

# CUTTING EDGE IDEAS AND FUNDAMENTAL PURPOSE

BY JOE SAGE

Atlis Motor Vehicles' headquarters in Mesa was brand new when we visited this fall—or almost so. They moved in in February 2020, just in time for the pandemic, nonetheless growing from 16 to 50 employees that summer. Personnel were busily at work among clusters of computers, hardware, wires and parts in a large volume of as-yet undifferentiated interior space, while on the far side sat a shiny new prototype electric truck.

We met with CEO and founder Mark Hanchett and president Annie Pratt, mechanical engineers with deep backgrounds in hardware, software and firmware, who previously worked together at public safety technology firm Axon in Scottsdale.

Atlis is an independent manufacturer tackling the growing EV battery and vehicle markets (see our January-February issue). Their plan for an electric pickup has made waves along with other start-ups, spinoffs and conventional automakers. But Atlis's business extends beyond this truck—just as significant is the battery technology at its core.

Despite the apparent size, scale and glory of the truck manufacturing business—and the truck itself—Hanchett emphasizes that Atlis considers itself a mobility technology company, not an automaker, and the truck we were here to see, more a tech development platform than a vehicle prototype. The battery system is the heart of the endeavor, the truck a great way to show it all off.

## ENERGY: BATTERY TECH

At the center of the project is the proprietary AMV battery pack, under development since 2016 and said to be the first ever developed and produced specifically for automotive purposes. "Existing cell designs are standardized for consumer electronics, developed and manufactured in a configura-

tion which is not ideal for an automotive application," they say. "Our battery technology meets the needs of the automotive industry, versus adopting and accepting those limitations." Atlis holds 30 provisional patents across their battery, charging, drivetrain and user experience technologies.

At the center of the battery pack is the small cube cell Hanchett holds at upper right, a tabless-anode and -cathode, prismatic design nickel magnesium cobalt (NMC) 32Ah unit with energy density greater than 500Wh/L. Proprietary extreme heating and cooling during its charge cycle achieves optimal performance at high speed. Via the Atlis 1.5 Megawatt charging port, you can consistently recharge a big truck to 100 percent in 15 minutes—comparable to refueling at the pump. Cells and

Top to bottom) Atlis President Annie Pratt and CEO and founder Mark Hanchett, as Hanchett shows off the heart of the whole endeavor: a single AMV cube cell. // Atlis XT's interior is clean, task-oriented and thoroughly modern in execution. // One of many thoughtful features courtesy of a seasoned truck guy: step-up access all the way around the bed.

packs promising 2000 rapid charge cycles are being developed in 150, 200 and 250 kWh capacities with 300-, 400- and 500-mile range.

Parallel to this is development of 1.5MW charging stations, nonexistent to date for lack of such batteries. It's an entire ecosystem. Atlis battery packs offer solutions for residential customers, on up to commercial customers with huge energy storage needs—from big corporations and fleet-based businesses, right on up to utility companies.

## PLATFORM: ATLIS XP

Atlis will sell their pickup's high-payload EV platform (or "skateboard") freestanding to coachbuilders of medium-to-heavy-duty Class 2b to Class 6 vehicles—box trucks, delivery trucks, dump trucks, cranes, emergency response vehicles, RVs and more—as well as to alternative mobility markets.

The Atlis XP platform has a 144-inch-minimum wheelbase, all-wheel drive via four independent PMSM traction motors, four-wheel independent air suspension, four-wheel independent regenerative

(cont'd)



ATLIS  
MOTOR VEHICLES





braking, 12 inches of ground clearance, 10 inches of wheel travel, and can handle per-axle loads of 10,000 pounds and 5,000-lb payload, with gooseneck tow capacity up to 35,000 pounds.

Basic performance is 600 hp with 12,000 lb-ft of peak torque at the wheels, a top speed of 120 mph, and zero-to-60 acceleration in 5.0 seconds.

Batteries can be charged via J1772, CCS 2.0, or in 15 minutes via AMV's 1.5MW charge port. With power to spare, external work outlets include 120 or 240V AC, 48 or 12V DC, and 5V DC USB.

#### EV PICKUP: ATLIS XT

All that battery and platform work leads to the Atlis XT pickup. Or the pickup led to all of that, depending upon point of view.

The whole idea was born, you see, as Mark Hanchett contemplated his own GMC diesel pickup, everything he loved about it, and everything he wished were different, the same thing most of us do with our own vehicles. But he had the background to set out to do it all better.

His premise included going electric, which he considered a big step forward, founded on a determination to build "a solution that solves the biggest pain points in the electric vehicle market today." A truck guy at heart, he has geared it toward "the work segment, not fancy trims. Farms. Construction. Trucks used for a purpose."

Using AMV's own proprietary battery and ultra-fast charging technology, atop modular system architecture, Atlis XT aims to be the world's first 500-mile, all-electric pickup truck to meet the size, refueling, towing and payload capabilities of legacy diesel-powered vehicles.

Our point-by-point tour of the truck's prototype showed off not only the big picture solutions, but a stunning attention to detail. You know how you spend time with your own vehicle, thinking, "I wonder why they don't..." or "I wish they would..." or "you know what would be a very cool idea?" Hanchett thinks like this—and acts on it. As you can see by just a small sampling of innovative features in our photos, this is a "wow, that's a great idea" vehicle from stem to stern.

In addition to the impressive powertrain and chassis stats for the platform, above, the truck has unmistakable styling, a cockpit with customizable soft keys, 360-degree surround cameras and bed camera to monitor cargo, and—its work ethos being about more than just style—maximizes utility, comfort and storage, and is easy to clean.

The front trunk (frunk) has 18.5 cubic feet of storage, said to be the largest in the market today. Bed sizes are 6.5 or very welcome eight feet. Cabs seat three or six. Configuration options range from pickup to service body to flatbed, perfect for fleet owners, workers and tradespeople who need the

(Top to bottom, left-right) Atlis CEO Mark Hanchett powers up a welder and performs some tasks, using the frunk's high-powered outlets. // Adaptable to the width demands of trailering or not, video mirrors are on retractable stalks. // The AMV 1.5MW charging port on the front left fender. // XT has four-wheel independent air suspension. // Even the windshield washer fluid reservoir has easy and clean outside access. // AMV's new headquarters in Mesa.

ability to change the overall configuration.

As impressive as the truck's up-to-500-mile range is its projected million-mile lifespan.

Atlis has also developed a subscription ownership model, with a starting rate of \$700 per month including everything from warranty, to registration and insurance, to routine maintenance and inspections, all in one consistent negotiation-free payment, with the flexibility to change or cancel at any time, or to get a new vehicle every three, five or seven years. The plan also includes unlimited free charging at Atlis advanced chargers.

#### CROWDFUNDING

Atlis has avoided going the venture capital route, very understandably preferring not to cede that level of ownership and control. Late this summer, they launched a \$5-million-dollar share-based equity crowdfunding campaign within Securities Act regulations, funds earmarked for battery engineering team expansion, additional testing and validation equipment, raw materials purchases, additional production-level design for the XP platform, and expanded sales and marketing efforts.

The company, as of September valued at \$385 million, had already attracted over \$16 million in previous crowdfunding, toward developing its proprietary EV battery cells and packs.

#### FIRST ORDERS

Their energy technology is a key differentiator in Atlis vehicles and platforms, but also a significant business unit of its own, expected to be profitable by next year, far sooner than a new, out-of-the-blue vehicle would be. Response has been prompt and strong. This summer, Atlis signed a memo of understanding with Italian/American lightweight EV manufacturer Elettricar's Motor Company to purchase 4,000 battery packs, complete with proprietary battery management and cooling systems, in bulk by 2023. And this fall, startup mobility tech company Australian Manufactured Vehicles signed an agreement for the purchase of 19,000 Atlis XT pickups through 2025, taking charge of righthand-drive layout, compliance, service and charging infrastructure in that market. ■

