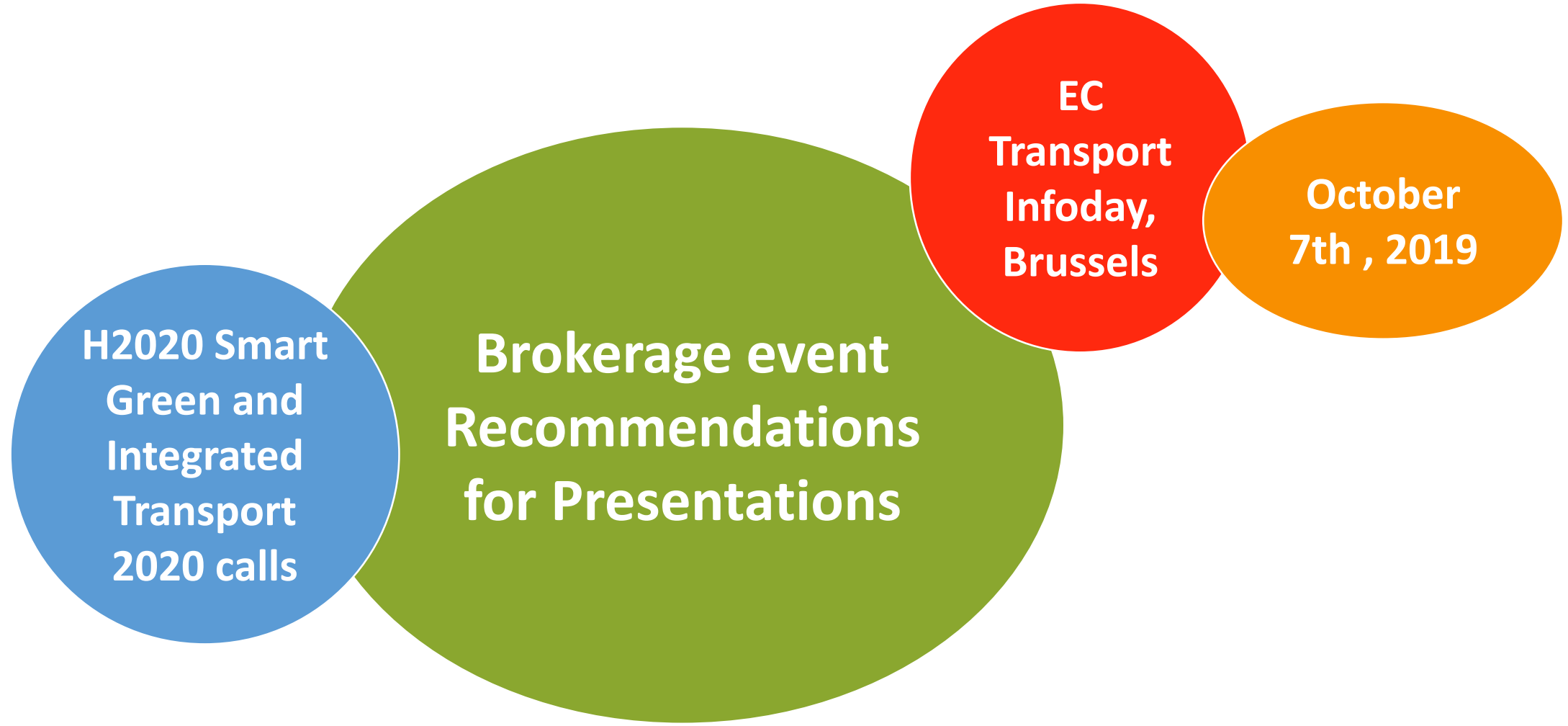


E T N A
2 0 2 0

Virginie MARCHAND - TRONICO

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<https://www.tronico-alcen.com/>

- Activity
 - Design, manufacturing and integration of complex electronically dominated systems for high value-added equipment throughout their life cycle
- Key figures and sites : 2 conception & production sites : Saint-Philbert-de-Bouaine (Nantes-France) and Tangier (Morocco)



800 Staff members	60 R&D engineers	85 Turnover 2019 (prevision)	46 Years of experience
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TAME-POWER TRONICO

- **PRODUCTS** : Tame-Power® proposes a range of high-performance DCDC, DCAC & ACDC energy conversion products, ranging from 3 to 60 kW per module.
- **APPLICATIONS** : Tame-Power® DCDC converters are ideally suited for **electric vehicles (mobility) or stationary applications**, they allow an optimal use of innovative technologies like fuel cells, batteries or supercaps.
- **SERVICES** : Tame-Power® proposes **Engineering & Manufacturing Services** to support customers on their whole product lifecycle.
- **STRATEGY** : Tame-Power® growth is part of **TRONICO's 10 years strategy**

www.tame-power.com





www.tame-power.com

- 3 kW...60 kW per module
- 20 V ... 900 V, 360 A max
- Voltage source or Current source
- Control according to :
 - Current or Voltage or Power,
 - Low side or High side
- Efficiency up to 97%
- Parallel connection
- Liquid or air cooled
- Not isolated
- CAN 2.0B.





www.tame-power.com



- Electric Mobility :
 - Automotive,
 - Trucks,
 - agricultural machinery,
 - construction machinery,
 - Off-road vehicles,
 - Fork lifts,
 - Boats



- Charger



- Defence



- Aeronautic & Space



- Industrial



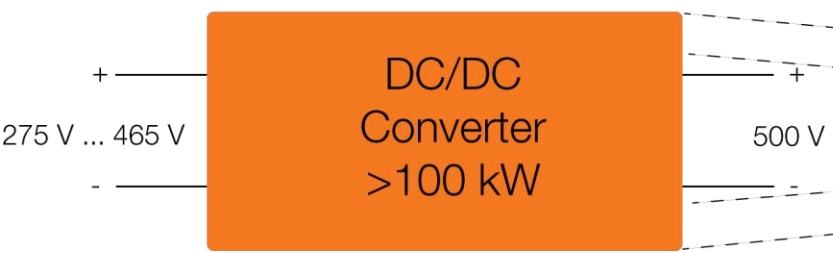
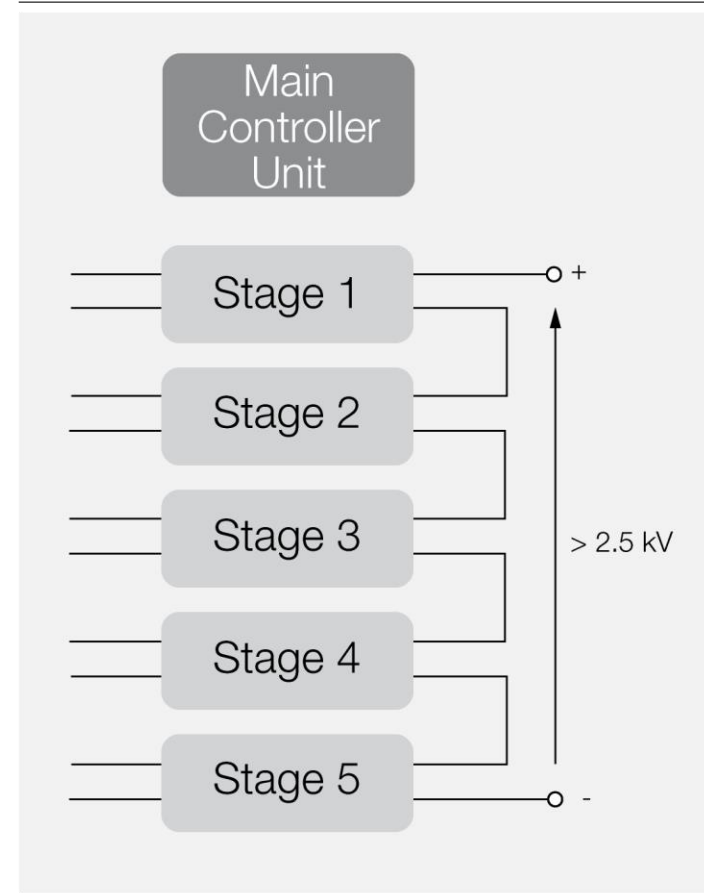
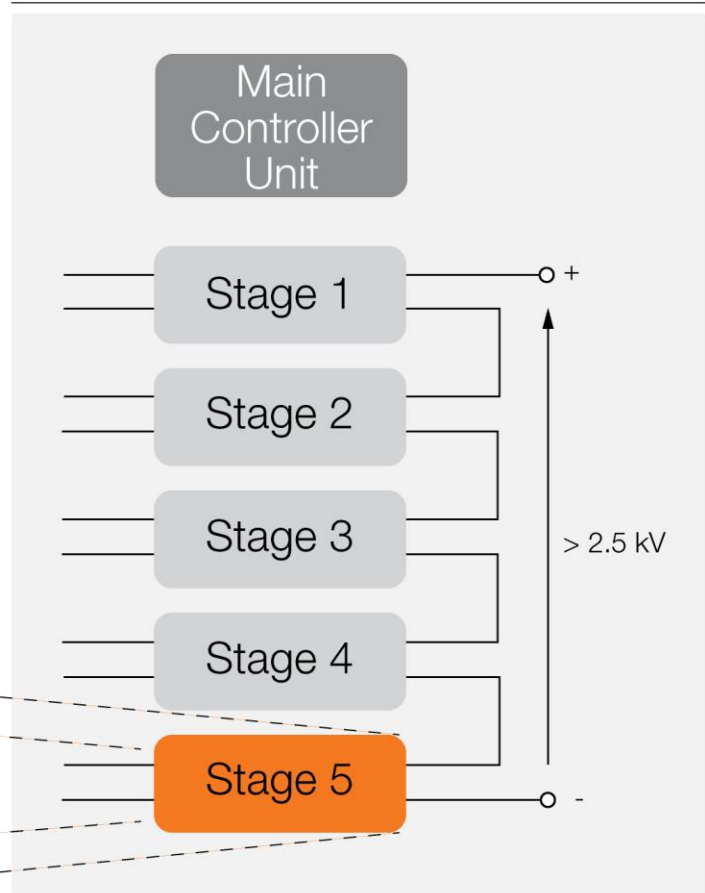
www.tame-power.com



$P_{tot} > 1 \text{ MW}$
 $V_{DC} > 2,5 \text{ kV}$

Battery DC/DC #1 / >500 kW

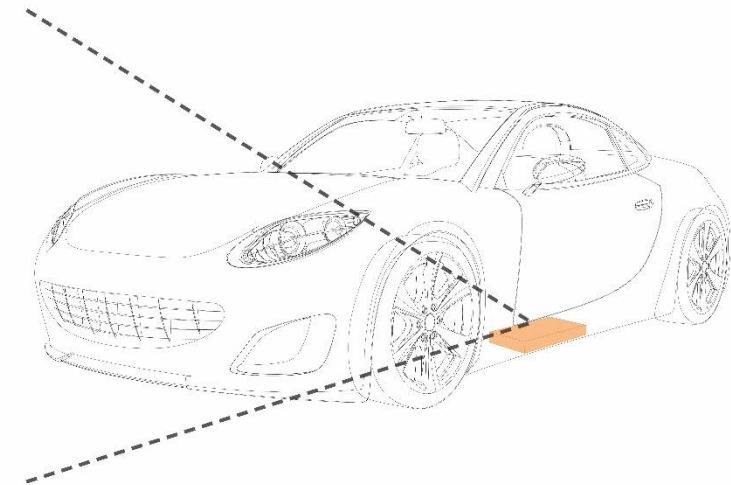
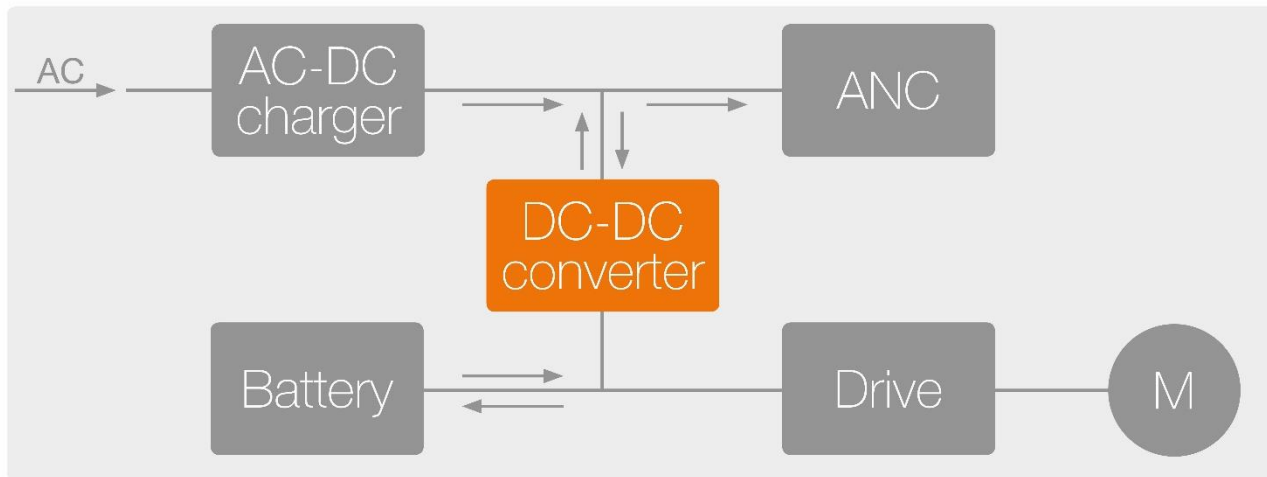
Battery DC/DC #2 / >500 kW





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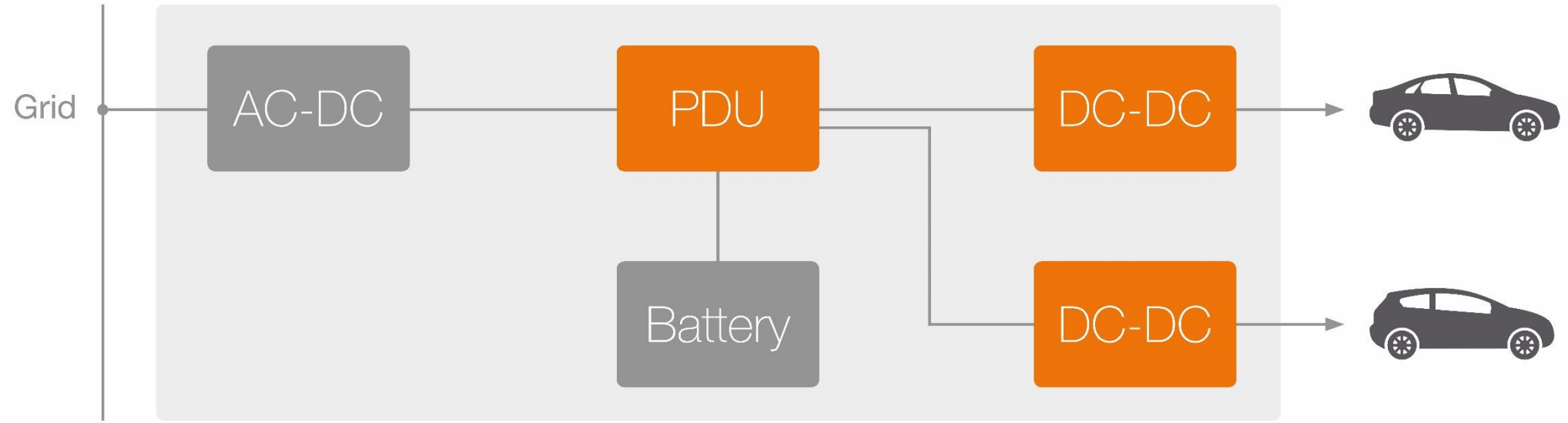
- Electric mobility :
 - Tame-Power DCDC converters are suited for **multi-voltage** electric architectures.
 - Tame-Power DCDC converters are **bi-directional** so they can be used to supply ancillaries and to charge batteries





www.tame-power.com

- Chargers:
 - Tame-Power DCDC converters have programmable **Voltage / Current control modes** suited for EV battery charging .
 - Tame-Power DCDC converters can be **parallelized** to increase current per port.
 - Tame-Power Power Distribution Unit assume a **simple Device-to-Device interconnection**.





CONVERSION FROM THE FUEL CELL TO THE AIRCRAFT NETWORK

* PIPAA - DC/AC Converter

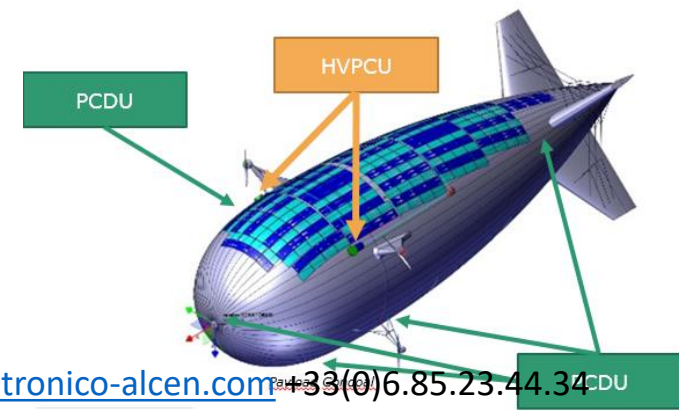
Partners:



* STRATOBUS – DC/DC et DC/AC Converter

Thalès

■ HVPCU and PCDU locations





- **To contribute launching the industry sector for green vehicles:**
 - Converters (DC/DC AC/DC and DC/AC) : design new converter ranges and increase power density (kW/Kg and kW/liter) and reliability
 - Power Distribution Unit : design new power distribution features and increase power density (KW/Kg et KW/liter) and data collect
 - BMS : improve processing algorithms and security
- **In order to comply with expectations for electric mobility** (including hydrogen electric vehicles and power stations)



- LC-MG-1-13-2020: Decarbonising long distance shipping
- LC-MG-1-15-2020: Towards sustainable high-speed global air transportation
- MG-3-4-2020: Innovative electric network architectures and systems, optimising global energy, electrical power, data and communication for aviation
- LC-GV-07-2020: Reducing the environmental impact of hybrid light duty vehicles
- LC-GV-08-2020: Next generation electrified vehicles for urban and suburban use
- LC-BAT-8-2020: Next-generation batteries for stationary energy storage
- LC-BAT-9-2020: Hybridisation of battery systems for stationary energy
- LC-BAT-10-2020: Next generation and realisation of battery packs for BEV and PHEV
- LC-BAT-11-2020: Reducing the cost of large batteries for waterborne transport
- LC-BAT-13-2020: Sensing functionalities for smart battery cell chemistries
- LC-MG-1-14-2020: Understanding and mitigating the effects on public health of emerging non-regulated nanoparticle emissions issues and noise
- DT-ART-05-2020: Efficient and safe connected and automated heavy-duty vehicles in real logistics operations