



Ad Astra Rocket Company
141 West Bay Area Blvd.
Webster, TX 77598
USA: 281-526-0500
Costa Rica: 506-2666-9272
European Office: 0049-6192-902591, Frankfurt
www.adastrarocket.com

PRESS RELEASE 050718, MAY 7, 2018 – SAN JOSÉ HAS A SPECIAL GUEST ON MAY 8TH

[Liberia, Guanacaste – for immediate release] Central America’s first hydrogen fuel cell electric urban bus, *Nyuti*, will roll through the streets of Costa Rica’s capital on May 8, 2018 to transport President-elect Carlos Alvarado Quesada and his new cabinet to the inauguration ceremony on Democracy Square in downtown San José.

The symbolic 3.30 km route, starting at 0815 hours, at the Museum of Costa Rican Art on the west end of the city, highlights the new government’s commitment to set Costa Rica on a course to full de-carbonization of its transportation sector by the country’s bicentennial in 2021. While the nation’s electric grid is already virtually 100% carbon-free, the transportation sector still relies on imported carbon-based fuels.

Nyuti – meaning *star* in the language of the Chorotega people of northwestern Costa Rica – is part of a hydrogen ecosystem demonstration partnership, led by Ad Astra Rocket Company, to validate and measure hydrogen as a carbon-free fuel, generated from renewable water and Costa Rica’s clean and abundant domestic electricity sources such as solar and wind. The urban bus has a seating capacity of 35 passengers and a range of 340 km on 40 kg of compressed hydrogen. Hydrogen-based technologies greatly expand the range and variety (forklifts, trucks, buses, trains, private cars, ships and airplanes) of electric vehicles while maintaining the fueling-speed convenience of traditional fossil-fuel vehicles.

The Public-private partnership with Costa Rica’s Development Bank System, includes Air Liquide, a world leader in gases, technologies, and services for industry and health; US Hybrid Corporation, specializing in hydrogen fuel-cell electric vehicles, Cummins Inc. a US global power leader in diesel and alternative fuel engines, and Relaxury S.A., a subsidiary of Costa Rica’s Purdy Motor S.A, who operates the bus for the partnership. All team members have contributed their own resources to the project.

“Costa Rica has made excellent progress in de-carbonizing its electric grid, or about 30% of its energy needs. The other 70%, which lies primarily in

the transportation sector, remains to be done and hydrogen could help us bridge that gap and become the first country to achieve total independence from carbon-based fuels. The new government’s clean energy and de-carbonization commitment gives us hope that, through teamwork and focus on a common vision we could achieve a national objective in a short time”, said Franklin Chang Díaz, Chairman and CEO of Ad Astra Rocket Company. “This extraordinary achievement, obtained by a young team of Costa Rican engineers and technicians, demonstrates the great potential of our youth to lead in advanced technology projects of high social, economic and environmental impact,” he added.

A ROADMAP TO DE-CARBONIZATION

“*Nyuti*’s electric power is generated on board by a fuel cell, which draws hydrogen from a tank and combines it with oxygen from the air to produce electricity and pure water as the only byproduct. The process, in essence, recovers the water from which the hydrogen was produced. The carbon footprint is zero,” explains Juan Ignacio Del Valle, Ad Astra’s Director of Operations in Costa Rica.

Since November of 2017, Ad Astra’s engineers and technicians, working with their partners, have been carrying out integrated “field tests” of the hydrogen ecosystem at the company’s facility near the city of Liberia, Guanacaste province. The team is now moving to a wider implementation of the technology as a next phase of growth with additional partners from across the country’s industrial and business sector. The program is aligned with the stated objectives of the new government to promote clean energy sources with the ultimate goal of achieving full de-carbonization.

The development of the hydrogen ecosystem, initiated by Ad Astra in 2011, has generated valuable new skills, technological “know-how” and operational expertise to the nation, making it an industry pioneer in renewable hydrogen as a transportation fuel. “Data from our field tests enable us to measure the right parameters and calibrate our business models to design financially robust turn-key systems for our customers. In this way we can help free Costa Rica from its dependence on imported oil.” adds Del Valle.

ABOUT AD ASTRA

A US Delaware corporation established in 2005, Ad Astra Rocket Company is the developer of the VASIMR® engine, an advanced plasma space propulsion system aimed at the emerging in-space transportation market. Ad Astra also owns and operates supporting research and development subsidiaries in the US and Costa Rica. Through its subsidiaries, the company also develops earthbound high technology applications in renewable energy, advanced manufacturing and applied physics. Ad Astra has its main laboratory and corporate headquarters at 141 W. Bay Area Blvd in Webster, Texas, USA, near NASA's Johnson Space Center.

SUMMARY POINTS

- *First hydrogen-electric bus in Central America transports President elect Carlos Alvarado and his Cabinet to the inauguration ceremony.*
- *The bus is part of the Hydrogen Ecosystem Project led by Ad Astra Rocket Company.*

Why Hydrogen?

- Zero pollution
- Ideal for long-range transport of people and cargo
- Complements efforts already initiated in battery electric vehicles
- New Jobs and skills
- Costa Rica becomes a world leader in clean energy technology
- Costa Rica can export know-how and promote oil Independence in the region

PRESS CONTACTS

Grethel Berrocal
Ad Astra Rocket Company Costa Rica
Liberia, Guanacaste
Tel (506) 2666 9272
grethel.berrocal@adastrarocket.com

Miranda Chang
Ad Astra Rocket Company
141 W. Bay Area Blvd
Webster, TX. 77598
Tel (281) 526 0500
miranda.chang@adastrarocket.com

Viviana Trigueros
CCK Centroamérica
Tel (506) 2296-2722
vtigueros@cckcentroamerica.com