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SUBMITTED ELECTRONICALLY

Eric Rollison
Assistant Director, Technology Development
Office of Cybersecurity, Energy Security, and Emergency Response
U.S. Department of Energy
1000 Independence Avenue SW, Washington, DC 20585

Re: Request for Information – Securing the United States Bulk-Power System (Docket No. DOE-HQ-2026-1123)

Dear Assistant Director Rollins:

The Solar Energy Manufacturers for America (SEMA) Coalition appreciates the opportunity to respond to the Department of Energy's (DOE) Request for Information (RFI) on Securing the United States Bulk-Power System, issued to implement Executive Order 14421, *Declaring a National Emergency to Secure the United States Bulk-Power System*, issued on August 26, 2026.

The SEMA Coalition is a diverse group of solar manufacturers united to rebuild the domestic solar supply chain. We represent the major non-Chinese solar manufacturers who are building or looking to build strategic solar components across the value chain in the U.S. Our coalition advocates for policies to develop a secure and competitive U.S. solar supply chain that meets rising energy demand, creates good-paying manufacturing jobs, and protects our national and energy security.

The SEMA Coalition strongly supports the objectives of E.O. 14421. The security of the bulk-power system is, at its core, an industrial base and energy security question: a nation that depends on foreign adversaries for the equipment that runs its grid is not energy dominant – it is energy dependent. President Donald J. Trump recognized that threat in his first term, and we are pleased to see the current Administration build on that record. DOE's implementation of this E.O. offers an opportunity to close the vulnerabilities we face in our grid that have grown in recent years.

As DOE looks to implement this E.O., it's critical that the agency focuses on **targeting adversary ownership and control** of bulk-power system electric equipment – not specific technologies that provide energy. DOE's implementation should sharpen the distinction between trusted bulk-power system equipment manufactured in the United States and allied countries, including solar, storage, and power electronics, and equipment from entities owned, controlled, or subject to the jurisdiction of Chinese entities. The security objective is achieved by targeting ownership and control and it is critical that the agency maintains a clear distinction between American and allied-made solar and that which is produced

by our adversaries. Otherwise, implementation would weaken the domestic industrial base that the E.O. is meant to protect.

The SEMA Coalition urges DOE to ensure that this E.O.'s implementation, and any grid interconnection, market access, or procurement definitions that flow from it, rest on the “ownership, control, and subject to the jurisdiction of” test, rather than imposing restrictions based on technology type. This approach would allow DOE to strengthen grid security while supporting a robust U.S. advanced energy manufacturing and industrial base. We highlight this because bulk-power, interconnection, and grid access rules can unintentionally disadvantage the deployment of American-made solar technology, thereby undermining the very investments [this Administration is seeking](#).

The SEMA Coalition’s comments focus on where our members have direct experience and where the solar supply chain intersects with the bulk-power system. As an industry coalition, our response to the RFI is focused on industrial policy and definitions to ensure a secure buildout of the U.S. energy system. This includes:

- Treatment of grid-connected inverters and battery energy storage systems and their associated software, firmware, and remote-access capabilities;
- The definitions of “foreign-produced” equipment and “Covered Foreign Entity”
- Domestic manufacturing, secure replacement capacity, and Federal procurement.

A. Scope, Definitions, and Covered Transactions

(A-2) Which equipment categories or applications in the Executive order's definition of “bulk-power system electric equipment” require further clarification to enable consistent compliance? What objective characteristics should DOE consider for utility-scale and other grid-connected inverters, battery energy storage systems (BESS), universal power systems (UPS) supporting critical infrastructure, small generators, backup generators, industrial control systems, and equipment used in facilities that combine transmission and distribution functions? Identify any equipment-specific voltage, capacity, connectivity, function, location, or criticality thresholds that would improve clarity without creating material security gaps.

The primary security vulnerabilities in solar power on the electric grid stem from grid-tied inverters and BESS — which include a complex bill of materials and are connected to the internet with firmware modification capabilities — rather than standard generation hardware like solar panels. [Investigative findings from 2025 revealed unauthorized cellular transmission components embedded within foreign-manufactured battery units and inverters](#) operating across domestic electrical infrastructure.

Governments in Europe have started to take the threat of adversary-made inverters seriously. In April, the European Commission issued guidance [restricting EU funding projects using inverters from high-risk suppliers](#). Recently, cybersecurity [experts advising the European Commission warned](#) that inverters and software from high-risk third-country suppliers should be restricted in all market segments. Lithuania [banned remote access by Chinese companies](#) to solar, wind and storage installations above 100 kW in

November 2024, and Czechia's cybersecurity agency [warned in September 2025](#) that Chinese inverters pose a potential security threat.

The U.S. now has the most comprehensive regulations concerning adversary-made inverters. In July, the Federal Communications Commission issued [National Security Determination on the Threat Posed by Foreign-Produced Power Inverters](#), establishing an important and thoughtful precedent. This action will phase out the use of inverters manufactured by foreign adversary-owned and controlled entities. The policy establishes that if a new inverter model is either eligible for the Section 45X Advanced Manufacturing Production Tax Credit, and thus complies with Prohibited Foreign Entity rules under 26 U.S.C. § 7701(a)(51) concerning foreign adversary entities, or complies with Buy American rules under 48 CFR § 25.101(a), it is considered “domestically produced” and is not considered a threat. This policy will limit vulnerabilities posed by grid-connected foreign adversary-made inverters, enhance the use of domestically manufactured inverters, and maintain the needed supply of inverters from allied nations.

The SEMA Coalition urges DOE to establish clear, functionality-based parameters identifying which utility-scale inverters, along with grid-connected storage assets that serve bulk electrical supply, fall within the order's scope. DOE should also, where feasible, provide clear guidance identifying which manufacturers or suppliers meet the order's “owned, controlled, or subject to the jurisdiction or direction of” a Covered Foreign Entity standard.

(A-5) For purposes of the definition of “foreign-produced,” what facts should DOE consider when determining whether an article is manufactured, produced, or assembled in the United States?

(a) How should DOE treat final assembly, substantial transformation, domestic content, contract manufacturing, original design manufacturing, white-labeling, refurbishment, remanufacturing, repair, and incorporation of foreign critical components?

(b) What facts should DOE consider when determining whether software, firmware, digital services, maintenance services, or remote-access capabilities associated with such equipment were “designed, developed, manufactured, or supplied” by persons owned by, controlled by, or subject to the jurisdiction or direction of a Covered Foreign Entity?

(c) What records can manufacturers, importers, distributors, and purchasers reasonably provide to substantiate country of manufacture, production, or assembly?

Determining foreign production solely through a “country-of-origin” (country-of-final-assembly) standard creates dangerous loopholes. The SEMA Coalition has long observed foreign competitors circumventing trade rules by shifting minor assembly steps to third-party nations (resulting in a number of trade enforcement actions such as antidumping and countervailing duty investigations), using transit hubs, and engaging in light manufacturing solely to obscure true provenance while retaining full operational authority and critical supply chain dominance.

To establish a robust framework for “foreign-produced” items, DOE must look beyond superficial manufacturing, white-label operations, or basic refurbishment. Instead, the agency should evaluate:

(a) corporate ownership and governance structures of entities developing the hardware and essential subcomponents, and

(b) the complete country of origin history of integrated critical parts, software, and underlying code. It is essential that DOE evaluate beneficial ownership – and work closely with its partner agencies who are often tracking similar issues – namely the Department of the Treasury and its implementation of the Prohibited Foreign Entity rules, the Department of Commerce and its trade remedy actions, and U.S. Customs and Border Protection, which leads enforcement at the border.

Merely changing the final assembly location should not allow hardware or software from adversary-controlled entities to bypass oversight. **At the same time, DOE must safeguard pathways for domestic manufacturing and focus squarely on eliminating adversary influence.** Regarding compliance documentation under (A-5(c)), standard commercial declarations, component manifests, supply chain attestations, and beneficial ownership information provide an immediate foundation, though verifying ultimate corporate control and code integrity may necessitate specialized audit disclosures – and, as noted above, working with partner agencies.

B. Covered Foreign Entities and Supply Chain Risk Management

(B-1) What commercially available data sources, supplier disclosures, corporate records, certifications, or third-party services are used to identify foreign ownership, control, jurisdiction, direction, or influence? Describe their accuracy, limitations, coverage, update frequency, cost, and treatment of privately held firms, trusts, investment funds, State-owned enterprises, and opaque ownership structures.

Commercially available data sources, supplier disclosures, and corporate records for ownership, control, jurisdiction, direction, or influence have legitimate limitations — incomplete coverage of privately held firms, state-owned enterprises, and layered or opaque ownership structures; uneven accuracy; and information that dates quickly – particularly when it comes to Chinese-owned or controlled entities that are often able to nimbly sidestep regulations through corporate restructuring. For that reason, it is essential that the agency adopt a comprehensive interpretation of jurisdiction, ownership, and governance

DOE should anchor its identification of Covered Foreign Entities to authoritative, regularly updated Federal designations and interpret ownership, control, jurisdiction, direction, and influence broadly, resolving ambiguity in favor of capturing adversary control. Existing relevant federal designations include the Department of Defense's 1260H list, the UFLPA Entity List, the FCC's recent actions on foreign-produced power inverters, and the ownership-and-control concepts Congress and Treasury have developed/are developing under 26 U.S.C. § 7701(a)(51) for Prohibited Foreign Entities. Aligning implementation with these interagency baselines ensures regulatory consistency, provides market participants with a clear compliance metric, and reinforces rigorous supply chain oversight. For example, the FCC's recent action to align implementation of its ban on foreign-produced power inverters to ensure inverters eligible for the Section 45X tax credits are considered "domestically produced" reduces regulatory burden and ensures industry adheres to one set of rules.

The SEMA Coalition remains concerned that, in current market conditions, the advanced energy industry remains saturated with self-issued supplier declarations asserting non-foreign adversary alignment that crumble under basic scrutiny; a regulatory framework that relies on unverified self-certifications will inevitably fail to safeguard the grid. The SEMA Coalition urges DOE to require authenticated records

demonstrating true country of assembly and ultimate ownership and governance. These disclosures must be backed by rigorous third-party auditing and verification protocols, not voluntary attestations.

C. Risk Evaluation and Transaction Review

(C-2) What evidence should DOE consider when evaluating technical and supply chain risk? Address vendor and product history; ownership and control information; design and development practices; production and testing records; certifications; independent laboratory results; vulnerability and incident history; software and firmware provenance; update and remote-access architecture; secure development practices; supply concentration; geopolitical and logistics exposure; and the quality, recency, and verifiability of evidence.

In evaluating supply chain exposure, DOE must look beyond nominal corporate headquarters or simple brand labeling. A comprehensive evaluation requires examining ultimate beneficial ownership and organizational governance, as well as any reliance on adversarial nations for critical components. When executed properly, this framework clearly delineates trusted, reliable, U.S.-manufactured advanced energy assets from hardware subject to foreign adversary direction. The SEMA Coalition urges DOE to prioritize ultimate corporate authority – essentially true ownership and control – rather than using general technology categories as a generalized proxy for threat level.

(C-3) What factors best measure the risk of supply disruption? Identify equipment or critical inputs for which single-source or concentrated supply, limited domestic capacity, unusually long lead times, scarce testing capability, unique intellectual property, restricted technical data, specialized transportation, critical minerals or materials, or dependence on foreign maintenance and updates creates material risk. Explain how such risks vary over the equipment lifecycle.

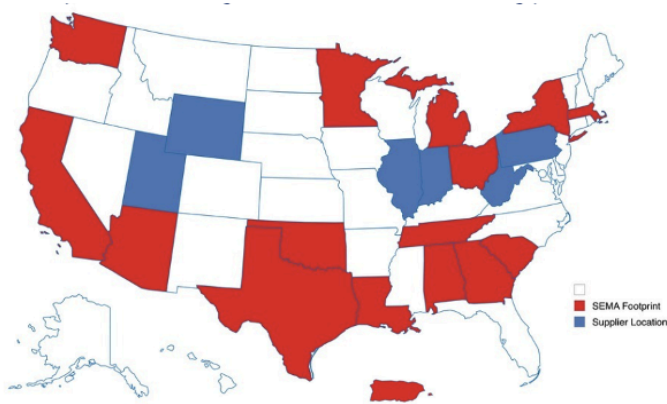
Concentration of supply in Chinese-owned and controlled producers is itself a supply-disruption risk: a supply chain that can be cut off through trade disruption or coercion is a strategic vulnerability independent of any embedded backdoor. Since President Trump's first term, the U.S. has seen a significant buildout of solar and inverter manufacturing capacity, and we will continue to see more additions to upstream manufacturing capacity due to the Administration's actions.

The durable remedy is to build trusted domestic and allied capacity, so secure alternatives exist at scale, as our members are doing.

F. Domestic Manufacturing, Secure Replacements, and Federal Procurement

(F-1) Which categories of bulk-power system electric equipment, critical components, software, firmware, production tooling, testing capability, critical minerals, or other supply chain inputs are materially dependent on foreign sources or concentrated in a limited number of countries or suppliers? Provide, where available, aggregate information on source concentration, domestic and foreign capacity, lead times, substitution constraints, and the causes of dependence, such as lack of domestic capability, cost, quality, intellectual property, specialized materials, workforce, or testing infrastructure.

(F-2) What is the current and reasonably anticipated U.S. manufacturing, assembly, integration, repair, testing, and service capacity for major categories of bulk-power system electric equipment and critical components? Identify capacity constraints, minimum efficient scale, capital and permitting needs, workforce needs, expected time to expand capacity, and the demand certainty required to support investment.



The United States is undergoing a once-in-a-generation effort to reestablish advanced domestic solar manufacturing and reduce dependence on foreign adversary supply chains. SEMA Coalition members support over thousands of high-quality jobs across the country and in the solar manufacturing supply chain.

SEMA's member footprint is wide-reaching, generating high-quality jobs and economic impact in communities across the country.

Multiple SEMA Coalition members will open facilities in the next year to strengthen American energy dominance and onshore energy manufacturing. SEMA Coalition members lead the world in commercially viable next-generation solar technologies that will allow the U.S. to compete with China's supply chain on price without long-term government subsidies.

With a projected 30 GW in solar module capacity this year, SEMA Coalition members will make nearly 50 percent of the roughly 62 GW of utility-scale electricity-generating (non-battery) capacity the [U.S. Energy Information Administration \(EIA\)](#) expects to be added to the grid this year. SEMA Coalition members will also produce about 35 GW of upstream silicon manufacturing components (polysilicon, wafers, and cells) along with First Solar's 14 GW of upstream cadmium telluride production, all manufactured in the U.S. The first U.S. ingot and wafer facilities [came online in October 2025](#), and roughly 13 GW of additional wafer capacity and 13.5 GW of cell capacity are [under construction](#). Additionally, SEMA member EPC Power [recently announced](#) an expansion of 27GW of annual inverter manufacturing capacity, with plans to scale up to 40 GW.

The binding constraint on further expansion, particularly in upstream component manufacturing, is demand certainty. Upstream facilities require billion-dollar, multi-year investments that private capital will finance only against a durable market, and below-cost imports continue to undercut that market.

(F-4) How can Federal procurement prioritize U.S.-manufactured energy infrastructure while preserving competition, reliability, safety, quality, interoperability, timely delivery, and value? Identify appropriate transition periods, exceptions, waivers, alternate-source requirements, or emergency procedures and the criteria that should govern them. (F-5) What additional actions could improve the availability and resilience of secure supply? Address long-term demand signals, aggregated procurement, advance purchase commitments, strategic spares or reserves, mutual assistance, standardization, modularity, interoperability, repair capability, domestic testing facilities, workforce development, information

sharing, coordination between Federal and non-Federal purchasers, and other market or policy mechanisms. Describe potential benefits, costs, risks, and implementation lead times.

Domestic manufacturing capacity cannot materialize overnight; it requires long-term policy certainty and transparent regulatory frameworks to mobilize the patient capital needed for multi-year investments. The SEMA Coalition urges DOE to prioritize U.S. advanced energy manufacturing in any future recommendations to revise Federal Acquisition Regulations (FAR). A successful industrial policy requires aligned supply and demand strategies: federal purchasing preferences, strategic reserve requirements, and advance purchase commitments – along with strong trade enforcement and domestic procurement tax incentives such as the Domestic Content Bonus – provide the long-term demand certainty needed to mobilize private capital into U.S. manufacturing facilities. Providing a durable demand signal for secure, domestically produced solar and power electronics assets serves as the necessary, affirmative counterpart to restricting adversary-controlled equipment. Ultimately, DOE should advance these procurement mechanisms through a coordinated, whole-of-government strategy that harmonizes trade policy, tax incentives, federal procurement, and regulatory enforcement.