An EV Is the Best Defense Against a Military Assault

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Herman and Shadlow argued in *The Wall Street Journal* ("A Good Battery Is the Best Defense Against a Military Assault," March 30, 2021) that advanced batteries, rather than simply more weapons, are essential for defense. Advanced batteries have become a critical part of energy storage and supply.

Adversaries that can cut off energy supplies can cripple U.S. operations. The 1973 OPEC oil embargo proved the point. It exposed America's vulnerability to imported energy and ignited decades of innovation in domestic production, culminating in the shale and fracking revolutions that made the U.S. one of the world's largest producers of oil and natural gas. But it took decades and may have contributed to numerous global conflicts.

That same embargo also inspired early battery research. Exxon launched an advanced-battery program in the 1970s, though it was later shelved. Japanese scientists built on that foundation, creating the lithium-ion battery in the 1990s. Today, these batteries power nearly every portable device, EVs, drones, satellites, and many weapons systems.

Much of the underlying chemistry especially cathode materials such as NMC, NCA and LFP, which make up more than half the cost of a cell originated in U.S. laboratories. However, America's lead in battery innovation and especially in production has eroded.

Roughly 90% of global battery manufacturing now takes place in Asia: China (70%), Japan (11%) and South Korea (9%). Even more troubling, the next generation of battery R&D is also migrating abroad.

If advanced battery supplies were cut off, the U.S. consumer economy and its defense capability could grind to a halt—similar to the OPEC oil embargo, perhaps worse.

Control over this widely used energy-storage technology will shape future military readiness even more as ground EVs, low-altitude aircraft, drones, satellites, data centers and battery-powered weapons proliferate.

Advanced batteries are one of several foundational defense technologies, alongside sensors, semiconductors, communications infrastructure, navigation and guidance systems (including GPS), electric motors and artificial intelligence. All of these converge in the electric vehicle, which integrates them into a single platform. An EV is therefore not just transportation—it is the core of a strategic industrial and defense ecosystem.

The U.S. is a market economy; the government cannot directly build factories outside wartime. Industry does and it invests only where market demand exists. U.S.-centric EV production would create enormous domestic demand for defense-critical technologies, foremost batteries, and drive investment in both R&D and manufacturing.

About 15 million vehicles are sold each year in the U.S. and roughly 80 million worldwide, including about 35 million in China. China aims for roughly half of its domestic sales to be EVs, primarily produced by its own auto companies, plus another 10 million for export. This scale would generate approximately $2 trillion in vehicle sales and $600 billion in EV batteries (with hundreds of billions more for other battery applications especially energy storage, robots, and drones.)

EV manufacturing costs, once a barrier, are now competitive with gasoline vehicles. A typical EV has a 60-kilowatt-hour battery pack, with costs down to about $125 per kWh—a nearly 90% drop since 2010. The combined cost of the battery and electric motor is roughly $10,000, about equal to the cost of a gasoline engine, transmission and fuel system. Projected costs of $85 per kWh would make fuel-based cars noncompetitive. EVs also cost roughly 50% less to operate over their lifetime, providing a powerful consumer incentive.

Implementation drives discovery, and discovery fuels further implementation—a virtuous cycle that has long been central to U.S. industrial dominance. A domestic EV industry would ignite U.S.-centric innovation across these defense-critical sectors and beyond.

Energy logistics is another critical defense consideration. Fuel convoys are among the military's most lethal vulnerabilities. Herman and Shadlow note that more than 3,000 American soldiers and contractors were killed protecting or driving fuel convoys in Iraq and Afghanistan. EVs charged from local grids or portable solar arrays would eliminate much of that risk. Solar panels now reach roughly 25% efficiency and can deliver power at costs comparable to or below fossil fuels. Large solar farms can be deployed in weeks, while fossil-fuel plants require years and face equipment backlogs.

An electric vehicle is more than a car. It is an engine of national strength—preserving energy independence, industrial leadership and defense readiness. Extending Herman and Shadlow's argument that a good battery is the best defense against a military assault, it is now the EV that may be the best defense of all.

Whoever controls the EV industry will control the world's most strategic technologies, supply chains and add trillions to its economy.