

From Separate Worlds to Shared Priorities

How Energy and Defense
Innovation Are Converging

Two Innovation Ecosystems That Rarely Interacted

For decades, energy innovation and defense innovation largely operated in separate worlds. The energy sector focused on commercial adoption, with success measured through utility partnerships, industrial deployment, customer demand, and market growth. Defense innovation, by contrast, was shaped by mission requirements, procurement processes, and national security priorities.

While both ecosystems were advancing technology, they often operated on different timelines, served different customers, and were driven by different incentives.

Even the language evolved differently.

During a recent industry event, Lara Cottingham, Chief of Staff at the [Foundation for Energy Security and Innovation \(FESI\)](#), reflected on her experience moving between the energy and defense communities. "After years of hearing the [Small Business Innovation Research](#) program referred to as 'S-B-I-R,' I realized that outside the energy ecosystem, folks simply called it 'Sibber.' It sounds like a small distinction, but it's a perfect example of how energy and defense have developed as separate innovation ecosystems, each with its own language, culture, and networks, even when they're often working toward similar goals."

Today, that separation is becoming increasingly difficult to maintain.

The convergence between energy and defense innovation is not occurring because of a single technology or policy change. It is happening because two historically separate ecosystems are beginning to confront many of the same challenges and pursue many of the same capabilities.

As energy security becomes more closely linked to national security, the boundaries between commercial and defense innovation are becoming less distinct. Technologies once viewed primarily through commercial lenses are increasingly attracting attention from defense stakeholders, while organizations across both ecosystems are exploring new pathways for funding, validation, deployment, and scale.

For innovators, investors, and public-sector leaders alike, understanding that convergence is becoming increasingly important.



Why Energy Security Is Becoming National Security

The convergence between energy and defense innovation is not being driven by a single breakthrough technology. Instead, it is being driven by a growing recognition that many of the technologies shaping the future of energy are also becoming critical to national resilience and security.

Grid resilience is one of the clearest examples.

For decades, grid modernization was viewed primarily as an energy-sector challenge. The focus was on reliability, efficiency, affordability, and keeping electricity flowing to homes and businesses. While those priorities remain important today, the conversation has expanded. Reliable energy is increasingly viewed as essential infrastructure that supports everything from economic activity and industrial production to communications systems and military readiness.

As Hadas Webb, FedTech's Director of Energy Innovation, recently observed, "Our electric grid was designed for a different era. While innovative energy technologies continue to emerge, their deployment is often slowed by permitting and regulatory hurdles, lengthy validation and pilot processes, interconnection queue backlogs, and fragmented standards. Fundamentally, we need a stronger, more resilient grid and a faster path to bringing new solutions online."

While simple, the observation captures the scale of the challenge. Infrastructure originally built for a very different economy is now expected to support growing electrification, increasingly digital industries, expanding AI workloads, and rising resilience requirements across both commercial and government environments.

Reflecting on aging infrastructure in her own region north of Boston, Webb jokingly described parts of the system as "strings on sticks" that somehow continue to keep everything powered. The comment was made in passing, but it highlights a broader reality. Modernization is no longer simply an efficiency issue. It is increasingly becoming a resilience issue.

The Domains Have Not Changed. Their Strategic Importance Has.

The same shift is occurring across other technology areas. Critical minerals, distributed power systems, and autonomous infrastructure are no longer viewed solely through commercial or energy-sector lenses. Increasingly, they sit at the intersection of economic competitiveness, infrastructure resilience, and national preparedness.

What makes this convergence particularly interesting is not that these technologies have remained static. Innovation continues to accelerate across each of these domains. What has remained consistent are the underlying challenges they address and the strategic importance of solving them.

What has changed is how these technologies are being evaluated, and who is paying attention to them.

Capabilities that once attracted interest primarily from utilities, industrial operators, and energy stakeholders are now drawing attention from defense organizations, policymakers, and national security leaders as well. As a result, technologies that once had relatively straightforward commercialization pathways are increasingly being evaluated by a much broader set of potential customers and partners.

When Government Becomes the Customer

One of the most significant shifts occurring across the energy innovation ecosystem is not technological. It's commercial. For decades, many energy innovators followed a relatively familiar path to market. Build the technology, secure pilot projects, demonstrate commercial value, and eventually pursue customers within the utility, industrial, or corporate sectors.

Government often played an important role in that journey, but usually as a source of funding. Federal programs could provide grants, technical assistance, demonstration opportunities, and commercialization support that helped technologies move closer to market.

What many innovators are only beginning to recognize, however, is that government can play another role entirely. It can become the customer.

During our conversation, Webb highlighted a distinction that is becoming increasingly important for energy innovators to understand:

“The Department of Energy helps fund innovation. The Department of War can buy innovation.”

Hadas Webb, Director of Energy Innovation

This shift is already becoming visible across the federal innovation ecosystem. Novos Power, the 2026 showcase winner of FedTech's Navy-funded Crucible Ignitor program, was built on technology originating from DOE and NASA research, illustrating how innovations developed within one part of the federal ecosystem can ultimately create value for another.

It is also changing how many innovators think about dual-use technologies. Traditionally, dual-use has often been described as a single technology serving both commercial and defense markets. Increasingly, however, dual-use is not simply about applications. It is also about customer pathways.

The same technology may have relevance for utilities, industrial operators, and corporate buyers while also serving defense installations, operational environments, or mission-driven deployments.

For many organizations, this represents a fundamentally different way of thinking about commercialization. The opportunity is no longer limited to identifying a market. Increasingly, it involves understanding which customers, commercial, government, or both, may benefit from the same technology.

Lara Cottingham, Chief of Staff at the Foundation for Energy Security and Innovation (FESI), sees this convergence as part of a much larger transformation.

"The next generation of American competitiveness won't be defined solely by who invents the best technologies; it will be defined by who builds the strongest innovation ecosystem around them.

Congress recognized that challenge when it created FESI to bridge DOE-funded technologies with the external partners that can accelerate commercialization and deployment, which increasingly include defense agencies, investors, and manufacturers.

We have to innovate not just the technologies themselves, but the institutions and partnerships that move those technologies from the lab to deployment."

Lara Cottingham, Chief of Staff at the Foundation for Energy Security and Innovation (FESI)

Why Commercial and Defense Validation Reinforce Each Other

One of the more interesting themes emerging from conversations across both energy and defense innovation is that commercial and government adoption are not always competing pathways. In many cases, progress in one ecosystem can strengthen credibility in the other.

This runs counter to a common assumption that organizations must choose between pursuing commercial customers or focusing exclusively on government opportunities. While there are certainly situations where companies ultimately commit to one path, the reality is often more interconnected.

Commercial Traction Still Matters

During a recent panel discussion, Webb spoke with Veronika Stelmakh, Cofounder and CEO of Mesodyne, a portable power technology company that originated within the [MIT Institute for Soldier Nanotechnologies](#), a defense-focused research environment. Unlike many startups that later discover defense applications, Mesodyne was built with the Department of War in mind from the beginning. The company was not originally pursuing a dual-use strategy. Its focus was defense technology.

Yet even in that context, commercial validation proved valuable. The founder noted that commercial traction, including utility memorandums of understanding and broader market interest, helped generate confidence among defense stakeholders and investors alike.

"Walker and I founded Mesodyne during our PhDs at MIT to solve a critical, growing problem: the massive power challenges facing deployed Warfighters. Our goal is to bring superior, long-endurance tactical power to the most austere environments. Commercial markets are on our horizon, but right now, we are laser-focused on delivering technology that ensures mission success."

The observation highlights an important reality. Even when a company is pursuing defense customers, external validation can still strengthen the overall commercialization story.

Validation Flows Both Directions

The relationship works in the opposite direction as well. Defense deployment can provide a form of validation that is difficult to replicate elsewhere.

"If something works in an austere environment, if you can get it to work on a [military] base, then it's mission-safe for commercial settings."

Hadas Webb, Director of Energy Innovation

That credibility often extends beyond defense applications. Technologies that perform successfully in demanding operational environments can generate confidence among commercial customers, regulators, and other stakeholders.

In some cases, defense deployment becomes more than a revenue opportunity. It becomes proof that a technology can operate reliably under challenging conditions. The resulting performance data can also help establish standards, inform future deployments, and accelerate adoption in adjacent markets.

The Playbook Is Still Being Written

As energy and defense innovation continue to converge, organizations are gaining access to new commercialization pathways. What remains less clear is how those pathways should be navigated.

One of the most interesting questions emerging from this convergence is surprisingly difficult to answer: "When should an organization commit to a commercial pathway, a defense pathway, or a dual-use strategy?"

For many technologies, the answer is no longer obvious. Commercial customers may provide validation and revenue, while defense stakeholders may offer deployment opportunities, procurement pathways, and mission-driven demand. Increasingly, organizations find themselves evaluating opportunities across both ecosystems.

The challenge is determining when exploration becomes commitment.

As Webb noted, this remains an open question even among many of the startups, investors, and innovation stakeholders actively working in the space. While there is growing recognition that technologies can succeed across multiple customer pathways, there is far less agreement about when organizations should choose one path over another, or whether they need to choose at all.

Part of the challenge is that the landscape itself continues to evolve. Federal priorities change, funding flows shift, and agency mandates evolve. New programs emerge while others simply disappear, and a commercialization strategy that makes sense today may look very different three years from now.

For organizations operating at the intersection of energy and defense, adaptability may be just as important as technical execution. Success increasingly depends not only on understanding today's opportunities, but also on recognizing that the rules themselves are still being written.

The Challenge Ahead Is Cultural, Not Technical

Much of the discussion surrounding energy and defense convergence focuses on technology, funding, procurement pathways, and commercialization strategies. Those factors, of course, matter. But one of the biggest barriers may be something far less tangible.

Culture.

For decades, the energy and defense ecosystems evolved independently. They developed different priorities, different communication styles, different networks, and different definitions of success. As those ecosystems begin to converge, technology alone is not enough to bridge the gap.

Understanding the Mission Matters

During conversations with founders and defense technology stakeholders, Webb repeatedly encountered a similar theme: organizations pursuing Department of War opportunities cannot treat defense as simply another market segment.

As Webb recalled from one discussion, "If you're going to work with the Department of War, you have to believe in that mission."

The observation highlights an important distinction. Organizations pursuing defense opportunities cannot simply treat the Department of War as another customer segment. Instead, success requires understanding the mission, the operational environment, and the priorities that drive decision-making.



Bridging the Gap Between Two Ecosystems

The challenges extend beyond mission alignment. Organizations entering defense markets often discover that the advisors, mentors, and commercialization strategies that served them well in commercial markets do not always translate directly into defense environments.

Understanding which programs matter, how procurement pathways work, how technologies are evaluated, and how to communicate value to defense stakeholders requires a different set of experiences and relationships.

Organizations should not assume their existing commercial advisors will automatically know how to navigate defense opportunities. The learning curve is very real.

This is where FedTech increasingly sees an opportunity to help bridge the gap. Through its work across federal laboratories, startups, government agencies, and commercialization programs, the organization is helping innovators better understand defense pathways, identify relevant opportunities, and adapt their positioning for new audiences.

The convergence of energy and defense innovation is often described as a technological shift. In reality, it is also a human one.

In many ways, the technology is already converging. The greater challenge is helping historically separate communities learn how to communicate, collaborate, and create value together.

Contributors



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Hadas leads the energy innovation portfolio at FedTech. She oversees federal, regional, local, and international initiatives across energy, climate, aerospace, and life sciences that bridge feasibility analysis with on-the-ground venture activation. With over a decade of experience building innovation ecosystems at the intersection of federal research, private enterprise, and state-level impact, Hadas is adept at connecting strategy with execution. Her strategic oversight ensures programs align with economic development goals, emphasizing stakeholder integration, federal-state alignment, and practical implementation. She also serves as a subject matter expert in energy technology and innovation. Hadas holds both a B.S. and M.S. in Mechanical Engineering.

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