SEMICONDUCTOR INDUSTRY ASSOCIATION

CHIPS and Salsa

Understanding the 2022 Semiconductor Legislation

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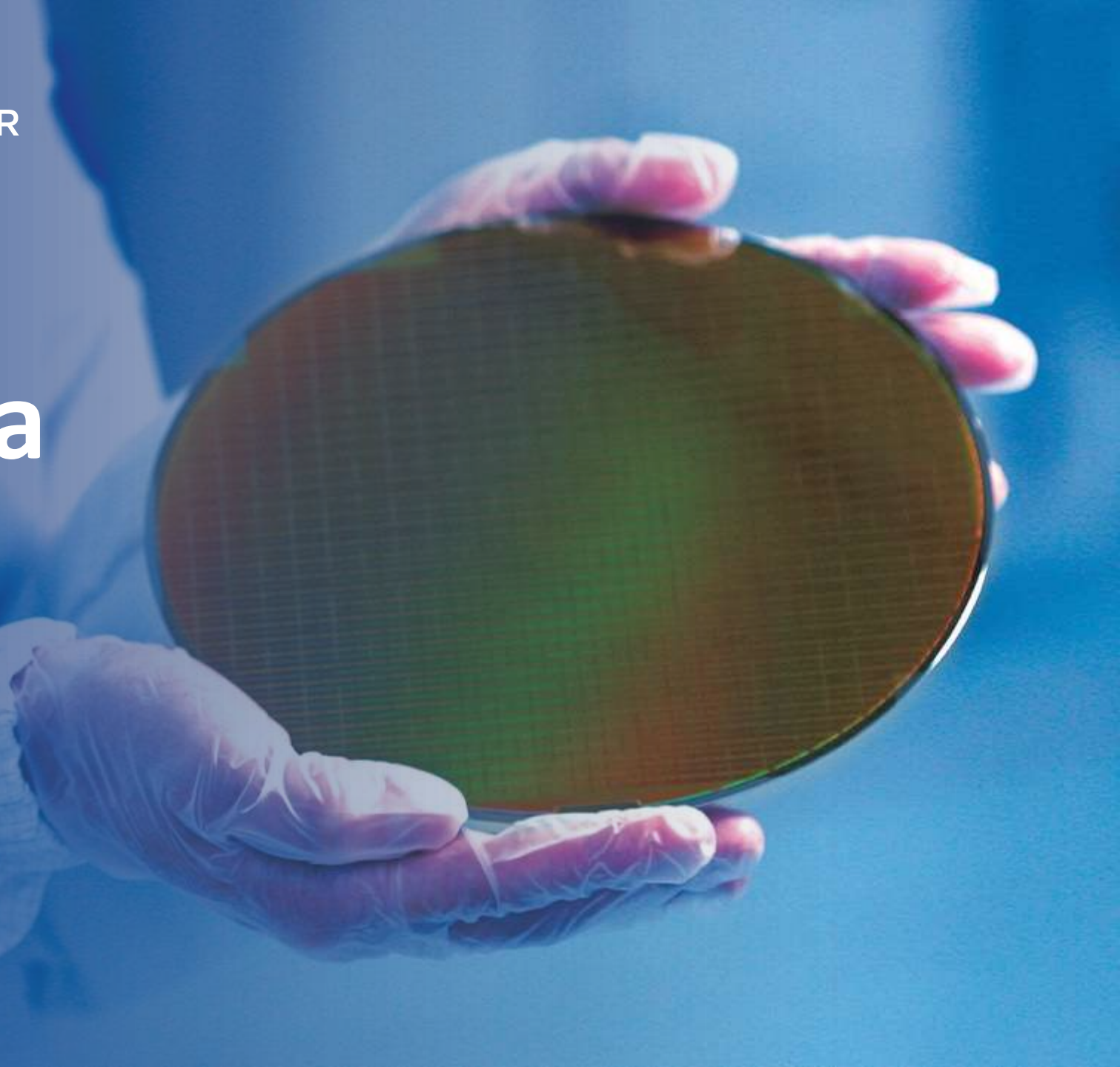

SIA MEMBERSHIP

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2022 CHIPS & SCIENCE ACT

Signed summer 2022 in historic win for the industry

$39 billion manufacturing incentive program

25% manufacturing investment tax credit

(estimated at $24.3 billion over duration of credit)

$13 billion in R&D and workforce investment

CHIPS IMPLEMENTATION – GRANTS

TOPIC	REQUIREMENTS/CRITERIA
Authority 	• Commerce Department – CHIPS Program Office (CPO) • White House – CHIPS Steering Council
Eligibility 	• Fabs, ATP, SME, research facilities • Construction, expansion, and modernization; not a relocation
Process & Timing 	• **Application materials released by Feb. 2023 (within 6 mos.)** • Pre-application phase to allow for Commerce feedback • Projects funded in increments as milestones are achieved
Funding Priorities & Considerations 	• **$28 billion for leading edge logic/memory; $10 billion for mature/current tech, new and specialty technologies, equipment and materials** • **Supply chain and national security** • Jobs, community investment, opportunity and inclusion • **Workforce development & education partnerships** • Commercial viability post-CHIPS • State/local incentive packages • Taxpayer protections
Clawbacks 	• 10-year prohibition on a “significant transaction . . . Involving the material expansion of semiconductor manufacturing capacity” • Exception for “legacy” – 28nm and older for logic, TBD others • Stock buybacks or dividends • Failure to meet target dates

RESEARCH STRATEGY DESIGN

Various administrative organizations play a role

CHIPS Implementation Steering Council

Established in EO 14080; role in research strategy unclear

Co-Chaired by NEC Director Deese, OSTP Director Prabhakar, & NSA Sullivan

Office of Science and Technology Policy

Industry & Academia

President's Council of Advisors on Science and Technology

National Science and Technology Council

Subcommittee on Microelectronics Leadership (SML)

Industrial Advisory Committee

Provide guidance on needs of the U.S. microelectronics industry, national strategy, CHIPS R&D programs, and opportunities for public-private partnership

Industrial Advisory Committee from industry, academia, NGO

PCAST recommendation for Research, NSTC, and Workforce

Department of Commerce

National Strategy on Microelectronics Research

Strategy for the CHIPS for America Fund

NIST

CHIPS Program Office
CHIPS.gov

CHIPS IMPLEMENTATION – RESEARCH

National Semiconductor Technology Center

Dept. of Commerce

- Public-private consortium including DOE/NSF
- Work with DOL & universities for post-secondary education

National Advanced Packaging Manufacturing Program

Dept. of Commerce

- Strengthen advanced assembly, test, and packaging ("ATP") capabilities
- Coordinate with NSTC and Manufacturing USA Institutes

Manufacturing USA Semiconductor Institutes

NIST (Dept. of Commerce)

- 1-3 manufacturing centers
- Virtualization & automation of semiconductor equipment; novel assembly, test, & packaging capabilities

CHIPS Defense Fund

Dept. of Defense

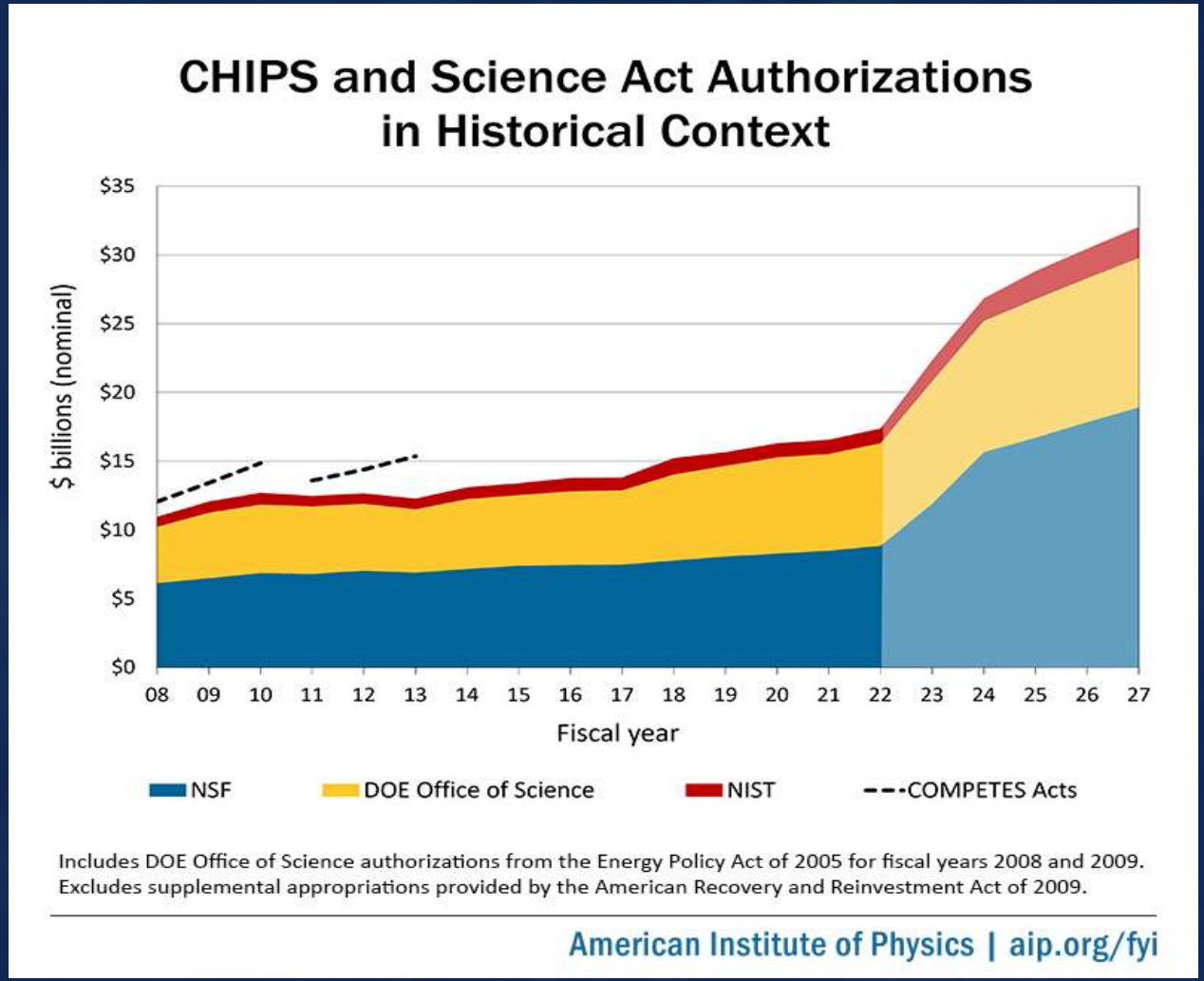
- University-based prototyping, lab-to-fab transition of semiconductor technologies
- DoD-specific workforce training programs

CHIPS & Science Act includes ~$170 billion in authorizations for research at NSF, NIST, and DOE, subject to future appropriations

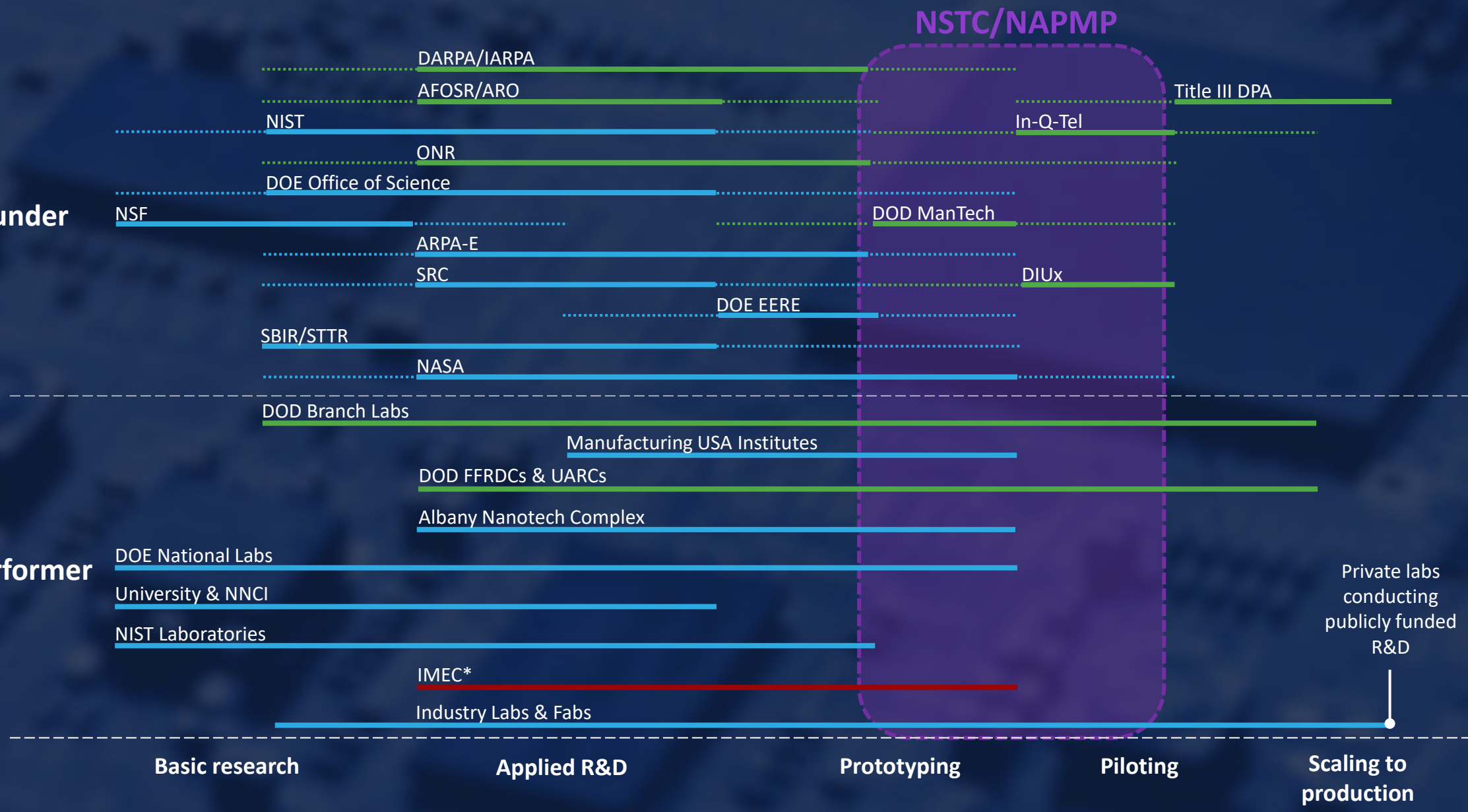
RESEARCH AUTHORIZATIONS

Division B of CHIPS & Science increases U.S. science authorizations; appropriations still needed

Key Programs	5-year Authorization	Increase over Baseline
National Science Foundation	**$81 billion**	$36 billion
NSF Tech Directorate	$20 billion	$20 billion
NSF Core Activities	$61 billion	$16 billion
National Institute of Standards and Technology	**$10 billion**	$5 billion
NIST Research	$6.9 billion	$2.8 billion
Manufacturing USA	$829 million	$744 million
Manufacturing Extension Partnership	$2.3 billion	$1.5 billion
Department of Energy	**$67.9 billion**	$30.5 billion
DOE Office of Science	$50.3 billion	$12.9 billion
Additional DOE Science and Innovation	$17.6 billion	$17.6 billion
Total	**$169.9 billion**	$82.5 billion



RESEARCH LANDSCAPE: NSTC/NAPMP & Valley of Death



CHIPS IMPLEMENTATION – WORKFORCE

Direct Workforce Funding

CHIPS Workforce & Education Fund

National Science Foundation

- $200 million over 5 years
- Establishes National Network for Microelectronics Education

Indirect Workforce Funding

NSTC/NAPMP, CHIPS Defense Fund, & Manufacturing USA

Dept. of Commerce, Dept. of Defense, NIST

- $13 billion R&D funding supports STEM education
- Workforce & skills training explicit in legislation

CHIPS Funding

Company Workforce Initiatives

CHIPS Manufacturing Incentives

Dept. of Commerce

- Incentive applications require company workforce development commitments
- Partnerships w/ regional institutions encouraged

Immigration & Workforce

NSTC/NAPMP, Manufacturing USA

Dept. of Commerce, NIST

- R&D funding creates opportunities for low-volume, high-value visa categories
- PCAST report recommends premium processing for semiconductor visas

CHIPS R&D IMPLEMENTATION

Goal: Promote collaborative R&D ecosystem aligned with industry technology agenda

Key investment areas for NSTC and NAPMP

- Support transition pathways for innovative technologies
- Upgrade research infrastructure for early-stage ecosystem
- Establish and expand access for mid-stage development and prototyping infrastructure
- Convene industry, academia, and government for collaborative innovation partnerships
- Promote dynamic workforce programs to increase and hone domestic workforce

semiconductors.org

SEMICONDUCTOR INDUSTRY ASSOCIATION

Thank You

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