



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 042419, APRIL 24, 2019 – AD ASTRA STRENGTHENS GREEN HYDROGEN FOOTPRINT IN COSTA RICA, BECOMES FOUNDING MEMBER OF THE CENTER FOR HYDROGEN SAFETY

[Liberia, Guanacaste – for immediate release] Ad Astra Rocket Company, Costa Rica, has initiated two major projects valued at approximately US\$765,000 to strengthen Central America's first green hydrogen ecosystem. Project partners are, Toyota Mobility Foundation (TMF), a global foundation established by the Toyota Motor Corporation to support the development of a more mobile society, and IDBLab, the innovation laboratory of the Interamerican Development Bank (IDB) Group that supports early-stage ventures that can dramatically improve the lives of vulnerable populations due to economic, social or environmental factors. The CRUSA Foundation, a Costa Rican NGO, promoting Costa Rica's development, is responsible for the administration of both projects.

In addition, in early March, Ad Astra Rocket Company became a founding member of the newly-formed Center for Hydrogen Safety (CHS) <https://www.aiche.org/CHS>. The CHS is a globally-oriented non-profit organization, dedicated to promoting hydrogen safety and best practices, addressing and identifying concerns regarding the safe use of hydrogen worldwide. It builds on the American Institute of Chemical Engineer's (AIChE) experience in chemical industrial process safety, and access to 60,000 members in 110 countries.

Of the two hydrogen ecosystem projects, the TMF-supported one involves upgrading Ad Astra's hydrogen refueling infrastructure in Liberia to state-of-the-art passenger car capability at pressures of 700 bar (10,000 psi). Presently, the facility only supports 350 bar (5,000 psi) refueling, as required by urban buses, such as NYUTI, and other heavy duty transport. The 700 bar capability is needed to fully service passenger cars, such as the Toyota Mirai, which recently entered Costa Rica's electric mobility market and other sedans, such as the Honda Clarity and the Hyundai Nexo already in the global hydrogen market. "Hydrogen vehicles are electric, but instead of storing energy in a battery, they make electricity on board, in a fuel cell, by combining hydrogen stored in a tank with oxygen from the air. The only byproduct is pure water and the carbon footprint is zero," explains Juan Ignacio Del Valle, Ad Astra Operations Director in Costa Rica.

The project will develop additional hydrogen storage capacity at approximately 900 bar, high pressure plumbing, control software, instrumentation, hydrogen pre-cooling, and a new 700 bar dispenser that will complement the existing 350 bar unit already operational at Ad Astra. With the completion of this upgrade, Costa Rica will have the most advanced green (originating from 100% renewable sources) hydrogen refueling capability in Latin America.

The second project, sponsored by IDBLab, addresses the increased sophistication of Costa Rica's hydrogen ecosystem to refuel both buses and passenger cars. This project involves a number of deliverables associated with the safe and reliable operation of the upgraded facility. They include new operational protocols, control and monitoring software and complete system operations manuals and associated documentation

On February 24, 2019 Costa Rica launched an ambitious plan to fully de-carbonize the nation by 2050. One of the key technologies to accomplish this goal is energy storage through green hydrogen for mobility and stationary power. The Ad Astra-led green hydrogen ecosystem, a Public-Private partnership involving national and international partners, is a major step in Costa Rica's de-carbonization journey.

"We are thrilled to move forward on these projects, as we bring the most advanced fuel-cell electric vehicle technology to Costa Rica," said Franklin Chang Díaz, Chairman and CEO of Ad Astra Rocket Company. "Costa Rica's de-carbonization commitment gives us hope that, through teamwork, focus and a shared vision, we could achieve a national objective in a short time," he added.

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 R&D subsidiaries in Costa Rica focused on 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. Its Costa Rica subsidiaries are located 10 km west of Liberia, the capital of Guanacaste Province in the country's pacific northwest.

SUMMARY POINTS

Why Hydrogen?

- Zero pollution
- Ideal for long-range transport of people and cargo
- Domestic production from wind and solar, energy independence from imported oil
- 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

Press contacts

Grethel Berrocal
Ad Astra Rocket Company
Finca La Flor
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