ONLINE PUBLIC DEMONSTRATION

17th November 2020, 10:00-12:00 CET

GHOST

InteGrated and PHysically Optimised Battery System for Plug-in Vehicles Technologies

This session is being recorded

GHOST

This project has received funding from the European Union's Horizon2020 Programme for research and innovation under grant agreement No.770019.

Agenda

TOPIC	PRESENTER
Welcome & Project targets	Fausto Frigerio, C.R.F. S.C.p.A
Basic Unit Concept Overview	**Dr. Andreas Könekamp, AVL**
Housing Manufacture, Base Unit System Validation at lab level	Dr. Felix Weidmann, Fraunhofer-LBF
Power PCB	Frédéric Meniere, EVE-System
Sensor-less temperature measurement	Dr. Andreas Berger, IFAT
Battery cooling	Rainer Sonnenberger, Roque Salazar-Alvear, Valeo
Assembly of the Basic Unit & electrical tests	Frédéric Meniere, EVE-System
Conclusion & outlook	Dr. Andreas Könekamp, AVL
Questions & answers	

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Basic Unit concept overview

Dr. Andreas Könekamp

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GHOST Basic Unit - overview

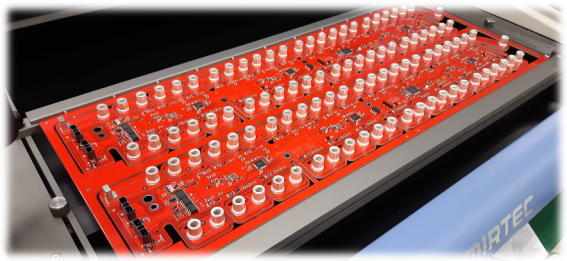
7,6 kWh

75 kW

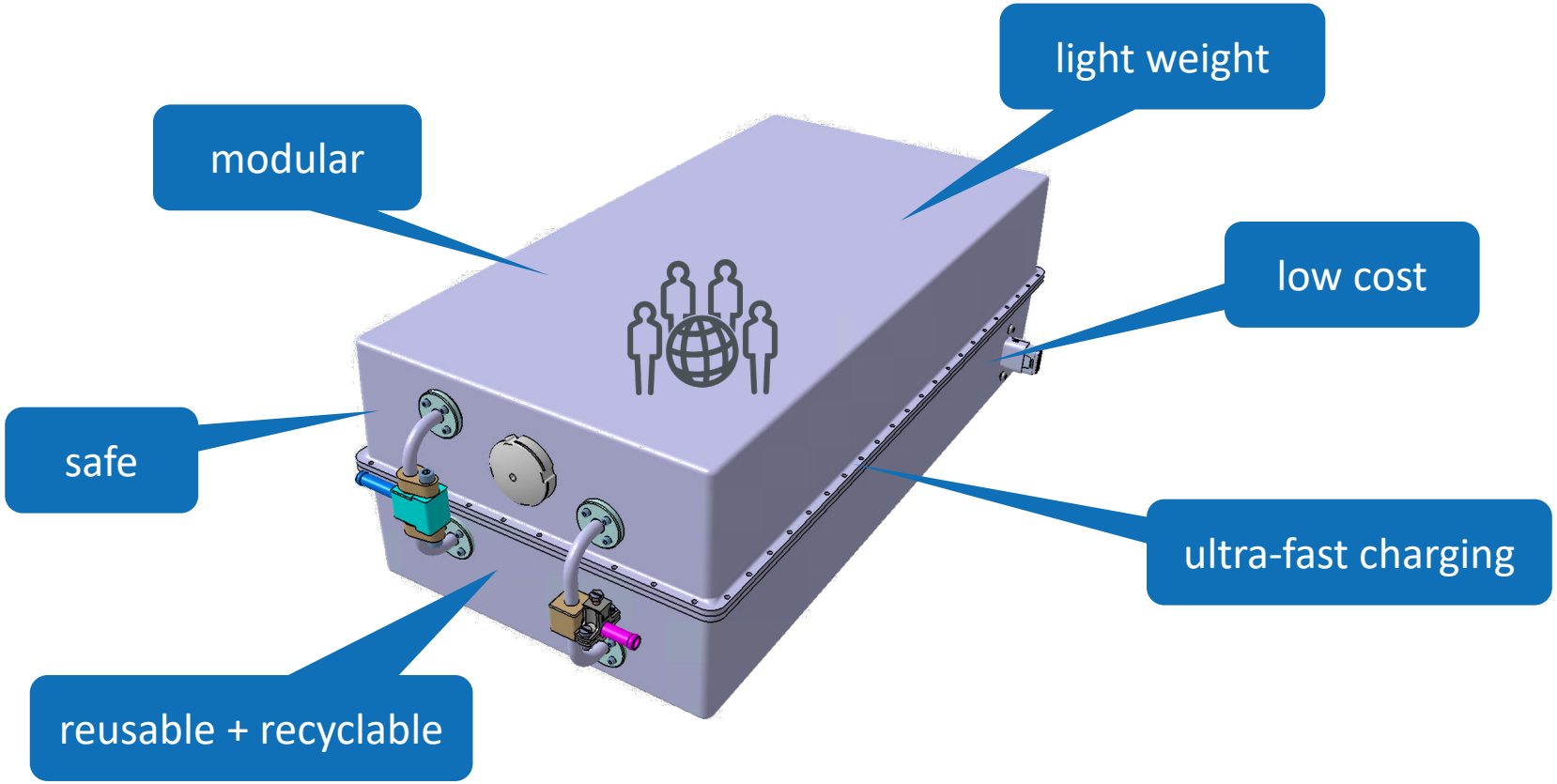
108,2 kg

70,29 l

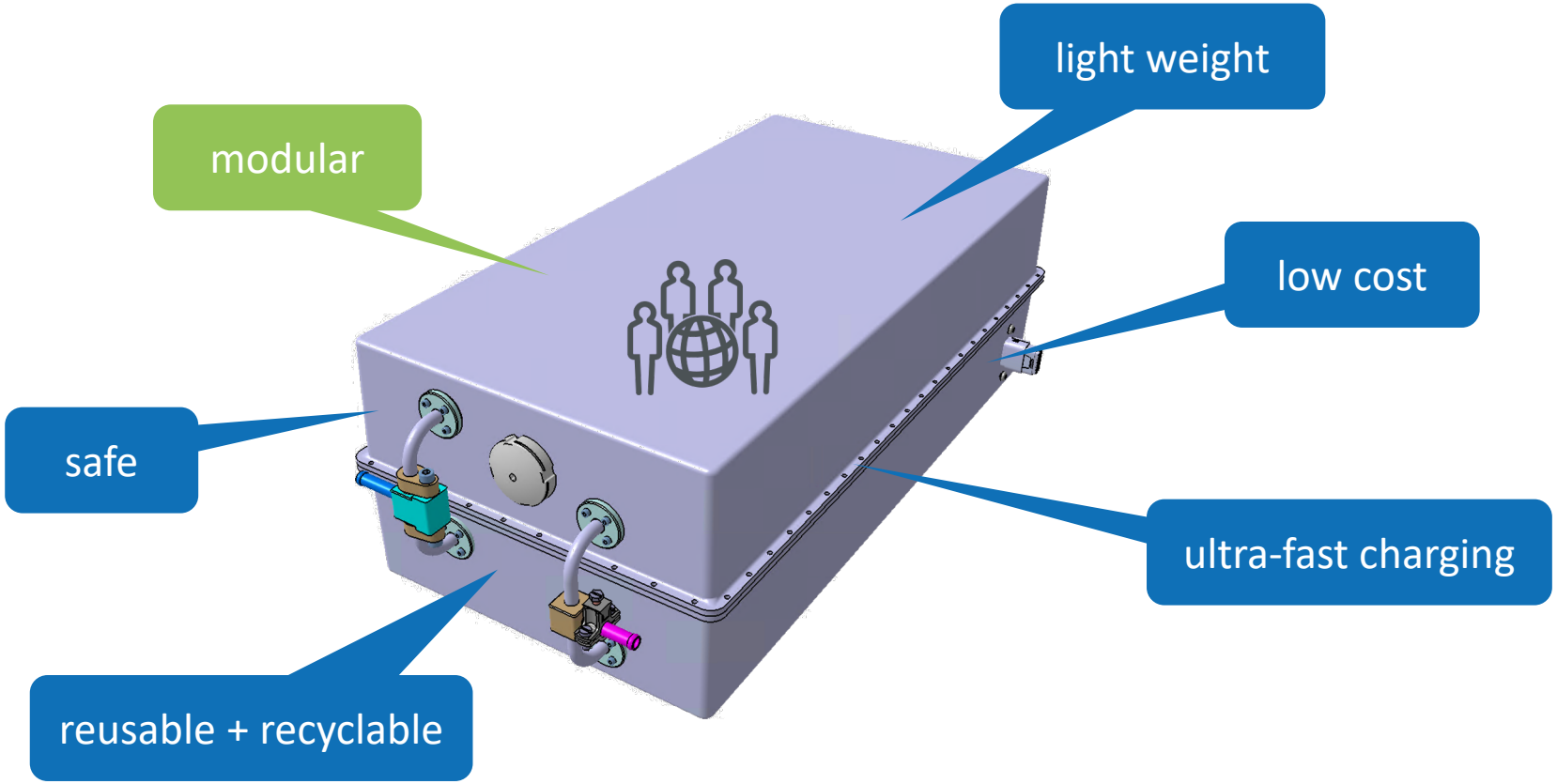
SCiB LTO



GHOST Basic Unit



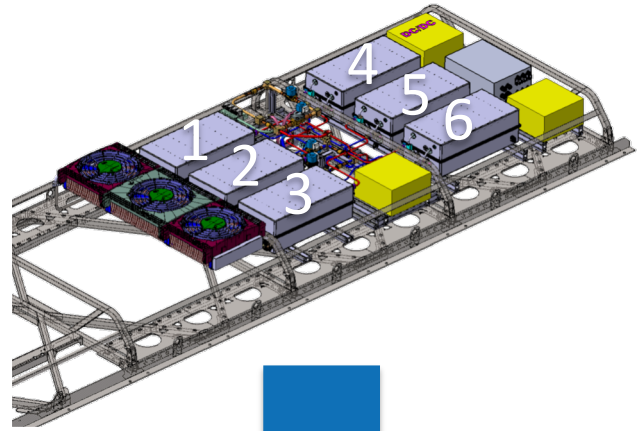
GHOST Basic Unit



Modular

400 V & 800 V

serial & parallel

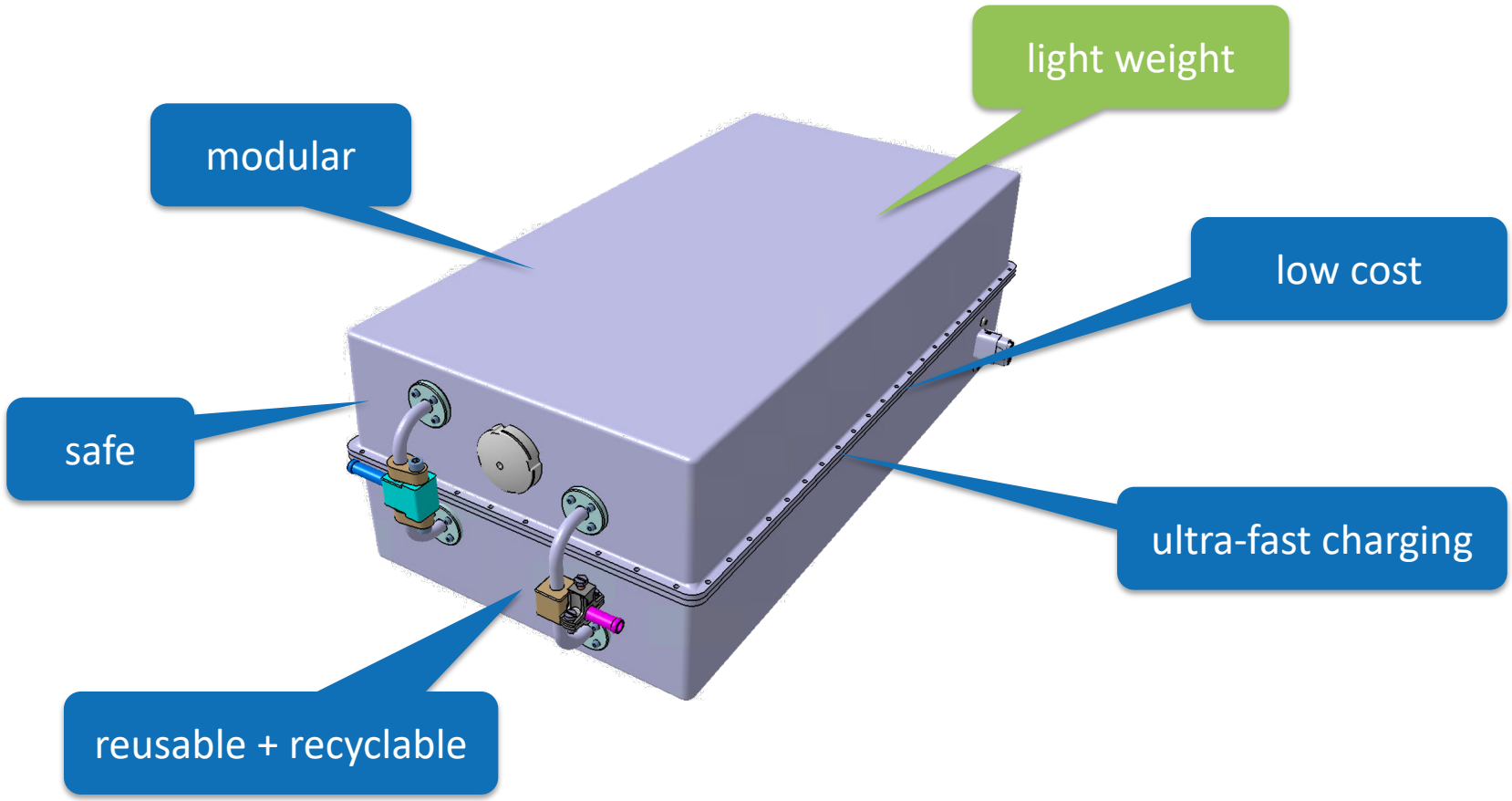


Energy: 7,6 kWh
Power: 60 kW
Water-glycol-cooled

Scalable

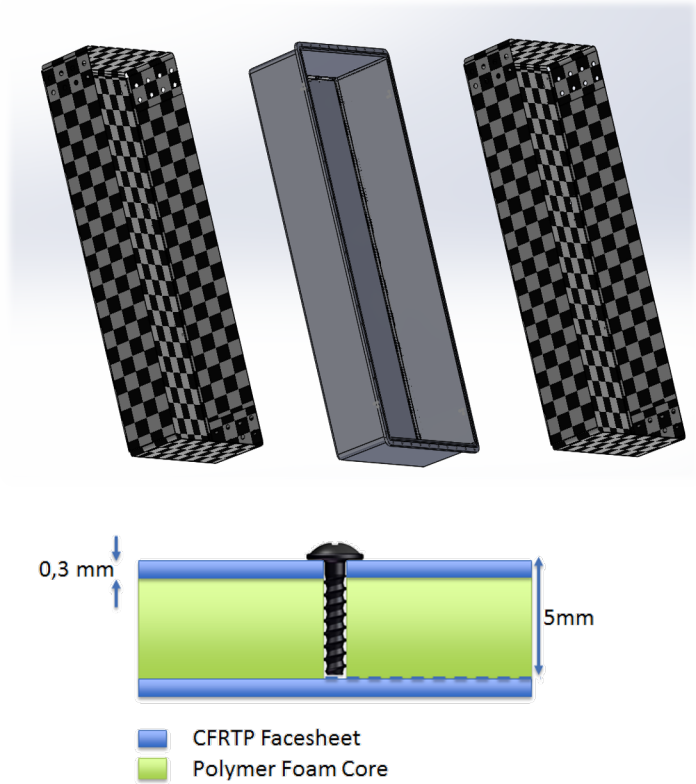
Energy: 45,6 kWh
Power: 360 kW
Refrigerant-cooled

GHOST Basic Unit

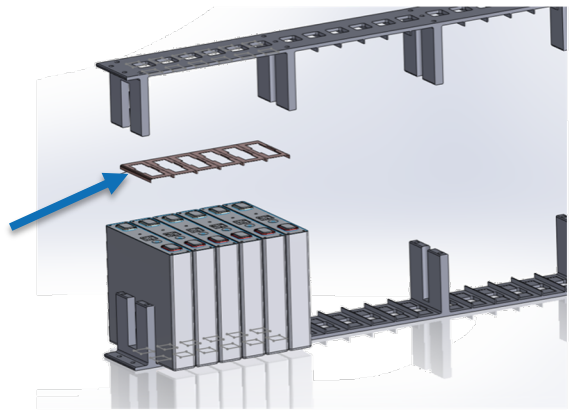


light weight

Sandwich-molded housing



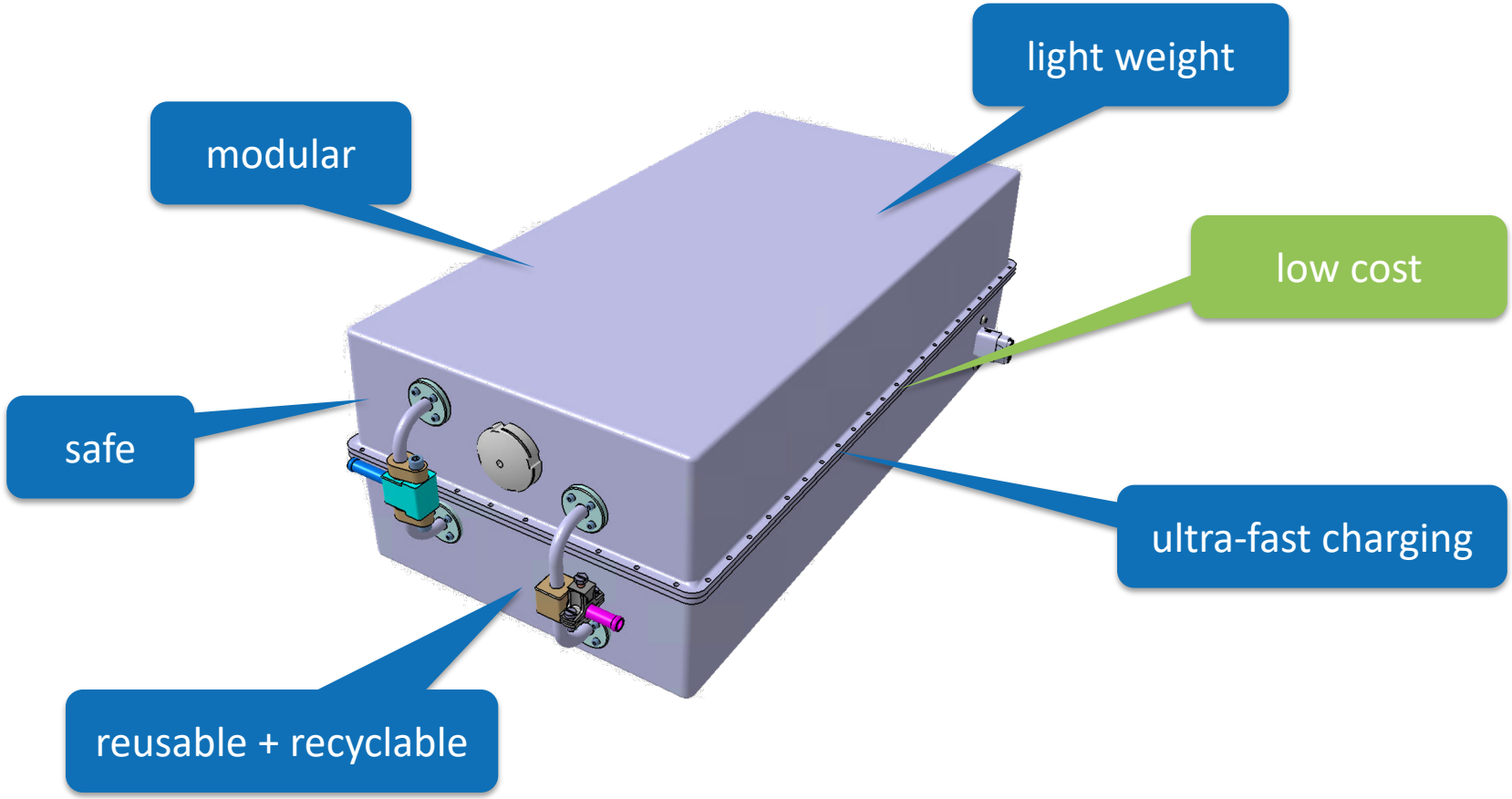
Cell retaining structure integrated



Package efficiency

	Cell weight / Pack weight	Cell volume / Pack volume
GHOST Basic Unit	73%	54%
Benchmark:		
Tesla Model 3	64%	33%
Mitsubishi Outlander	61%	41%
Jaguar I-PACE	55%	35%

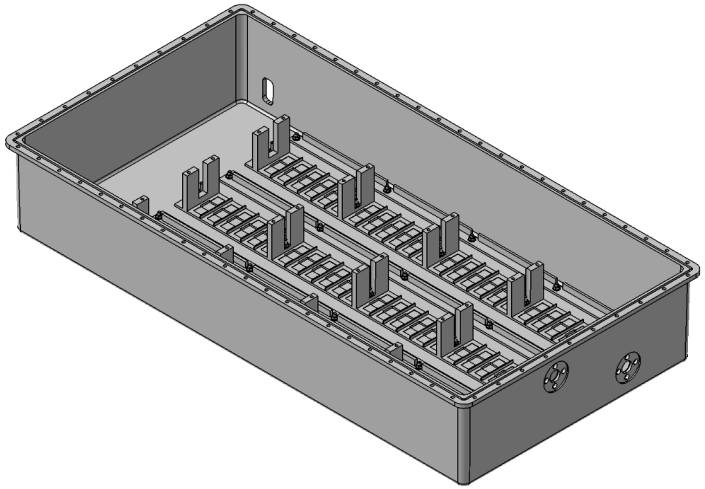
GHOST Basic Unit



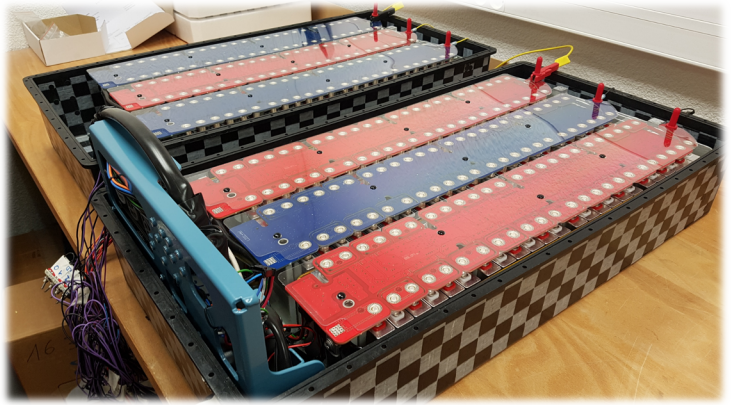
low cost

Glass-fibre, foam injection molding

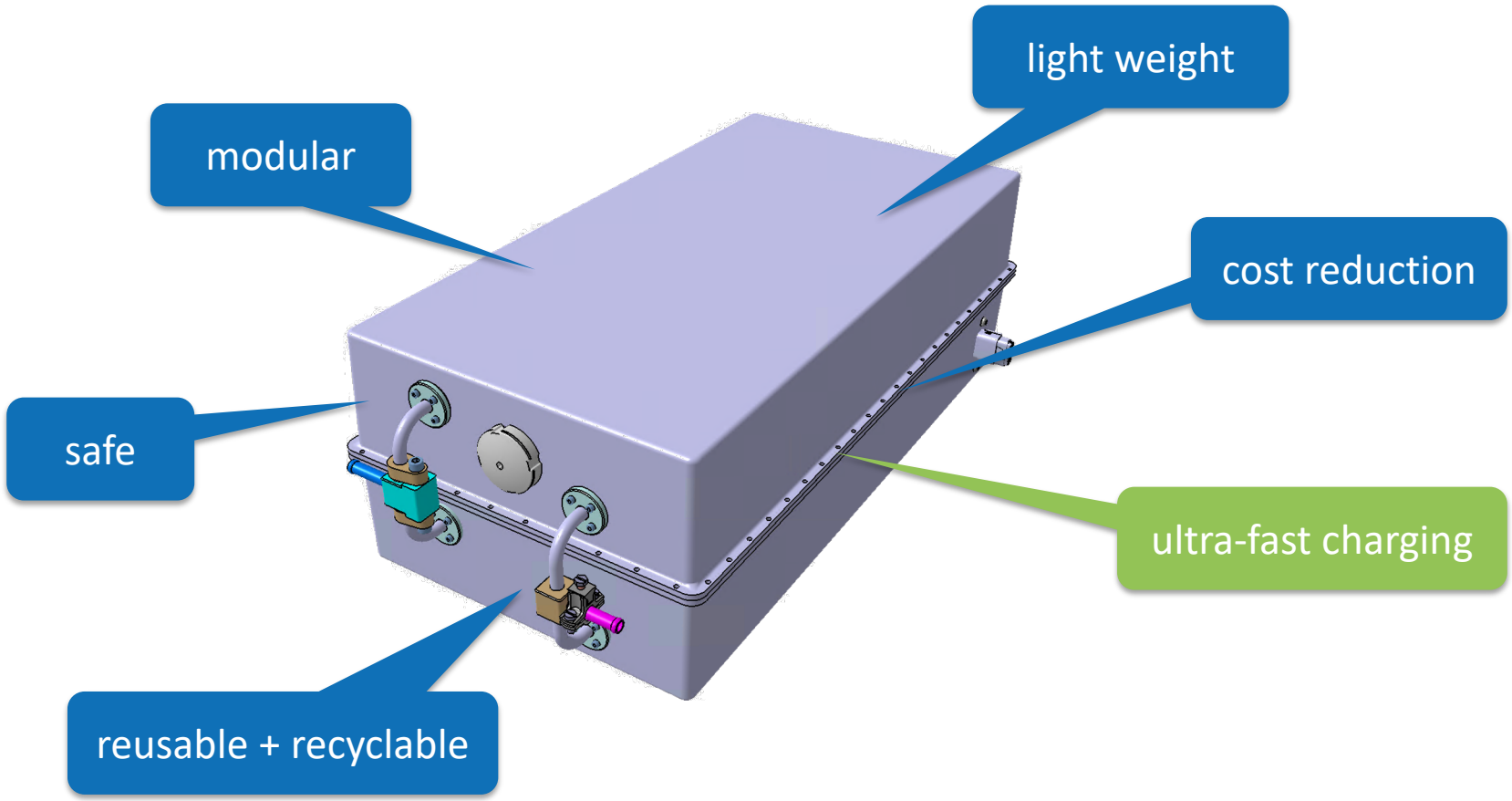
Integrate structure / Cell2Pack



Electrical integration



GHOST Basic Unit



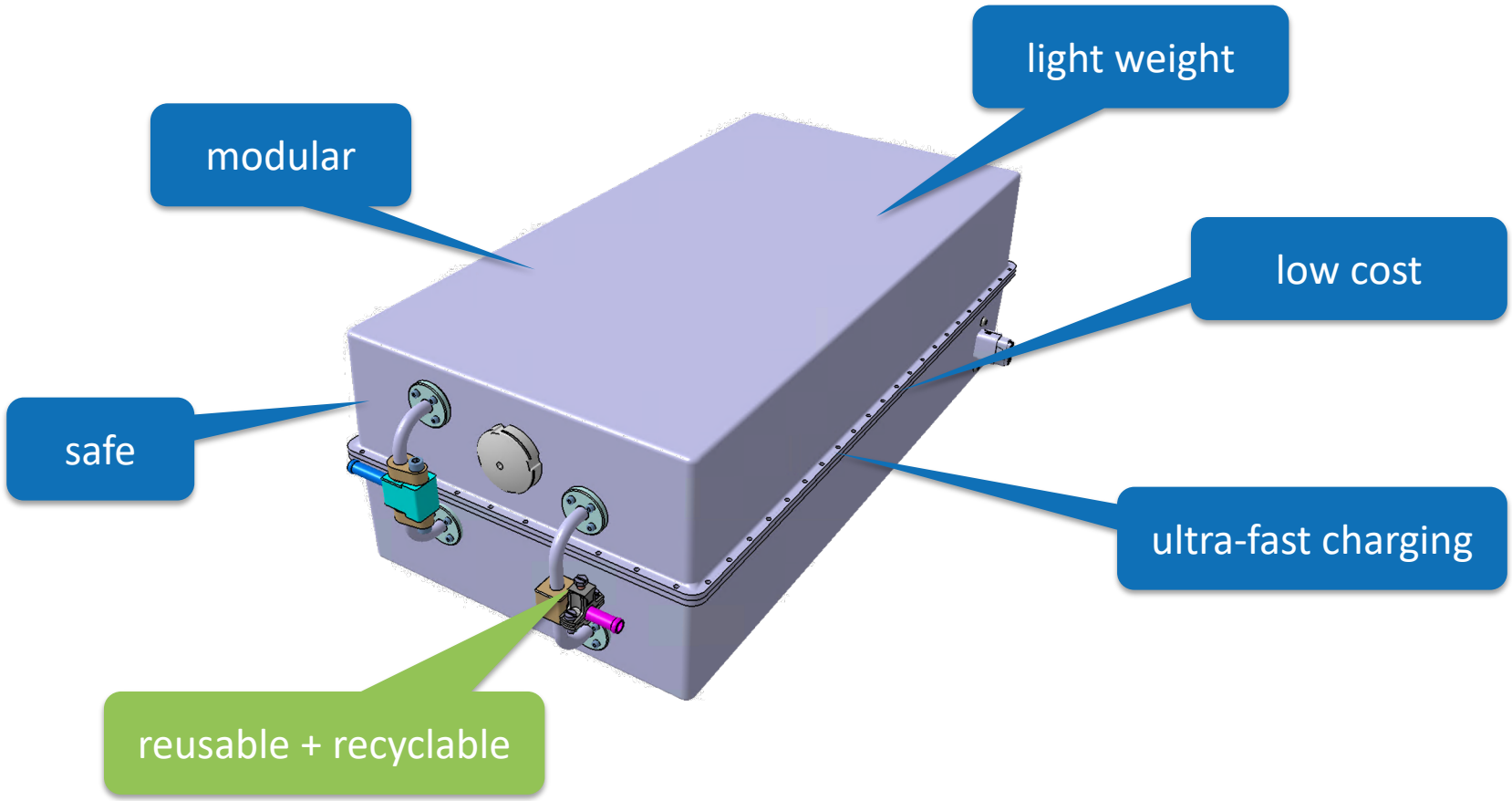
ultra fast charging

- 3,6 kW cooling performance achieved
- ΔT 3K cell2cell @ 3,6 kW

- Optimized cell-to-cooling plate connection
- Direct refrigerant cooling

250 kW opportunity charging of E-bus

GHOST Basic Unit



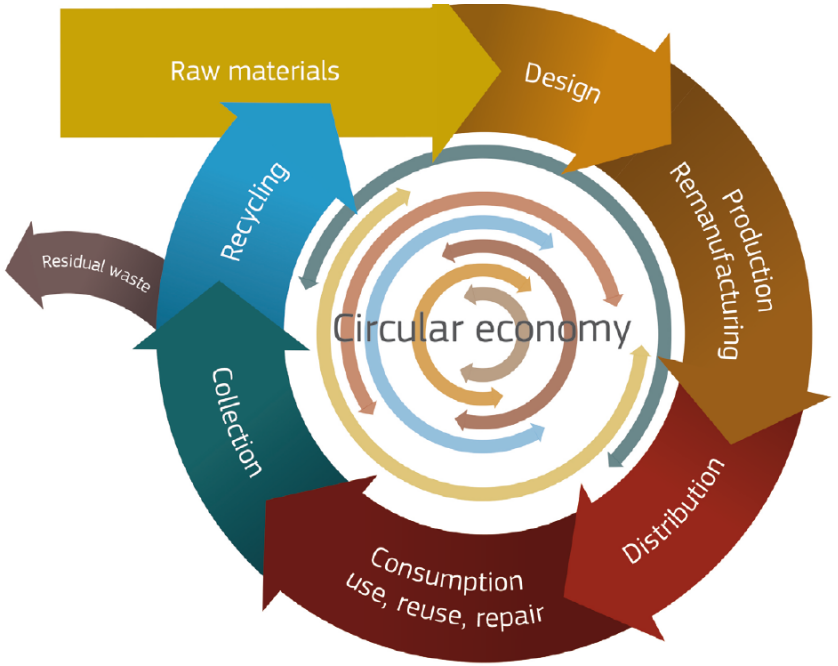
Reusable + recyclable

Reuse:

- all components serviceable + reusable (modular)
- cells exchangeable
- disassembly supported

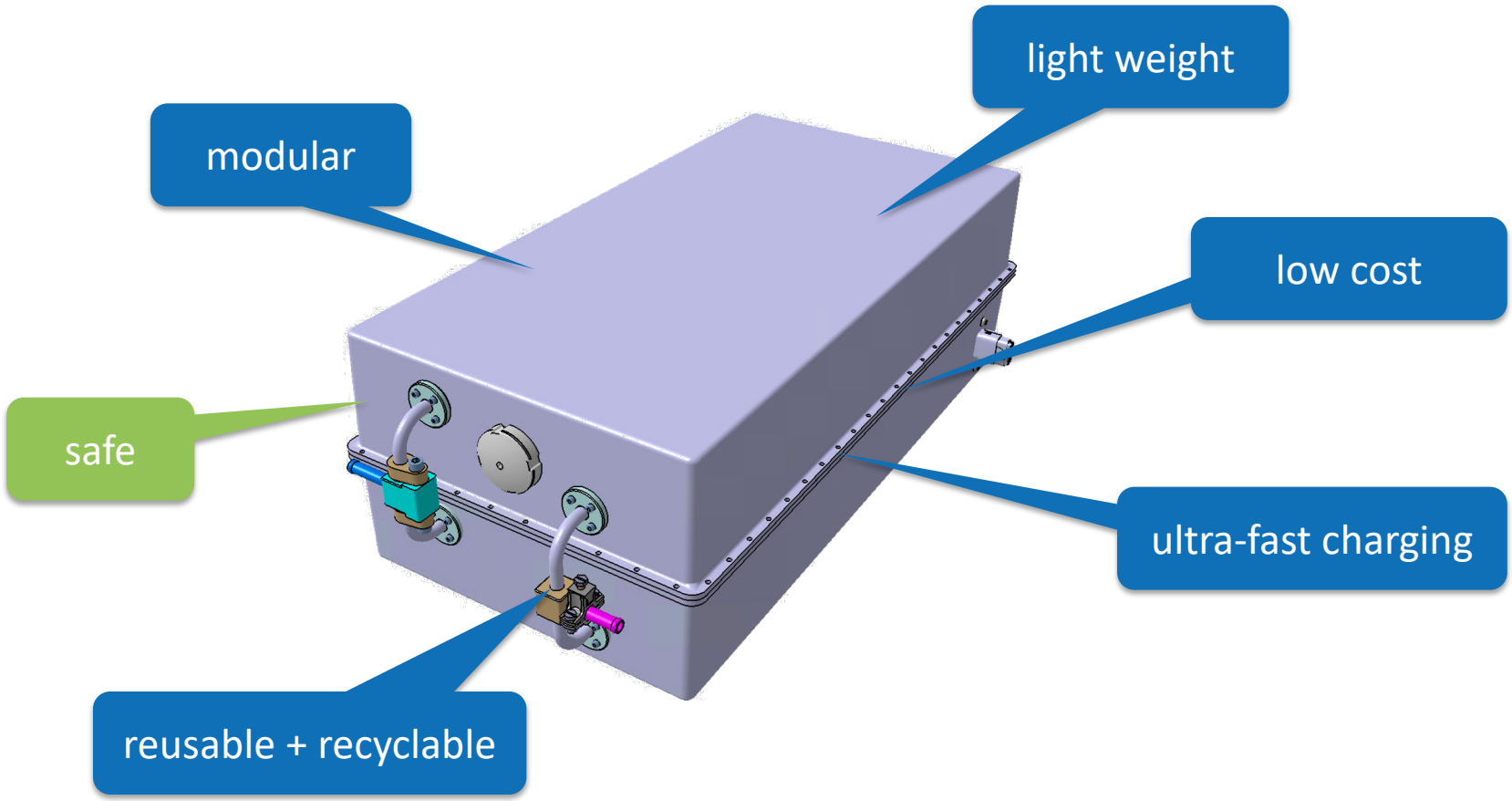
Recycling:

- all components recyclable
- material recycling of housing feasible:
  - only thermoplastics used, enabling pure fractions for recovery
  - in future with reasonably high production volume, high level specific recycling process feasible



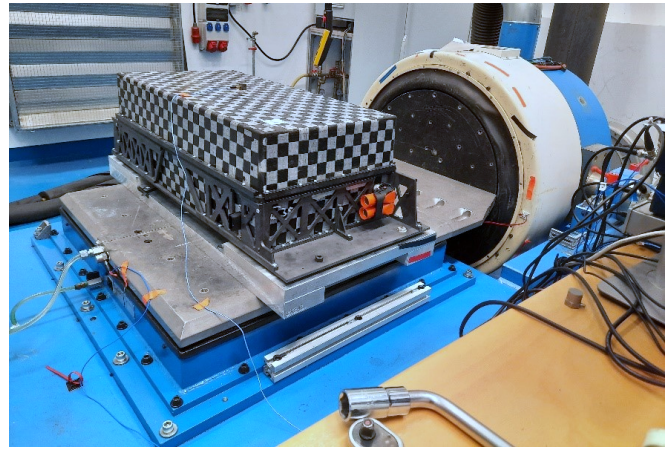
Source: EU-COM (2014) 398, Towards a circular economy, 2.7.2014

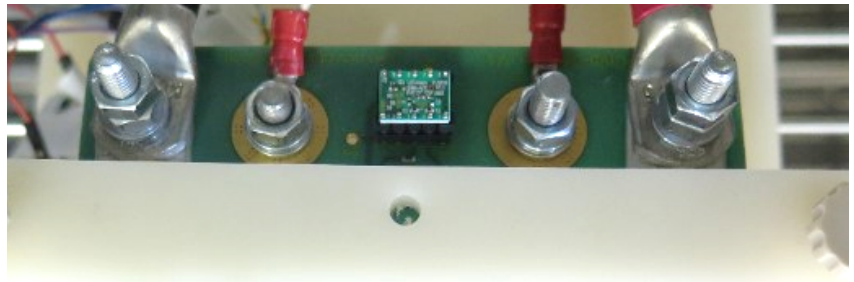
GHOST Basic Unit



safe

- Multi-concern safety analysis performed
- isolation tested
- vibration and shock tested
- Sensorless temperature estimation of every single cell
- Fire resistant housing





Thank you

Consortium

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