE GRID FOR EV CHARGING**

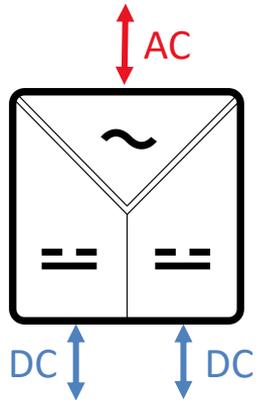
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# New concept: Stabiliti relieves the grid for EV charging

1. Stabiliti & topology of the concept
2. How it works: power management system
3. Two use cases

# Nowadays, Stabiliti is an AC//DC/DC converter

## Characteristics



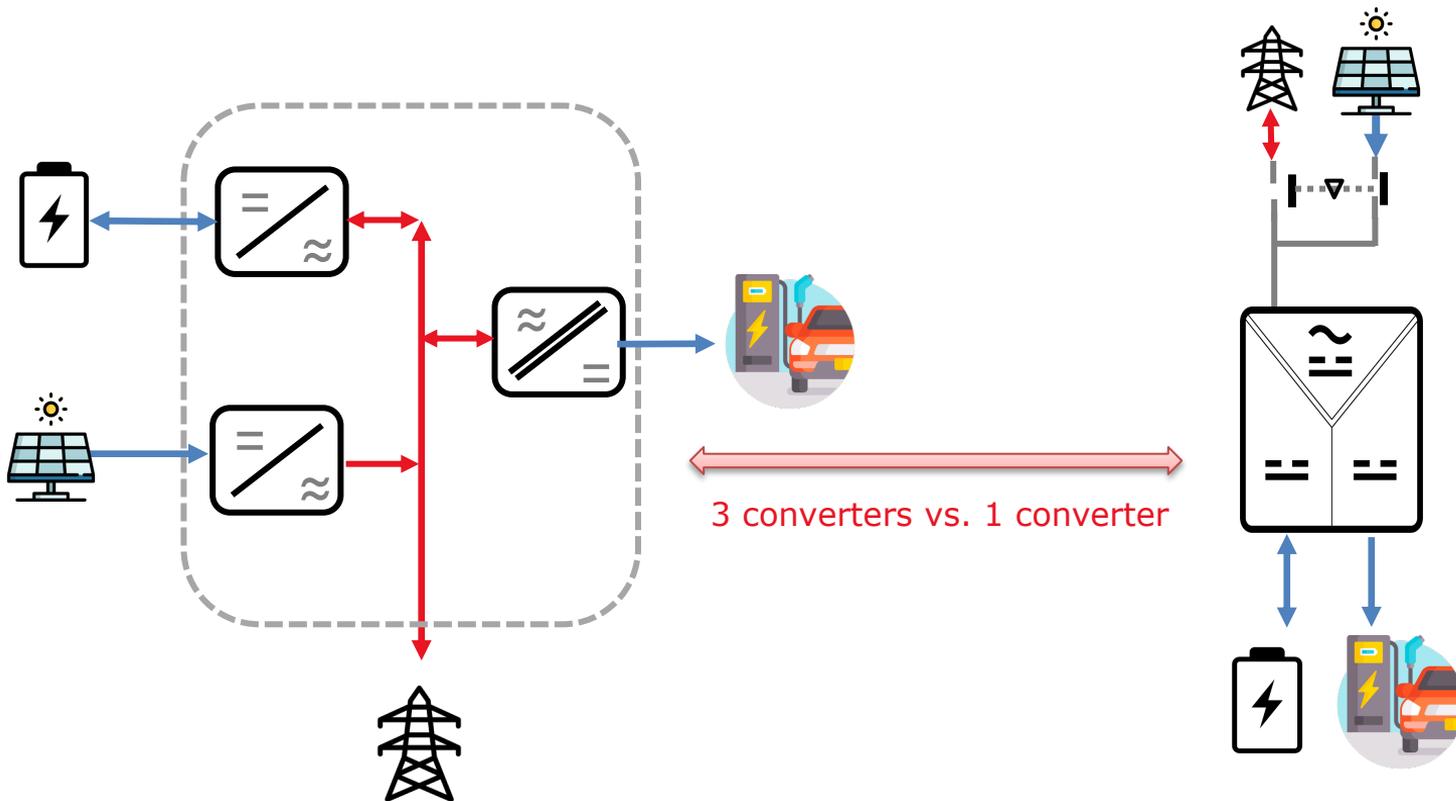
### DC ports:

- $V_{DC}$ : 100 up to 1000 V  $\rightarrow P_{DC} = V_{DC} * I_{DC}$
- $I_{DC \text{ max}}$  : 60 A  $\rightarrow$  6 to 60 kW<sub>DC</sub>
- Efficiency: < 97.5%

### AC port:

- $I_{AC \text{ nom}}$  : 39.6 A  $\rightarrow$  25 – 30 kW<sub>AC</sub>
- $V_{AC}$  : 400 up to 480 V
- Efficiency: < 95.5%

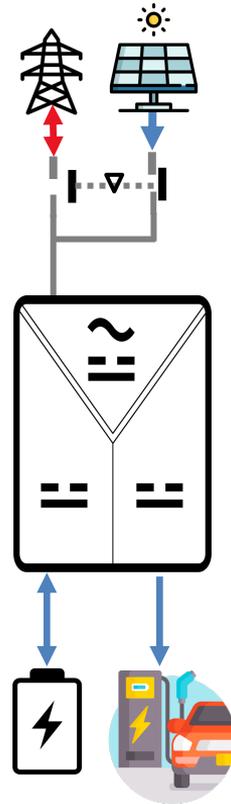
# Three 2-ports converters become a unique Stabiliti to charge EVs



# AC port switches to DC port and relieves the grid for EV charging

How is the grid relieved?

- Peak shaving
- Off-grid charging
- Renewable
- Microgrid

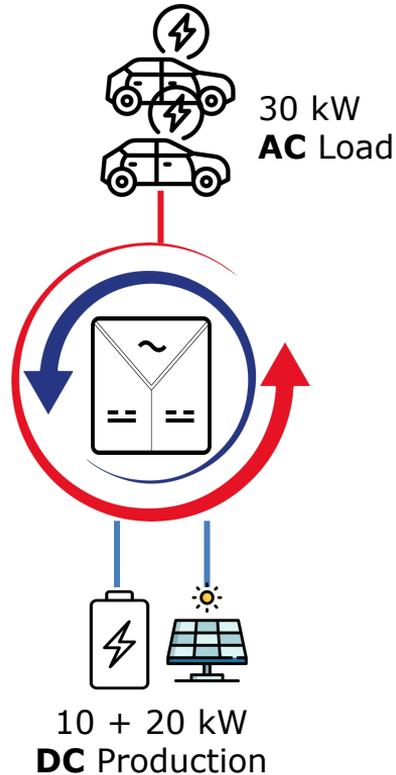


3<sup>rd</sup> port in DC mode

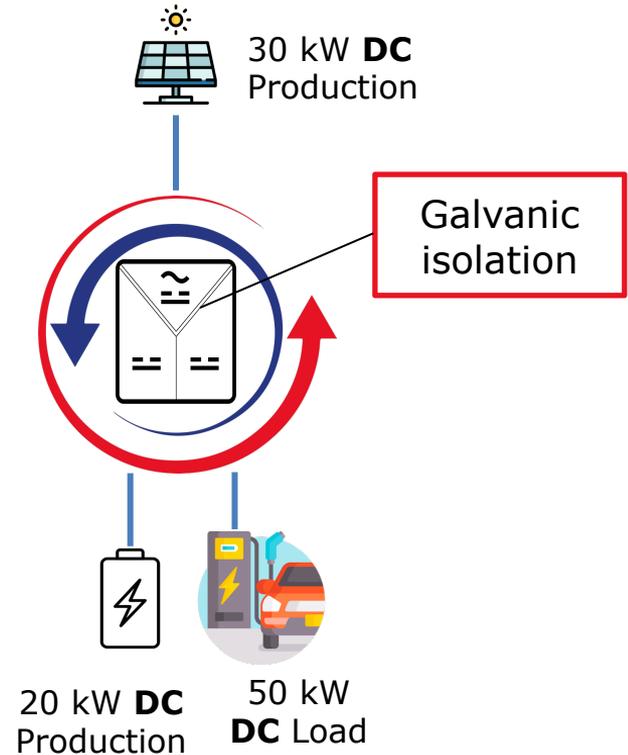
- $V_{DC}$  : +500/0/-500 V
- $I_{DC\ max}$  : 50 A
- MPPT

Fast DC charger

# Optimal energy routing of the three ports



$$\rightarrow \sum_{3 \text{ ports}} \text{Energy} = 0$$



# You arrive at work and need to charge your car

1. Plug to charging station
2. Voltage and power information transferred
3. Controller modulates nb of converters:

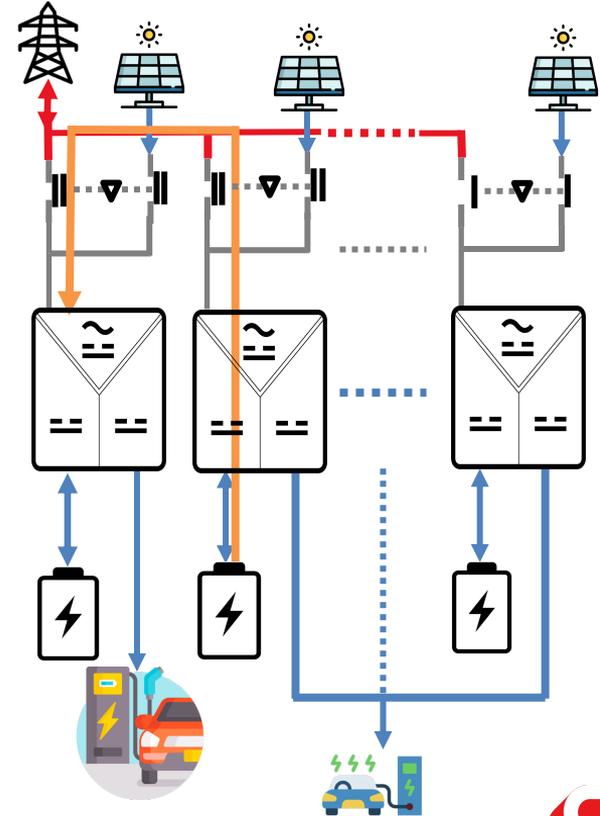


50 kW max/converter

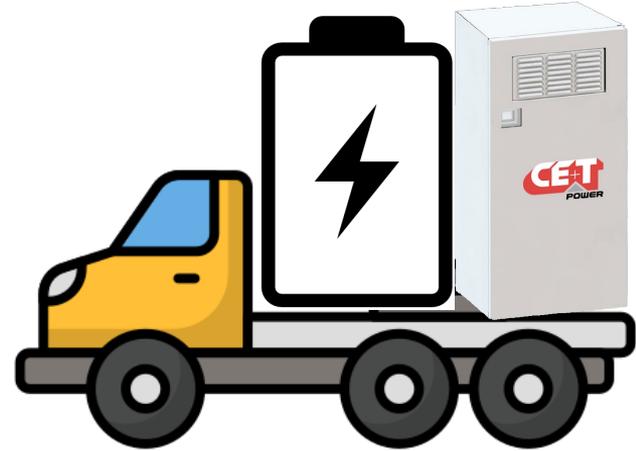


250 kW with 5 converters

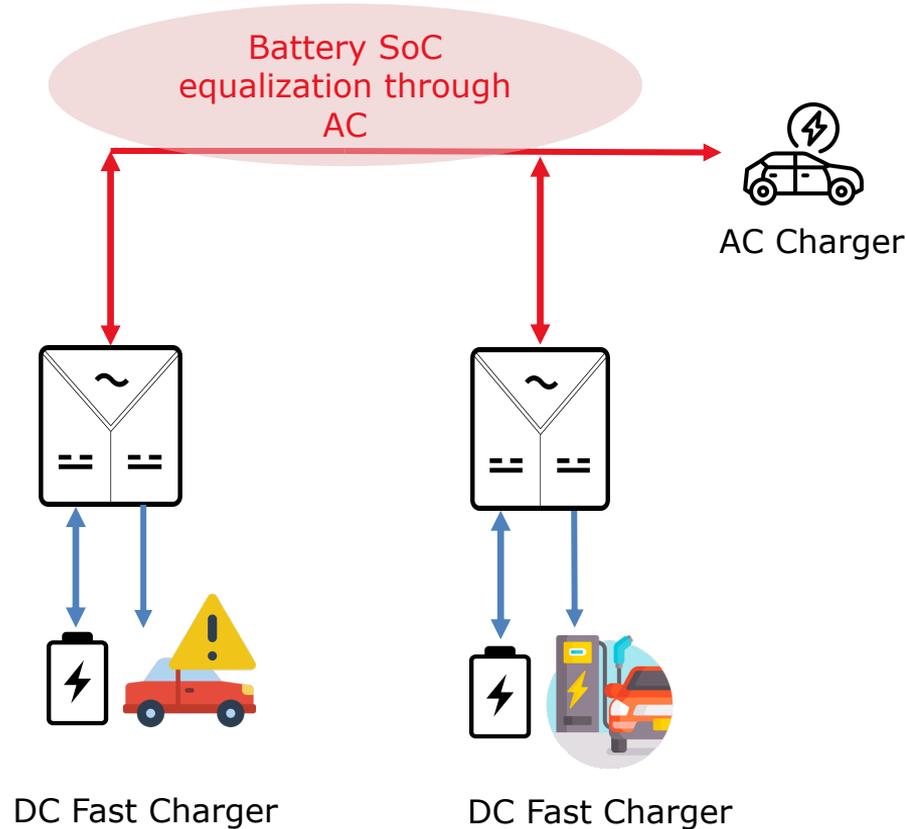
4. Charging starts



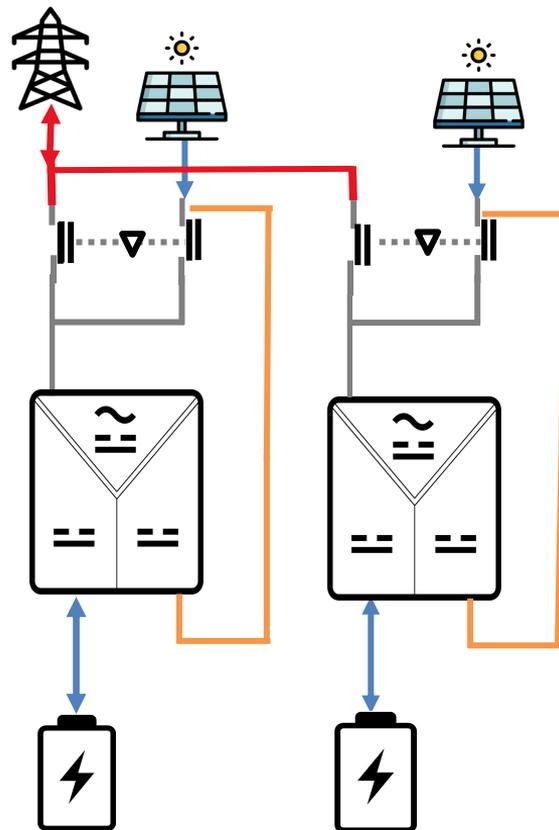
Run out of energy in your EV? The Stabiliti tow truck helps you!



# On the move: tow truck fills your empty EV thanks to Stabiliti



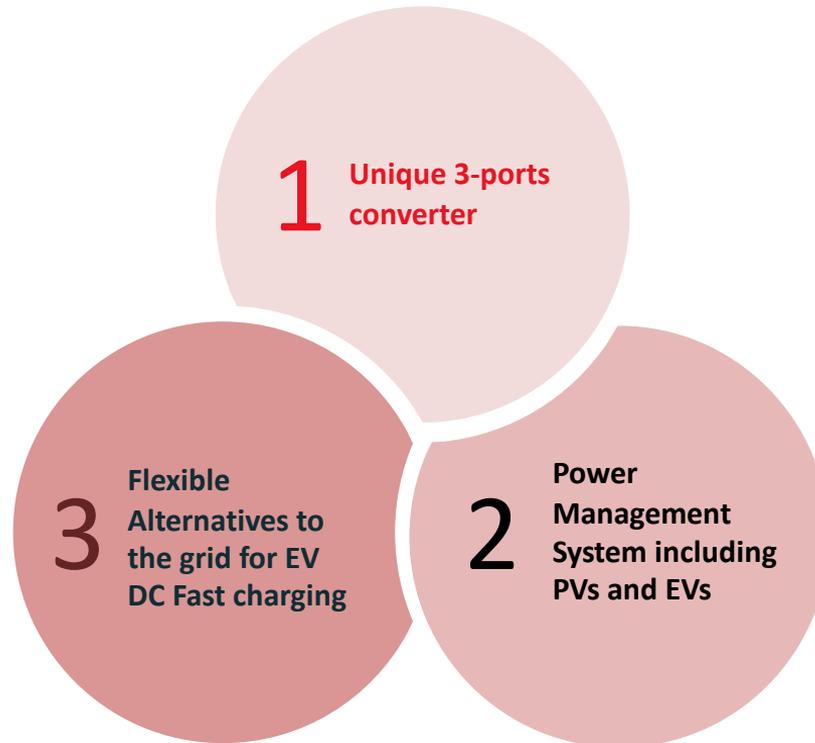
The batteries of the truck are recharged via grid & PV at the garage



Truck is ready  
for a new  
fixing!



# What can we conclude?



Thank you  
for your attention

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# Connect existing PV installation to AC grid and add additional PV

