SUPERCONDUCTIVITY AS A KEY ENABLING TECHNOLOGY FOR ELECTRIC AVIATION

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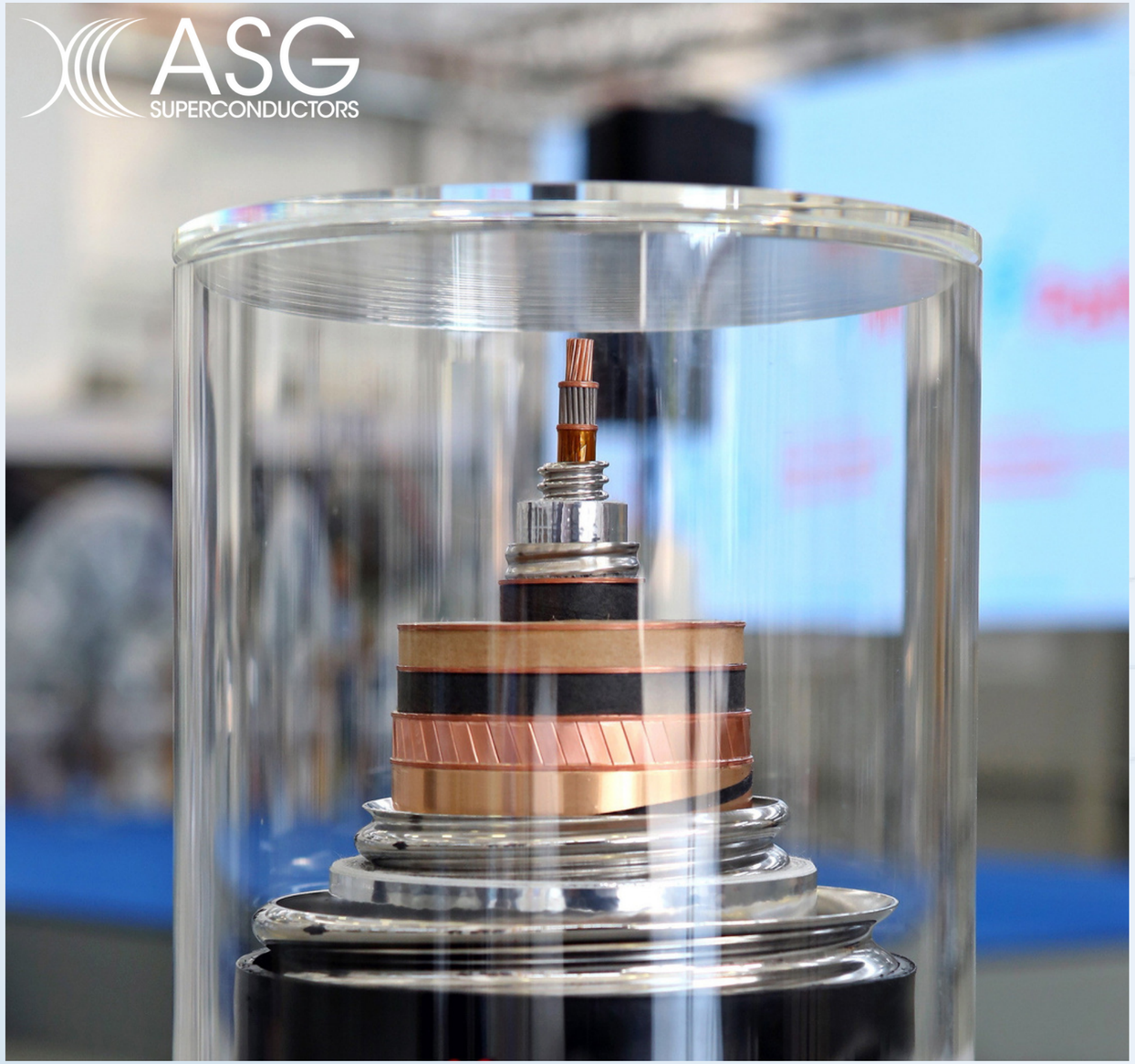

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Just to briefly introduce the technology for those not familiar with it, we are talking about a **cable incorporating superconducting wires and cooled down at extremely low temperatures** (below 200°C) with liquid Nitrogen / Hydrogen / Helium and directly buried underground.

Imagine a cable with a thermal insulation jacket (cryogenic envelope) that allows it to become a **lossless electrical conductor with negligible electro-magnetic fields and extremely high current densities**, which is changing the paradigm in energy transmission and distribution.

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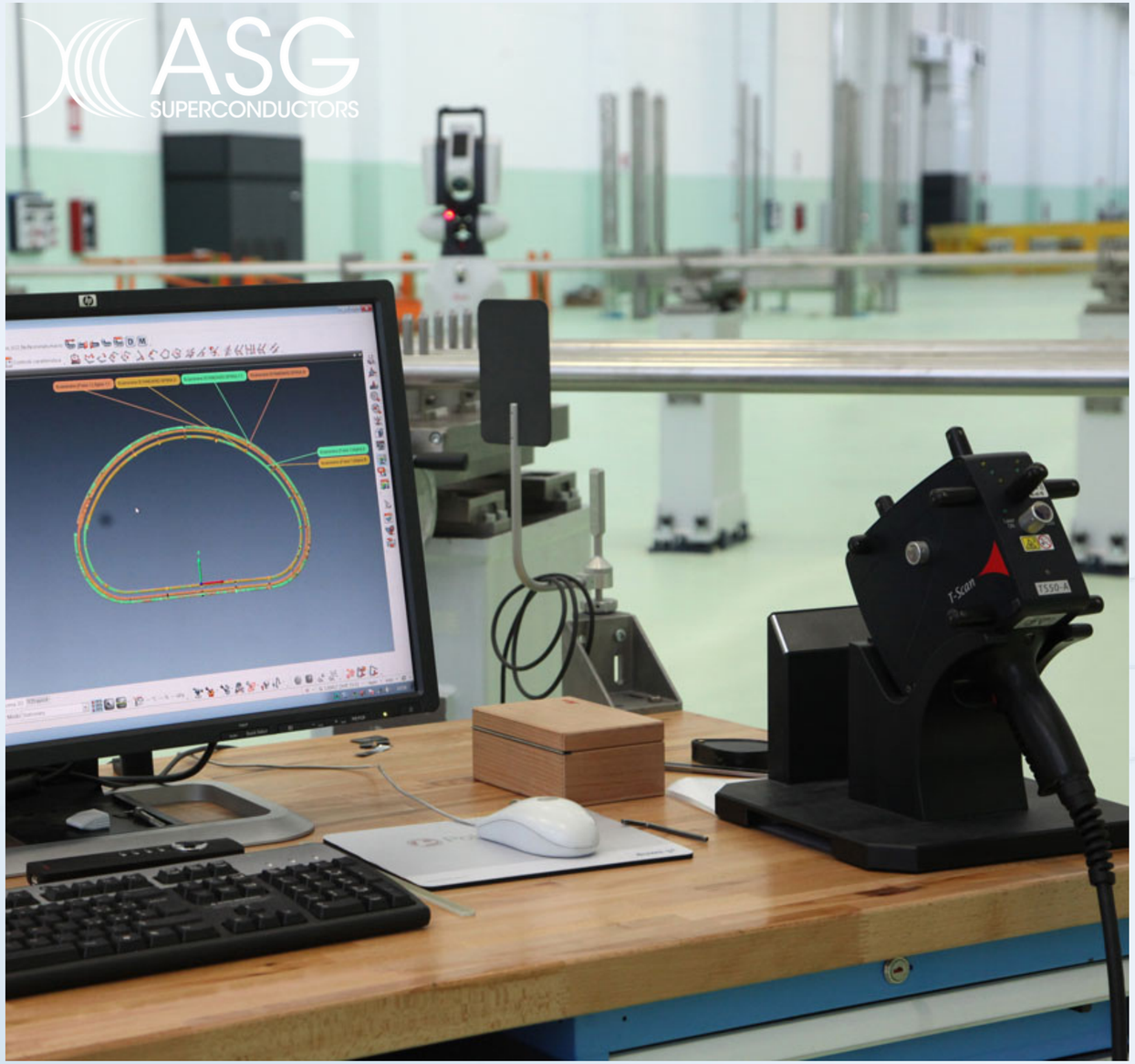

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To give you an example of projects we are currently working on and that are very outspoken today, ASG is playing a **key role in the development of ITER fusion reactor**.

Other applications include cities' power up to support electrification, network resilience for railway system operators, generation farms connections, etc.

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In the context of the **decarbonization of aviation, superconductivity can play a pivotal role** focusing on two main applications:

- **Electrification of planes**, where superconducting can represent the onboard electricity distribution system for Hydrogen-powered planes aiming at 40 kW/kg vs. conventional cables not exceeding 5 kW/kg

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In the context of the **decarbonization of aviation, superconductivity can play a pivotal role** focusing on two main applications:

- **Electrification of airports** where, similarly to what we are doing with green ports, superconducting can support the power up of an intermodal infrastructure hubs considering the electrification of ground handling equipment, buses, private cars, trucks, etc.

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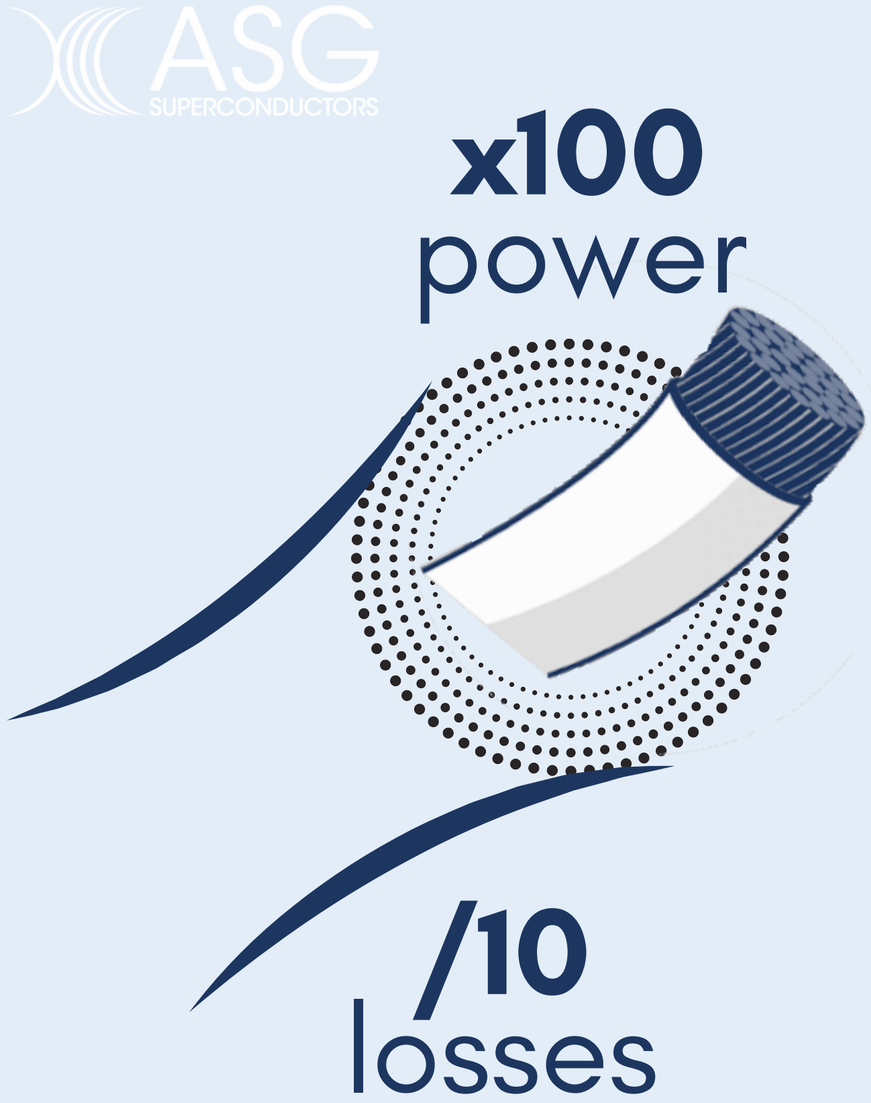

Key benefits of superconducting are related to:

- Efficiency since we have **near-zero losses**
- **Environmental**, as superconducting strongly contributes to CO2 emission reduction
- **Compactness and weight reduction** particularly relevant inside the plane – as we are talking about very compact cables which **can replace several conventional copper cables**
- **Easier permitting and lower civil works** to power up the airports itself from utility feeding points or renewable sources (especially if in urban / space-restricted areas) or **simplifying airports' internal footprint and reducing operations' disruptions.**

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Above aforementioned benefits, we see as well a **major synergy in designing and building an Hydrogen infrastructure** that can provide an alternative fuel source and be as well the **pipe and coolant** to bring highly energy-efficient electricity with **superconducting cables** and that is why we are here today

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At Airbus, we set ourselves big ambitions to decarbonize the sector. We need to refleet aircrafts worldwide.

Karine Guénan

Vice President ZEROe H2 Ecosystem, Airbus

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Hydrogen can accelerate our increasing reliance on renewable energy by facilitating integration of renewable energy in the grid, as hydrogen can facilitate long term storage of energy and be an alternative source of dispatch for curtailed renewable energy.

Mathias Burghardt

Head of Infrastructure and Member of the Executive Committee, Ardian

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In the context of the decarbonization of aviation, superconductivity can play a pivotal role focusing on two main applications:

- Electrification of planes
- Electrification of airports

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