



# SOLARUNITED / VIPV ALLIANCE

## Driving the Future of Integrated PV

Vehicle-integrated Photovoltaics (VIPV) designates the mechanical, electrical and design-technical integration of photovoltaic modules into vehicles. The Photovoltaic (PV) modules blend seamlessly into the vehicle exterior and are connected to electric loads or the drive battery in electric vehicles. Simultaneously, the PV modules replace other components of the vehicle, e.g. the roof or the bonnet. VIPV increases the mileage of electrically powered vehicles and improves their CO<sub>2</sub> balance. Further application areas include caravans and mobile homes, delivery bicycles, trams, trains, ships, aircraft and drones.

### Committee Chairs

#### SOLARUNITED / VIPV ALLIANCE

- Dr. Heinz Ossenbrink
- Dr. Nabih Cherradi

### Committee Members

#### SOLARUNITED / VIPV ALLIANCE

- Bryan Ekus, Manager
- Gaetan Masson
- Bernhard Krause

### Target Group of

#### SOLARUNITED / VIPV ALLIANCE

- PV R&D
- PV cell manufacturer
- PV integrator
- Car manufacturer
- Transport developer
- Vehicle developer
- Transport/bus/trucks
- Ship/plan

### Targets of the VIPV Alliance

#### How the VIPV Alliance can support the mission of SOLARUNITED

- Building up SOLARUNITED as the link between PV and vehicle
- Track & communicate technology innovations
  - PV technologies (high efficiency cells, light and flexible modules....)
  - Encapsulations
  - Storage technologies
  - Esthetic/design
  - Interfacing to multi-sectorial applications (automotive, trains, planes, boats)
- Provide technical information
- Explore how to scale-up local VIPV manufacturing
- Create online portal of codes, standards and certification procedures
- Facilitate quality training and capacity building programs



## Proposed Activities for 2021/2022

- Founding meeting (defining targets, key players, roadmap, etc.)
- Technology webinar(s)
- Organize events during the major conferences and exhibitions worldwide:
  - SNEC  
03 - 05 June 2021 Shanghai, New International Expo Center, Shanghai, China
  - Intersolar 2021 (Conference: 05 - 06 October, Exhibition: 06 - 09 October)  
06 - 08 October 2021, ICM Munich
  - EUPVSEC  
6 - 10 September 2021, Lisbon, Portugal
  - Solar Mobility Forum (2022)
- CES (<https://www.ces.tech/Articles/2021/January/General-Motors-Forges-Path-to-Electric-Vehicle-Ado.aspx>)
- Contribute to the SOLARUNITED newsletters
- Develop position papers for the SOLARUNITED website

## Quick-Facts

### Vehicle-Integrated Photovoltaics (VIPV)

- Technical potential in Germany of at least 41 GWP
- Advantages:
  - Increased mileage
  - Reduced load on the electricity grid and charging infrastructure due to electricity generation near the consumers
  - Cost savings for charging electricity
  - For combustion engines: reduction of CO<sub>2</sub> emissions in the transport sector
- Challenges:
  - Application of new materials and production processes compared to conventional module constructions
  - Different types of modules for the specific application areas, requiring individualized production
  - Highest efficiency values relative to surface area are required



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