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Stellantis Launches Multi-Energy STLA Frame Platform For Ram And Jeep

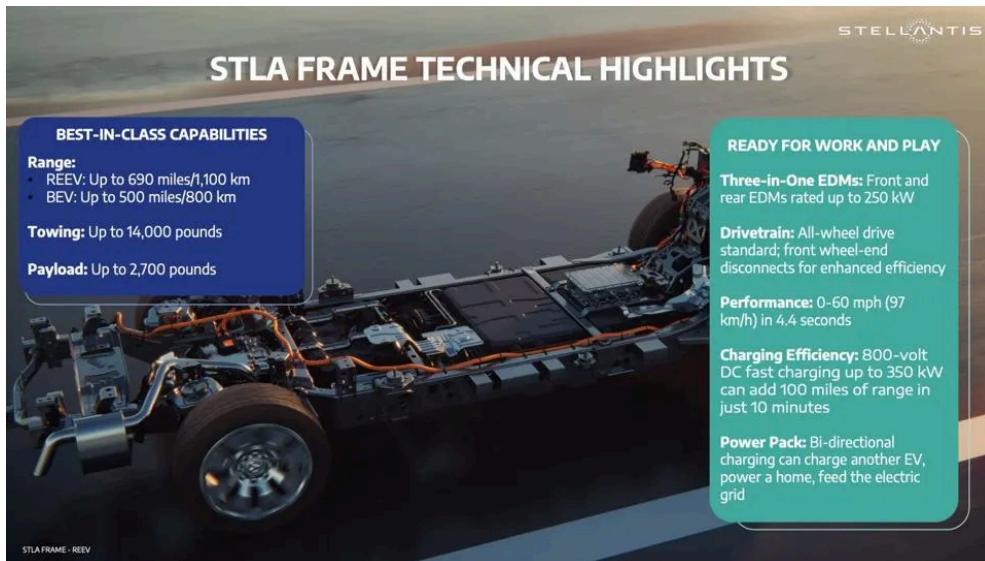
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Stellantis is launching its STLA Frame platform for full-size trucks and SUVs from Ram and Jeep STELLANTIS

Way back in July 2021 when Stellantis had only been in existence for a few months following the merger of PSA and Fiat Chrysler, the company had an EV day. At this event, the company led by CEO Carlos Tavares laid out a grand plan for its transition to electric propulsion that included 100% zero emissions vehicle sales in Europe and 50% in North America by 2030. While those targets now seem unlikely to be achieved by the end of the decade, Stellantis is still pressing ahead with the launch of electric vehicles on its four new platforms, STLA Small, STLA Medium, STLA Large and STLA Frame. STLA Frame is expected to be a primarily North American platform that will be launching soon as the basis of full size trucks and SUVs.

Several STLA Medium vehicles are already on sale in Europe across the Peugeot, Opel and Vauxhall brands. The first STLA Large models are due to go on sale imminently as the Jeep Wagoneer S and Dodge Charger Daytona. While the others are all unibody architectures, STLA Frame, as the name implies is for larger body on frame models starting with the Ram 1500 pickup and followed by the Jeep Wagoneer.



Stellantis' STLA Frame platform will include a battery electric variant for the Ram 1500 REV with up ... [+] STELLANTIS

All three of these larger platforms are designed to be so-called multi-energy platforms. While they are all designed to accommodate battery electric propulsion, each can also accommodate internal combustion and various flavors of hybridization, including mild and strong hybrids, plug-in hybrids and extended range EVs (EREVs although Stellantis seems to prefer REEV). Stellantis calls their multi-energy approach unique, but numerous automakers are doing something similar, most notably BMW which has a dedicated EV platform for the iX but flexible platforms for most of its other models including the 3, 5, and 7 series and upcoming SUVs.

The first STLA Frame products will be the battery electric Ram 1500 REV and Ramcharger. These are the last of the Detroit designed full-size trucks to get electrified

following the Ford F-150 Lightning, Chevrolet Silverado EV, and GMC Sierra EV (there's also the GMC Hummer EV SUT, but that's not really practical as a traditional pickup). Rivian and Tesla also offer electric pickups and VW offshoot Scout Motors will be launching one in 2027.

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2025 Ram 1500 REV STELLANTIS

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Stellantis has taken a middle path between the approaches chosen by Ford and GM for their electric trucks. Ford chose to stick with a modified version of the frame and body

used for its internal combustion pickup trucks in creating the Lightning. While Ford retained a separate frame and heavily modified it, the frame remains the same width with the same mounting points for the body as the gas version.

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GM created an all-new dedicated platform that integrates the frame rails into a unibody. Unlike the Ford frame where the rails are several inches inboard from the edge of the body, GM moved the rails out near the perimeter. This allowed for a wider and deeper battery pack. In fact, the GM trucks use a dual layer battery that is effectively two batteries stacked on top of each other. While the Lightning is currently limited to a 130-kWh battery, the GM trucks offer a battery with well over 200-kWh and range up to 492 miles of range.

Stellantis opted to retain a separate frame, but the frame appears to be wider than the Ford and has more capacity to hold a battery. For the battery electric REV, Stellantis will offer a standard range version with 159-kWh that should provide at least 350 miles of range. The large capacity battery is expected to have a 229-kWh capacity and Stellantis expects this truck to have a range of at least 500 miles.



Ram 1500 Ramcharger STELLANTIS

The STLA Frame is designed to support vehicles with a length of 216-234 inches and wheelbase of 123.7 to 145.3-inches. With the short bed (5-ft-7-inch) crew cab Ram 1500 measuring 233.7-inches long with a 145.1-inch wheelbase, there presumably won't be a long-bed (6-ft-4-inch) variant coming anytime soon. This platform does support multiple suspension layouts including coil spring or air springs and a ground clearance up to 10.3-inches which gives it a 2-inch advantage over the Lightning in off-road conditions. The STLA Frame platform has also been validated for water fording at depths up to 24-inches. The maximum tire size is limited to 33-inches which means we probably won't be getting an electric RHO or TRX variant anytime soon.

The Ram will use a pair of 250-kW electric drive modules (EDMs) delivering 663-hp and 615 lb-ft of torque that should push this truck to 60 mph in 4.4-seconds. Each EDM integrates the drive motor, gear box and power electronics. While not as rapid as the fastest versions of the Cybertruck or Rivian R1T, that is still far quicker than most people ever really need, especially in a truck. The front drive unit has disconnect system that can be engaged under light load conditions to reduce drag and improve efficiency. The rear drive unit includes an electronic locking differential to provide more grip off road.

The REV will use an 800V charging configuration with support for charging at up to 350-kW. That matches the capability of the GM trucks and more than doubles the 150-kW maximum charging rate of the Ford. It's probable that Stellantis is using a similar setup to GM with a voltage splitter that sends 175-kW to each of the two battery layers, effectively treating it as two batteries charging in parallel. Stellantis claims the REV can add up to 100-miles of range in 10 minutes. Like the Ford and GM trucks, STLA Frame does include support for bidirectional power so that it can be used to charge another EV,

or power a home during an outage. So far Stellantis hasn't announced any sort of integration kit for home power backup.



Stellantis' STLA Frame platform supports extended range EVs with the Ram 1500 Ramcharger having a ... [+] STELLANTIS

So far the bane of electric pickup trucks has been towing. It's not that they can't tow, with all of the available options being able to easily pull at least 10,000-lbs. The Ram will have a 14,000-lb tow rating and 2,700-lb payload for both the REV and Ramcharger. The issue is that when towing a large trailer, efficiency tends to drop by at least half and in turn so does the range. Depending on the trailer type, tests of the Lightning have shown a towing range of as little as 80 miles up to 150 miles. The much larger batteries in the ram should enable towing of over 200 miles with the big battery, similar to the capability of the GM trucks.

This is where the EREV Ramcharger is expected to shine. With a smaller battery of just 92-kWh but the same motors as the REV, it should have a range of more than 140 miles on a charge, far more than most people will use on a daily basis. That means the Ramcharger will be mostly just like the REV and with electric only propulsion should feel the same. The smaller capacity battery will be limited to charging at 400V and 175-kW.

The smaller battery takes up the front half of the frame while behind that is a 27-gallon gas tank. Sitting above the front drive motor, Stellantis is using a 3.6-liter Pentastar V6 hooked to a generator. As the battery runs down, the range extender fires up and maintains the state of charge of the battery so that it can provide the full expected performance capabilities. With a full charge and a full tank of fuel, the Ramcharger is expected to have a nominal range of 690 miles.

Even with the largest trailers, the Ramcharger should be able to go about 300 miles on a charge and a tank, more than the distance most people will want to go without a break. Even if a charger isn't available, the tank can be refilled in a few minutes while a charge shouldn't take much more than 30 minutes. While the EREV system does add some complexity, it will provide a lot more flexibility to owners, especially those that need to tow long distances.



2022 Jeep Grand Wagoneer SAM ABUELSAMID

It is also likely to be the least costly to build. Compared to the standard battery in the REV, the 76-kWh smaller battery could be over \$9,000 cheaper (assuming \$120/kWh). Adding back \$4,000-5,000 for the engine, generator, fuel system and other components, the Ramcharger will still likely be several thousand dollars less to build although the price to consumers may not be any cheaper.

Timing for the launch of the electrified Ram trucks has slipped a bit. The REV was supposed to launch by the end of 2024, but CEO Carlos Tavares now says it will be arrive in the first half of 2025. Following the Ram 1500 pickups, the EREV system will also be offered in the full-size Wagoneer SUV. A battery electric version is also expected at some point, although with the constant changes in production schedules for EVs, it might be a couple of years away.

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