World Premiere: First Prototype Vehicle Featuring Breakthrough Intelligent Battery Integrated System Begins Real-World Testing

- **The Intelligent Battery Integrated System (IBIS) improves vehicle space usage and simplified maintenance by eliminating the need for separate charger and inverter components**
- **Innovative development marks a significant breakthrough for both mobile and stationary energy applications.**
- **IBIS is a collaborative research initiative in France aimed at creating a more efficient, sustainable, and cost-effective energy storage and electric conversion solution.**

PARIS, SEPTEMBER 19, 2025 - Stellantis, in partnership with Saft (a TotalEnergies subsidiary), has unveiled a groundbreaking prototype vehicle featuring IBIS technology— a French-based collaborative research project aimed at developing a more efficient, sustainable, and cost-effective energy storage and electric conversion system. With real-world road testing now underway, this milestone marks a major leap forward in advancing electrification for both mobile and stationary energy applications.

A New Era in Electric Powertrain Design

The first fully functional IBIS-equipped battery electric vehicle (BEV) is a new Peugeot E-3008, built on the STLA Medium platform. This prototype follows years of design, modeling, and simulation by Stellantis and Saft, with support from E2-CAD, Sherpa Engineering, and leading French research institutions, including CNRS, Université Paris-Saclay, and Institut Lafayette.

Since mid-2022, an initial IBIS demonstrator for stationary applications has been operational, validating key technical concepts and generating numerous patents. The transition to a mobile prototype represents a leap forward in the system's development.

How It Works: Integration That Simplifies Everything

IBIS reimagines the electric powertrain by embedding inverter and charger functionalities directly into the battery, regardless of chemistry or application. This architecture supports both alternating current (AC) and direct current (DC), supplying electric energy directly to the motor or grid, while simultaneously supplying the vehicle's 12V network and auxiliary systems.

Key Benefits

- Efficiency & Performance: Up to 10% energy efficiency improvement (WLTC cycle) and 15% power gain (172 kW vs. 150 kW) with the same battery size.
- Weight & Space Savings: Reduces vehicle weight by ~40 kg and frees up to 17 liters of volume, enabling better aerodynamics and design flexibility.
- Faster Charging: Early results show a 15% reduction in charging time (e.g., from 7 to 6 hours on a 7 kW AC charger), along with 10% energy savings.
- Simplified Maintenance: Easier servicing and enhanced potential for second-life battery reuse in both automotive and stationary applications.

IBIS also streamlines maintenance and facilitates the reuse of second-life batteries in stationary automotive applications by reducing the need for extensive reconditioning.

Leadership Perspectives

Ned Curic, Chief Engineering and Technology Officer at Stellantis:
"This project reflects our belief that simplification *is* innovation*. By rethinking and simplifying the electric powertrain architecture, we are making it* lighter, more efficient, and more cost-effective*. These are the kinds of innovations that help us deliver better, more affordable EVs to our customers."*

Hervé Amossé, EVP Energy Storage Systems at Saft:
"The IBIS project is a powerful testament to Saft's innovation leadership. By embedding IBIS technology into our next-generation applications, we're unlocking a new era of intelligent, flexible, and sustainable energy solutions. Saft continues to lead the way in advanced research, offering long-term, cost-effective solutions tailored to evolving market needs."

What's Next: Phase 2 of the project began in June 2025 with continued support from the French Government through France 2030. The focus now shifts to real-world testing under representative driving conditions, which could pave the way for the integration of IBIS technology into Stellantis production vehicles by the end of the decade.

Beyond automotive, the IBIS architecture holds promise for a wide range of applications, including rail, aerospace, marine, and data centers—underscoring Stellantis and Saft's commitment to scalable, sustainable electrification.

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About IBIS – A Collaborative Innovation Effort

Launched six years ago, IBIS is a pioneering initiative born from a unique collaboration between academic research and industry. Coordinated by Stellantis, the project unites a multidisciplinary team of 25 engineers and researchers from leading industrial partners — Saft, E2CAD, and Sherpa Engineering — alongside renowned institutions: — mainly the CNRS, Paris Saclay University and the Lafayette Institute, a centre for technology transfer and prototyping in optoelectronics based in Metz - working in the following research laboratories: Group of Electrical Engineering – Paris (GeePs- CNRS/CentraleSupélec/Université Paris-Saclay/Sorbonne Université) Electrochemistry and Physical-Chemistry of Materials and Interfaces Laboratory (LEPMI - Grenoble INP/Université Savoie Chambéry/Université Grenoble Alpes/CNRS), Information and Energy Technology Systems and Applications Laboratory (SATIE – CNAM/ENS Paris-Saclay/Université Cergy-Pontoise/CNRS/Université Paris-Saclay/Université Gustave Eiffel).

IBIS is supported by France's Future Investment Plan, administered by ADEME (the Environment and Energy Management Agency), underscoring its strategic importance in advancing sustainable energy technologies through collaborative innovation.

About Stellantis

Stellantis N.V. (NYSE: STLA / Euronext Milan: STLAM / Euronext Paris: STLAP) is a leading global automaker, dedicated to giving its customers the freedom to choose the way they move, embracing the latest technologies and creating value for all its stakeholders. Its unique portfolio of iconic and innovative brands includes Abarth, Alfa Romeo, Chrysler, Citroën, Dodge, DS Automobiles, FIAT, Jeep®, Lancia, Maserati, Opel, Peugeot, Ram, Vauxhall, Free2move and Leasys. For more information, visit www.stellantis.com.

About Saft

Saft specializes in advanced technology battery solutions for industry, from the design and development to the production, customization and service provision. For more than 100 years, Saft's longer-lasting batteries and systems have provided critical safety applications, back-up power and propulsion for our customers. Our innovative, safe and reliable technology delivers high performance on land, at sea, in the air and in space. Saft is powering industry and smarter cities, while providing critical back-up functionality in remote and harsh environments from the Arctic Circle to the Sahara Desert. Saft is a wholly owned subsidiary of TotalEnergies, a broad energy company that produces and markets energies on a global scale: oil and biofuels, natural gas and green gases, renewables and electricity. We energize the world. www.saft.com

About CNRS

A major player in basic research worldwide, the National Centre for Scientific Research (CNRS) is the only French organization active in all scientific fields. Its unique position as a multi-specialist enables it to bring together all of the scientific disciplines in order to shed light on and understand the challenges of today's world, in connection with public and socio-economic stakeholders. Together, the different sciences contribute to sustainable progress that benefits society as a whole. Visit www.cnrs.fr.

About Université Paris-Saclay

Université Paris-Saclay was born from the shared ambition of French universities, grandes écoles and national research organizations. As a leading university in Europe and the world, it covers the fields of science and engineering, life sciences and health, and humanities and social sciences. The university's science policy closely intertwines research and innovation, incorporating both basic and applied science to tackle major societal challenges. Université Paris-Saclay offers a varied range of undergraduate to doctorate level degrees, including programmes with its grandes écoles, all of which are focused on achieving student success and employability. The university prepares students for an ever-changing world where the ability to think critically, remain agile and renew one's skills are crucial. Université Paris-Saclay also offers a comprehensive range of lifelong learning courses. Located to the south of Paris, the university extends across a vast and rich local area. Its location strengthens both its international visibility and its close ties with its socio-economic partners (major companies, SMEs, start-ups, local authorities, charities). www.universite-paris-saclay.fr/en/

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KPI	Benefit	Performance
⚙ System Efficiency	Energy saving during AC charging	**10%** improvement
	Energy saving on WLTC	Average **10%**, with higher efficiency in urban cycles
Charging Compatibility	Compatibility with various charging stations	**AC**: 7, 11, 22 kW and >200 kW
		DC: 400V, 800V and 1200V
Charging Time	Reduced charging time (at equivalent range)	Approximately 15% faster charging (e.g.: 6 hours vs. 7 hours on 7kW AC)
Power Output	Increases electric motor output	**+15%** (172 kW vs 150 kW)
🛡 Durability	Extended end-of-life range	**+10%,** due to the dynamic modules management
	Longer battery lifespan	Several additional years can be gained by replacing weaker cell modules
Reliability	Lower failure rate	**3x** fewer breakdowns; vehicle remains operational with module failure (via module bypass)
⚠ Safety	Improved thermal management	Limits severe short circuits
🛠 After-Sale Service	Easier repairs	Safe to open battery packaging (no high voltage inside)
	Improved maintainability	Ability to replace modules with updated electrochemistry (range gain)
Manufacturing	Enhanced safety during assemly	Eliminates electrical risk during battery assembly
	Reduced dependency on outdated chemistries	Removes need to maintain older Li-ion modules in production
Volume	Space savings from component removal	**17-liters** gain by removing inverter and charger
	Design flexibility	Enables improved vehicle aerodynamics for better highway range
⚖ Weight	Inverter and charger removal	**~10 kg** reduction (IBIS electronic boards vs. inverter and charger mass)
	Efficiency-driven weight savings	**~30 kg** reduction due to less embedded electrochemistry at equivalent range
Economic Efficiency	Optimized production cost	Removal of on-board charger and inverter by integration of proven, cost-optimized electronic components
	Lower total cost of ownership	Higher residual value due to multiple performance and efficiency benefits