

DEPARTMENT OF ENERGY

Nonavailability

PROPOSED Nonavailability Waiver applicable to Domestically Assembled Solar Photovoltaics (PV) panels referred to as “Solar Modules” under Build America, Buy America Manufactured Product Provisions as Applied to Recipients of Department of Energy Programs incorporating solar to include Congressionally Directed Spending (CDS) for Fiscal Years 2024

AGENCY: U.S. DEPARTMENT OF ENERGY.

ACTION: Notice and request for public comment.

DATES: The proposed duration of the waiver would be from the effective date (“Effective Date”) of the proposed waiver until December 31, 2025 (“Expiration Date”). The waiver applies to solar modules with Final Assembly in the United States (as defined below in the “Proposed Waiver” section).

I. Proposed Waiver:

U.S. DEPARTMENT OF ENERGY is proposing to issue a temporary, limited non-availability partial waiver of the manufactured product requirements of Section 70914(a) of the Build America, Buy America Act (“BABA”) included in the Infrastructure Investment and Jobs Act (IIJA) (Pub. L. No. 117-58) for domestically assembled solar modules used in federal financial assistance for infrastructure projects selected as of the Effective Date for an award by DOE under all programs listed in the appendix to this proposed waiver and infrastructure projects identified to be funded pursuant to Congressionally Directed Spending (“CDS”) for Fiscal Year 2024 (“CSD FY24”), including all projects to be funded pursuant to CSD FY24 listed in the appendix to this proposed waiver. This proposed waiver combines for efficiency multiple project specific non-availability waivers into one waiver document to reduce paperwork and reduce administrative burdens for project recipients and the U.S. Government.

CDS FY 24 refers to funding under Congressionally Directed Spending provisions in the THE ENERGY AND WATER DEVELOPMENT APPROPRIATIONS BILL, 2025, which provisions designate funds for a particular recipient, such as a nonprofit organization or a local government, for use on a specific project. These provisions are referenced as “Congressionally Directed Spending” in the U.S. Senate and “Community Project Funding” in the U.S. House of Representatives. Members of Congress were required to satisfy specific requirements under Senate and House rules in order to have their requests included in the above Appropriations Bills. Such requirements included publicly posting requests online and certifying the absence of financial interests in projects. The House rules also require Members to demonstrate community support for requests. These projects may have solar aspects such as lighting and energy generation.

U.S. DEPARTMENT OF ENERGY ’s proposed waiver *requires domestic assembly* versus a waiver of the full manufactured product requirements, which would allow assembly to occur outside the United States. This waiver is intended to provide time needed for domestic solar module manufacturing capability to meet demand for BABA-compliant solar modules by supporting and encouraging continued investments while bringing the benefits of solar power to the U.S. DEPARTMENT OF ENERGY ’s financial assistance recipients.

This proposed waiver would apply on or after the Effective Date until December 31, 2025, the Expiration Date for all new solar modules with Final Assembly in the United States. Solar modules where final assembly occurred outside the United States are not eligible for coverage under this waiver. “Final Assembly” means all operations involved in the transformation of individual solar cells and all other module components into a fully functional encapsulated module. For recipient expenditures to be covered by this waiver, the solar modules will need to be installed by June 30, 2026. “Installed by” means modules being permanently fastened to an outdoor support structure at the project site. The U.S. DEPARTMENT OF ENERGY proposes to apply this waiver, if approved, to awards or selections made on or before the Effective Date.

In accordance with Section 70914(c) of the BABA, the U.S. DEPARTMENT OF ENERGY is providing notice that it is seeking a combined nonavailability waiver of the BABA manufactured

product requirements for domestically assembled solar modules used in federal financial assistance awards for, due to the determination that compliant solar modules are not available in sufficient quality or quantity for use in U.S. DEPARTMENT OF ENERGY - funded infrastructure projects. The U.S. DEPARTMENT OF ENERGY conducted market research to determine availability of BABA compliant solar modules which included subject matter expert analysis of domestic solar production based on announcements and non-public manufacturing plans disclosed by manufacturers. Based on this market research, the U.S. DEPARTMENT OF ENERGY proposes to find that BABA-compliant solar modules are not produced in the United States in sufficient and reasonably available quantities for use in U.S. DEPARTMENT OF ENERGY assisted solar projects and will not become available in sufficient and reasonably available quantities until December 2025 or later. This proposed waiver, if finalized, will ensure recipients can effectively carry out the activities of their award in a timely manner while promoting domestic solar module manufacturing. The U.S. DEPARTMENT OF ENERGY seeks to issue this waiver on the basis of nonavailability in accordance with Section 70914(b)(2) of the BABA.

II. Background

The Buy America preference set forth in section 70914(a) of BABA, requires all iron, steel, manufactured products, and construction materials used for infrastructure projects under federal financial assistance awards be produced in the United States.

Under section 70914(b) of BABA, 2 CFR 184.7 & 200.322, and in accordance with the Office of Management and Budget (OMB)'s Guidance Memorandum M-24-02, *Implementation Guidance on Application of Buy America Preference in Federal Financial Assistance Programs for Infrastructure*, the U.S. DEPARTMENT OF ENERGY may waive the BABA Buy America preference under an infrastructure program in any case in which it finds that: (i) applying the domestic content procurement preference would be inconsistent with the public interest ("public interest waiver"); (ii) types of iron, steel, manufactured products, or construction materials are not produced in the U.S. in sufficient and reasonably available quantities or of a satisfactory quality ("nonavailability waiver"); or (iii) the inclusion of iron, steel, manufactured products, or

construction materials produced in the U.S. will increase the cost of the overall project by more than 25 percent (“unreasonable cost waiver”). All waivers must have a written explanation for the proposed determination; provide a period of not less than fifteen (15) calendar days for public comment on the proposed waiver; and submit the proposed waiver to the OMB Made in America Office for review to determine if the waiver is consistent with policy. The U.S. DEPARTMENT OF ENERGY is providing fifteen (15) calendar days for public comment on this waiver.

With \$98 billion in funding from Infrastructure Investment and Jobs Act (“IIJA”), Pub. L. No. 117-58, and H.R. 5376- Inflation Reduction Act of 2022 (“IRA”), the U.S. DEPARTMENT OF ENERGY is focused primarily on research and development, demonstration, and deployment programs to help to achieve carbon-free electricity in the U.S. by 2035 and a net-zero economy by 2050. The U.S. DEPARTMENT OF ENERGY is also responsible for strengthening and securing manufacturing and energy supply chains through financial assistance opportunities. This is consistent with Executive Order (EO) 14005 titled *Ensuring the Future is Made in All of America by All of America's Workers* (86 FR 7475) (Jan. 28, 2021). EO 14005 provides that the U.S. Government “should, consistent with applicable law, use terms and conditions of Federal financial assistance awards and Federal procurements to maximize the use of goods, products, and materials produced in, and services offered in, the United States.” The U.S. DEPARTMENT OF ENERGY is committed to ensuring strong and effective domestic solar model domestic manufacturing capabilities consistent with EO 14005.

The U.S. DEPARTMENT OF ENERGY also provides grants to multiple recipients with individual projects that utilize solar modules. Nationwide demand includes use by other federal agencies, state, local, and tribal governments in addition to private consumers. The U.S. DEPARTMENT OF ENERGY, in collaboration with the Environmental Protection (EPA) and the United States Department of Agriculture (USDA), analyzed anticipated demand for projects that may include demand for BABA-compliant solar modules. The U.S. DEPARTMENT OF ENERGY requirement is estimated to be approximately 75 MW_{dc} to 150 MW_{dc} through 2026 for BABA-compliant modules. During this timeframe, the expected total capacity of overall U.S. installations is 82,000 MW_{dc}, of which U.S. DEPARTMENT OF ENERGY’s BABA-compliant

demand is only 0.1% of total domestic demand in this timeframe. For EPA, the estimate is approximately 3,300 MW_{dc}. During this shorter timeframe, the expected total capacity of overall U.S. installations is 41,000 MW_{dc}, of which EPA's BABA-compliant demand is estimated to be only approximately 8% of total domestic demand in this (shorter) timeframe. For USDA, the estimate is \$80 million through 2025, corresponding to a nameplate capacity of 300 MW_{dc}. During this same timeframe the expected total capacity of overall U.S. installations is 41,000 MW_{dc}, of which USDA's BABA-compliant demand is less than 0.7% of total domestic demand in this timeframe. The major driver for domestic solar supply-chain growth is the IRA tax credits, including the IRC §§48 and 45 clean energy investment and production tax credits and the IRC §§48E and 45Y "technology neutral" clean electricity investment and production tax credits, and the IRC §45X advanced manufacturing production tax credit, which provides per-unit tax credits for the domestic production of polysilicon, wafers, cells, modules, backsheet, tracker components, and inverters, with rates of \$0.07 per W_{dc} for modules and \$0.04 per W_{dc} for cells. Moreover, the 10% domestic content bonus in IRA tax credits will increase competition for domestically produced modules from private developers, which could further impact grant recipients' ability to procure BABA-compliant modules.

Solar modules are manufactured products. Per BABA sections 70912(6)(A) and (B), manufactured products are considered to be produced in the United States if (i) the manufactured product was manufactured in the United States; and (ii) the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation.

Solar module components were analyzed by the U.S. DEPARTMENT OF ENERGY. Market research included subject matter expert analysis of domestic solar production based on announcements and non-public manufacturing plans disclosed by manufacturers. The cost of the cell is estimated to constitute the majority (67%) of the component cost of a module. U.S. DEPARTMENT OF ENERGY subject matter experts concluded cells will not likely be available from U.S. manufacturers in sufficient quantities until December 2025 or later. The next highest

estimated module cost component is the metal frame, at 10%. Metal frames for c-Si modules are expected to be unavailable at a significant quantity from anywhere other than China for several years. The cost of the front glass and backsheet are each estimated at 7%, of the encapsulant at 4%, of the junction box at 3%, and all other components less than 1% each.

In order to support BABA compliance verification, U.S. DEPARTMENT OF ENERGY is considering step-certification following the expiration of this waiver, which is a type of certification process under which each handler (supplier, fabricator, manufacturer, processor, etc.) of the subject products and materials certifies that their step in the process was domestically performed. Each time a step in the manufacturing process takes place, the manufacturer delivers its work along with a certification of its origin. This process is common practice for verifying Buy America requirements for iron and steel.

III. Waiver Justification

The U.S. DEPARTMENT OF ENERGY is proposing a temporary, limited partial nonavailability waiver of BABA manufactured product requirements for solar modules to apply to the use of domestically assembled modules that may incorporate foreign components. The United States is the second largest market for solar hardware, representing about 10%-15% of global solar demand. Developing and enhancing United States solar manufacturing will mitigate global supply chain challenges and meet decarbonization goals as well as benefit United States' workers, employers, and the economy. To reestablish domestic solar manufacturing in the United States, entities that produce and sell solar components will require a holistic industrial strategy to offset the 30-40% higher cost of domestic solar production relative to imported components. A narrowly tailored BABA waiver will meet immediate solar demands while the domestic solar industry expands supply.

Domestically, the United States currently has 10,600 MW_{dc}/year nameplate production capacity for CdTe modules and 47,000 MW_{dc}/yr nameplate production capacity for c-Si modules. Market research indicates c-Si module production capacity was historically underutilized for a variety of reasons including foreign competition, workforce shortages, and obsolete production equipment,

with about 3,700 MW_{dc} actually produced and sold in 2023 compared to a nameplate capacity of 15,000 MW_{dc}/yr at the end of 2023. Capacity for c-Si modules has continued growing significantly in 2024 and as production is ramping, utilization rates are expected to grow. As of November 2024, domestic c-Si cell production in the United States has just restarted and production is also anticipated to grow.

In addition to current production capacity, future domestic manufacturing indicates growth will result in substantially more BABA-compliant module supply. As of November 2024, over \$20 billion in planned solar investments have been announced at over 148 new and expanded manufacturing plants for modules, module parts and other hardware. U.S. DEPARTMENT OF ENERGY subject matter experts performed a probabilistic analysis of these announcements to identify a date when full BABA compliance may be achievable. Subject matter expert review identified technical delays from announced dates due to site readiness as well as likelihood of project success and considered the time required to ramp to full production capacities as well as announced offtake agreements. Overall analysis concludes that domestic manufactures will likely be capable of producing fully BABA-compliant modules in sufficient quantities for U.S. DEPARTMENT OF ENERGY financial assistance recipients no sooner than December 31, 2025. Thus, the U.S. DEPARTMENT OF ENERGY proposes to find that BABA-compliant solar modules are not produced in the United States in sufficient and reasonably available quantities for use in U.S. DEPARTMENT OF ENERGY assisted solar projects and CDS FY24 and will not become available in sufficient and reasonably available quantities until December 2025 or later.

IV. Impact Absent the Waiver

Without a waiver, the U.S. DEPARTMENT OF ENERGY anticipates most recipients with solar projects subject to BABA will develop, implement, and submit unavailability waiver packages for solar modules. This conclusion is based upon widely reported domestic sourcing challenges for BABA-compliant solar modules. The corresponding administrative burden will impact the cost and schedule of recipients, and in some cases diminish the use of solar projects, or, in extreme cases, deter overall participation. For those that participate and propose solar projects,

recipient resources will be required to perform market research and submit unavailability packages. Project schedules will need to be extended to account for waiver development and waiver processing through final approval. These anticipated delays adversely impact numerous U.S. DEPARTMENT OF ENERGY goals of these projects, including climate action and energy justice.

The absence of a narrowly tailored BABA waiver will result in missed strategic opportunities to advance goals such as those within EO 14017 *American's Strategy to Secure the Supply Chain for a Robust Clean Energy Transition* and EO 14057 *Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability*, in addition to the goals of EO 14005.

A narrowly tailored BABA waiver will support the establishment of a domestic solar supply chain. Fundamentally, the domestic content provisions in the IRA clean energy production and investment tax credits, including relating to IRC §§ 45, 45X, 45Y, 48, and 48E, including the domestic content bonus credit, constitute the significant driver for increasing the overall demand for domestic solar modules. Requiring full BABA compliance for federal financial assistance projects, as opposed to the narrowly tailored BABA compliance proposed in this waiver, would produce limited benefits for domestic solar manufacturing while potentially placing projects targeting vulnerable populations at risk.

V. Assessment of Cost Advantage of a Foreign-Sourced Product

Under OMB Memorandum M-24-02, agencies are expected to assess “whether a significant portion of any cost advantage of a foreign-sourced product is the result of the use of dumped steel, iron, or manufactured products or the use of injuriously subsidized steel, iron, or manufactured products” as appropriate before granting a waiver. The U.S. DEPARTMENT OF ENERGY’s analysis has concluded that this assessment is not applicable to this waiver, because this waiver is not based on cost advantage of foreign sourced products.

VI. Duration of Waiver

This proposed waiver, if finalized, applies to expenditures on solar panels after the Effective Date and by December 31, 2025 the Expiration Date, so long as those panels are installed by June 30, 2026.

VII. Solicitation of Comments

The U.S. DEPARTMENT OF ENERGY has proposed to issue this waiver on the basis of nonavailability: This notice, posted on **December 13, 2024**, satisfies the requirement under section 70914 of BABA to publish any proposed BABA waiver and provide the public with a reasonable period of time for notice and comment. The U.S. DEPARTMENT OF ENERGY seeks public comment from all interested parties.

Input is sought from stakeholders, including, but not limited to, federal financial assistant applicants and recipients, manufacturers, installers and other stakeholders across sectors and geographies. In particular, the U.S. DEPARTMENT OF ENERGY seeks comment regarding the scope of this waiver and the following:

- Proposed dates of applicability, including effective date of the waiver and installed by date.
- Recommendations and comments regarding certification for BABA compliant solar modules. The U.S. DEPARTMENT OF ENERGY is considering step-certification following the expiration of this waiver, a type of certification process under which each handler (supplier, fabricator, manufacturer, processor, etc.) of the subject products and materials certifies that their step in the process was domestically performed. Each time a step in the manufacturing process takes place, the manufacturer delivers its work along with a certification of its origin.

Relevant information and comments will help the U.S. DEPARTMENT OF ENERGY to understand completely the facts surrounding the waiver request and the U.S. DEPARTMENT OF ENERGY 's proposed finding of nonavailability. This notice will be closed for comments on **December 28, 2024**.

To receive consideration as a public comment, Written comments should be sent to **buyamericangawaiver@hq.doe.gov**. Please place “2024 Solar Waiver” in the subject line when sending an email

For more information on the Build America, Buy America preference, please reference <https://www.energy.gov/management/build-america-buy-america> or www.MadeinAmerica.gov

Confidential Business Information: Pursuant to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public discourse should submit via email two well-marked copies: one copy of the document marked “confidential” including all the information believed to be confidential, and one copy of the document marked “non-confidential” with the information believed to be confidential deleted. Submit these documents via email. The U.S. DEPARTMENT OF ENERGY will make its own determination about the confidential status of the information and treat that information in accordance with the determination made based on all legal requirements.

APPENDIX:

DOE Office	Program
Office of State and Community Energy Programs	Energy Efficiency Revolving Loan Fund Capitalization Grant Program
Grid Deployment Office	Puerto Rico Energy Resilience Fund-\$1 Billion under FY 2023 Consolidated Appropriations Act
Grid Deployment Office	Grid Resilience State/Tribal Formula Grants Program (BIL 40101d)
Grid Deployment Office	Grid Resilience and Innovation Partnerships (GRIP) Program
Loan Programs Office	Tribal Energy Loan Guarantee Program
Loan Programs Office	Energy Infrastructure Reinvestment Financing
Solar Energy Technology Office	Operation and Planning Tools for Inverter-Based Resource Management and Availability for Future Power Systems (OPTIMA)
Solar Energy Technology Office	Small Innovative Projects in Solar (SIPS) Program
Solar Energy Technology Office	Advancing Equity Through Workforce Partnerships Funding Program
Solar Energy Technology Office	Foundational Agrivoltaic Research Megawatt Scale (FARMS)
Solar Energy Technology Office	Renewables Advancing Community Energy Resilience (RACER) Program
Solar Energy Technology Office	Materials, Operation, and Recycling of Photovoltaics (MORE PV) Program
Solar Energy Technology Office	Connected Communities Funding Program
Solar Energy Technology Office	DE-FOA-0003058: Advancing U.S. Thin-Film Solar Photovoltaics
Solar Energy Technology Office	DE-FOA-0002888: Small Innovative Projects in Solar: Concentrating Solar Power and Photovoltaic (SIPS: CSP & PV) - Annual
Solar Energy Technology Office	FOA-0002745: Solar and Wind Grid Services and Reliability Demonstration

Solar Energy Technology Office	FOA-0002606: Small Innovative Projects in Solar 2022: Concentrating Solar-Thermal Power and Photovoltaics
Solar Energy Technology Office	FOA-0002582: Fiscal Year 2022 Photovoltaics Research and Development (PVRD)
Solar Energy Technology Office	FOA-0003136: Connected Communities 2.0
Solar Energy Technology Office	FOA-0003246: Solar and Wind Interconnection for Future Transmission (SWIFTR) funding opportunity
Solar Energy Technology Office	FOA-0003337: 2024 Photovoltaics Research and Development (PVRD) funding opportunity
Solar Energy Technology Office	FOA-0003331: Solar Technologies' Rapid Integration and Validation for Energy Systems (STRIVES) funding opportunity
Solar Energy Technology Office	FOA-0002206: Connected Communities funding opportunity
Solar Energy Technology Office	DE-EE0011243: FOA-0002881: Bipartisan Infrastructure Law (BIL) Joint Office of Energy and Transportation Ride and Drive Electric, Fiscal Year 2023 FOA
FY24 EERE Congressionally Directed Spending	
Congressionally Directed Spending	ASU: Center for Clean Energy Materials; Arizona State University
Congressionally Directed Spending	Biochar Characterization Study; New Mexico State University
Congressionally Directed Spending	Boat Energy Transition Feasibility Study; Alaska Longline Fishermen's Association
Congressionally Directed Spending	Canal-Mounted Rural Solar; Bonneville Environmental Foundation
Congressionally Directed Spending	Carlton County Justice Center Geothermal Heat and Solar Field; Carlton County
Congressionally Directed Spending	Center for Clean Hydrogen, University of Delaware

Congressionally Directed Spending	Center for Nanotechnology; The Center for Nanotechnology (Coppin State University)
Congressionally Directed Spending	City of Melrose Net Zero Police Station Design; City of Melrose
Congressionally Directed Spending	Clemson University Next-Generation Hydrogen Technologies; Clemson University
Congressionally Directed Spending	High Temperature Fuel Cells; Colorado School of Mines
Congressionally Directed Spending	HyPower: Demonstration of Offshore Wind Generated Hydrogen Usage for Domestic Heating and Power; State University of New York at Stony Brook
Congressionally Directed Spending	Jicarilla Apache Nation Design Study of a Clean Hydrogen Production System; Jicarilla Apache Nation
Congressionally Directed Spending	Kit Carson Electric Cooperative, Inc.—Kit Carson Electric Cooperative-Questa Green Hydrogen Project; Kit Carson Electric Cooperative, Inc.
Congressionally Directed Spending	Millinocket Renewable Energy; Our Katahdin
Congressionally Directed Spending	Parrott Creek Battery Storage Project; Parrott Creek Child & Family Services
Congressionally Directed Spending	Plymouth State University Energy Transition; Plymouth State University
Congressionally Directed Spending	Purple Lake Hydro Feasibility Study; Metlakatla Indian Community
Congressionally Directed Spending	Renewable Heating Technology to Decarbonize High-Temperature Foundry Processes; Mesalands Community College
Congressionally Directed Spending	Research Environment for the Advancement of Clean Hydrogen (REACH); Louisiana State University
Congressionally Directed Spending	Solar Energy Demonstration Using Domestically Sourced, and Michigan-built, 100% Reusable Commercial-Scale Lead Battery; Grand Traverse Regional Land Conservancy
Congressionally Directed Spending	Twin Lakes Reservoir Floating Solar Project; City of Lima
Congressionally Directed Spending	UMaine BioHome3D Research and Development; University of Maine System
Congressionally Directed Spending	University of Washington Tidal-Powered Ocean Observations; University of Washington
Congressionally Directed Spending	Village of Viola Solar PV System and Battery Storage; Village of Viola

Additional Awards and Selections Made to Date	
BTO NOFO Award	EE0009781; Slipstream; Connecting Communities for Sustainable Solutions
SETO NOFO Awards or Selections	EE0010383; CORNELL UNIVERSITY; (Leveraging eDNA for a) National Pollinator-Solar Energy (Monitoring and) Research Network
SETO NOFO Awards or Selections	EE0010385; Great Plains Institute for Sustainable Development; Designing and Deploying Solar for Community Ecosystem Benefits
SETO NOFO Awards or Selections	EE0010414; The Virginia Department of Energy; Virginia Economically Disadvantaged Communities Energy Resiliency Study
SETO NOFO Awards or Selections	EE0010422; University of Connecticut (UConn); PROACTIVE: Predictive Community Outage Preparedness and Active Last Mile Visibility Feedback Autonomous Restoration
SETO NOFO Awards or Selections	EE0010438; UNIVERSITY OF ARIZONA; Agrivoltaics creates more sustainable energy, food, and water futures for the Southwestern United States: Opportunities at the MW scale
SETO NOFO Awards or Selections	EE0010477; Makai Ocean Engineering Inc; Cost Effective Primary Heat Exchanger for Gen3 CSP Systems
SETO NOFO Awards or Selections	EE0010497; Georgia Tech Research Corporation; Development of Commercial-Ready Screen Printed ~23% PERC and TOPCon Cells by Replacing Ag Contacts with Novel Low-Cost Cu and/or Al Pastes
SETO NOFO Awards or Selections	EE0010499; Regents Of The University Of California, The; Porous Aromatic Frameworks as Multifunctional Adsorbents for Selective Metal Recovery from Spent Photovoltaic Materials
SETO NOFO Awards or Selections	EE0010503; Massachusetts Institute of Technology; Center for Co-Design

	of Durable, Reproducible, and Efficient Perovskite Tandems
SETO NOFO Awards or Selections	EE0010420; Navajo Technical University; A People-Centered Decision Support Tool for Enhancing Power Grid Resilience for the Navajo Nation.
SETO NOFO Awards or Selections	EE0010475; Litespeed Energy Inc; Integrated, non-metallic floating PV system for resiliency, corrosion resistance and safety
SETO NOFO Awards or Selections	EE0010440; OHIO STATE UNIVERSITY, THE; Agrivoltaics: Integrating agricultural, forage, and livestock production systems in utility-scale solar farms
SETO NOFO Awards or Selections	EE0010442; University of Alaska Fairbanks; Agrivoltaics: Unlocking Mid-Market Solar in Northern Climates of Rural America
SETO NOFO Awards or Selections	EE0010443; SOLAR & STORAGE INDUSTRIES INSTITUTE; Developing Resources for Deploying Agrivoltaics
SETO NOFO Awards or Selections	EE0010472; Vitro Flat Glass LLC; High Performance Superstrate for CdTe Modules
SETO NOFO Awards or Selections	EE0010476; Mirai Solar Corp.; High-efficiency photovoltaic shade screens (Retractable solar modules for greenhouses and beyond)
SETO NOFO Awards or Selections	EE0010479; First Solar, Inc.; Efficiency and energy-yield improvement of CdTe-based tandem solar modules
SETO NOFO Awards or Selections	EE0010493; Interstate Renewable Energy Council Inc; Solar Ready Vets Network - Phase III
SETO NOFO Awards or Selections	EE0010502; Regents of the University of Colorado, The (Boulder); TEAMUP: Tandems for Efficient and Advanced Modules using Ultrastable Perovskites
SETO NOFO Awards or Selections	EE0010651; PORTLAND GENERAL ELECTRIC COMPANY; Demonstration of Grid Services by a

	300-MW Wind, Solar and Battery Storage Combined Power Plant with Mixed Grid-Forming and Grid-Following Technologies
SETO NOFO Awards or Selections	EE0010655; Consolidated Edison Company of New York, Inc.; Reliable Protection for an Inverter-Based Resources Dominant Grid: Technology Development and Field Demonstration
SETO NOFO Awards or Selections	EE0010658; Pacific Gas and Electric Company; A Sensitivity-Driven Wide Area Protection Coordination Tool for High Penetration of IBRs
SETO NOFO Awards or Selections	FOA-0003220; Transmission System Interconnection Roadmap Draft - RFI; Transmission System Interconnection Roadmap Draft - RFI
SETO NOFO Awards or Selections	EE0010318; GE Vernova Operations LLC DBA GE Vernova Advanced Research Center; sCO ₂ Power Block Optimization for Particle-based CSP
SETO NOFO Awards or Selections	EE0010500; Locusview Solutions; Photovoltaic Module Supply Chain Traceability Standards and Technology for Reuse and Recycling
SETO NOFO Awards or Selections	EE0010494; THE UNIVERSITY OF CENTRAL FLORIDA BOARD OF TRUSTEES; Photonic Curing of Printed Copper Contacts for High Efficiency and Low Cost Silicon Heterojunctions
SETO NOFO Awards or Selections	EE0010501; Electroninks; Metal Complex Inks for Low-Cost Photovoltaic Material Metallization
SETO NOFO Awards or Selections	EE0010831; ADAPTIVE CONSTRUCTION SOLUTIONS INC; Utility Energy Installation - Pre-Apprenticeship
SETO NOFO Awards or Selections	EE0010656; University of Illinois; Enabling 100% Renewable Energy Integration: Creativity-based Co-design and Demonstration of Intelligent Modeling, Protection, and Grid-edge Control of Bulk Power System

SETO NOFO Awards or Selections	EE0010827; Amicus O&M Cooperative; Solar O&M High Road Training Partnership
SETO NOFO Awards or Selections	EE0010828; CEC Stuyvesant Cove Inc. (dba Solar One); Advancing Equity through Solar Career Pathways and Capacity Building
SETO NOFO Awards or Selections	EE0010829; UNIVERSITY OF LOUISIANA AT LAFAYETTE; Louisiana Solar Corps (LSC): Building the Clean Energy Careers of the Future around Justice, Labor and Community Resilience
SETO NOFO Awards or Selections	EE0010759; Association of Fish and Wildlife Agencies; Powering Progress: Increasing Capacity for State Agency Participation in the Development of Solar Guidelines
SETO NOFO Awards or Selections	EE0010824; SOLAR LANDSCAPE LLC; Solar Training & Education Partnership for Underserved Populations (STEP UP)
SETO NOFO Awards or Selections	EE0010826; EMERALD CITIES COLLABORATIVE INC; Equitable Pathways to Careers in Solar and Electrical in Washington State
SETO NOFO Awards or Selections	EE0010830; WORKSYSTEMS, INC.; Ensuring a Diverse Pipeline into Solar Careers
SETO NOFO Awards or Selections	EE0010822; RED CLOUD RENEWABLE; Bridging Renewable Industry Divides in Gender Equality (BRIDGE)
SETO NOFO Awards or Selections	EE0010823; Power52, Inc.; Partners Offering Workforce, Energy, Resilience, Solar, Equity, & Training Opportunities (POWERSETO)
SETO NOFO Awards or Selections	EE0010825; KERN COMMUNITY COLLEGE DISTRICT; Solar Careers and Homes for Justice 40 Communities
SETO NOFO Awards or Selections	EE0010495; SOLARCYCLE, Inc.; Maximization of Recovery of Key Materials from End-of-Life Photovoltaic Panels

SETO NOFO Awards or Selections	EE0010832; Cook County Bureau of Economic Development; BIL: Chicagoland Solar Collaborative (CSC)
SETO NOFO Awards or Selections	EE0011152; Arizona State University; Improving Perovskite Solar Module Stability by Understanding and Mitigating Scribe-Induced Chemo-thermomechanical Degradation
SETO NOFO Awards or Selections	EE0011158; Purdue University; Understanding Defect Behavior in CdTe Solar Cells using First Principles Simulations and Graph Neural Networks
SETO NOFO Awards or Selections	EE0011159; ELECTRIC POWER RESEARCH INSTITUTE INC; PV and Energy Storage GRid Integration: Open Datasets (PERIOD)
SETO NOFO Awards or Selections	EE0011153; Trustees of Dartmouth College; Self-Leveling Inks for Printing Ultra-uniform Perovskite Solar Modules by Flexography
SETO NOFO Awards or Selections	EE0010317; University of Central Florida; Reactive Particle Based Thermochemical Energy Storage System for Concentrating Solar-thermal Power (TCES-CSP)
SETO NOFO Awards or Selections	EE0010833; CRATER LAKE ELECTRICAL JOINT APPRENTICESHIP AND TRAINING TRUST; BIL: Rural Electrician Pre-Apprenticeship (REPA) Project
SETO NOFO Awards or Selections	EE0011151; Colorado School of Mines; Fluidized Bed Catalytic Reactor/Receiver for Converting Solar Energy to Fuels and Chemicals.
SETO NOFO Awards or Selections	EE0011154; REGENTS OF THE UNIVERSITY OF MICHIGAN; Coherent CdTe/ZnTe heterostructures for highly efficient CdTe PV modules
SETO NOFO Awards or Selections	EE0011155; UNIVERSITY OF CALIFORNIA, DAVIS; Self-Leveling Inks for Printing Ultra-uniform Perovskite Solar Modules by Flexography

SETO NOFO Awards or Selections	EE0011148; TENNESSEE TECHNOLOGICAL UNIVERSITY; Novel High-Temperature Coatings for Protecting Critical Components in Concentrating Solar-Thermal Power Systems
SETO NOFO Awards or Selections	EE0011156; TRUSTEES OF THE COLORADO SCHOOL OF MINES; Mitigating Performance Degrading Defects in Ga-doped Czochralski Si Solar Cells with Data-Informed Modeling.
SETO NOFO Awards or Selections	EE0011372; ARIZONA STATE UNIVERSITY; DASH-IBR: Dynamic Assessment of System Health for IBR-dominant Power Systems
SETO NOFO Awards or Selections	EE0011376; GEORGIA TECH RESEARCH CORP; ENVELOPE: Energy Variability and Electricity Optimization Using Stochastic Operational Envelopes
SETO NOFO Awards or Selections	EE0011377; WASHINGTON STATE UNIVERSITY; Planning tools for managing uncertainties in future power grids
SETO NOFO Awards or Selections	EE0010653; Veritone/GridBeyond; Advanced Reliability and Resiliency Operations for Wind and Solar (ARROWS)
SETO NOFO Awards or Selections	EE0011157; Colorado School of Mines; Low temperature printing for Next Generation Perovskite Tandem Solar Cells with Little to No Silver Content
SETO NOFO Awards or Selections	EE0011411; NORIA ENERGY HOLDINGS LLC; Tracking and Positioning System for Floating Solar
SETO NOFO Awards or Selections	EE0011416; RCAM TECHNOLOGIES INC; A Low-Cost Jack-Up Solar Platform to Conserve America's Water
SETO NOFO Awards or Selections	EE0010652; GENERAL ELECTRIC COMPANY; Grid-Ready Wind: Reliable and Economical Grid Services Design, Implementation and

	Demonstration at the Great Pathfinder Wind Power Plant
SETO NOFO Awards or Selections	EE0010654; Electric Power Research Institute; BIL: Collaborative Ancillary Service Accelerator for Renewables (CASAR)
SETO NOFO Awards or Selections	EE0011146; Colorado School of Mines Building Corporation; Evaluation of Alternative Materials and Weld Fillers to SS347H for Gen2 CSP Hot Storage Tank Construction.
SETO NOFO Awards or Selections	EE0011150; University Of Dayton; Scalable Performance and Optimization of Falling Particle Receiver Troughs and Flat Plate Particle To sCO2 Heat Exchanger Channels
SETO NOFO Awards or Selections	EE0011369; FLORIDA INTERNATIONAL UNIVERSITY; ADMIRE-GridPlan: Advanced Methods for Integrating Renewables in Grid Planning
SETO NOFO Awards or Selections	EE0011373; Midcontinent Independent System Operator, Inc.; Operations Risk Platform for Risk Assessment and Control Room Operations
SETO NOFO Awards or Selections	EE0011374; IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY; MODERNISE: Modernizing Operation and Decision-Making Tools Enabling Resource Management In Stochastic Environment
SETO NOFO Awards or Selections	EE0011375; QUANTA TECHNOLOGY, LLC; GOAAT-IBR: Grid Operator Analytics and Assessment Tools for Inverter-Based Resources Dominated Grid
SETO NOFO Awards or Selections	EE0011383; Interstate Renewable Energy Council; Realizing the Solar Jobs Vision: Connecting Underserved Americans to High Road Jobs
SETO NOFO Awards or Selections	EE0011384; THE CORPS NETWORK; Conservation Corps:

	Developing a Clean Energy Workforce
SETO NOFO Awards or Selections	EE0011421; Cubic PV Inc; Scaling Perovskite-Silicon Tandems Toward Reliable Commercial Product
SETO NOFO Awards or Selections	EE0011422; Tandem PV; Stability & Characterization of HTL Layers Key to Enabling Outdoor Durability
SETO NOFO Awards or Selections	EE0011423; BRIGHTSPOT AUTOMATION LLC; Lifecycle Reliability Testing of CdTe Solar Panels
SETO NOFO Awards or Selections	EE0011425; TAU SCIENCE CORPORATION; MANTIS: From Multiscale Analysis to Next Generation Thin Film Module Inspection Systems