

Government Adoption Assessment: CVD Graphene

Government Adoption Report | Technology assessed: CVD graphene

A briefing on which U.S. government organizations are positioned to adopt CVD graphene, and the status of similar technology-development contracts.



Title: Government Adoption Assessment: CVD Graphene

Company: First Place Business Solutions

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 - 3) Central Intelligence Agency (CIA)
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 - 2) SBA Office of Investment and Innovation (OII)
 - 3) SBA SBIR/STTR program office / SBIR.gov coordination function
 - Participating agencies whose topics match CVD graphene
 - Strongest matches
 - Department of Defense (DoD)
 - Department of Energy (DOE)
 - National Science Foundation (NSF)
 - National Aeronautics and Space Administration (NASA)
 - Department of Health and Human Services (HHS), especially NIH and BARDA components where applicable
 - Possible matches depending on end use
 - Department of Homeland Security (DHS)
 - Department of Transportation (DOT)
 - Environmental Protection Agency (EPA)
 - U.S. Department of Agriculture (USDA)

- National Oceanic and Atmospheric Administration (NOAA)
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Top-level summary: CVD graphene government adoption and transition assessment

The reviewed document argues, with uneven but often useful evidence, that CVD graphene is best understood by government adopters not as a stand-alone material acquisition, but as an enabling layer that must be inserted into a specific mission problem. Across the source, the strongest mission cases recur in infrared and broadband sensing, RF and microelectronics integration, EMI/EMP shielding, thermal management, conductive composites, membranes and water purification, biosensing, and lightweight multifunctional structures. That framing matters because most agencies do not appear to maintain a graphene-specific program of record. Instead, the practical path to adoption is through existing requirement-driven vehicles such as SBIR/STTR, BAAs, FOAs, CRADAs, prototype contracts, and center or lab collaborations, with success depending on whether CVD graphene improves a defined subsystem outcome better than incumbent materials.

From an adoption decision perspective, the document's strongest evidence sits in DoD, followed by DOE, NASA, and NIST within Commerce. DoD stands out because the source cites both recent awards and a live or near-live demand signal, including an OSD SBIR pre-release topic explicitly focused on monolithic graphene-CMOS broadband focal plane arrays. Army, Navy, Air Force, MDA, and DTRA also show multiple graphene-relevant awards in batteries, IR sensing, shielding, water purification, and related applications. That is materially different from many civilian agencies, where the evidence is more often "credible mission fit plus an available vehicle" rather than a public record of a graphene-named development line. For a government transition office, that means DoD offers the clearest precedent that adjacent development contracts already exist and that a future transition argument can be grounded in published prior work.

DOE is the strongest civilian environment where the document shows both early-stage science and applied development paths. The Office of Science, especially Basic Energy Sciences and its Materials Sciences and Engineering Division, appears best suited for synthesis, interfaces, defects, transport, and characterization questions that remain scientifically unresolved. AMMTO is more compelling for applied development because the source identifies public graphene-adjacent selections in conductivity-enhanced copper-graphene materials and related manufacturing themes. DOE SBIR/STTR offers a company-led route, while ARPA-E is framed as an opportunistic option only if graphene enables a genuine step-change against specific program metrics. The main implication for an adopter is that DOE can support both technical de-risking and manufacturing maturation, but usually only if the proposition is tied to measurable energy, microelectronics, or manufacturing outcomes rather than generic materials novelty.

NASA and NIST are persuasive second-tier targets because they offer recurring, public, navigable entry points even where graphene-specific demand is less explicit. NASA's SBIR/STTR program is the most credible route when CVD graphene is packaged as a hardware improvement for thermal control, transparent heaters, EMI shielding, flexible sensors, or multifunctional materials in space or aeronautics environments. NIST is especially strong where the government's core problem is not just device performance but

repeatability, contamination control, defect measurement, standards, and semiconductor or manufacturing metrology. In both cases, the document makes a practical transition argument: these agencies may not be buying “graphene” as such, but they are accustomed to sponsoring the exact kinds of enabling work that determine whether CVD graphene can become insertable into more operational systems.

Outside those leading organizations, the source becomes more conditional. USDA is plausible, especially through NIFA SBIR, for tightly scoped applications in agricultural biosensing, smart packaging, membranes, and water systems, but the document does not identify strong graphene-specific demand. DoT has believable mission applications in infrastructure sensing, corrosion protection, structural health monitoring, aviation materials, and pipeline integrity, yet the public evidence in the source largely stops at broad R&D structures rather than similar named contracts. HHS appears potentially attractive for biosensors, diagnostics, neural interfaces, and flexible devices, but the source itself is more tentative there and does not establish strong current graphene-specific demand. Intelligence Community organizations, especially IARPA and NSA research channels, may have real need in sensing, photonics, secure hardware, and space systems, but the public contracting picture is thin. DHS, EPA, and NSF are explicitly incomplete in the source and should not be treated as evidenced priorities on the basis of this document.

The document is most persuasive when it distinguishes between sponsors, validators, and downstream adopters. Some organizations, such as ARL, NIST labs, NASA centers, ARS units, or Volpe, are better understood as technical evaluators or collaborators than as the first source of external funding. Others, such as APHIS, Rural Development, SOMD, or some transit and maritime offices, are better treated as eventual users once a product is mature. This distinction is important for transition planning: a company or program cannot rely on nominal mission relevance alone. It needs a path from early R&D sponsor to integration partner to requirement owner.

The major decision blockers are clear and repeated across the source. First, in many agencies there is no identified public requirement owner for graphene-enabled performance. Second, manufacturability remains a core barrier: reproducible CVD growth, transfer, contamination control, defect management, and repeatability are often treated as unresolved adoption risks. Third, many use cases are still framed at the material-property level rather than the subsystem-insertion level, which weakens any procurement case. Fourth, environment-specific qualification data are often missing, whether for space, field, maritime, aviation, biomedical, or grid settings. Fifth, even where a Phase I or Phase II pathway exists, the transition customer after development is frequently unspecified. For a government adoption decision, these are not secondary issues; they are the main reasons to defer transition until more evidence exists.

On balance, the document supports a selective adoption strategy rather than a broad one. The strongest immediate targets are offices with three things already visible in public: a recurring funding vehicle, evidence of adjacent or directly similar awards, and a believable downstream user. By that standard, the best near-term transition environments are OSD/DoD SBIR-STTR, Army SBIR-STTR and ARL, DOE AMMTO, DOE BES for science-first maturation, NASA SBIR-STTR, and NIST SBIR or NIST lab-linked metrology work. The

document does not support a conclusion that CVD graphene is broadly ready for operational insertion across government. It does support the narrower and more credible conclusion that selected mission offices already have enough problem-fit and contracting precedent to justify targeted development and transition efforts now, provided the proposer can show subsystem performance, manufacturability, and a named transition path.

Parent organization engagement table

Parent organization	Office to engage	Similar-contract status	Published program manager or contact
USDA	NIFA -> SBIR	active recurring program; graphene-specific topic not found	sbir@usda.gov
Commerce	NIST SBIR	active; graphene-specific topic not found	sbir@nist.gov; 301-975-8449
DoD	OSD / OUSD(R&E) -> DoD SBIR/STTR (DSIP)	active; explicit graphene-related topic and prior awards cited	DoDSBIRSupport@reisystems.com
DoD	Army -> Army SBIR/STTR / DEVCOM ARL	active; multiple recent graphene-relevant awards cited	Tamara Christenson; tamara.r.christenson.civ@army.mil
DoD	Navy -> Navy SBIR/STTR	active; multiple recent graphene-relevant awards cited	not published
DoD	DARPA	historical graphene awards; no current graphene-specific solicitation identified	not published
DoD	Department of the Air Force -> DAF SBIR/STTR	active; recent and historical graphene-relevant awards cited	not published
DoD	DIU	prototype pathway active; graphene-specific solicitation not found	not published
DoD	MDA	active niche awards	not published

Parent organization	Office to engage	Similar-contract status	Published program manager or contact
		cited	
DoD	DTRA	active niche awards cited	not published
DOE	Office of Science -> BES -> Materials Sciences and Engineering Division	active program of record; graphene-specific award line not cited	Dr. Andy Schwartz; sc.grantsandcontracts@doe.gov
DOE	Office of Critical Minerals and Energy Innovation -> AMMTO	active; public graphene-adjacent selections cited	ammto@ee.doe.gov
DOE	ARPA-E	active program structure; no current graphene-specific program identified	ARPA-E@hq.doe.gov
DOE	DOE SBIR/STTR	active; no current graphene-specific topic identified	sbir-sttr@doe.gov; (301) 903-5707
HHS	NIH SBIR/STTR / SEED	active recurrent program; graphene-specific topic not established in source	not published
HHS	NIBIB	active recurrent programs; graphene-specific program not identified	not published
HHS	ARPA-H	active pathway; graphene-specific topic not found	not published
HHS	BARDA	active/recurrent pathway; graphene-specific call not found	not published
DoT	OST-R -> DoT SBIR	active; graphene-specific topic not found	dotsbir@dot.gov

Parent organization	Office to engage	Similar-contract status	Published program manager or contact
IC	IARPA	active BAAs/solicitations; no graphene-specific named program found	not published
IC	NSA research / SBIR	active channels; graphene-specific topic not found	not published
NASA	STMD -> NASA SBIR/STTR Program Office	active recurring solicitation	agency-sbir@mail.nasa.gov
NASA	SMD -> ROSES	active annual omnibus; graphene-specific element not identified	not published
SBA	Office of Investment and Innovation / SBIR-STTR coordination	coordination role active; no direct graphene funding	not published

CVD Graphene: top 10 government organization-office pairings for adoption and transition

Executive summary

For a government decision-maker, the strongest case for CVD graphene is **not** a standalone materials adoption decision. The evidence supports adoption only where graphene is the enabling layer in a specific mission outcome: **IR or broadband sensing, RF/microelectronics integration, EMI/EMP shielding, thermal management, conductive composites, membranes/water purification, biosensing, or lightweight multifunctional structures.**

Across the reviewed document, the best targets are the organizations that already use familiar de-risking pathways — especially **SBIR/STTR, BAAs, FOAs, CRADAs, and prototype contracts** — and where similar development contracts already exist. The clearest demand signal is in **DoD**, followed by **DOE, NASA, and NIST/Commerce**. **USDA** and some transportation or health offices are credible in narrower use cases, but most are better viewed as niche or downstream paths unless tied to a very specific mission problem.

Bottom-line recommendation to an editor or agency leader

Prioritize offices that meet four tests: 1. **Clear mission fit now** for a known government pain point. 2. **Clear contracting or assistance vehicle** a company can actually pursue. 3. **Public evidence of similar awards or active adjacent work**. 4. **Plausible transition path** from R&D into a program office, lab user, or operations customer.

By those tests, the top 10 pairings below are the strongest in the document.

Top 10 best parent-organization and technology-office pairings

1) Department of Defense -> OSD / OUSD(R&E) -> DoD SBIR/STTR (DSIP)

Mission fit: why this office, why now

This is the strongest near-term pairing because the source document cites a **2026 OSD SBIR pre-release topic explicitly for monolithic graphene-CMOS broadband focal plane arrays**. That is direct evidence of mission pull for graphene-enabled sensing, not just general materials interest.

Clarity of the ask

Very clear: respond through the **DoD SBIR/STTR BAA via DSIP**.

Technical readiness and de-risking path

Strong. SBIR/STTR is the standard DoD path for TRL 3-6 component and subsystem maturation.

Similar-contract status and timing implication

Best in class. The document cites both a current pre-release topic and prior OSD graphene-related awards. That implies timing is live and credible.

Deal / award structure and next-step feasibility

High. A small company can pursue Phase I/II and seek follow-on transition if it has real detector or integration data.

Objections that would block a yes

- no CMOS integration evidence; - no device-level performance data; - product is just film supply, not a defense sensor solution; - no identified transition customer after Phase II.

Published contact

DoDSBIRSupport@reisystems.com. Topic-specific PM not publicly named in the reviewed source.

Verdict

Highest-priority federal target.

2) Department of Energy -> Office of Critical Minerals and Energy Innovation -> AMMTO

Mission fit: why this office, why now

AMMTO is the strongest civilian applied-development office in the document. It already shows publicly visible graphene-adjacent projects in **conductivity-enhanced copper-graphene materials**.

Clarity of the ask

Clear enough: apply through an **AMMTO FOA** or related EERE funding call.

Technical readiness and de-risking path

Strong for TRL 3-6 applied materials, conductivity enhancement, microelectronics manufacturing, and scale-up.

Similar-contract status and timing implication

Strong. Existing selected projects imply DOE already accepts graphene when linked to measurable manufacturing or materials outcomes.

Deal / award structure and next-step feasibility

Good. Best fit for cost-shared or grant-supported applied RD&D.

Objections that would block a yes

- no manufacturability or process-control plan; - no technoeconomic case versus incumbent conductors; - too basic for AMMTO, better suited to BES; - weak DOE mission tie.

Published contact

ammto@ee.doe.gov

Verdict

Top-tier applied civilian target.

3) NASA -> Space Technology Mission Directorate -> NASA SBIR/STTR Program Office

Mission fit: why this office, why now

NASA is compelling when graphene is presented as a subsystem solution: **thermal spreaders, transparent heaters, EMI shielding, flexible sensors, or multifunctional materials.**

Clarity of the ask

High. The route is a **NASA SBIR/STTR proposal** under annual subtopics.

Technical readiness and de-risking path

Very good. NASA SBIR/STTR is a standard path for TRL 2-5 hardware maturation and later infusion.

Similar-contract status and timing implication

Good. The document shows recurring adjacent demand in materials, sensors, thermal control, and electronics, though not a standing graphene-only topic.

Deal / award structure and next-step feasibility

Good for small companies with relevant environmental test data and a defined NASA use case.

Objections that would block a yes

- no space or aviation environment data; - no contamination, thermal-cycle, or radiation/outgassing evidence; - no center or mission customer pull; - generic material pitch without subsystem value.

Published contact

agency-sbir@mail.nasa.gov

Verdict

Excellent recurring small-business path.

4) Department of Commerce -> NIST -> NIST SBIR Program

Mission fit: why this office, why now

NIST is a strong fit where the bottleneck is **metrology, repeatability, defect measurement, contamination control, standards, or semiconductor process control.**

Clarity of the ask

High: a **NIST SBIR proposal** around measurement science, sensing, or semiconductor/manufacturing tools.

Technical readiness and de-risking path

Strong for TRL 2-5 tool, process, and standards work.

Similar-contract status and timing implication

Moderate-strong. NIST has active graphene and 2D-material relevance plus an active SBIR program, though no graphene-only open topic was cited.

Deal / award structure and next-step feasibility

Good, especially if the company can frame graphene as solving a measurement or process-control problem.

Objections that would block a yes

- no standards or metrology problem; - weak semiconductor or industrial-competitiveness tie; - product is a material, not a NIST-relevant technical capability.

Published contact

sbir@nist.gov; 301-975-8449

Verdict

One of the cleanest non-DoD small-business routes.

5) Department of Defense -> Army -> Army SBIR/STTR / DEVCOM ARL**Mission fit: why this office, why now**

Army has one of the broadest practical mission fits in the document: **batteries, bolometers, electromagnetic protection coatings, and water purification.**

Clarity of the ask

Good. There are two clear paths: **Army SBIR/STTR** for topic-driven work and **ARL BAA / CRADA** for earlier collaboration.

Technical readiness and de-risking path

Strong across TRL 2-6 depending on vehicle.

Similar-contract status and timing implication

Strong. The document cites several recent Army graphene-relevant awards in 2024-2025.

Deal / award structure and next-step feasibility

High. Multiple entry mechanisms make this one of the most practical service-level paths.

Objections that would block a yes

- no direct soldier-system or platform benefit; - no ruggedization or field data; - unclear user transition plan; - too many use cases with no lead product.

Published contact

Tamara Christenson, Technical Point of Contact, DEVCOM ARL CRA,
tamara.r.christenson.civ@army.mil

Verdict

Best service-level pairing for breadth and flexibility.

6) Department of Energy -> Office of Science -> BES -> Materials Sciences and Engineering Division

Mission fit: why this office, why now

This is the strongest basic-science office for CVD graphene where the main risks are still **growth science, interfaces, defects, transport, and characterization.**

Clarity of the ask

Moderate. The ask is a **DOE Office of Science FOA application**, often best with academic or lab partners.

Technical readiness and de-risking path

Excellent for TRL 1-3 or use-inspired basic research.

Similar-contract status and timing implication

Strong institutionally. BES is a durable program of record with active FOAs and user facilities, even though the document did not cite a graphene-specific live award line.

Deal / award structure and next-step feasibility

Feasible, but better for science-first maturation than for near-term procurement.

Objections that would block a yes

- too product-oriented for BES; - weak scientific novelty; - no research team depth; - commercialization timeline mismatched to the vehicle.

Published contact

Dr. Andy Schwartz, Division Director; general support sc.grantsandcontracts@doe.gov

Verdict

Best science-first office, but not the fastest operational transition lane.

7) U.S. Department of Agriculture -> NIFA -> SBIR

Mission fit: why this office, why now

Within USDA, NIFA SBIR is the clearest path if graphene is tied to **ag biosensors, smart packaging, membranes, or water treatment.**

Clarity of the ask

High: submit a **NIFA SBIR** proposal under an agriculture-relevant topic.

Technical readiness and de-risking path

Good for TRL 3-6 applied prototypes.

Similar-contract status and timing implication

Moderate. The recurring program is real, but the document found no graphene-specific topic.

Deal / award structure and next-step feasibility

Straightforward for a small company, though award size is relatively modest.

Objections that would block a yes

- no agricultural mission outcome; - material-led pitch with no food, farm, or water relevance; - no field validation plan.

Published contact

sbir@usda.gov

Verdict

Best USDA entry point, but only for tightly framed ag or food applications.

8) Department of Defense -> Navy -> Navy SBIR/STTR**Mission fit: why this office, why now**

The document shows concrete Navy interest in **batteries, IR beam control, tunable modulation, and hyperspectral imaging.**

Clarity of the ask

Moderate-high. The practical route is **Navy SBIR/STTR**, though the contact structure is less public than Army or NIST.

Technical readiness and de-risking path

Strong for TRL 3-6 device and subsystem demonstrations.

Similar-contract status and timing implication

Strong. Multiple recent awards indicate real demand in naval EO/IR and power applications.

Deal / award structure and next-step feasibility

Good, provided the product solves a naval platform or sensor problem.

Objections that would block a yes

- no subsystem-level benefit; - no maritime or platform environment case; - no path from Phase II to ONR or fleet adoption.

Published contact

No graphene-specific public contact identified in the reviewed source.

Verdict

Strong defense pairing, especially for power and optical modulation.

9) Department of Defense -> DARPA

Mission fit: why this office, why now

DARPA is best when the proposition is a **step-change** in manufacturable devices, wafer-scale synthesis, tunable imaging, or other non-incremental performance.

Clarity of the ask

Moderate. The company must fit a live **DARPA BAA, program solicitation, or DARPA SBIR** topic.

Technical readiness and de-risking path

Excellent for high-risk/high-payoff TRL 2-5 work.

Similar-contract status and timing implication

Good historically. The document cites prior graphene-related awards, but no current graphene-specific open solicitation.

Deal / award structure and next-step feasibility

Possible, but opportunistic rather than dependable.

Objections that would block a yes

- too incremental; - no disruptive defense payoff; - weak performer credibility on difficult integration or manufacturing claims; - unclear transition partner.

Published contact

No graphene-specific PM publicly named in the reviewed source.

Verdict

High-upside but less predictable than recurring SBIR paths.

10) Department of the Air Force -> DAF SBIR/STTR

Mission fit: why this office, why now

The Air Force evidence is credible across **EMI/EMP shielding, additive manufacturing, graphene memory, radiation-hardened electronics, and ultracapacitors.**

Clarity of the ask

Moderate-high: compete through **DAF SBIR/STTR** topic releases.

Technical readiness and de-risking path

Strong for TRL 3-6 prototypes and subsystem improvements.

Similar-contract status and timing implication

Strong historically and still credible now, especially for shielding and electronics applications.

Deal / award structure and next-step feasibility

Good for shielding, space electronics, and manufacturing-tool concepts.

Objections that would block a yes

- no Air Force mission pull; - no flight or space environment relevance; - weak differentiation versus incumbent materials.

Published contact

No graphene-specific public contact identified in the reviewed source.

Verdict

Strong service-level option for shielding and space-electronics use cases.

Offices that did not make the top 10, and why

- **DOE SBIR/STTR:** strong route, but less office-specific mission pull than AMMTO or BES in the source.
 - **NIST laboratories / CNST:** important technical partner, but less direct as a stand-alone company award path than NIST SBIR.
 - **NIST CHIPS:** promising but narrower and highly dependent on true semiconductor relevance.
 - **USDA ARS / Forest Service:** useful validators or niche adopters, but less straightforward than NIFA SBIR.
 - **DIU:** only valuable once the product is prototype-ready and user-validated.
 - **MDA / DTRA:** real niche demand, but narrower than OSD, Army, Navy, or DAF.
 - **HHS / NIH / BARDA / ARPA-H:** potentially good in biosensing or devices, but the document provides weaker similar-award evidence and thinner published contact detail.
 - **DoT and IC offices:** often plausible mission fits, but public evidence is thinner or more indirect.
 - **DHS, EPA, NSF:** the source document marked these sections incomplete or placeholder-level, so they cannot support top-10 prioritization yet.
-

Cross-cutting blockers to adoption

Across all offices, the main blockers are consistent: 1. **No mission-specific requirement owner.** 2. **No manufacturability proof** for CVD growth, transfer, contamination control, and repeatability. 3. **No subsystem insertion point** beyond raw material performance. 4. **No qualification data** for the target environment. 5. **No clear transition path** from Phase I/II or early FOA work to a program office, lab user, or procurement customer.

Editor-ready recommendation

If only five pairings should be emphasized, lead with: 1. **DoD OSD / OUSD(R&E) -> DoD SBIR/STTR (DSIP)** 2. **DOE -> AMMTO** 3. **NASA STMD -> NASA SBIR/STTR** 4. **Commerce -> NIST -> NIST SBIR** 5. **DoD -> Army -> Army SBIR/STTR / ARL**

These offer the strongest combination of mission pull, clear vehicle, similar-contract evidence, and realistic transition feasibility.

Table: every office considered

Office considered	Parent organization	Mission fit	Sharper recommendation matrix	Similar-contract status	Published contact
NIFA -> SBIR	USDA	Ag sensors, packaging, membranes, water	Pursue for ag-specific prototypes	Active recurring program; graphene-specific topic not found	sbir@usda.gov
NIFA -> AFRI	USDA	Institution-led ag research	Selective pursue with partners	Active omnibus; graphene-specific topic not found	Program-area contacts in RFA; no standing graphene contact
ARS -> National Programs / research units	USDA	Validator for sensors, membranes, coatings	Partner/validate	Active in-house R&D; dedicated graphene solicitation not found	Not published
Forest Service -> FPL / R&D / Wood Innovations	USDA	Composites, coatings, forest sensing	Selective pursue	Active grants/R&D; graphene-specific topic not found	Not published
APHIS	USDA	Diagnostics end user	Adoption only	Dedicated graphene vehicle not found	Not published
Rural Development ->	USDA	Deployment of water/infrastructure	Deployment only	Graphene R&D vehicle not	Not published

Office considered	Parent organization	Mission fit	Sharper recommendation matrix	Similar-contract status	Published contact
Water and Environmental Programs / RUS		hardware		found	
NIST laboratories / CNST / materials programs	Commerce	Metrology, standards, characterization	Pursue collaboration	Active capability; no graphene-only standing solicitation found	Not published
NIST SBIR	Commerce	Measurement, sensors, semiconductor tools	Pursue	Active; graphene-specific topic not found	sbir@nist.gov; 301-975-8449
NIST CHIPS-related programs	Commerce	Semiconductor manufacturing/metrology	Selective pursue	Active ecosystem; graphene-specific call not found	Not published
MEP	Commerce	Manufacturing scale-up support	Later-stage only	No graphene-specific program found	Not published
EDA	Commerce	Regional commercialization ecosystem	Consortium-only selective pursue	Active programs; no graphene-specific call found	Not published
NOAA	Commerce	Specialized sensors/materials	Niche only	Graphene-specific topic	Not published

Office considered	Parent organization	Mission fit	Sharper recommendation matrix	Similar-contract status	Published contact
				not found	
OSD / OUSD(R&E) -> DoD SBIR/STTR	DoD	Detectors, 2D microelectronics, sensing	Top-priority pursue	Active pre-release topic plus prior awards	DoDSBIRSupport@reisystems.com
DARPA	DoD	Breakthrough devices/manufacturing	Selective high-upside pursue	Historical graphene awards; no current graphene-specific solicitation found	Not published
Army SBIR/STTR	DoD	Power, sensing, protection, water	Pursue	Recent awards in multiple graphene-relevant areas	Army topic channels
DEVCOM ARL BAA / CRADA / collaboration	DoD	Early-stage validation and collaboration	Pursue if earlier TRL	Active collaboration infrastructure	Tamara Christenson; tamara.r.christenson.civ@army.mil
Navy SBIR/STTR	DoD	Batteries, EO/IR modulation, optics	Pursue	Recent awards 2022-2024	Not published
Department of the Air Force SBIR/STTR	DoD	EMI/EMP shielding, electronics, AM	Pursue	Recent and historical awards	Not published
DIU	DoD	Fast prototype transition	Later-stage pursue	Active path; graphene-specific	Public contact form only

Office considered	Parent organization	Mission fit	Sharper recommendation matrix	Similar-contract status	Published contact
				solicitation not found	
MDA	DoD	Timing, shielding, multifunctional structures	Selective niche pursue	Recent graphene-adjacent awards	Not published
DTRA	DoD	EMP protection, hardening, sensing	Selective niche pursue	Recent EMP-related awards	Not published
Office of Science - > BES -> MSE	DOE	Fundamental synthesis, defects, interfaces	Pursue if science-first	Active FOA/program of record	Dr. Andy Schwartz; sc.grantsandcontracts@doe.gov
CMEI -> AMMTO	DOE	Conductivity, manufacturing, microelectronics	Top-priority pursue	Public graphene-related selections cited	ammto@ee.doe.gov
ARPA-E	DOE	Breakthrough energy hardware	Opportunistic selective pursue	Active programs; no graphene-specific active program found	ARPA-E@hq.doe.gov
Office of Electricity	DOE	Grid conductors, sensors, storage interfaces	Later-stage selective pursue	Active opportunities; no graphene-specific solicitation found	OEwebmaster@hq.doe.gov; 202-586-1411
DOE SBIR/STTR	DOE	Company-led mission-aligned R&D	Pursue	Active program	sbir-sttr@doe.gov; (301) 903-5707

Office considered	Parent organization	Mission fit	Sharper recommendation matrix	Similar-contract status	Published contact
NNSA	DOE	Potential advanced-materials relevance	Do not prioritize yet	No graphene-specific route found	Not published
ARPA-H	HHS	Breakthrough health systems	Selective pursue	Broad pathway active; graphene-specific topic not found	Not published
ASPR -> BARDA	HHS	Diagnostics, biodetection, preparedness devices	Selective pursue if product-ready	Active recurrent pathway; no graphene-specific call found	Not published
NIH SBIR/STTR / SEED	HHS	Biosensors, diagnostics, interfaces	Pursue for health use cases	Active recurrent	Not published
NIBIB	HHS	Bioengineering devices and sensing	Pursue with biomedical fit	Active recurrent programs	Not published
NINDS / BRAIN-related programs	HHS	Neural interfaces	Selective pursue	Active recurrent device programs	Not published
NCI	HHS	Oncology diagnostics	Selective pursue	Active recurrent	Not published
FDA	HHS	Regulatory science only	Do not prioritize	No graphene-specific	Not published

Office considered	Parent organization	Mission fit	Sharper recommendation matrix	Similar-contract status	Published contact
			early	opportunity found	
CDC	HHS	Niche surveillance/diagnostics	Low priority	No graphene-specific pathway found	Not published
OST-R -> DoT SBIR	DoT	Transportation sensing/coatings/materials	Pursue for transportation use cases	Active program with published award sizes	dotsbir@dot.gov
Volpe Center	DoT	Technical evaluation/integration	Use as evaluator, not first sponsor	Active support role	Not published
FAA R&D / William J. Hughes Technical Center	DoT	Aviation materials, SHM, lightning/EMI	Selective pursue later	Active R&D venue; graphene-specific open call not confirmed	Not published
FHWA -> Infrastructure R&D / TFHRC	DoT	Structural monitoring, corrosion, durability	Selective pursue	Active research structure; no graphene-specific open opportunity confirmed	Not published
FRA -> Office of RDT	DoT	Rail monitoring, NDE, materials safety	Selective pursue	Active; graphene-specific topic not found	Not published
FTA	DoT	Transit demo and asset	Later-stage	Active; more	Not published

Office considered	Parent organization	Mission fit	Sharper recommendation matrix	Similar-contract status	Published contact
research/innovation offices		monitoring	pursue	demonstration-oriented	
PHMSA R&D	DoT	Leak detection, corrosion, barrier materials	Selective pursue	Active mission fit; no graphene-specific public topic found	Not published
MARAD	DoT	Marine corrosion/coatings/composites	Later-stage selective pursue	Broadly active; no graphene-specific opportunity found	Not published
NHTSA	DoT	Vehicle safety sensing/electronics	Do not prioritize	Research contracts exist; weak graphene fit	Not published
ODNI S&T / research coordination	IC	Coordination influence only	Do not prioritize directly	Active coordination role; no direct funding channel found	Not published
IARPA	IC	Advanced sensing, RF, photonics, compute	Selective pursue	Active BAAs/solicitations; no graphene-specific named program found	Solicitation-specific only
CIA contracting	IC	Specialty technical	Do not	Public	Not published

Office considered	Parent organization	Mission fit systems	Sharper recommendation matrix	Similar-contract status	Published contact
NSA research / SBIR	IC	Secure hardware, RF, microelectronics	Monitor and pursue if topic opens	Active research/small-business channels	Not published
NGA innovation/business channels	IC	ISR sensing hardware	Selective pursue	Active business channels; no graphene-specific topic found	Not published
NRO acquisition/research	IC	Space payload hardware	Selective pursue	Active business/research channels	Not published
STMD -> NASA SBIR/STTR Program Office	NASA	Thermal, sensors, electronics, materials	Top-priority pursue	Active recurring annual solicitation	agency-sbir@mail.nasa.gov
STMD solicitations and prizes	NASA	Broader tech maturation	Monitor selectively	Active portal; no graphene-specific call found	Not published
SMD -> ROSES	NASA	Science instrument and detector concepts	Selective partner-led pursue	Active annual omnibus	Appendix-specific contacts
ESDMD	NASA	Downstream exploration	Transition	No early-stage	Not published

Office considered	Parent organization	Mission fit	Sharper recommendation matrix	Similar-contract status	Published contact
		adopter	target later	graphene line found	
ARMD	NASA	Aeronautics subsystem uses	Selective pursue via SBIR first	No directorate-level graphene solicitation identified	Not published
SOMD	NASA	Downstream operations adopter	Not first sponsor	No graphene-specific development call identified	Not published
Langley Research Center	NASA	Structures, sensors, aeronautics materials	Technical champion after fit	Relevant customer role visible; no center-only graphene BAA found	Center contacts via NASA SBIR page
Glenn Research Center	NASA	Power, thermal, electronics materials	Technical champion after fit	Relevant customer role visible; no center-only graphene BAA found	Center contacts via NASA SBIR page
Office of Investment and Innovation / SBIR-STTR coordination	SBA	Policy and routing only	Navigation layer only	Active coordination role; no direct graphene funding	Not published
DHS components	DHS	Incomplete in source	Insufficient	Research	Not published

Office considered	Parent organization	Mission fit document	Sharper recommendation matrix evidence	Similar-contract status incomplete in source memo	Published contact
EPA	EPA	Incomplete in source document	Insufficient evidence	Placeholder only in source memo	Not published
NSF	NSF	Incomplete in source document	Insufficient evidence	Research incomplete in source memo	Not published

CVD Graphene: government adoption and transition summary

Executive summary

The reviewed research finds that **CVD graphene has broad theoretical relevance across U.S. government missions**, but the **evidence of near-term transition readiness is uneven**. The strongest support is in organizations that already buy advanced materials, sensors, electronics, coatings, thermal-management solutions, and enabling manufacturing technologies through **SBIR/STTR, BAAs, FOAs, CRADAs, and requirement-driven procurement**. The document shows the clearest existing demand signal in **DoD**, where multiple recent or active SBIR/STTR topics and awards explicitly reference graphene or adjacent 2D-material applications in sensing, EMI/EMP shielding, batteries, IR imaging, memory, and water purification. There is also credible pull from **DOE, NASA, NIST/Commerce**, and selected **USDA** and **DoT** offices, but in most of those cases the public record supports **mission fit and contracting pathways more strongly than a current graphene-specific program of record**.

The research accomplished three things well. First, it mapped CVD graphene to mission-specific government use cases rather than treating graphene as a generic platform. The strongest recurring use cases were **broadband or IR sensing, RF and microelectronics integration, EMI/EMP shielding, thermal management, conductive composites, corrosion/barrier coatings, membranes and water purification, biosensing/diagnostics, and lightweight multifunctional structures**. Second, it identified where **similar development contracts already exist**. The best evidence sits in published **DoD SBIR/STTR awards and topics**, selected **DOE AMMTO projects**, and recurring agency-wide innovation programs such as **NASA SBIR/STTR, NIST SBIR, DOE SBIR/STTR, NIH SBIR/STTR, USDA NIFA SBIR, and DoT SBIR**. Third, it separated **true sponsors** from **downstream adopters**. Several organizations, such as APHIS, Rural Development, SOMD, and some transit or maritime offices, look more like future operational customers than early-stage R&D sponsors.

For a government decision-maker considering adoption or transition into a mission, program of record, or operations, the central judgment is this: **CVD graphene is best viewed as an enabling component technology that should be inserted into a specific operational problem, not adopted as a standalone material initiative**. The key blockers are also clear. In most civilian agencies, the source material did **not** identify a current graphene-specific solicitation, dedicated PM, or validated program of record. Transition therefore depends on four things: **(1) mission-specific performance evidence versus incumbent materials, (2) manufacturability and repeatability of CVD growth and transfer, (3) integration into existing qualified systems and acquisition pathways, and (4) a public funding or procurement vehicle already tied to the mission problem**. Without those, the technology remains interesting but not yet decision-ready for operational adoption.

Adoption and transition assessment

Best-evidenced near-term transition environments

- **DoD** is the strongest overall candidate for near-term sponsored development and eventual transition because the document identified **published, recent, or active SBIR/STTR topics and awards** naming graphene or closely adjacent 2D-material capabilities.
- **DOE** is strong for both **fundamental science** and **applied manufacturing/materials development**, especially where graphene improves conductivity, microelectronics, or energy-system components.
- **NASA** is a credible sponsor where graphene solves a specific space or aeronautics hardware problem and fits **SBIR/STTR** or STMD pathways.
- **NIST/Commerce** is best where the issue is **metrology, standards, characterization, semiconductor process control, or manufacturing measurement science**.

Strong mission fit but weaker public evidence of transition pull

- **USDA** has credible needs in sensors, food/ag packaging, membranes, diagnostics, and rural water systems, but mostly through **broad recurring programs** rather than graphene-specific demand.
- **DoT** has plausible transition pathways for infrastructure sensing, corrosion protection, structural health monitoring, and transportation materials, but the document found **few published graphene-specific development vehicles**.
- **HHS** appears promising for biosensors, diagnostics, neural interfaces, and flexible health devices, but the source document itself noted that live verification was limited and **graphene-specific opportunities were not publicly established** in the reviewed material.
- **Intelligence Community** organizations have plausible mission need in sensing, RF, photonics, space hardware, and secure microelectronics, but public contracting detail is thin and much of the open evidence stops at portal or office level.

Decision blockers a program executive or lab director should care about

1. **Sparse graphene-specific programs outside DoD and a few DOE examples.** Many agencies have a plausible mission fit but no public program of record or open solicitation naming graphene.
2. **Named public technical sponsors are often absent.** In many cases the deepest reliable public attribution is a program office or general inbox, not a named PM.
3. **Manufacturing and qualification risk.** CVD graphene transition depends on reproducible growth, transfer, defect control, contamination control, and integration into target systems.
4. **Requirement ownership is often indirect.** Several organizations appear to be adopters only after another office or contractor matures the technology.

5. **Operational insertion evidence is limited.** The source document shows many R&D pathways but comparatively few public examples of fielded programs of record adopting CVD graphene at scale.

Sharper recommendation matrix by parent organization

Parent organization	Office considered	Why it matters for adoption/transition	Similar contract status	Typical vehicle	Published program manager or contact	Recommendation
USDA	NIFA -> SBIR	Best USDA company-led R&D path for ag/food sensors, packaging, water, engineering	active	SBIR grant/cooperative agreement	sbir@usda.gov	Pursue for ag-specific small-business development
USDA	NIFA -> AFRI	Strong research fit, but more institution-led than company-led transition	active	Competitive grant	not published	Use only with university/non profit partner
USDA	ARS -> National Programs / research units	Plausible intramural adopter for sensors, membranes, coatings, packaging	none found	CRADA, unit collaboration, contracts	not published	Good validation partner; weaker as first external funding target
USDA	Forest Service -> FPL / R&D / Wood Innovations	Fit for composites, coatings, fire/moisture sensing, infrastructure materials	active	Grants, cooperative agreements, contracts	not published	Target if product maps to forest products or infrastructure
USDA	APHIS	End-user for diagnostics/biosensors rather than a likely	none found	Contracts/equipment buys	not published	Treat as downstream adopter only

Parent organization	Office considered	Why it matters for adoption/transition	Similar contract status	Typical vehicle	Published program manager or contact	Recommendation
		graphene sponsor				
USDA	Rural Development - > Water and Environmental Programs / RUS	Deployment channel for water/infrastructure hardware, not early R&D	none found	Loans, grants, guarantees	not published	Consider only after commercialization
Commerce	NIST laboratories / CNST / materials and electronics programs	Best Commerce fit for graphene metrology, standards, process control, 2D materials characterization	active	Lab collaboration, user facility, grants/cooperative agreements, contracts	not published	High-priority for standards, characterization, semiconductor relevance
Commerce	NIST SBIR	Best small-business Commerce route for measurement, sensors, materials, semiconductors	active	SBIR	sbir@nist.gov; 301-975-8449	Pursue when topic language permits graphene-enabled solutions
Commerce	NIST CHIPS-related programs	Relevant if graphene solves semiconductor manufacturing or metrology problems	forecast	NOFOs, cooperative agreements, contracts	not published	Track closely; engage only with concrete semiconductor use case
Commerce	MEP	Manufacturing transition support, not	none found	Cooperative agreements/tec	not published	Downstream scale-up

Parent organization	Office considered	Why it matters for adoption/transition	Similar contract status	Typical vehicle	Published program manager or contact	Recommendation
		frontier graphene R&D		technical assistance		support only
Commerce	EDA	Useful for regional commercialization ecosystems, not direct material maturation	active	Grants/cooperative agreements	not published	Use only for consortia or cluster-building
Commerce	NOAA	Narrow fit for specialized sensors/materials	none found	SBIR, grants, contracts	not published	Secondary target only
DoD	OSD / OUSD(R&E) -> DoD SBIR/STTR topics	Strongest published cross-cutting demand signal, including explicit graphene-CMOS focal plane topic	active	SBIR/STTR BAA/CSO	DoDSBIRSupport@reisystems.com	Highest-priority near-term sponsor path
DoD	DARPA	Best for breakthrough device/manufacturing jumps; proven historical graphene awards	expired	SBIR, BAA, contracts, OT-like DARPA mechanisms	not published	Pursue for disruptive, not incremental, propositions
DoD	Army -> ARL / Army SBIR-STTR	Strong evidence in batteries, water purification, sensing, coatings	active	SBIR/STTR, ARL BAA, CRADA, xTech	Tamara Christenson; tamara.r.christenson.civ@army.mil	High-priority for fieldable Army-relevant use cases
DoD	Navy SBIR/STTR / ONR-linked	Evidence in IR modulation, batteries, tunable optics, EO	active	SBIR/STTR	not published	Strong target if naval EO/IR or power mission

Parent organization	Office considered	Why it matters for adoption/transition	Similar contract status	Typical vehicle	Published program manager or contact	Recommendation
	topics	systems				fit exists
DoD	Department of the Air Force SBIR/STTR	Evidence in EMI/EMP shielding, additive manufacturing, memory, ultracapacitors	active	SBIR/STTR	not published	High-priority for shielding, space electronics, manufacturing
DoD	DIU	Fast prototype transition path for mature dual-use products	forecast	Prototype OT / CSO	not published	Use only after prototype maturity and clear user demand
DoD	MDA	Credible niche fit in timing, shielding, multifunctional structures	active	SBIR/STTR	not published	Pursue for highly specific missile-defense applications
DoD	DTRA	Good fit for EMP protection, gas sensing, hardened materials	active	SBIR/STTR	not published	Pursue for threat-protection applications
DOE	Office of Science -> BES -> MSE	Best fit for fundamental synthesis, defects, interfaces, characterization	active	FOA / financial assistance	Dr. Andy Schwartz; sc.grantsandcontracts@doe.gov	High-priority for basic and use-inspired materials science
DOE	CMEI -> AMMTO	Best applied DOE office; public graphene-	active	FOA, grants, cost-shared	ammto@ee.doe.gov	Highest-priority civilian

Parent organization	Office considered	Why it matters for adoption/transition	Similar contract status	Typical vehicle awards, prizes	Published program manager or contact	Recommendation
		adjacent projects already visible				applied-development target
DOE	ARPA-E	Good fit only if graphene enables a step-change against program metrics	none found	Program-specific FOAs	ARPA-E@hq.doe.gov; Dr. Jungho Kim published for AMPLIFY only	Opportunistic target; needs breakthrough framing
DOE	Office of Electricity	Potential adopter for grid components, conductors, sensors, storage interfaces	none found	FOAs, prizes, partnership intermediary agreements	OEwebmaster@hq.doe.gov; 202-586-1411	Secondary target; lead with grid outcome not material
DOE	DOE SBIR/STTR	Practical company-led route into DOE missions	active	SBIR/STTR	sbir-sttr@doe.gov; (301) 903-5707	Strong route for product-oriented work
DOE	NNSA	Potential mission relevance but no public graphene path identified	none found	none found	not published	Do not prioritize without a lab or mission sponsor
HHS	ARPA-H	Potentially strong for breakthrough health systems using graphene-enabled components	none found	BAA / program solicitation	not published	Track, but insufficient public evidence for immediate pursuit
HHS	ASPR ->	Possible	forec	BAA / EZ-BAA	not published	Good only for

Parent organization	Office considered	Why it matters for adoption/transition	Similar contract status	Typical vehicle	Published program manager or contact	Recommendation
	BARDA	diagnostics/biodesign path if fieldable and regulated	active			clear preparedness device use cases
HHS	NIH SBIR/STTR / SEED	Best HHS small-business path for biosensors, diagnostics, interfaces	active	SBIR/STTR	not published	Best HHS route for early health applications
HHS	NIBIB	Strong institute fit for bioengineering, wearables, imaging, biosensors	active	SBIR/STTR, grants, cooperative agreements	not published	High-priority institute partner within NIH
HHS	NINDS / BRAIN-related programs	Relevant for neural interfaces and electrodes	active	SBIR/STTR, UG3/UH3, U01, grants	not published	Pursue only with clear neuro use case
HHS	NCI	Relevant for cancer diagnostics/platform instrumentation	active	SBIR/STTR, translational grants/contracts	not published	Pursue only with oncology-specific value proposition
HHS	FDA	Regulatory-science actor, not likely sponsor/adopter of graphene platform	none found	Research collaborations, contracts, grants	not published	Not a primary transition target
HHS	CDC	Narrow surveillance/diagnostics fit; little evidence of	none found	Grants, cooperative agreements,	not published	Low priority

Parent organization	Office considered	Why it matters for adoption/transition	Similar contract status	Typical vehicle contracts	Published program manager or contact	Recommendation
DoT	OST-R -> DoT SBIR	sponsor role Best early route for transportation sensing/materials applications	active	SBIR	dotsbir@dot.gov	Primary DoT entry point
DoT	Volpe Center	Technical evaluator/integrator rather than primary sponsor	none found	Sponsored R&D support, contract tasks	not published	Use after finding a modal sponsor
DoT	FAA R&D / William J. Hughes Technical Center	Aviation materials, icing, SHM, lightning/EMI fit	none found	Research contracts, SBIR, test/eval support	not published	Secondary target with aviation-specific evidence
DoT	FHWA -> Infrastructure R&D / TFHRC	Strong modal fit for structural monitoring, corrosion, materials durability	none found	BAA, research contract, SBIR transition	not published	High-priority modal target after SBIR proof
DoT	FRA -> Office of RDT	Rail sensing, NDE, materials safety	none found	Research contracts, grants/cooperative agreements	not published	Target only with rail-specific use case
DoT	FTA research/innovation offices	Transit asset sensing and durability	none found	NOFO, cooperative agreement, pilot demo	not published	Downstream demonstration target

Parent organization	Office considered	Why it matters for adoption/transition	Similar contract status	Typical vehicle	Published program manager or contact	Recommendation
DoT	PHMSA R&D	Strong mission fit for leak detection, corrosion, barrier materials	none found	Research contracts, grants	not published	High-potential niche target if pipeline performance is proven
DoT	MARAD	Corrosion/coatings/composites fit, but weak public sponsor evidence	none found	Grants, contracts, pilot demos	not published	Downstream pilot customer only
DoT	NHTSA	Vehicle safety sensing/electronics only indirectly	none found	Contracts	not published	Low priority
IC	ODNI S&T / research coordination	Coordination influence, but not a visible open graphene sponsor	none found	Coordination / downstream referrals	not published	Not a practical first contracting target
IC	IARPA	Strongest public IC R&D sponsor for breakthrough sensing, photonics, compute-enabling work	active	BAA / program solicitation	not published	Highest-priority IC target
IC	CIA contracting	Open business channel but little public technical detail	none found	Procurement notice / vendor engagement	not published	Low-visibility path; not first choice
IC	NSA research / SBIR	Good fit for RF, secure hardware,	active	SBIR/STTR, research	not published	Monitor for topic fit;

Parent organization	Office considered	Why it matters for adoption/transition	Similar contract status	Typical vehicle	Published program manager or contact	Recommendation
		microelectronics, sensing		announcements		worthwhile secondary IC path
IC	NGA innovation/business channels	Possible ISR sensor/electronics adopter	none found	Open solicitation / innovation call	not published	Secondary target with payload-specific case
IC	NRO acquisition/research	Strong mission fit for space sensors and low-mass electronics, but thin public detail	none found	Acquisition research notices	not published	Worth tracking for space-qualified hardware transitions
NASA	STMD -> NASA SBIR/STTR Program Office	Best NASA entry point for thermal, sensor, material, electronics uses	active	SBIR/STTR	agency-sbir@mail.nasa.gov	Highest-priority NASA route
NASA	STMD solicitations and prizes	Broader technology maturation options beyond SBIR	active	Prizes, announcements, collaboration opportunities	not published	Opportunistic follow-on path
NASA	SMD -> ROSES	Good only when tied to a science instrument or detector	active	Grants/cooperative agreements	not published	Secondary route for payload-specific cases
NASA	ESDMD	Likely downstream exploration adopter,	none found	Usually STMD/SBIR	not published	Treat as customer after

Parent organization	Office considered	Why it matters for adoption/transition	Similar contract status	Typical vehicle	Published program manager or contact	Recommendation
		not first sponsor		first, then procurement		maturation
NASA	ARMD	Good aeronautics fit but mostly via SBIR topics	none found	SBIR/STTR, occasional NRAs	not published	Secondary target for aviation-specific hardware
NASA	SOMD	Operations customer, not visible early-stage sponsor	none found	Follow-on procurement, center contract, SBIR Phase III	not published	Downstream operational target only
NASA	Langley Research Center	Strong technical home for structures, sensors, aeronautics materials	none found	SBIR/STTR, center procurements	not published	Useful technical champion, not primary public sponsor
NASA	Glenn Research Center	Strong technical home for power, thermal, electronics materials	none found	SBIR/STTR, center procurements	not published	Useful technical champion, especially for thermal/power uses
SBA	Office of Investment and Innovation / SBIR-STTR	Useful only as policy and routing layer to participating agencies	none found	SBIR/STTR coordination	not published	Not an adopter; use only to navigate other agencies

Parent organizat ion	Office considered coordination	Why it matters for adoption/transition	Simila r- contr act status	Typical vehicle	Published program manager or contact	Recommendati on
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Overall recommendation

For a government organization deciding whether to adopt or transition CVD graphene, the evidence supports a **selective, mission-led approach**. The best immediate opportunities are where **published contracts already exist or recurring vehicles are active**: primarily **DoD SBIR/STTR, DOE AMMTO and DOE SBIR/STTR, NASA SBIR/STTR, and NIST-related pathways**. In those environments, the technology should be evaluated against a specific requirement such as **IR sensing, EMI/EMP shielding, conductivity enhancement, thermal control, membranes/water purification, or multifunctional coatings/composites**.

By contrast, agencies and offices with only generic innovation infrastructure but no public graphene-specific demand should be treated as **conditional or downstream targets**. Those offices may become strong adopters later, but they are not yet the best place to invest transition effort unless the developer already has validated hardware and a clear mission sponsor. The largest programmatic blocker is not lack of theoretical relevance; it is the absence, in many organizations, of **publicly evidenced requirement ownership and named transition funding tied specifically to graphene-enabled performance**.

End table: every office considered

Office considered	Parent organization	Similar - contract status	Typical vehicle	Published program manager or contact	Recommendation
NIFA -> SBIR	USDA	active	SBIR grant/cooperative agreement	sbir@usda.gov	Pursue for ag-specific small-business development
NIFA -> AFRI	USDA	active	Competitive grant	not published	Use only with university/nonprofit partner
ARS -> National Programs / research units	USDA	none found	CRADA, unit collaboration, contracts	not published	Validation partner; weaker first funding target
Forest Service -> FPL / R&D / Wood Innovations	USDA	active	Grants, cooperative agreements, contracts	not published	Target if tied to forest products/infrastructure
APHIS	USDA	none found	Contracts/equipment buys	not published	Downstream adopter only
Rural Development -> Water and Environmental Programs / RUS	USDA	none found	Loans, grants, guarantees	not published	Post-commercialization only
NIST laboratories / CNST / materials and	Commerce	active	Lab collaboration, user facility, grants/cooperative	not published	High-priority standards and characterization path

Office considered	Parent organization	Similar - contract status	Typical vehicle	Published program manager or contact	Recommendation
electronics programs			agreements, contracts		
NIST SBIR	Commerce	active	SBIR	sbir@nist.gov; 301-975-8449	Pursue when topic fit exists
NIST CHIPS-related programs	Commerce	forecast	NOFOs, cooperative agreements, contracts	not published	Track for semiconductor use cases
MEP	Commerce	none found	Cooperative agreements/technical assistance	not published	Downstream scale-up support only
EDA	Commerce	active	Grants/cooperative agreements	not published	Use for consortia/cluster-building only
NOAA	Commerce	none found	SBIR, grants, contracts	not published	Secondary target only
OSD / OUSD(R&E) -> DoD SBIR/STTR topics	DoD	active	SBIR/STTR BAA/CSO	DoDSBIRSupport@reisystems.com	Highest-priority sponsor path
DARPA	DoD	expired	SBIR, BAA, contracts, other DARPA mechanisms	not published	Pursue for disruptive concepts
Army -> ARL / Army SBIR-STTR	DoD	active	SBIR/STTR, ARL BAA, CRADA, xTech	Tamara Christenson; tamara.r.christenson.civ@army.mil	High-priority Army path
Navy SBIR/STTR	DoD	active	SBIR/STTR	not published	Strong target for EO/IR or

Office considered	Parent organization	Similar - contract status	Typical vehicle	Published program manager or contact	Recommendation
/ ONR-linked topics					power uses
Department of the Air Force SBIR/STTR	DoD	active	SBIR/STTR	not published	High-priority for shielding/space/manufacturing
DIU	DoD	forecast	Prototype OT / CSO	not published	Use after prototype maturity
MDA	DoD	active	SBIR/STTR	not published	Pursue for missile-defense-specific uses
DTRA	DoD	active	SBIR/STTR	not published	Pursue for EMP/hardening/sensing
Office of Science - > BES -> MSE	DOE	active	FOA / financial assistance	Dr. Andy Schwartz; sc.grantsandcontracts@doe.gov	High-priority basic-science path
CMEI -> AMMTO	DOE	active	FOA, grants, cost-shared awards, prizes	ammto@ee.doe.gov	Highest-priority applied civilian path
ARPA-E	DOE	none found	Program-specific FOAs	ARPA-E@hq.doe.gov; Dr. Jungho Kim published for AMPLIFY only	Opportunistic breakthrough path
Office of Electricity	DOE	none found	FOAs, prizes, partnership intermediary agreements	OEwebmaster@hq.doe.gov; 202-586-1411	Secondary target
DOE SBIR/STTR	DOE	active	SBIR/STTR	sbir-sttr@doe.gov; (301) 903-	Strong company-led route

Office considered	Parent organization	Similar - contract status	Typical vehicle	Published program manager or contact	Recommendation
				5707	
NNSA	DOE	none found	none found	not published	Do not prioritize without mission sponsor
ARPA-H	HHS	none found	BAA / program solicitation	not published	Track but not immediate
ASPR -> BARDA	HHS	forecast	BAA / EZ-BAA	not published	Use for preparedness device cases
NIH SBIR/STTR / SEED	HHS	active	SBIR/STTR	not published	Best HHS early-stage route
NIBIB	HHS	active	SBIR/STTR, grants, cooperative agreements	not published	High-priority NIH institute fit
NINDS / BRAIN-related programs	HHS	active	SBIR/STTR, UG3/UH3, U01, grants	not published	Pursue with neuro-specific case
NCI	HHS	active	SBIR/STTR, translational grants/contracts	not published	Pursue with oncology-specific case
FDA	HHS	none found	Research collaborations, contracts, grants	not published	Not a primary target
CDC	HHS	none found	Grants, cooperative agreements, contracts	not published	Low priority

Office considered	Parent organization	Similar - contract status	Typical vehicle	Published program manager or contact	Recommendation
OST-R -> DoT SBIR	DoT	active	SBIR	dotsbir@dot.gov	Primary DoT entry point
Volpe Center	DoT	none found	Sponsored R&D support, contract tasks	not published	Use after modal sponsor is found
FAA R&D / William J. Hughes Technical Center	DoT	none found	Research contracts, SBIR, test/eval support	not published	Secondary aviation target
FHWA -> Infrastructure R&D / TFHRC	DoT	none found	BAA, research contract, SBIR transition	not published	High-priority modal target after proof
FRA -> Office of RDT	DoT	none found	Research contracts, grants/cooperative agreements	not published	Rail-specific secondary target
FTA research/innovation offices	DoT	none found	NOFO, cooperative agreement, pilot demo	not published	Downstream demonstration target
PHMSA R&D	DoT	none found	Research contracts, grants	not published	High-potential niche target
MARAD	DoT	none found	Grants, contracts, pilot demos	not published	Downstream pilot customer
NHTSA	DoT	none found	Contracts	not published	Low priority
ODNI S&T /	IC	none	Coordination /	not published	Not a practical first target

Office considered	Parent organization	Similar - contract status	Typical vehicle	Published program manager or contact	Recommendation
research coordination		found	downstream referrals		
IARPA	IC	active	BAA / program solicitation	not published	Highest-priority IC target
CIA contracting	IC	none found	Procurement notice / vendor engagement	not published	Low-visibility path
NSA research / SBIR	IC	active	SBIR/STTR, research announcements	not published	Monitor for topic fit
NGA innovation/business channels	IC	none found	Open solicitation / innovation call	not published	Secondary ISR target
NRO acquisition/research	IC	none found	Acquisition research notices	not published	Track for space-hardware transition
STMD -> NASA SBIR/STTR Program Office	NASA	active	SBIR/STTR	agency-sbir@mail.nasa.gov	Highest-priority NASA route
STMD solicitations and prizes	NASA	active	Prizes, announcements, collaboration opportunities	not published	Opportunistic follow-on
SMD -> ROSES	NASA	active	Grants/cooperative agreements	not published	Payload-specific secondary route

Office considered	Parent organization	Similar - contract status	Typical vehicle	Published program manager or contact	Recommendation
ESDMD	NASA	none found	Usually STMD/SBIR first, then procurement	not published	Downstream customer
ARMD	NASA	none found	SBIR/STTR, occasional NRAs	not published	Secondary aeronautics path
SOMD	NASA	none found	Follow-on procurement, center contract, SBIR Phase III	not published	Downstream operations target
Langley Research Center	NASA	none found	SBIR/STTR, center procurements	not published	Technical champion only
Glenn Research Center	NASA	none found	SBIR/STTR, center procurements	not published	Technical champion only
Office of Investment and Innovation / SBIR-STTR coordination	SBA	none found	SBIR/STTR coordination	not published	Not an adopter; navigation layer only

Department of Agriculture (USDA) and CVD Graphene: organization-adoption briefing

Scope and framing

This briefing stays inside USDA and its sub-organizations, and identifies offices that could plausibly **fund, contract for, or adopt** chemical-vapor-deposition (CVD) graphene based on mission fit. USDA does **not** appear to run a graphene-specific program. The most plausible paths are competitive research grants, Small Business Innovation Research (SBIR) topics, agency research programs that procure instrumentation/materials for in-house R&D, and mission acquisitions where graphene-enabled sensors, coatings, membranes, packaging, or composites could be inserted if they solve a USDA mission problem. Sources below are official USDA, Grants.gov, SAM.gov, or program pages unless otherwise noted.

Top-line conclusion

Within USDA, the strongest real sponsor/buyer candidates for CVD graphene are:

1. **National Institute of Food and Agriculture (NIFA) -> SBIR Program** for small-business R&D on agriculture, food, sensing, packaging, water, and related technologies.
2. **Agricultural Research Service (ARS) -> National Programs / in-house research units** for intramural R&D adoption of advanced sensors, membranes, packaging, coatings, or environmental materials used in USDA labs and pilots.
3. **Forest Service -> Wood Innovations / Forest Products Laboratory (FPL) / research and development programs** where graphene could fit advanced forest-products composites, sensing, fire monitoring, corrosion/barrier applications, or infrastructure materials.
4. **APHIS -> program operations and wildlife/plant health labs** only as an adopter of graphene-enabled biosensors or field diagnostics; I did not find a graphene-specific external technology-development vehicle.
5. **Rural Development -> utility and infrastructure programs** mainly as a downstream adopter of graphene-enabled water treatment, broadband, or energy hardware through financed projects, not as a primary graphene R&D sponsor.

Where public sources stop at a higher organizational level, I stop there.

1) USDA -> National Institute of Food and Agriculture (NIFA) -> Small Business Innovation Research (SBIR) Program

Why this office would sponsor or adopt CVD graphene

NIFA's SBIR program funds small-business R&D that addresses agriculture and food challenges, including plant production, engineering, food science, natural resources, and rural technologies. CVD graphene could fit where it enables: - low-cost and high-sensitivity **biosensors** for pathogens, soil nutrients, animal health, or environmental monitoring; - **food-packaging** barrier films or smart packaging; - **water treatment/membrane** technologies for agriculture and rural systems; - **agricultural engineering** components such as flexible electronics, energy storage, or corrosion/barrier coatings for harsh field use.

NIFA describes SBIR topics including Plant Production and Protection, Animal Production and Protection, Air/Water/Soils, Food Science and Nutrition, and Small and Mid-Size Farms; these are broad enough for graphene-enabled platform technologies when linked to a USDA mission use case rather than materials science alone.[1]

Current status of similar technology-development work

- **USDA NIFA SBIR Phase I FY 2025 solicitation: active/recent cycle depending date viewed.** NIFA posts annual SBIR requests for applications (RFAs) under Assistance Listings 10.212 and 10.307.[2]
- **No graphene-specific topic found** on the public NIFA SBIR topic pages reviewed. Status: **not found**.[1][2]
- **Related enabling technology areas are present**, especially engineering, sensors, food science, and natural-resource topics. Status: **active recurring program**.[1][2]

Typical vehicles and award sizes / topic ceilings

- Vehicle: **SBIR Phase I grant/cooperative agreement competition** administered by NIFA.[2]
- FY 2025 NIFA SBIR Phase I notice states applicants may request **up to \$125,000** total for Phase I; Phase II limits are stated in later/follow-on notices and program materials when offered.[2]
- NIFA also provides general SBIR program guidance and annual RFAs through Grants.gov and NIFA pages.[1][2]

Published contacts

- **NIFA Small Business Innovation Research and Small Business Technology Transfer Programs** contact page is published; specific current staff can vary by cycle. Where a named topic manager was not clearly published in the current solicitation pages reviewed, I list the general office contact as publicly published.
- **Program contact:** "SBIR/STTR Programs" — email: **sbir@usda.gov**. Source: NIFA SBIR program page/contact information.[1]

- **Phone / named program officer:** not published in the pages reviewed for a stable current graphene-relevant topic-specific contact. Use solicitation contacts in the current RFA when applying.[2]

How a developing company would engage

- Primary path: **respond to the annual NIFA SBIR Phase I solicitation** with a graphene-enabled agriculture use case tied to one topic area.[2]
- Secondary path: **contact NIFA SBIR program staff** using the published program email before submission to confirm fit.[1]
- Less likely path: submit to other NIFA grant programs only if the proposal is led by eligible academic/nonprofit investigators; those are not straightforward company-led commercialization paths.

2) USDA -> National Institute of Food and Agriculture (NIFA) -> Agriculture and Food Research Initiative (AFRI)

Why this office would sponsor or adopt CVD graphene

AFRI is USDA's flagship competitive extramural research program and can support foundational or translational work in food, agriculture, natural resources, and bioeconomy systems. CVD graphene could fit when embedded in projects on: - pathogen/toxin detection, - controlled-environment agriculture sensing, - water purification or monitoring, - food packaging and shelf-life extension, - sustainable manufacturing of advanced ag materials.

AFRI supports research, education, and extension priorities across agricultural systems; however, it is typically institution-led rather than a direct company procurement route.[3]

Current status of similar technology-development work

- **AFRI Foundational and Applied Science RFA: active recurring omnibus program** with many topic areas each fiscal year.[3]
- **Graphene-specific AFRI program or standing topic: not found** in the reviewed material.
- Similar work would likely appear only if tied to a named agricultural challenge within a standing program area. Status: **possible but indirect**.

Typical vehicles and award sizes / topic ceilings

- Vehicle: **competitive grants** under annual AFRI RFAs.[3]
- Award sizes vary widely by program area; AFRI RFAs publish ceilings by topic rather than one universal amount.[3]

Published contacts

- **AFRI contacts are published inside each current RFA by program area;** there is no single graphene-specific contact. Source: AFRI RFA and NIFA program pages.[3]

- Graphene-relevant contact: **not published** as a standing material-tech program manager.

How a developing company would engage

- Best route is **partnering with a university or nonprofit** on an AFRI topic where graphene is an enabling component.
- For a company acting alone, AFRI is generally less practical than NIFA SBIR.

3) USDA -> Agricultural Research Service (ARS) -> National Programs / ARS Research Units

Why this office would sponsor or adopt CVD graphene

ARS is USDA's chief in-house scientific research agency. Its National Programs cover food safety, crop production/protection, animal production/protection, natural resources, and agricultural systems. CVD graphene is relevant if ARS scientists need: - **biosensors** for pathogens, toxins, residues, or animal/plant disease diagnostics; - **membranes** for water treatment, separations, or controlled-environment systems; - **barrier materials/coatings** for food preservation, corrosion resistance, or equipment performance; - **advanced composites** or electronics for agricultural monitoring.

ARS National Programs are mission-driven and technology-oriented, making ARS a plausible adopter of graphene-enabled components or a collaborator in testing/validation.[4]

Current status of similar technology-development work

- ARS maintains broad in-house R&D programs and issues acquisitions through SAM.gov and other procurement channels, but I did **not find a public ARS graphene-specific BAA, SBIR topic, or standing external advanced-materials solicitation** in the reviewed sources. Status: **not found**.
- ARS does publish **technology transfer, partnership, and licensing** mechanisms, showing openness to Cooperative Research and Development Agreements (CRADAs), Material Transfer Agreements, and other collaboration tools. Status: **active ongoing capability**.[5]
- ARS buys lab equipment, analytical systems, and R&D support through standard contracting; those are adoption/procurement paths, but not a public graphene program of record. Status: **ad hoc procurement**.

Typical vehicles and award sizes / topic ceilings

- Vehicles include:
 - **CRADAs and other partnership agreements** via ARS Office of Technology Transfer.[5]
 - **procurements/RFQs/RFPs** posted on **SAM.gov** for lab equipment, services, and R&D support.[6]

- **agency announcements or research collaborations** at the unit level when published.
- Public award ceilings are **not standardized** for graphene-relevant work; procurement values vary by requirement, and CRADAs do not function like a standard grant ceiling.

Published contacts

- **ARS Office of Technology Transfer** is the clearest public doorway.
- **Office contact:** ARS Office of Technology Transfer, official webpage published.[5]
- Named individual, phone, and email for a graphene-specific program manager: **not published** in the reviewed ARS national-program pages.
- For specific acquisitions, contracting POCs appear only on individual SAM.gov notices.[6]

How a developing company would engage

- **Engage ARS researchers or National Program leads** regarding validation of an agriculture-specific graphene application.
- **Use ARS technology transfer / CRADA channels** for collaborative evaluation.[5]
- Monitor **SAM.gov** for ARS acquisitions relevant to sensors, membranes, coatings, diagnostics, or packaging.[6]
- Practical route: show a validated use case first, then pursue a unit-level collaboration or procurement rather than expecting a central ARS materials call.

4) USDA -> Forest Service -> Forest Products Laboratory (FPL) / Research and Development / Wood Innovations

Why this office would sponsor or adopt CVD graphene

The Forest Service manages both national forests and a substantial R&D enterprise. The **Forest Products Laboratory** and broader Forest Service R&D mission can align with CVD graphene where it improves: - **forest products composites** and multifunctional materials; - **barrier/coating** performance for wood products or infrastructure; - **fire, moisture, structural health, or environmental sensors** for forests and facilities; - **water treatment and remediation** in rural/forest settings.

FPL's mission includes advancing wood utilization, materials science, and forest products innovation, which is the strongest Forest Service mission fit for graphene-enabled materials.[7]

Current status of similar technology-development work

- **Wood Innovations Grant Program:** active recurring Forest Service grant program supporting wood products markets, wood energy, and related innovation, but I did **not find a graphene-specific topic**. Status: **active program; graphene-specific work not found**.[8]

- **Forest Service Research and Development / FPL research:** active research organization; I did not find a current public BAA or OTA specifically for advanced nanocarbon materials. Status: **not found**.
- Adoption may also occur through **research partnerships, cooperative agreements**, and standard acquisitions. Status: **active general mechanisms**. [7][8]

Typical vehicles and award sizes / topic ceilings

- **Wood Innovations grants/cooperative agreements** with annual NOFOs; award sizes are published in each year's notice and vary by track. [8]
- Standard **federal contracts** through SAM.gov for R&D support, equipment, field systems, and facilities needs. [6]
- **Cooperative agreements / joint venture agreements** in research contexts; exact ceilings vary by notice and are not graphene-specific.

Published contacts

- **Forest Products Laboratory** has published organization/staff information, but a current graphene-specific program manager is **not published**. [7]
- **Wood Innovations** NOFOs publish named contacts in the annual notice when open; stable year-round graphene-relevant named contact was **not identified** in reviewed current pages. [8]

How a developing company would engage

- If the product is a **forest-products material or coating**, engage **FPL / Forest Service R&D** researchers and monitor annual grant notices. [7][8]
- If the product is a **sensor/system** for fire, moisture, or infrastructure monitoring, pursue **SAM.gov procurements** and research collaborations.
- Best route is mission-specific framing rather than "graphene platform" positioning.

5) USDA -> Animal and Plant Health Inspection Service (APHIS) -> National Veterinary Services Laboratories / Plant Protection and Quarantine / Wildlife Services (adoption only)

Why this office would sponsor or adopt CVD graphene

APHIS missions include animal health, plant protection, and wildlife damage management. CVD graphene could be relevant in APHIS only as an **adopted enabling technology** for: - rapid field or lab **diagnostics**; - portable biosensors for plant pests/pathogens or animal disease agents; - trace detection systems for surveillance and inspection.

This is a mission fit because APHIS relies on high-performance detection and diagnostic tools. [9]

Current status of similar technology-development work

- I did **not find** a public APHIS graphene-specific BAA, SBIR topic, or recurring open innovation vehicle dedicated to advanced materials. Status: **not found**.

- APHIS acquisitions are typically requirement-driven contracts and equipment buys; diagnostic innovation may also arise through interagency or lab collaborations. Status: **adoption/procurement path exists, dedicated R&D call not found.**[6][9]

Typical vehicles and award sizes / topic ceilings

- **Contracts and equipment procurements** through SAM.gov when APHIS has a requirement.[6]
- Some **cooperative agreements/grants** exist in APHIS programs, but no graphene-relevant standing mechanism was identified in reviewed sources.
- No public graphene-relevant topic ceiling found.

Published contacts

- Graphene-relevant PM/POC: **not published.**
- Contracting contacts, when applicable, appear on **individual SAM.gov notices.**[6]

How a developing company would engage

- Treat APHIS as an **end-user adopter**, not the best first sponsor.
- Engage only after generating a validated diagnostic/sensor product with agricultural disease or inspection value, then monitor **SAM.gov** or pursue demonstrations through published program contacts.

6) USDA -> Rural Development -> Water and Environmental Programs / Rural Utilities Service (downstream adoption, not primary R&D sponsor)

Why this office would sponsor or adopt CVD graphene

Rural Development finances rural water, waste, utility, broadband, and community infrastructure. CVD graphene could matter if incorporated into: - **water treatment membranes**, - corrosion-resistant infrastructure components, - smart monitoring hardware for rural utility systems, - energy-storage or broadband hardware in financed projects.

Mission fit exists because these programs fund rural infrastructure, not because they seek nanomaterials per se.[10]

Current status of similar technology-development work

- I found **financing and grant/loan programs** for rural utilities and water systems, but **no dedicated graphene development solicitation.** Status: **not found.**[10]
- Rural Development is therefore a **downstream adoption channel** through financed deployments rather than a direct sponsor of graphene R&D.

Typical vehicles and award sizes / topic ceilings

- **Loans, loan guarantees, and grants** to eligible utilities and communities; award sizes vary by program and project.[10]
- Not a normal early-stage company R&D funding route for graphene.

Published contacts

- Program contacts are published by program/state office, but a graphene-specific PM is **not published**. [10]

How a developing company would engage

- Engage **integrators, utilities, and funded project owners** once the technology is commercially deployable.
 - Not recommended as the first USDA office to approach for early-stage graphene development.
-

Contracting and acquisition layer across USDA

Even where no dedicated graphene program exists, USDA components buy R&D services, equipment, and mission systems through **SAM.gov** notices and USDA procurement offices. This is the main path for adoption once a graphene-enabled product maps to a defined agency requirement. USDA's Office of Contracting and Procurement and component buying activities use standard FAR-based vehicles; for assistance funding, Grants.gov and agency NOFOs are the main channels. [6][11]

How a company would actually engage USDA overall

1. **Start with NIFA SBIR** if the firm is small and has an agriculture-specific graphene application with commercialization potential. [1][2]
 2. **Pursue university partnerships for AFRI** if the work is earlier-stage or needs field validation in agricultural systems. [3]
 3. **Approach ARS or Forest Service R&D/FPL** for collaborative validation under CRADA/cooperative mechanisms if there is a direct USDA mission experiment or pilot. [5][7]
 4. **Monitor SAM.gov** for requirement-driven procurements by ARS, APHIS, Forest Service, or other USDA components. [6]
 5. Use **Rural Development** only later, as a deployment/finance tailwind for already productized water or infrastructure solutions. [10]
-

Recommendation matrix

USDA office	Why it fits CVD graphene	Similar work status	Typical vehicle	Public award size / ceiling	Published contact
NIFA -> SBIR	Sensors, packaging, water, engineering for ag/food problems	Active recurring program; graphene-specific topic not found	SBIR Phase I/II	Phase I up to \$125,000 in FY2025 notice[2]	sbir@usda.gov[1]
NIFA -> AFRI	Foundational/applied ag research with graphene as enabling tech	Active omnibus RFA; graphene-specific topic not found	Competitive grants	Varies by topic[3]	Program-area contacts in current RFA; no standing graphene contact published[3]
ARS -> National Programs / research units	In-house mission R&D using sensors, membranes, coatings, packaging	Active research enterprise; public graphene-specific solicitation not found	CRADA, unit collaboration, contracts	Not standardized/publicly fixed	Graphene-specific contact not published; ARS tech transfer office published[5]
Forest Service -> FPL / R&D / Wood Innovations	Advanced forest products, coatings, sensors, infrastructure	Active grants/R&D ; graphene-specific	Grants/cooperative agreements, contracts	Varies by NOFO[8]	Graphene-specific contact not published

USDA office	Why it fits CVD graphene materials	Similar work status	Typical vehicle	Public award size / ceiling	Published contact
APHIS -> diagnostics/program ops	End-user adoption of biosensors/field detection	Dedicated graphene vehicle not found	Contracts/equipment buys	Requirement-specific	Not published; see individual notices[6]
Rural Development -> Water and Environmental Programs / RUS	Downstream deployment in water/infrastructure	R&D vehicle not found	Loans/grants/guarantees	Program-specific	State/program contacts, not graphene-specific[10]

Sources

- [1] USDA NIFA, Small Business Innovation Research/Small Business Technology Transfer Programs: <https://www.nifa.usda.gov/grants/programs/small-business-innovation-research-program-sbir>
 - [2] USDA NIFA, SBIR Phase I program solicitation / request for applications pages (FY2025 and current notices via NIFA/Grants.gov): <https://www.nifa.usda.gov/grants/funding-opportunities/small-business-innovation-research-program-phase-i> and related notice pages on Grants.gov
 - [3] USDA NIFA, Agriculture and Food Research Initiative (AFRI): <https://www.nifa.usda.gov/grants/programs/agriculture-food-research-initiative-afri> and current AFRI RFA pages
 - [4] USDA ARS, National Programs overview: <https://www.ars.usda.gov/research/programs/>
 - [5] USDA ARS, Office of Technology Transfer / Partnerships: <https://www.ars.usda.gov/office-of-technology-transfer/>
 - [6] SAM.gov, entity/opportunity searches for USDA components and R&D procurements: <https://sam.gov/>
 - [7] USDA Forest Service, Forest Products Laboratory / Research & Development pages: <https://www.fs.usda.gov/research/fpl>
 - [8] USDA Forest Service, Wood Innovations: <https://www.fs.usda.gov/managing-land/forest-management/products/wood-innovations>
 - [9] USDA APHIS, mission/program pages including diagnostics and safeguarding roles: <https://www.aphis.usda.gov/>
 - [10] USDA Rural Development, Water and Environmental Programs / Rural Utilities Service program pages: <https://www.rd.usda.gov/programs-services/all-programs/water-environmental-programs>
 - [11] USDA Office of Contracting and Procurement / procurement resources: <https://www.usda.gov/our-agency/assistant-secretary-administration/procurement-property-management/office-contracting-procurement>
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Department of Commerce (DoC): CVD Graphene Adoption Briefing

Scope and conclusion

Within the Department of Commerce, the most relevant offices for funding, contracting for, standardizing, or otherwise adopting chemical vapor deposition (CVD) graphene are concentrated in **NIST** and, secondarily, in **EDA** and **NOAA**. Of these, **NIST** is the clearest real sponsor/buyer because it runs the Department's laboratory research, standards work, manufacturing programs, and CHIPS-related R&D authorities. Public sources do **not** show a current Department-wide graphene-specific program of record at the Commerce parent

level. Instead, engagement would most plausibly occur through NIST laboratory research programs, NIST SBIR, NIST grant/NOFO programs, measurement-science collaborations, and, where manufacturing scale-up is relevant, CHIPS/NIST or MEP-linked activities. Commerce citations below are limited to official sources unless noted.

1) Parent organization: Department of Commerce (DoC)

Why DoC would sponsor or adopt CVD graphene

The Department of Commerce's mission includes promoting U.S. innovation, industrial competitiveness, standards, economic growth, and technology commercialization through operating units including NIST, NOAA, EDA, ITA, and USPTO.[1] CVD graphene fits Commerce's remit when framed as: - an **advanced material** for semiconductor, sensing, photonics, flexible electronics, or metrology use cases, - a **manufacturing competitiveness** technology, - a **standards and measurement** challenge requiring reference materials, characterization, and interoperability methods, - or a **regional technology/industrial development** priority under Commerce economic-development tools.[1][2]

Current status of similar technology-development work

- **Department-wide graphene-specific funding vehicle: not found** in current parent-level Commerce sources reviewed.[1][2]
- Relevant work is instead delegated to operating units, especially **NIST** and potentially **EDA**.

Typical vehicles and award sizes

At parent level, no dedicated graphene vehicle found. Commerce generally operates through component agencies' grants, contracts, cooperative agreements, prizes, and acquisitions.[1][2]

Named contacts

- Parent-level graphene contact: **not published**.

How to engage

Engage the appropriate operating unit rather than the Office of the Secretary. For CVD graphene, that primarily means **NIST**; secondarily, **EDA** for regional/manufacturing commercialization projects, and **NOAA** only for specific sensor or materials-instrumentation fits.

2) National Institute of Standards and Technology (NIST)

Why NIST would sponsor or adopt CVD graphene

NIST's statutory role is to advance measurement science, standards, and technology to enhance U.S. innovation and industrial competitiveness.[3] CVD graphene aligns with NIST in several specific ways: - **Measurement science and standards:** graphene requires validated methods for thickness, defects, transfer quality, electrical performance, contamination, and reproducibility. - **Electronics and semiconductor materials research:** graphene and 2D materials can support next-generation devices, interconnects, sensors, RF components, and quantum/photonics applications. - **Manufacturing and process control:** CVD growth and transfer demand repeatable manufacturing metrology. - **CHIPS-related ecosystem work:** NIST administers CHIPS R&D and metrology-related functions relevant to advanced materials and microelectronics manufacturing.[4]

NIST is therefore the strongest Commerce office for direct sponsorship of CVD graphene research, test methods, reference data, and pre-competitive manufacturing development.

2A) NIST laboratories / programs relevant to graphene

Public sources show NIST has a long record of graphene and 2D-materials research and measurement work, including publications and program pages associated with the Physical Measurement Laboratory (PML), Material Measurement Laboratory (MML), Center for Nanoscale Science and Technology (CNST), and electronics/materials research communities at NIST.[3][5][6][7] Under the user's depth rule, the practical sponsor level is **NIST laboratory/program office**, rather than every sub-branch.

Current status of similar technology-development work

1. **NIST internal laboratory research on graphene and 2D materials — active / ongoing capability.** NIST official pages and publications discuss graphene metrology, material properties, device behavior, and 2D materials research, indicating continuing institutional relevance even where a standalone funding solicitation is not open.[5][6][7]
2. **External grants/cooperative agreements specifically labeled graphene at NIST-wide level — not found as a standing graphene-only NOFO** in reviewed NIST pages.
3. **NIST laboratory collaborations / user facility access (e.g., CNST NanoFab / collaborative R&D) — active** as a route for fabrication/characterization work, though not graphene-specific. CNST provides shared-use nanofabrication and measurement capabilities relevant to CVD graphene devices and process development.[6]
4. **Procurements specifically for CVD graphene development — not found publicly in a current NIST-wide standing program page reviewed here.** Such work may appear in SAM.gov or specific acquisitions, but no current dedicated graphene solicitation was confirmed from the official pages reviewed.

Typical vehicles and publicly stated award sizes / ceilings

- **NIST financial assistance / NOFOs:** grants or cooperative agreements; award sizes vary by program and NOFO, with no graphene-specific ceiling found in reviewed pages.[8]
- **NIST laboratory collaboration / user facility access:** non-grant access to facilities and collaborative work at CNST; terms depend on user program and project type.[6]
- **Procurement contracts:** task/order or standalone acquisitions when NIST buys R&D services or materials; no graphene-specific award ceiling found in the reviewed sources.
- **CRADAs / collaborative research mechanisms:** possible for pre-competitive materials/metrology collaboration; publicly available at institutional level though not graphene-specific in reviewed sources.[9]

Named program managers / officers / contracting contacts

Because graphene work appears distributed across laboratories rather than concentrated in one public program office, a single “graphene PM” is **not published**.

Published organizational / engagement contacts include: - **NIST Small Business Innovation Research Program Office** — official contact page publishes the office email and phone for SBIR inquiries: **sbir@nist.gov, 301-975-8449**. [10] - **Center for Nanoscale Science and Technology (CNST) / NanoFab** general contact information is published on NIST site for shared-use engagement; individual graphene PM not published on reviewed pages.[6] - **NIST Office of Acquisition and Agreements Management** organizational contracting information is published at NIST level, but a graphene-specific contracting officer is **not published** on reviewed sources.[11]

How a developing company would engage

- Approach **relevant NIST laboratory staff/CNST user programs** for characterization, process benchmarking, or collaborative metrology work.
- Monitor **NIST financial assistance opportunities** for advanced materials, semiconductor metrology, manufacturing, or CHIPS-related NOFOs.[8]
- Use **SBIR/STTR** if a topic fits graphene-enabled measurement, electronics, sensors, or manufacturing tools.[10]
- Consider **CRADA or other collaborative mechanisms** where appropriate.[9]

3) NIST SBIR Program

Why this office would sponsor or adopt CVD graphene

NIST SBIR funds small-business R&D that supports NIST mission areas in measurement science, standards, manufacturing, cybersecurity, materials, and emerging technologies.[10][12] CVD graphene could fit when proposed as: - graphene-based sensors needing calibration/validation, - graphene-enabled metrology artifacts or reference

materials, - advanced electronics/quantum/photonics components, - manufacturing process monitoring or materials characterization tools.

Current status of similar technology-development work

- **NIST SBIR program: active.**[10][12]
- **Graphene-specific open topic at time of review: not found** on reviewed NIST SBIR pages.
- **Adjacent topics in materials, sensors, semiconductors, nanotechnology, advanced manufacturing, or measurement tools:** NIST SBIR topics are periodically issued and may accommodate graphene-enabled approaches depending on solicitation language.[12]

Typical vehicles and award sizes / topic ceilings

NIST states its SBIR program uses the standard phased structure established under the SBIR program. Current NOFOs set exact values, but NIST's SBIR site confirms **Phase I** and **Phase II** competitions are run through official notices; amounts vary by year and solicitation.[10][12] Because exact ceilings change, use the active NIST SBIR NOFO for current award values.

Named contacts

- **NIST SBIR Program Office — sbir@nist.gov, 301-975-8449.**[10]
- Individual topic authors/PMs for future solicitations: **not published until solicitation release**, based on reviewed pages.

How a developing company would engage

- Track annual or periodic **NIST SBIR NOFOs** and topic releases.[10][12]
- If no graphene topic exists, shape the offering around a NIST mission problem: metrology, materials characterization, semiconductor measurement, or sensor validation.
- Use the published program office contact for eligibility/process questions, not for technical lobbying outside solicitation rules.[10]

4) CHIPS for America / NIST CHIPS R&D-related offices

Why this office would sponsor or adopt CVD graphene

The CHIPS and Science Act assigned NIST major responsibilities for semiconductor metrology, manufacturing R&D, ecosystem development, and the operation of CHIPS for America programs.[4][13] CVD graphene could become relevant if positioned as: - a material for **advanced semiconductor process integration**, - a **sensor**, thermal, RF, or interconnect material relevant to microelectronics, - a tool for **metrology**, contamination control, wafer/process monitoring, or advanced packaging support.

Current status of similar technology-development work

- **CHIPS R&D programs and ecosystem buildout: active.**[13][14]

- **Graphene-specific CHIPS NOFO / BAA at time of review: not found** in reviewed official pages.
- **Relevant adjacent funding areas:** semiconductor metrology, NSTC, NAPMP, packaging/manufacturing ecosystem, and related R&D notices are active or emerging depending on program stage.[13][14]

Typical vehicles and award sizes / ceilings

CHIPS-related NIST opportunities use **NOFOs, cooperative agreements, contracts, and other assistance mechanisms** depending on program.[13][14] Award values vary widely and are stated in each NOFO; no graphene-specific ceiling was found.

Named contacts

- CHIPS program pages publish program-level contact routes and NOFO-specific contacts when available; a **graphene-specific program manager is not published** in reviewed sources.[13][14]

How a developing company would engage

- Monitor **CHIPS for America funding opportunities** and NIST semiconductor/metrology notices.[13][14]
- Frame CVD graphene around a concrete semiconductor manufacturing pain point rather than as a general advanced material.
- Pursue consortia/ecosystem participation where NIST seeks industry input.

5) Manufacturing Extension Partnership (MEP) / NIST manufacturing ecosystem

Why this office would sponsor or adopt CVD graphene

MEP's mission is to strengthen U.S. manufacturing, especially among small and medium-sized manufacturers.[15] MEP would not usually be the office that funds frontier graphene R&D directly, but it could matter if CVD graphene reaches pilot manufacturing, quality systems, process improvement, supply-chain development, or domestic production readiness.

Current status of similar technology-development work

- **MEP national network: active.**[15]
- **Graphene-specific MEP program or solicitation: not found** in reviewed official sources.

Typical vehicles and award sizes / ceilings

MEP primarily operates through **cooperative agreements with state centers** and technical assistance programs rather than project-specific frontier-material BAAs.[15]

Named contacts

- National MEP contact mechanisms are published, but no graphene-specific PM/contact was found. **Not published** for this use case.

How a developing company would engage

Only after a clearer manufacturing transition need emerges. For early-stage CVD graphene, MEP is a downstream commercialization/manufacturing-support resource rather than the initial R&D sponsor.

6) Economic Development Administration (EDA)

Why this office would sponsor or adopt CVD graphene

EDA funds regional economic development, technology-based economic development, and innovation ecosystems.[16] CVD graphene could fit if proposed through a **regional technology hub, university-industry commercialization effort, testbed, or manufacturing cluster**, not as a basic materials science project.

Current status of similar technology-development work

- **EDA technology-based economic development / regional innovation vehicles: active.**[16][17]
- **Graphene-specific EDA solicitation: not found** in reviewed official sources.
- **Tech Hubs / Build to Scale / regional innovation support** can support facilities, commercialization, and cluster-building around advanced materials when locally justified.[17][18]

Typical vehicles and award sizes / ceilings

- **Build to Scale** and similar EDA assistance programs publish annual NOFOs with varying award sizes by competition.[17]
- **Tech Hubs** and major regional awards can be substantially larger, depending on NOFO and designation stage.[18]
- These are **grants/cooperative agreements**, not typical R&D contracts for a single company's material development.

Named contacts

EDA publishes program contacts in each NOFO and office directories, but a graphene-specific PM is **not published** on reviewed pages.[16][17][18]

How a developing company would engage

Engage through a **regional consortium** with universities, state entities, or manufacturing organizations. EDA is most suitable when the ask is infrastructure/commercialization ecosystem, not single-firm technical maturation.

7) NOAA

Why this office would sponsor or adopt CVD graphene

NOAA's mission includes environmental observation, weather, climate, oceans, and related instrumentation.[19] CVD graphene might be relevant only if tied to **specialized sensors, coatings, membranes, or electronic components** for NOAA instruments or platforms.

Current status of similar technology-development work

- **NOAA SBIR and acquisitions:** NOAA participates in R&D and procurement generally.[20]
- **Graphene-specific NOAA solicitation/topic: not found** in reviewed official sources.

Typical vehicles and award sizes / ceilings

- NOAA uses **SBIR**, contracts, grants, and cooperative agreements depending on program.[20][21]
- No graphene-specific topic ceiling found.

Named contacts

- Graphene-relevant NOAA PM/contact: **not published** in reviewed official sources.

How a developing company would engage

Only if there is a specific NOAA mission sensor problem. This is a weaker fit than NIST.

8) ITA and USPTO

Why they are lower-probability paths

- **ITA** supports trade and industry promotion, not typically early-stage material R&D sponsorship.[22]
- **USPTO** handles IP administration, not technology-development adoption/funding.[23]

Current status

- Graphene development funding/contracting path in these offices: **not found**.

How to engage

Not primary offices for CVD graphene development funding.

Bottom line: best Commerce pathways for CVD graphene

Highest-likelihood sponsor/adopter offices

1. **NIST laboratories / CNST / materials and electronics measurement programs** — best fit for metrology, standards, characterization, and collaborative technical development.
2. **NIST SBIR** — best fit for a small business with a graphene-enabled measurement, sensor, semiconductor, or manufacturing tool proposition.
3. **NIST CHIPS-related programs** — fit if graphene is directly relevant to semiconductor manufacturing/metrology needs.
4. **EDA** — fit for regional commercialization infrastructure rather than direct material R&D.

Practical engagement sequence

1. **Lead with NIST mission alignment**, not generic graphene capability.
 2. Position CVD graphene around one of four needs: **measurement standards, semiconductor metrology, device/sensor validation, or manufacturing process control**.
 3. Track **NIST SBIR** and **NIST/CHIPS NOFOs** continuously; use CNST/shared-use or collaboration channels in parallel.[6][10][13]
 4. Use **EDA** only if building a broader regional pilot/manufacturing/commercialization effort.
-

Published contacts summary

Office	Contact	Title	Email	Phone	Source
NIST SBIR Program Office	not individually named on reviewed page	Program office	sbir@nist.gov	301-975-8449	https://www.nist.gov/tpo/small-business-innovation-research-program
NIST CNST	not published as graphene PM on reviewed pages	General center/user-facility contact	not published here as single graphene contact	not published here as single graphene contact	https://www.nist.gov/cnst
NIST acquisition office	not published as graphene-specific CO	Office of Acquisition and Agreements Management	not published for this use case	not published for this use case	https://www.nist.gov/oaa
CHIPS for America / NIST	not published as graphene-specific PM	program-level contacts vary by notice	not published as a standing graphene contact	not published as a standing graphene contact	https://www.nist.gov/chips
EDA	notice-specific	program contacts vary by NOFO	not published as graphene-specific contact	not published as graphene-specific contact	https://www.eda.gov

Sources

- [1] U.S. Department of Commerce, “Bureaus and Offices,” <https://www.commerce.gov/bureaus-and-offices>
 - [2] U.S. Department of Commerce, “About Commerce,” <https://www.commerce.gov/about>
 - [3] NIST, “About NIST,” <https://www.nist.gov/about-nist>
 - [4] NIST, “CHIPS for America,” <https://www.nist.gov/chips>
 - [5] NIST, search results and official content for graphene/2D materials across NIST laboratories, including official NIST pages and publications, e.g. <https://www.nist.gov/search?query=graphene>
 - [6] NIST, “Center for Nanoscale Science and Technology (CNST),” <https://www.nist.gov/cnst>
 - [7] NIST official publications database and laboratory pages discussing graphene/2D materials research (example NIST-hosted content available through NIST search and publications pages), <https://www.nist.gov/publications>
 - [8] NIST, “Funding Opportunities,” <https://www.nist.gov/financial-assistance/funding-opportunities>
 - [9] NIST, technology partnerships / collaboration mechanisms including CRADAs, <https://www.nist.gov/tpo/technology-partnerships-office>
 - [10] NIST, “Small Business Innovation Research Program,” <https://www.nist.gov/tpo/small-business-innovation-research-program>
 - [11] NIST, “Office of Acquisition and Agreements Management,” <https://www.nist.gov/oaa>
 - [12] NIST SBIR / Federal SBIR links from NIST program pages and current solicitation pages, accessed via NIST SBIR official site: <https://www.nist.gov/tpo/small-business-innovation-research-program>
 - [13] NIST, CHIPS R&D and related program pages under CHIPS for America, <https://www.nist.gov/chips/research-and-development>
 - [14] NIST CHIPS funding opportunities and notices, via NIST CHIPS site, <https://www.nist.gov/chips/funding-opportunities>
 - [15] NIST MEP, “About MEP,” <https://www.nist.gov/mep/about-mep>
 - [16] Economic Development Administration, “About EDA,” <https://www.eda.gov/about>
 - [17] EDA, “Build to Scale,” <https://www.eda.gov/funding/programs/build-to-scale>
 - [18] EDA, “Regional Technology and Innovation Hubs (Tech Hubs),” <https://www.eda.gov/funding/programs/regional-technology-and-innovation-hubs>
 - [19] NOAA, “About Our Agency,” <https://www.noaa.gov/our-mission-and-vision>
 - [20] NOAA, SBIR program information, <https://www.noaa.gov/office-of-sea-grant/small-business-innovation-research-sbir>
 - [21] NOAA grants/contracts entry points, e.g. <https://www.noaa.gov/funding-opportunities>
 - [22] International Trade Administration, “About ITA,” <https://www.trade.gov/about-ita>
 - [23] USPTO, “About Us,” <https://www.uspto.gov/about-us>
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Department of Defense (DoD) and CVD graphene: organization-adoption briefing

Bottom line

CVD graphene fits DoD organizations that need **large-area, thin, conductive, infrared-active, lightweight, and manufacturable films** for sensing, RF/microelectronics, EMI shielding, thermal management, batteries, and specialty coatings. The strongest publicly evidenced DoD doors are:

1. **OSD SBIR/STTR / Office of the Under Secretary of Defense for Research & Engineering (OUSD(R&E))** for current 2D-material sensor and memory topics, including a **2026 pre-release SBIR topic explicitly naming monolithic graphene-CMOS broadband focal plane arrays**. [1]
2. **DARPA** for high-risk manufacturing and device maturation, with prior SBIR topics directly on graphene synthesis/manufacture and recent graphene-based IR imaging awards. [2][3]
3. **Army SBIR/STTR and DEVCOM Army Research Laboratory (ARL)** for batteries, IR sensing, electromagnetic protection, water purification, and materials/manufacturing pathways relevant to fieldable Army systems. [4][5]
4. **Navy SBIR/STTR / ONR-sponsored topics** for naval batteries, IR beam control/modulators, tunable imaging, and advanced composites. [6]
5. **Department of the Air Force SBIR/STTR** for EMI/EMP shielding, additive manufacturing additives, space memory, and energy storage. [7]
6. **DIU** when the product is commercially mature enough for a prototype OT under a current challenge or a future commercial solutions opening; DIU is a transition path rather than today's strongest graphene-specific demand signal. [8][9]
7. **Missile Defense Agency (MDA) and Defense Threat Reduction Agency (DTRA)** for narrower mission cases such as timing, EMI shielding, EMP protection, and sensors. [10][11]

How to read this briefing

Per the requested depth rule, each section goes from **DoD parent → relevant office/lab/program office → named topic/program/vehicle** where public sources indicate a real sponsor or buyer for technology development. If public sources stop earlier, that is stated.

1) OSD / OUSD(R&E) → DoD SBIR/STTR → named OSD topics

Why this office would adopt or sponsor CVD graphene

OSD-level topics are appropriate when graphene supports cross-cutting defense capabilities in **advanced sensors, microelectronics, THz/mm-wave devices, and**

manufacturable 2D-material integration rather than a single service platform. The current DSIP topic titled “**Monolithic Graphene-CMOS Broadband (UV-LWIR) Focal Plane Arrays for target detection in low-light conditions**” is a direct mission-fit example: it targets broad-spectrum focal plane arrays for defense sensing and explicitly calls out graphene integrated with CMOS.[1]

Current status of similar work

- **OSW26BZ06-DV027 – “Monolithic Graphene-CMOS Broadband (UV-LWIR) Focal Plane Arrays for target detection in low-light conditions”:** pre-release / active pre-release in DoD SBIR 2026 BAA release 6; open 2026-09-23 and close 2026-10-21; component shown as **OSD** in DSIP.[1]
- **OSW26TZ06-NV005 – “Development of Ultrafast Nonvolatile Memory Based on Sliding Ferroelectricity in Moiré Polar Homostructures”:** pre-release / active pre-release in DoD STTR 2026 BAA release 6; while not a graphene topic, it signals active OSD interest in next-generation 2D-material electronic devices and memory.[1]
- **OSD21C-005 – “Twisted graphene-based Josephson junction detectors”:** recently awarded / not currently active. SBIR.gov shows Phase I (2022) and Phase II (2023) STTR awards under OSD for twisted-graphene Josephson-junction mm-wave and THz single-photon detectors.[12]

Typical vehicles and award sizes

- **DoD SBIR/STTR BAA and CSO** are active recurring vehicles released monthly through DSIP.[13]
- DSIP states that **new DoD SBIR & STTR topics are released on the first Wednesday of every month** and lists active **BAA** and **CSO** solicitations.[13]
- Publicly stated topic ceilings were not located on the pages reviewed; those are usually in solicitation instructions rather than topic summaries. **Award size: not published in the sources reviewed here.**[13]

Published contacts

- **Topic/program contact for specific OSD graphene topics: not published** on the public DSIP topic list page reviewed.[1]
- **DSIP support contact:** DoD DSIP Support, **DoDSBIRSupport@reisystems.com**, available 9am-5pm ET Monday-Friday.[13]
 - Source: <https://www.dodsbirsttr.mil/submissions/login> and <https://www.dodsbirsttr.mil/topics-app/>

How a company would engage

Primary path: monitor **DSIP Topics and Topic Q&A**, ask questions during pre-release/open windows, and bid through the **DoD SBIR/STTR BAA**. [1][13] For more mature dual-use offerings, a company can also watch for **DoD SBIR CSO** topics via DSIP.[13]

2) DARPA → technical offices / Small Business Programs → SBIR and open R&D opportunities

Why this office would adopt or sponsor CVD graphene

DARPA is a fit when CVD graphene is positioned as a **high-risk, high-payoff enabler** for manufacturable electronics, infrared imaging, metasurfaces, tunable photonics, or novel wafer-scale integration. DARPA's public descriptions say it supports revolutionary research through technical offices and multiple contracting mechanisms.[3][14]

Current status of similar work

Recent and historical graphene-related DARPA awards on SBIR.gov: -

HR001121S0007-04 – “Graphene based Dynamically Tunable LWIR Detection and Imaging at Room Temperature”: recently awarded / not currently active on the reviewed page; DARPA SBIR Phase II in 2022.[2] - **SB102-004 – “New Manufacturing Methods for Producing Large Area Graphene Foil”:** historical, expired; DARPA SBIR Phase I in 2011.[2] - **SB102-004 – “Graphene synthesis on large-area silicon wafers suitable for manufacture”:** historical, expired; DARPA SBIR Phase I in 2011 and Phase II in 2012.[2] - **SB172-010 – “Electronically Tunable Optical Bandpass Filter”** with graphene-integrated metasurfaces: **historical, expired**; DARPA Phase I in 2017.[2]

Current broader DARPA contracting status: - DARPA's **R&D Opportunities** page is **active** and lists open BAAs/program solicitations by office, including office-wide BAAs such as the **Strategic Technology Office** and **Multi X Office** announcements.[14] - DARPA's **Programs** page is **active** and allows filtering by office/topic for current and completed programs.[3] - A current DARPA solicitation specifically naming graphene was **not found** on the public opportunities page reviewed.[14]

Typical vehicles and award sizes

- DARPA publicly states it uses multiple entry points, including **procurement contracts, grants and agreements, and other transactions**, managed through the **Contracts Management Office (CMO)**. [15]
- Open opportunities are posted as **program solicitations, BAAs, and special notices** on the DARPA opportunities page.[14]
- Publicly stated **award sizes for graphene-specific efforts were not published** on the pages reviewed here.[14][15]

Published contacts

- **Program managers:** DARPA publicly lists program managers via its site and contact form dropdown, but graphene-specific current PM ownership for a live graphene solicitation was **not published** in the sources reviewed.[3][14]
- **Contracts/engagement office:** DARPA states companies can use the **Contracts Management Office (CMO)** and **Small Business Programs Office** resources; direct named contracting POCs for graphene work were **not published** on the reviewed pages.[15]

- **General DARPA contact form / office routing:** <https://www.darpa.mil/work-with-us> and <https://www.darpa.mil/work-with-us/opportunities>[14][15]

How a company would engage

1. Respond to a **DARPA open opportunity** when a relevant sensing, photonics, microelectronics, or manufacturing call appears.[14]
2. If no topic exists, use **DARPAConnect** and DARPA office-wide BAAs to socialize a disruptive approach.[15]
3. Small businesses should track DARPA topics through **SBIR/STTR** and the DARPA opportunities feed.[2][14]

3) Army → DEVCOM ARL / Army SBIR-STTR → named Army topics

Why this office would adopt or sponsor CVD graphene

Army mission fit is strongest where graphene provides **lighter energy storage, durable coatings, portable water treatment, IR sensing, conductive or protective materials, and manufacturable films/composites** for soldier systems, ordnance, tactical power, and harsh-environment hardware.[4][5]

Current status of similar work

Army SBIR/STTR awards found on SBIR.gov: - A244-P063 – “High energy density safer Li-ion battery based on Rotated Graphene Anode”: recently awarded / active award pipeline, 2025 Phase I.[4] - A244-P063 – “Next Generation 21700 Battery Cells for 6T Batteries”: recently awarded / active award pipeline, 2025 Phase II; the abstract discusses Army battery needs and graphene-related battery improvements.[4] - A244-024 – “Lightweight Longwave Bolometer Sensor Components”: recently awarded / 2025 Phase I; relevant to 2D-material IR sensing and bolometer component development.[4] - A244-071 – “Lightweight, Portable, Rapid Water Purification System” using graphene/MXene electrodes: recently awarded / 2025 Phase I.[4] - A244-041 – “Geopolymer Electromagnetic Protection Coatings for Artillery Projectiles”: recently awarded / 2025 Phase I; mission-aligned to conductive/protective coatings.[4] - A254-004 – “Compact and Efficient Energy Harvesting and Storage Devices for Ordnance Fuses”: recently awarded / 2025 Phase I; relevant to conductive nano-enabled energy devices.[4] - A23B-T018 – “Scalable and Continuous Synthesis of Brominated Graphitic Fibers”: recently awarded / 2024 STTR Phase I; adjacent to carbon nanomaterial manufacturing.[4] - A224-025 – “ENCHANTER - wEarable graphene patCH AND ThEoRy”: recently awarded / 2023 Phase I.[4]

Current Army-facing opportunity infrastructure: - The Army SBIR|STTR site says opportunities are released on a **rolling basis** and during **specific solicitation periods** based on current warfighting needs.[16] - DEVCOM ARL’s collaboration page confirms **ARL Broad Agency Announcement, Army xTech / SBIR-STTR, CRADAs**, and other funding/collaboration avenues are active engagement paths.[5]

Typical vehicles and award sizes

- **Army SBIR|STTR** via rolling and periodic topics.[16]
- **ARL Broad Agency Announcement (BAA)** for basic/applied research and development not tied to procurement of a specific system.[5]
- **Army xTech** competitions are identified by ARL as a funded research avenue.[5]
- **CRADAs, patent licensing, test services** for non-procurement collaboration and tech transition.[5]
- Topic ceilings/specific award sizes for the current items above were **not published** on the source pages reviewed.

Published contacts

- **Tamara Christenson, Technical Point of Contact**, DEVCOM Army Research Laboratory, Collaborative Research Alliance page, **tamara.r.christenson.civ@army.mil**. Phone: **not published**. [17]
 - Source: <https://arl.devcom.army.mil/collaborate-with-us/opportunity/collaborative-research-alliance/>
- **General ARL inquiry**: public inquiry path available; named contracting officer for graphene-specific work **not published** on reviewed ARL pages.[5]

How a company would engage

1. Watch **Army SBIR|STTR topics** and DSIP for Army component releases.[1][16]
2. For lower-TRL materials/process work, approach via **ARL BAA** or **CRADA** pathways.[5]
3. For commercially aligned prototypes, consider **xTech** or follow-on Army PEO/user transition once a topic aligns.[5][16]

4) Navy → Navy SBIR/STTR / ONR-sponsored topics

Why this office would adopt or sponsor CVD graphene

The Navy is a fit for CVD graphene where naval systems need **lightweight power storage, tunable IR/EO components, beam control, hyperspectral imaging, and advanced composites** with SWaP or environmental advantages aboard platforms, portable systems, or sensors.[6]

Current status of similar work

SBIR.gov shows multiple Navy awards involving graphene or closely related nanocarbon device concepts: - **N231-065 – “MEMMS for enhanced IR Beam Control”: recently awarded / 2023 Phase I**; abstract explicitly references graphene modulator devices.[6] - **N21B-T023 – “Next-Generation Lithium Battery Enabled by Holey Graphene-based Electrodes”: recently awarded / 2022 Phase I and 2023 Phase II**. [6] - **N201-014 – “Compact Hyperspectral Imager Using Tunable Metasurfaces”: recently awarded / 2022 Phase II**, adjacent to tunable optics and metasurface approaches relevant to graphene-enabled spectral devices.[6] - **N24A-T003 – “High-Frequency 40 GB/s MWIR**

and LWIR Metamaterials-based Electro-Optical Modulators for Free-Space Optical Communications”: recently awarded / 2024 STTR Phase I; not explicitly graphene in title but strongly adjacent for 2D-material IR modulation.[6]

A current publicly accessible ONR graphene-specific BAA page was **not reachable** from this environment due site access issues, so the public evidence here stops at the Navy SBIR/STTR topic/award layer.[6]

Typical vehicles and award sizes

- **Navy SBIR/STTR** is the clearest public vehicle evidenced in the sources reviewed.[6]
- ONR generally uses **BAAs and grants/cooperative agreements**, but a specific ONR graphene BAA and its award ceilings were **not confirmed** from accessible official pages in this session.

Published contacts

- For the specific Navy topics above, named public topic POCs were **not published** in the accessible award records reviewed.[6]
- ONR public contact details for a graphene-relevant program officer were **not confirmed** from accessible pages in this session.

How a company would engage

Use **DSIP/Navy SBIR-STTR topic releases** as the most concrete entry point; for university-heavy or early-stage science, monitor ONR/NRL BAAs when accessible. Because public source access stopped early, a company should begin with Navy SBIR topic matching rather than assume a specific ONR program manager.[6]

5) Department of the Air Force → Air Force SBIR/STTR → named topics

Why this office would adopt or sponsor CVD graphene

Air Force and Space-related mission fit includes **EMP/EMI shielding, space memory/radiation hardening, improved additive manufacturing feedstocks, ultracapacitors/batteries, and thermal/electronic materials** where graphene’s conductivity and low mass matter.[7]

Current status of similar work

SBIR.gov results show: - **AF233-0036 – “Ultra-Lightweight Nickel Foam-Graphene Composites for EMI/EMP Shielding”**: recently awarded / 2024 Phase I; direct Air Force demand signal for lightweight shielding.[7] - **J201-CS01 – “Graphene Improvements to Additive Manufacturing”**: recently awarded / 2020 Phase I.[7] - **AF131-082 – “Ultra-Scalable Nonvolatile Graphene Memory”**: historical / 2014 Phase I.[7] - **AF131-082 – “Radiation Hardened Graphene based Nonvolatile Memory for Space Applications”**: historical / 2014 Phase I.[7] - **AF112-061 – “High Specific Energy Ultracapacitor with**

Hybrid Graphene Nanoplatelet Paper Electrodes”: historical / 2012 Phase I.[7] - AF08-BT10 – “Graphene Production Tool”: historical / 2009 STTR Phase I; directly relevant to deposition/manufacturing tooling.[7]

A directly accessible current AFRL graphene solicitation page was not available in this session because the AFRL business page returned access denied; thus public evidence stops at Air Force SBIR/STTR awards and topics.[7]

Typical vehicles and award sizes

- **DAF SBIR/STTR and Open Topic / CSO-like pathways** are the clearest public vehicles evidenced by the awards list.[7]
- Specific public ceilings for the graphene-related topics above were **not published** in the reviewed award records.

Published contacts

- Named graphene-specific topic POCs: **not published** in the accessible award entries.[7]
- Current AFRL contracting/business contact for graphene-related work: **not published** in accessible official pages reviewed here.

How a company would engage

Primary route is **DAF SBIR/STTR**, especially for shielding, space electronics, and advanced manufacturing concepts at prototype stage. If the product is already dual-use and mature, a later DIU or service transition path may be possible.[7][8]

6) DIU → Commercial Solutions Opening (CSO) / prototype OT

Why this office would adopt or sponsor CVD graphene

DIU is relevant only when the graphene product is **already commercially credible** and can solve a defense problem within roughly **12-24 months** through a fast prototype. DIU’s public process is challenge-driven and favors solutions with adoption potential across DoD rather than basic materials research.[8][9]

Current status of similar work

- DIU’s **Work With Us** page is active and states DIU solicits commercial solutions for current DoD needs.[8]
- DIU’s **Open Solicitations** page is active and currently lists open pathways through **Commercial Solutions Openings** and **Challenges/Commercial Acceleration Opportunities**. [9]
- A current DIU solicitation specifically naming graphene was **not found** on the reviewed pages.[9]

Typical vehicles and award sizes

- DIU states it principally uses **Other Transaction (OT) authority** for prototype agreements under **10 U.S.C. 4022**. [8]
- DIU states prototype OTs can be awarded in **as few as 60-90 days** and that successful prototypes may transition to **non-competitive follow-on production** contracts or agreements. [8]
- The pages reviewed did **not publish standard award sizes** for DIU graphene-relevant prototypes. [8][9]

Published contacts

- DIU provides a **public contact form** for commercial companies and DoD partners; named graphene-specific points of contact are **not published** on the reviewed pages. [18]
- Source: <https://www.diu.mil/contact-DIU> and <https://www.diu.mil/work-with-us/open-solicitations>

How a company would engage

Submit against a **posted DIU CSO/challenge** if the graphene product is already demonstrated and maps to a specific mission problem. If there is no open fit, use the **company interest/contact form** and wait for a matching demand signal. [8][9][18]

7) Missile Defense Agency (MDA) → MDA SBIR topics

Why this office would adopt or sponsor CVD graphene

MDA mission fit is strongest for **timing, sensing, EMI shielding, and lightweight multifunctional structures** supporting missile defense systems and interceptors. [10]

Current status of similar work

- **MDA242-D002 – “Integrated On-Chip Quantum Timing Using Fiber-Optic Frequency Comb and Graphene Saturable Absorber Technology”**: recently awarded / **2025 Phase II**. [10]
- **MDA241-008 – “Ultra-Lightweight Composites for EMI Shielding on Hypersonic Interceptors”**: recently awarded / **2024 Phase I**; title does not say graphene, but mission fit overlaps conductive lightweight nanomaterials. [10]
- **MDA12-025 – “Affordable Reinforced Polymer Composite Structures with Embedded Graphene Electrical Interfaces”**: historical / **2013 Phase I**. [10]

Typical vehicles and award sizes

- Public evidence found here is through **MDA SBIR** topics and awards. [10]
- Topic ceilings for these awards were **not published** on the reviewed record pages.

Published contacts

- Named public MDA topic contact for these graphene-related awards: **not published** on the reviewed public award pages.[10]

How a company would engage

Track **MDA SBIR topics** in DSIP/SBIR.gov and align CVD graphene to timing photonics, shielding, and lightweight multifunctional materials.[10][13]

8) Defense Threat Reduction Agency (DTRA) → DTRA SBIR topics

Why this office would adopt or sponsor CVD graphene

DTRA adopts technologies that protect against or monitor strategic threats. Graphene fits for **EMP protection, hardened materials, infrastructure shielding, gas sensing, and radiation effects in electronics**.[11]

Current status of similar work

- **DTRA222-003 – “Development of EMI Enhanced Concrete for EMP and Blast Protection”**: recently awarded / 2023 Phase I; abstract explicitly includes graphene.[11]
- **DTRA222-003 – “Conductive Lightweight Concrete for EMP Protection”**: recently awarded / 2023 Phase I; same mission area.[11]
- **DTRA143-001 – “Polyoxometalate/Graphene Gas Sensor Coupled with Infrared Motion Detector for Human Proximity Sensor Array”**: historical / 2015 Phase I and 2017 Phase II.[11]
- **DTRA121-002 – “The Characterization and Mitigation of Radiation Effects on Nano-technology Microelectronics”**: historical / 2012 Phase I; abstract includes graphene among target technologies.[11]

Typical vehicles and award sizes

- Publicly evidenced vehicle: **DTRA SBIR**.[11]
- Award ceilings for these topics were **not published** on the reviewed pages.

Published contacts

- Named public DTRA topic contact for these items: **not published** on the reviewed award pages.[11]

How a company would engage

Engage through **DTRA SBIR/STTR** when the application is threat protection, EMP hardening, or sensing, rather than trying to pitch generic graphene capability.[11]

Engagement pathways across DoD

1. Best near-term contracting doors for a developing company

- **DoD SBIR/STTR via DSIP** for topics explicitly naming graphene or adjacent 2D-material device needs.[1][13]
- **Army, Navy, Air Force, OSD, MDA, DTRA SBIR/STTR** component topics where mission pull is already evident from prior awards.[2][4][6][7][10][11]
- **DARPA open opportunities** when the pitch is a breakthrough in manufacturable device performance or scaling rather than incremental component substitution.[14][15]
- **ARL BAA / CRADA** for early-stage collaboration and maturation before program insertion.[5]
- **DIU CSO/OT** only after the product is mature enough for a fieldable prototype tied to a specific user problem.[8][9]

2. Best mission-framed value propositions for CVD graphene

A company will likely get the best traction if it avoids selling “graphene” generically and instead leads with one of these DoD-relevant claims: - **Broadband UV-LWIR focal plane or bolometer performance** with monolithic CMOS compatibility.[1][4] - **mm-wave / THz detectors or tunable photonic devices** using graphene heterostructures or metasurfaces.[12][2][6] - **High energy density / safer batteries** for tactical power and 6T-class battery needs.[4][6] - **Ultra-light EMI/EMP shielding** for aircraft, missiles, or hardened facilities.[7][10][11] - **Water purification / electrochemical devices** for deployed sustainment.[4] - **Wafer-scale or large-area manufacturable graphene synthesis** suitable for defense electronics production.[2]

3. Readiness guidance

- **TRL 2-4:** ARL BAA/CRADA, DARPA office-wide or program BAAs, OSD STTR/SBIR if topic exists.[5][14][15]
 - **TRL 4-6:** Service or OSD **SBIR/STTR** is the strongest path.[1][4][6][7][10][11]
 - **TRL 6-8 with commercial product evidence:** **DIU CSO/OT** or service transition via follow-on prototype/user funding.[8][9]
-

Published contact summary

Office	Published contact	Title	Email	Phone	Source
DEVCOM Army Research Laboratory	Tamara Christenson	Technical Point of Contact, Collaborative Research Alliance	tamara.r.christenson.civ@army.mil	not published	https://arl.devcom.army.mil/collaborate-with-us/opportunity/collaborative-research-alliance/
DoD SBIR/STTR DSIP	DoD DSIP Support	Portal support	DoDSBIRSupport@reisystems.com	not published	https://www.dodsbirsttr.mil/submissions/login ; https://www.dodsbirsttr.mil/topics-app/
DARPA	not published	graphene-relevant PM/contact not publicly tied to a live graphene solicitation in reviewed sources	not published	not published	https://www.darpa.mil/work-with-us ; https://www.darpa.mil/work-with-us/opportunities
Navy / ONR	not published	graphene-relevant public topic/program contact not confirmed in accessible sources reviewed	not published	not published	SBIR.gov award pages reviewed
Department	not	graphene-	not published	not published	SBIR.gov award pages reviewed

Office	Published contact	Title	Email	Phone	Source
nt of the Air Force / AFRL	published	relevant public topic/program contact not confirmed in accessible sources reviewed			
DIU	not published	public contact form only on reviewed pages	not published	not published	https://www.diu.mil/contact-DIU
MDA	not published	graphene-relevant topic contact not published on reviewed award pages	not published	not published	SBIR.gov award pages reviewed
DTRA	not published	graphene-relevant topic contact not published on reviewed award pages	not published	not published	SBIR.gov award pages reviewed

Overall assessment

For **CVD graphene specifically**, the most actionable DoD adoption path is **not** a general materials pitch to all of DoD. It is a sequence: 1. **Match the graphene form factor and function to a mission-use case** already visible in DoD topics or awards. 2. **Enter through SBIR/STTR**, especially **OSD, Army, Navy, Air Force, MDA, or DTRA**, because public evidence shows these components already buying graphene-related R&D.[1][2][4][6][7][10][11][12] 3. Use **DARPA** when the differentiator is a step-change in manufacturing or device capability.[2][14][15] 4. Use **ARL collaboration vehicles** for early science and co-development.[5][17] 5. Use **DIU** only once the company has a mature, prototype-ready product and a clearly framed operational user story.[8][9]

Sources

1. DoD SBIR/STTR DSIP Topics and Topic Q&A, graphene search results showing OSD topics OSW26BZ06-DV027 and OSW26TZ06-NV005:
<https://www.dodsbirsttr.mil/topics-app/>
2. SBIR.gov awards search, keyword graphene + DARPA:
<https://www.sbir.gov/awards?keywords=graphene%20DARPA>
3. DARPA Programs page: <https://www.darpa.mil/research/programs>
4. SBIR.gov awards search, keyword graphene + Army:
<https://www.sbir.gov/awards?keywords=graphene%20Army>
5. DEVCOM Army Research Laboratory, Collaborate With Us:
<https://arl.devcom.army.mil/collaborate-with-us/>
6. SBIR.gov awards search, keyword graphene + Navy:
<https://www.sbir.gov/awards?keywords=graphene%20Navy>
7. SBIR.gov awards search, keyword graphene + Air Force:
<https://www.sbir.gov/awards?keywords=graphene%20Air%20Force>
8. DIU Work With Us: <https://www.diu.mil/work-with-us>
9. DIU Open Solicitations: <https://www.diu.mil/work-with-us/open-solicitations>
10. SBIR.gov awards search, keyword graphene + MDA:
<https://www.sbir.gov/awards?keywords=graphene%20MDA>
11. SBIR.gov awards search, keyword graphene + DTRA:
<https://www.sbir.gov/awards?keywords=graphene%20DTRA>
12. SBIR.gov awards search, keyword graphene + OSD:
<https://www.sbir.gov/awards?keywords=graphene%20OSD>
13. DoD SBIR/STTR DSIP login/solicitation schedule page:
<https://www.dodsbirsttr.mil/submissions/login>
14. DARPA R&D Opportunities page: <https://www.darpa.mil/work-with-us/opportunities>
15. DARPA Work With Us page: <https://www.darpa.mil/work-with-us>
16. Army SBIR|STTR Topics page: <https://armysbir.army.mil/topics/>

17. DEVCOM Army Research Laboratory, Collaborative Research Alliance page: <https://arl.devcom.army.mil/collaborate-with-us/opportunity/collaborative-research-alliance/>
 18. DIU Contact page: <https://www.diu.mil/contact-DIU>
-

Department of Energy (DOE) and CVD Graphene: organization-adoption briefing

Bottom line

Within DOE, **the most relevant real sponsors/buyers for CVD graphene are:** 1. **Office of Science (SC) → Basic Energy Sciences (BES) → Materials Sciences and Engineering (MSE) Division** for fundamental materials research, synthesis, characterization, and use-inspired basic science on 2D materials and graphene.[1][2] 2. **Office of Critical Minerals and Energy Innovation (CMEI) → Advanced Materials and Manufacturing Technologies Office (AMMTO)** for applied RD&D and scale-up/manufacturing work where graphene is part of advanced conductive materials, microelectronics, or manufacturing-process innovation.[3][4][5] 3. **ARPA-E** for higher-risk, program-directed development when graphene is enabling a step-change in power electronics, manufacturing, or other energy hardware; engagement is through program-specific FOAs/open topics rather than a standing graphene program.[6][7][8] 4. **Office of Electricity (OE)** as a potential adopter/sponsor when graphene-enabled conductors, power electronics, storage, or grid components clearly improve grid reliability or performance, but current public opportunities are generally technology-outcome oriented rather than graphene-specific.[9][10] 5. **DOE SBIR/STTR** as a cross-cutting small-business route into DOE mission areas; DOE publicly states the program supports DOE missions in energy production and use, fundamental energy science, defense nuclear nonproliferation, and environmental management, but current public pages do not show an open graphene-specific topic.[11][12]

NNSA appears relevant only **indirectly** through mission need for advanced materials and manufacturing, but on the public sources reviewed here I did **not** find a public NNSA graphene-specific funding/program office solicitation that is deep enough to name as a current sponsor for CVD graphene.[13]

1) DOE → Office of Science (SC) → Basic Energy Sciences (BES) → Materials Sciences and Engineering (MSE) Division

Why this office would sponsor CVD graphene

BES states that it supports basic scientific research that lays the foundations for new energy technologies and advances DOE missions in energy, environment, and national

security.[1] Within BES, the **Materials Sciences and Engineering Division** supports fundamental research for the discovery and design of new materials with novel structures, functions, and properties, creating the knowledge base for materials used in energy generation, storage, and use.[2] That mission is a direct fit for **CVD graphene** because the technology sits at the intersection of: - 2D-material synthesis and growth science, - defect/interface control, - conductivity and transport, - thin-film processing, - and structure/property characterization.

BES also supports Scientific User Facilities, including **five Nanoscale Science Research Centers**, plus x-ray, neutron, and electron-beam characterization facilities, which are exactly the kinds of tools typically used to develop and validate CVD graphene growth, transfer, doping, and device integration.[14]

Current status of similar technology-development work

- **Open, continuously open Office of Science financial assistance FOA:** SC states it maintains at least one continuously open FOA for new, renewal, or supplemental support of research in areas of interest to the Office of Science.[15] On the Open FOAs page, the currently listed BES route is “**FY 2026 Continuation of Solicitation for the Office of Science Financial Assistance Program,**” DE-FOA-0003600, with close date **September 30, 2026**.[16] Status: **active**.
- **EFRC program:** BES describes EFRCs as a continuing basic research program with biennial 4-year award competitions; the **2024 funding opportunity** supported new centers and identified active focus areas including advanced manufacturing and microelectronics.[17] Status: **program of record / active continuing program; specific 2024 competition recently completed**.
- **Graphene-specific public award on reviewed pages:** not found on BES pages reviewed here. However, BES mission fit is strong and broad enough to encompass graphene under materials synthesis and characterization research.[1][2]

Typical vehicles and publicly stated award sizes or ceilings

- **Financial assistance FOAs via Grants.gov/PAMS** are the standard SC vehicle; SC states all financial assistance applications must be submitted through Grants.gov in response to an open FOA and that SC does **not** accept unsolicited applications for financial assistance.[15]
- **DOE national laboratory announcements** also exist on the SC funding site, with labs funded through their M&O contracts when permitted by the FOA.[15]
- **EFRC awards** are publicly described as **4-year awards**; BES notes the 2024 competition created 10 new centers that joined 34 continuing centers, but the reviewed page did not provide per-center ceiling figures.[17]
- Publicly stated per-award sizes for graphene-relevant BES open opportunities on reviewed pages: **not published on the pages reviewed**.

Published contacts

- **Dr. Andy Schwartz** — Director, Materials Sciences and Engineering Division, Office of Basic Energy Sciences. Source: MSE division page.[2]

- Email: **not published**
- Phone: **not published**
- Source URL: <https://science.osti.gov/bes/mse>
- **Office of Sponsored Activities / Grants and Contracts Support, Office of Science**
 - Email: sc.grantsandcontracts@doe.gov[18]
 - Phone: **not published on reviewed page**
 - Address published by SC: SC-43/Germantown Building, 1000 Independence Ave., SW, Washington, DC 20585.[18]
 - Source URL: <https://science.osti.gov/grants>
- **PAMS Helpdesk** for SC application system
 - Phone: **(855) 818-1846** toll-free; **(301) 903-9610**[16]
 - Email: sc.pams-helpdesk@science.doe.gov[16]
 - Source URL: <https://science.osti.gov/grants/FOAs/Open>

How a developing company would actually engage

1. Apply to the **annual/open Office of Science FOA** through **Grants.gov** and manage pre-application/application steps in **PAMS** where required.[15][16]
2. Frame the work as **fundamental materials science**: scalable synthesis, growth kinetics, defect control, interfaces, doping, transfer, in situ characterization, or device-relevant physics of graphene.
3. If the company needs a DOE lab partner, engage through a lab collaboration allowed under the FOA structure; SC notes labs may be funded through their M&O contracts when a FOA permits lab participation.[15]
4. For small businesses, consider the separate **DOE SBIR/STTR** route if the work is sufficiently product-oriented.[11][12]

2) DOE → Office of Critical Minerals and Energy Innovation (CMEI) → Advanced Materials and Manufacturing Technologies Office (AMMTO)

Why this office would adopt or sponsor CVD graphene

AMMTO says its mission is to drive innovation to transform materials, manufacturing, and workforce to advance America's energy economy, and that it supports a globally dominant U.S. manufacturing and industrial base for a resilient energy system and secure supply chain.[3][4] AMMTO specifically identifies: - **Next Generation Materials & Processes**, - **conductivity-enhanced materials**, - **energy technology manufacturing** including wide-

bandgap power semiconductors, - and **energy-efficient microelectronics** as program interests.[4][5][19]

That is a direct mission fit for **CVD graphene** where the value proposition is not “graphene in general,” but: - conductivity-enhanced metal or polymer composites, - thermal management films, - microelectronics materials/process integration, - advanced conductive interconnects, - and scalable manufacturing methods for high-performance materials.[5][19]

Current status of similar technology-development work

This is the strongest DOE office for **applied** graphene/manufacturing work based on reviewed public evidence.

- **AMMTO project database includes active/selected graphene-like projects.**
Public project listings include:
 - **“High throughput experimentation to enhance the electrical conductivity of the copper-graphene nanocomposite”** — recipient **University of Utah** — vehicle **2022 AMMTO Multi-Topic FOA** — amount **\$300,000** — selected, with dates shown **9/7/2023 to 12/6/2026**.^[20] Status: **active/selected**.
 - **“Conductivity of copper enhanced by infusion of graphene achieved by the flash sintering process”** — recipient **University of Colorado Boulder** — vehicle **2022 AMMTO Multi-Topic FOA** — amount **\$300,000** — selected, with dates shown **9/7/2023 to 12/6/2026**.^[20] Status: **active/selected**.
- **Open AMMTO opportunities page** lists several currently open or under-review solicitations, though not graphene-specific by name. Relevant entries include:
 - **Research on Circular Economy, Smart Manufacturing, and Energy-Efficient Microelectronics** — up to **\$2.5M**, type **Grant**, full applications **Jan. 29, 2024**.^[21] On the current page it is marked **Open**, although the close date shown has passed; practically this reads as **recently expired / page may not be fully updated**.
 - **\$33 Million for Smart Manufacturing Technologies for Material and Process Innovation** — type **FOA**, close **Nov. 18, 2024** — marked **Under Review**.^[21] Status: **under review / recently closed**.
 - **Advance Domestic Manufacturing of Next Generation Batteries** — **\$15.7M**, type **FOA**, close **March 7, 2024** — marked **Under Review**.^[21] Status: **under review / recently closed**.
 - **Critical Materials Accelerator Funding Opportunity** — **\$10M**, type **FOA**, close **March 22, 2024** — marked **Under Review**.^[21] Status: **under review / recently closed**.

- **Critical Materials Innovation Hub open call hosted by Ames Lab as DOE Energy Innovation Hub: up to \$10 million** for projects addressing domestic supply-chain gaps including gallium semiconductor topics.[22] This is not graphene-specific, but it is relevant when graphene competes as a materials substitution or semiconductor process solution. Status on reviewed page: concept papers due **Dec. 20, 2024**; later stages and funding notification updated on the page.[22]

Typical vehicles and publicly stated award sizes or topic ceilings

AMMTO explicitly says it funds RD&D projects through: - **FOAs** using open, competitive solicitations,[4] - **grants** and **cost-shared funding**,[21] - **prizes/challenges**,[21] - and **consortia / Manufacturing USA institutes / innovation hubs**.[4]

Publicly stated sizes/ceilings on reviewed sources include: - **up to \$2.5M** for “Research on Circular Economy, Smart Manufacturing, and Energy-Efficient Microelectronics.”[21] - **\$33M** FOA for smart manufacturing technologies for material and process innovation.[21] - **\$15.7M** FOA for domestic manufacturing of next-generation batteries.[21] - **\$10M** Critical Materials Accelerator FOA.[21] - **\$10M** CMI Hub RFP open call.[22] - Prize examples: **\$4M** Electronics Scrap Recycling Advancement Prize, **\$2M** Microbattery Design Prize Phase II, **\$4.5M** Re-X Before Recycling Prize.[21]

Published contacts

- **Advanced Materials and Manufacturing Technologies Office (general office contact)**[3]
 - Email: **ammto@ee.doe.gov**
 - Phone: **not published on reviewed page**
 - Address: Office of the Assistant Secretary, Energy Efficiency and Renewable Energy, Mail Stop EE-1, Department of Energy, Washington, DC 20585
 - Source URL: **https://www.energy.gov/cmei/ammto**
- Named individual program managers/team members on the reviewed AMMTO pages: **not published**.

How a developing company would actually engage

1. Track **AMMTO FOAs** and **EERE Exchange / Grants.gov** notices through the AMMTO funding page.[21]
 2. Position CVD graphene as a manufacturing or materials solution to a stated AMMTO problem: **conductivity-enhanced materials, energy-efficient microelectronics, high-performance materials, or advanced manufacturing processes**. [5][19][21]
 3. Use the **project database** to benchmark how DOE phrases successful graphene-adjacent projects.[20]
 4. If the work needs ecosystem support or demonstration partners, enter through an **AMMTO consortium / hub / institute** rather than a standalone proposal.[4]
-

3) DOE → ARPA-E

Why this office would adopt or sponsor CVD graphene

ARPA-E funds high-risk, potentially transformational technologies organized around specific program challenges rather than standing commodity/material lines. Its programs include **materials, manufacturing, power electronics, grid, and industrial efficiency** categories.[6] CVD graphene would fit only when it enables a step-change in an ARPA-E technical target such as: - power conversion efficiency, - compact magnetics/passives, - thermal management, - advanced sensors, - or novel manufacturing/process intensification.

Current status of similar technology-development work

- **No current graphene-specific ARPA-E program found** on reviewed public pages. Status: **not found**.
- **ADEPT (Agile Delivery of Electrical Power Technology)** is an ARPA-E alumni program on advanced power conversion hardware; ARPA-E says its projects aimed to improve circuits, transistors, inductors, transformers, and capacitors for more efficient power conversion.[7] Status: **alumni**.
- **AMPLIFY** is an example of an **active** ARPA-E materials/process program; ARPA-E describes it as a **three-year, \$35 million** program focused on advanced material processes for methane conversion.[8] Status: **active**.

These examples matter because they show ARPA-E's pattern: it will fund graphene only if it is embedded in a larger breakthrough proposition under a named program or open topic.

Typical vehicles and publicly stated award sizes or topic ceilings

- **Program-specific FOAs/open topics** are the main vehicle. ARPA-E's public programs page is the routing point for these opportunities.[6]
- Publicly stated program sizes on reviewed pages include:
 - **ADEPT**: press coverage on the program page references DOE awards of **\$92 million** across 43 projects and a **\$100 million** call for innovative projects, though not all for ADEPT alone.[7]
 - **AMPLIFY**: **\$35 million** three-year research program.[8]
- OTA use on the reviewed program pages: **not published**.

Published contacts

- **Dr. Jungho Kim** — Program Director, ARPA-E **AMPLIFY** program page.[8]
 - Email: **not published**
 - Phone: **not published**
 - Source URL: <https://arpa-e.energy.gov/programs-and-initiatives/view-all-programs/amplify>

- **ARPA-E Agency Contact Center**
 - Email: **ARPA-E@hq.doe.gov**[6]
 - Phone: **not published on reviewed pages**
 - Source URL: <https://arpa-e.energy.gov/programs-and-initiatives/view-all-programs>
- Named point of contact for **ADEPT** on reviewed page: **not published**. [7]

How a developing company would actually engage

1. Monitor **ARPA-E open programs/open topics** for problem statements where graphene is an enabling component, not the end in itself.[6]
2. Submit only when CVD graphene clearly delivers a measurable leap against ARPA-E metrics in efficiency, size, manufacturability, or cost.
3. Use the general **ARPA-E contact center** if no program-specific PM contact is published.[6]

4) DOE → Office of Electricity (OE)

Why this office would adopt or sponsor CVD graphene

OE's mission is to **stabilize, optimize, and grow the electricity system** to ensure affordable, reliable, and secure energy.[9] Its focus areas include **grid systems and components, transformer resilience and advanced components, energy storage, grid controls, and grid enhancing technologies**. [9] CVD graphene could matter if it improves: - conductor performance, - thermal management, - power electronics, - sensors, - storage interfaces, - or resilient grid components.

Current status of similar technology-development work

OE's current public opportunities are mission/outcome based, not graphene-specific.

Relevant public opportunities on the reviewed OE page include: - **Advance Production-Ready, Next-Gen Energy Storage (STEP Prize)** — prize — response due **Oct. 8, 2026**. Status: **active**. [10] - **Community Microgrid Assistance Partnership (C-MAP) Program** — funding opportunity — due **July 2, 2026**. Status: **recently expired**. [10] - **Speed to Power through Accelerated Reconductoring and other Key Advanced Transmission Technology Upgrades (SPARK)** — funding opportunity — due **May 20, 2026**. Status: **recently expired**. [10] - **Aligning Manufacturability & Pre-production Design (AMPD) for Storage Technologies** — funding opportunity — marked **CLOSED**. [10] - **AI4IX, CARLA, JARVIS**, and other OE partnership intermediary agreements show OE uses partnership-style vehicles for grid innovation. [10]

On the reviewed public pages, I did **not** find a publicly posted OE graphene-specific solicitation, award, or program of record. Status: **not found**.

Typical vehicles and publicly stated award sizes or topic ceilings

OE publicly lists use of: - **funding opportunities**, - **prizes**, - **services**, - **partnership intermediary agreements**, - **requests for information/comments**, - and some **loan/selection** notices.[10]

Publicly stated award sizes/ceilings for graphene-relevant entries on the reviewed page are generally **not published on the summary page**, except by program title rather than detailed topic ceiling. OE instructs users to use its funding page for active notices.[10]

Published contacts

- **Office of Electricity** (general office contact)[9]
 - Phone: **202-586-1411**
 - Email: **OEwebmaster@hq.doe.gov**
 - Source URL: <https://www.energy.gov/oe/office-electricity>
- Named technology program managers/contracting contacts for graphene-relevant opportunities on reviewed pages: **not published**.

How a developing company would actually engage

1. Watch **OE Funding Opportunities and Requests for Information** for grid components, storage, conductors, and manufacturability solicitations.[10]
2. Position graphene as an **enabling component** for a grid problem OE already funds, not as a standalone materials play.[9][10]
3. Expect engagement through **prizes, FOAs, RFIs, or partnership intermediary agreements**, depending on the problem area.[10]

5) DOE → DOE SBIR/STTR Program (cross-cutting route, now managed by Office of Technology Commercialization)

Why this office would sponsor CVD graphene

DOE states its SBIR/STTR programs support mission areas in **Energy Production & Use, Fundamental Energy Science, Defense Nuclear Nonproliferation, and Environmental Management**. [11] For a developing company, this is often the most practical early DOE entry point for CVD graphene if the application is framed around a DOE use case: conductive materials, microelectronics, sensors, energy storage, power electronics, or advanced manufacturing.

Current status of similar technology-development work

- DOE states the SBIR/STTR programs are now managed by DOE's **Office of Technology Commercialization (OTC)** and that the legacy SC SBIR/STTR funding opportunities page is closed for current opportunities.[11][12] Status: **program active; SC legacy page closed; current opportunities moved to OTC**.

- The AMMTO project database shows graphene-adjacent projects funded under other DOE vehicles and also references SBIR projects in conductivity/thermal-conductivity areas, demonstrating that DOE does back nanocarbon/conductive-material work through small-business routes when it matches a topic.[20]
- On reviewed public pages, I did **not** find a currently open DOE SBIR topic explicitly named for graphene or CVD graphene. Status: **not found**.

Typical vehicles and publicly stated award sizes or topic ceilings

- Vehicle: **SBIR/STTR FOAs**. [11][12]
- Current SC public page does not publish current open topic ceilings because it redirects users to OTC for live opportunities. [12]
- Public contact page confirms DOE issues **hundreds of awards annually** across mission areas. [11]

Published contacts

- **DOE SBIR/STTR Programs Office** [11][12]
 - Phone: **(301) 903-5707**
 - Email: **sbir-sttr@doe.gov**
 - Source URL: <https://science.osti.gov/sbir> and <https://science.osti.gov/sbir/Funding-Opportunities>
- For forward-looking questions, DOE states applicants should email **sbir-sttr@hq.doe.gov**. [11]

How a developing company would actually engage

1. Use the **current DOE SBIR/STTR opportunities page managed by OTC** for open topics. [12]
2. Match graphene work to a DOE application topic rather than pitching graphene broadly.
3. If the work is very early and fundamentally scientific, start with **BES**; if nearer commercialization, use **SBIR/STTR**.

6) DOE → National Nuclear Security Administration (NNSA)

Why this office might care

NNSA's mission includes maintaining and modernizing the nuclear stockpile through science, technology, engineering, and manufacturing, plus nonproliferation and propulsion missions. [13] In principle, advanced thin films, coatings, sensors, conductors, or radiation-tolerant materials could fit.

Current status of similar technology-development work

On the public NNSA organizational pages reviewed here, I found mission statements and office structure, but **no public graphene-specific BAA, FOA, SBIR topic, OTA, or other solicitation** sufficient to name a current sponsor office for CVD graphene.[13] Status: **not found**.

Typical vehicles and award sizes

Not established from the reviewed public sources for graphene-specific engagement. Public acquisition/funding paths may exist elsewhere, but **not found** in reviewed sources.

Published contacts

The reviewed NNSA overview page lists offices but did **not** publish a graphene-relevant PM or contracting contact. **Not published**.[13]

How a developing company would actually engage

If pursuing NNSA, a company would likely enter through broader DOE SBIR/STTR or a lab relationship first, then map to a specific NNSA mission user. Based on reviewed public sources, **there is no clearly published direct graphene program office to target today**.

Practical DOE engagement sequence for a CVD graphene developer

1. **AMMTO first** for applied/manufacturing/composite/microelectronics positioning, because DOE already shows publicly visible graphene-related selections in AMMTO's project database.[20]
2. **BES/MSE second** for fundamental synthesis, growth science, interfacial science, and characterization work that is too early for product-focused solicitations.[1][2][16]
3. **DOE SBIR/STTR** for company-led R&D tied to a published topic in DOE mission space.[11][12]
4. **ARPA-E opportunistically** when a live program's metrics make graphene a discontinuous advantage rather than a materials improvement.[6][7][8]
5. **OE selectively** when the pitch is a grid-performance outcome, especially conductors, power electronics, storage, or resilient components.[9][10]

Sources

[1] DOE Office of Science, "Basic Energy Sciences."

<https://www.energy.gov/science/bes/basic-energy-sciences>

[2] DOE Office of Science, "Materials Sciences and Engineering (MSE) Division."

<https://science.osti.gov/bes/mse>

[3] DOE, "Advanced Materials and Manufacturing Technologies Office."

<https://www.energy.gov/cmei/ammto>

[4] DOE, "About the Advanced Materials & Manufacturing Technologies Office."

<https://www.energy.gov/cmei/ammto/about-advanced-materials-manufacturing-technologies-office>

[5] DOE, “Next-Generation Materials and Processes.”
<https://www.energy.gov/cmei/ammto/next-generation-materials-and-processes>

[6] ARPA-E, “View All Programs.” <https://arpa-e.energy.gov/programs-and-initiatives/view-all-programs>

[7] ARPA-E, “ADEPT.” <https://arpa-e.energy.gov/programs-and-initiatives/view-all-programs/adept>

[8] ARPA-E, “AMPLIFY.” <https://arpa-e.energy.gov/programs-and-initiatives/view-all-programs/amplify>

[9] DOE Office of Electricity, “Office of Electricity.” <https://www.energy.gov/oe/office-electricity>

[10] DOE Office of Electricity, “Funding Opportunities and Requests for Information.”
<https://www.energy.gov/oe/funding-opportunities-and-requests-information>

[11] DOE Office of Science, “Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR).” <https://science.osti.gov/sbir>

[12] DOE Office of Science, “SBIR Funding Opportunities.”
<https://science.osti.gov/sbir/Funding-Opportunities>

[13] DOE NNSA, “National Nuclear Security Administration.”
<https://www.energy.gov/nnsa/national-nuclear-security-administration>

[14] DOE Office of Science, “Scientific User Facilities (SUF).”
<https://science.osti.gov/bes/suf>

[15] DOE Office of Science, “Funding Opportunity Announcements (FOAs).”
<https://science.osti.gov/grants/FOAs>

[16] DOE Office of Science, “Open FOAs.” <https://science.osti.gov/grants/FOAs/Open>

[17] DOE Office of Science, “Energy Frontier Research Centers (EFRCs).”
<https://science.osti.gov/bes/efrc>

[18] DOE Office of Science, “Office of Sponsored Activities.” <https://science.osti.gov/grants>

[19] DOE, “Apply for Grants to Fund Materials and Advanced Manufacturing Research, Development, and Deployment.” <https://www.energy.gov/cmei/ammto/articles/apply-grants-fund-materials-and-advanced-manufacturing-research-development-and>

[20] DOE/EERE, “AMMTO Project Database.”
https://www1.eere.energy.gov/apps/manufacturing/database/ammto_projects.html

[21] DOE, “AMMTO Funding Opportunities.”
<https://www.energy.gov/cmei/ammto/ammto-funding-opportunities>

[22] Ames National Laboratory / Critical Materials Innovation Hub, “CMI Request for Proposals (RFP) 2024.” <https://www.ameslab.gov/cmi/rfp2024>

Department of Health & Human Services (HHS): organization-adoption briefing for CVD graphene

Note on method: browser access was unavailable in this session, so this briefing is based on official HHS-component program pages, NIH/Grants.gov/SBIR program

materials, and other public federal sources recalled from prior knowledge. Any item that could not be confirmed from a currently published official source in-session is marked accordingly and should be re-verified before outreach.

Bottom line

Within HHS, **CVD graphene** is most plausibly funded or adopted where it serves as an **enabling material for biosensors, diagnostics, wearables, microfluidics, neural interfaces, lab-on-chip devices, or advanced medical countermeasure platforms** rather than as a material program by itself. The most relevant organizational doors are:

1. **ARPA-H** for high-risk platform programs where graphene could be a performer-selected material inside a larger health technology effort.
 2. **ASPR / BARDA** for diagnostics, biodetection, and medical-countermeasure-enabling devices if graphene improves sensitivity, manufacturability, fieldability, or shelf life.
 3. **NIH SEED / SBIR-STTR via specific NIH Institutes and Centers** for early-stage platform development in biosensing, imaging, neural, drug-delivery, or device applications.
 4. **NIBIB** and selected NIH institutes for grants/contracts supporting translational bioengineering where graphene is part of an imaging, sensing, or device stack.
 5. **FDA** only indirectly, mainly through regulatory-science collaborations and not as a routine purchaser of an emerging material platform.
 6. **CDC** only in narrower public-health laboratory or sensing use cases; clear published graphene-specific funding doors were not found.
-

1) Advanced Research Projects Agency for Health (ARPA-H)

Parent → Operating Division / Agency → program office depth: HHS → ARPA-H → program/BAA level

Why this office would sponsor CVD graphene

ARPA-H is designed to fund **high-risk, high-impact health technologies**. CVD graphene fits when it is an enabling component in: - ultra-sensitive biosensors, - flexible physiological monitoring, - neural or electrophysiology interfaces, - point-of-care diagnostics, - biomanufacturing or tissue-interface platforms.

The mission fit is strongest when graphene is not the end product but a **critical performance-enabling layer** in a health system.

Current status of similar technology-development work

- **Open/rolling ARPA-H BAA / mission-office opportunities:** active in general, though not graphene-specific. ARPA-H has used open broad agency announcement structures and program-specific calls that allow proposers latitude in technical approach. Official ARPA-H research-and-funding pages and solicitation pages are the source to monitor. [ARPA-H research/funding pages; SAM.gov opportunities]

- **Graphene-specific ARPA-H topic: not found** publicly.
- **Programs where graphene could fit:** platform diagnostics, sensing, implantables, or scalable biointerfaces under health-technology programs; exact fit depends on current program calls. **Specific current graphene-named award not confirmed from a public official source here.**

Typical vehicles and award sizes

- **BAA / program solicitation / proposers' days / solutions submissions** are the typical engagement vehicles.
- ARPA-style HHS programs often do **not publish a single standard award size**; amounts vary by program and performer scope.
- Where published, ceilings and funding ranges are program-specific. **No uniform graphene-relevant ceiling published agency-wide.**

Published contacts

- **Program manager names:** published at the program page level for specific ARPA-H programs, but a graphene-relevant PM is **not published** as a dedicated contact because no graphene-specific program was found.
- **Contracting contact:** usually published in the specific solicitation or SAM.gov notice; **not published** here at a general graphene-specific level.

How a company would engage

- Monitor **ARPA-H program pages** and **SAM.gov**.
- Respond to **open BAAs**, program solicitations, or **request-for-solution** style notices.
- Frame graphene as an enabling material with measurable benefit to the health outcome, manufacturability, and translational pathway.

2) Administration for Strategic Preparedness and Response (ASPR) → BARDA

Parent → Operating Division → center/program depth: HHS → ASPR → BARDA → DRiVe / diagnostics / enabling technology program level

Why this office would adopt or sponsor CVD graphene

BARDA funds technologies that strengthen national preparedness and medical countermeasures. CVD graphene is relevant if it improves: - **rapid diagnostics** for biothreats or emerging infectious disease, - **wearable monitoring** for triage or exposure detection, - **sensor components** for fieldable platforms, - **advanced materials** in protective or therapeutic delivery systems, - manufacturable components for deployable countermeasure devices.

The fit is strongest under **diagnostics and platform-enabling technologies**, especially when sensitivity, speed, or ruggedness improve preparedness outcomes.

Current status of similar technology-development work

- **BARDA DRIVE / EZ-BAA style calls:** BARDA has historically used the **Broad Agency Announcement (BAA)** and **BARDA DRIVE EZ-BAA** for innovative health security technologies. These are the closest HHS doors for graphene-enabled sensors or diagnostics. Status: **active in general as a pathway, but specific topics vary and graphene-specific calls were not found.**
[BARDA/medicalcountermeasures.gov]
- **Graphene-specific BARDA contract or topic: not found** publicly.
- **Diagnostics programs:** BARDA has repeatedly funded **point-of-care diagnostic platform development**, which is adjacent to graphene-enabled biosensing, but not necessarily naming graphene in the solicitation text. Status: **active/recurrent program area.**

Typical vehicles and publicly stated award sizes or ceilings

- **BARDA BAA** for larger advanced development efforts.
- **DRIVE EZ-BAA** for smaller, easier-entry submissions for innovative technologies.
- Award sizes are **call-specific**. Public pages typically describe phases or areas of interest rather than a single universal ceiling. **No graphene-specific published ceiling found.**

Published contacts

- **Program manager / scientific contacts:** usually listed on the specific topic or program page; a graphene-specific named PM was **not published**.
- **General BARDA DRIVE contact mechanisms** are often published through submission portals or program inboxes on official pages; individual point contacts for graphene were **not found**.

How a company would engage

- Submit through **BARDA BAA** or **DRIVE / EZ-BAA** when the use case is diagnostics, monitoring, or preparedness devices.
- Emphasize TRL, manufacturability, FDA pathway, shelf-stable operation, and performance on clinically relevant analytes.

3) National Institutes of Health (NIH) → SEED / SBIR-STTR → participating Institutes and Centers

Parent → Operating Division → institute/center → program depth: HHS → NIH → SEED / SBIR-STTR and participating ICs → topic/NOFO level

Why this office would sponsor CVD graphene

NIH is the most consistent HHS sponsor for **early-stage technology development**. CVD graphene fits as a research and translational platform for: - biosensors and diagnostics, - neural interfaces and electrophysiology, - drug delivery and nanomedicine, - tissue

engineering and biointerfaces, - imaging probes and flexible devices, - microfabricated tools for basic and translational biomedical research.

Current status of similar technology-development work

- **NIH SBIR/STTR Omnibus solicitations: active/recurrent.** NIH regularly issues omnibus SBIR/STTR notices plus institute-specific topics where advanced materials, nanotechnology, diagnostics, and devices can fit. [NIH SEED; NIH Guide; SBIR.gov]
- **Graphene-specific NIH topic:** dedicated graphene-named topics are **not consistently found**; however, proposals can usually be submitted under broader diagnostics/device/bioengineering topics if responsive to the institute mission.
- **NIH grants in graphene-related biomedical work: found historically** across institutes as investigator-initiated grants (e.g., biosensors, neural devices, nanomaterials), but these are usually grants to universities rather than recurring institute programs of record.
- **Contracts:** institute-specific RFPs exist but are less predictable as an entry path for graphene than grants/SBIR.

Typical vehicles and publicly stated award sizes or topic ceilings

- **SBIR/STTR Phase I and II** via NIH omnibus or institute-specific notices.
- **R21, R33, R01, U01, UG3/UH3** and related translational grant/cooperative agreement mechanisms where appropriate.
- NIH publishes **hard-cap guidance** and waiver policies for SBIR/STTR; exact caps depend on the omnibus NOFO and any statutory updates. Because caps change, proposers should verify the current NIH SEED NOFO text.

Published contacts

- NIH publishes **SBIR/STTR program staff by institute** on official institute/SEED pages, but because graphene is cross-cutting, the right contact depends on the use case and institute. A single graphene PM is **not published**.
- General institute program officer and scientific/research contact details are commonly published on NOFOs.

How a company would engage

- Primary path: **NIH SBIR/STTR**.
- Secondary path: **investigator-initiated grants** if partnered with an academic PI.
- Tertiary path: targeted response to **institute-specific NOFOs** in bioengineering, diagnostics, neuroscience, nanomedicine, or imaging.

4) NIH → National Institute of Biomedical Imaging and Bioengineering (NIBIB)

Depth: HHS → NIH → NIBIB → translational bioengineering / device / imaging funding program level

Why this office would sponsor CVD graphene

NIBIB is likely the **best mission fit inside NIH** for graphene used in: - flexible and wearable biosensors, - imaging instrumentation, - micro/nano-fabricated diagnostics, - bioelectronic interfaces, - tissue-device interfaces, - lab-on-chip systems.

NIBIB's mission centers on **engineering and physical-science approaches to medicine**, making graphene especially relevant when it delivers a measurable engineering advantage.

Current status of similar technology-development work

- **SBIR/STTR participation: active/recurrent** through NIH omnibus and institute participation notices.
- **Bioengineering grants and cooperative agreements: active/recurrent.**
- **Graphene-specific published program of record: not found.**
- Similar work is generally funded under broader **biosensing, imaging, biomaterials, or device** umbrellas rather than a standalone graphene line.

Typical vehicles and award sizes

- NIH **SBIR/STTR, R01/R21/R33**, and translational cooperative agreements when published.
- Award sizes follow NIH mechanism and NOFO rules rather than a special graphene ceiling.

Published contacts

- Institute staff directory and NOFO contacts are typically public; a dedicated graphene contact is **not published**.

How a company would engage

- Use **NIH SEED** to identify NIBIB fit and contact the listed scientific/research contact on the relevant NOFO.
- Position the technology as a **device/sensor platform**, not as a commodity material.

5) NIH → National Institute of Neurological Disorders and Stroke (NINDS) / BRAIN-related device programs

Depth: HHS → NIH → NINDS (and related NIH neuroscience programs) → neural-device or translational neuroscience funding program level

Why this office would sponsor CVD graphene

CVD graphene may fit NINDS and related neuroscience programs when used in: - neural recording or stimulation interfaces, - flexible electrodes, - neurochemical sensing, - implantable biocompatible electronics.

Mission fit depends on clear neurological application and translational neuroscience relevance.

Current status of similar technology-development work

- **BRAIN Initiative and NIH neuroscience device solicitations: active/recurrent** broadly.
- **Graphene-specific solicitation: not found.**
- Similar work may appear under neural-interface/device development rather than material-specific calls.

Typical vehicles and award sizes

- **SBIR/STTR, UG3/UH3, U01, R01/R21**, and BRAIN-initiative mechanisms where published.
- Award sizes are mechanism-specific.

Published contacts

- Specific NOFO contacts are commonly public; a named graphene program manager is **not published**.

How a company would engage

- Track neuroscience device NOFOs and BRAIN-related solicitations.
 - Engage via **SBIR/STTR** or translational cooperative agreements.
-

6) NIH → National Cancer Institute (NCI)

Depth: HHS → NIH → NCI → SBIR Development Center / diagnostics-device program level

Why this office would sponsor CVD graphene

NCI would be relevant if CVD graphene enables: - early cancer detection sensors, - liquid biopsy instrumentation, - microfluidic capture/analysis systems, - imaging contrast or bioelectronic assay platforms.

Current status of similar technology-development work

- **NCI SBIR Development Center and translational diagnostics funding: active/recurrent.**
- **Graphene-specific topic: not found.**
- Similar technology can fit diagnostics and oncology-device topics if tied to cancer use cases.

Typical vehicles and award sizes

- **SBIR/STTR**, selective contract topics, and translational grants/cooperative agreements.
- Public ceilings are topic-specific or mechanism-based.

Published contacts

- NCI publishes staff for specific topics and its SBIR Development Center; graphene-specific contact **not published**.

How a company would engage

- Use NCI SBIR topic calls and translational diagnostics notices.
-

7) Food and Drug Administration (FDA) → centers with regulatory-science research support

Depth: HHS → FDA → center/program level

Why this office would adopt or sponsor CVD graphene

FDA is generally **not a routine technology buyer for commercialization of emerging materials**. Its role is primarily regulatory. CVD graphene could become relevant through: - **regulatory science** research on nanomaterials or device-material characterization, - laboratory methods for evaluating safety, performance, biocompatibility, or manufacturing quality.

Current status of similar technology-development work

- **Graphene-specific FDA solicitation: not found.**
- **Regulatory science grants/contracts:** exist broadly, but graphene-specific opportunities were **not found**.

Typical vehicles and award sizes

- Research collaborations, contracts, and grants tied to regulatory science priorities.
- No standard graphene-specific vehicle found.

Published contacts

- Topic-specific contacts may be listed on NOFOs or BAA-like notices where issued; graphene-specific contacts **not published**.

How a company would engage

- Usually indirect: pre-submission interaction as a developer of a regulated device, not as a seller of graphene to FDA.
-

8) Centers for Disease Control and Prevention (CDC)

Depth: HHS → CDC → center/program level

Why this office would sponsor CVD graphene

Potential fit only if graphene enables: - public-health surveillance sensors, - environmental or pathogen detection tools, - laboratory diagnostics improvements.

Current status of similar technology-development work

- **Graphene-specific CDC BAA/RFP/grant path: not found.**

- CDC funds diagnostics and surveillance-related work, but a clear routine pathway for graphene as a material platform was **not found** publicly.

Typical vehicles and award sizes

- Grants, cooperative agreements, and occasional contracts.
- No graphene-specific public ceiling found.

Published contacts

- **Not published** for graphene-specific opportunities because none were found.

How a company would engage

- Generally not a first-choice entry door versus NIH, BARDA, or ARPA-H.

Published-contact summary

Because no **graphene-specific HHS solicitation** was identified, **named graphene program managers or contracting officers were not published** in a directly relevant way. Public contacts are generally embedded in each solicitation/NOFO rather than maintained as a standing “graphene” desk.

- **ARPA-H:** program-specific PMs and solicitation contacts published only on current program pages or SAM.gov notices; graphene-specific contact **not published**.
- **BARDA/DRIVE:** topic-specific scientific and submissions contacts published on active calls; graphene-specific contact **not published**.
- **NIH/NIBIB/NINDS/NCI:** NOFO-specific scientific/research contacts are published; graphene-specific contact **not published**.
- **FDA/CDC:** graphene-specific contact **not published**.

Practical engagement map

Best HHS doors for a developing company

1. **NIH SBIR/STTR** for early-stage biomedical graphene applications.
2. **NIBIB** when the product is a biosensor, flexible device, or imaging/bioinstrumentation platform.
3. **BARDA DRIVE / BAA** when the use case is diagnostics, fieldable sensing, or preparedness.
4. **ARPA-H** when the company can frame graphene as part of a breakthrough health system with step-change performance.
5. **NINDS / BRAIN-related programs** for neural interface applications.
6. **NCI SBIR** for oncology diagnostics/instrumentation use cases.

Less likely doors

- **FDA** as a funder or adopter: mainly regulatory-science interaction, not primary non-dilutive funding.

- **CDC** as a graphene sponsor: possible but not a clear primary pathway.
-

Source references to verify/monitor

Official sources to monitor for current solicitations and contacts: - HHS / ARPA-H official research and funding pages - SAM.gov opportunity listings for HHS, ARPA-H, ASPR, BARDA, FDA, CDC, and NIH - ASPR BARDA official site and BARDA DRIVE / EZ-BAA pages - NIH SEED (SBIR/STTR) official pages and NIH Guide for Grants and Contracts - Institute pages for **NIBIB, NINDS, NCI**, and relevant BRAIN Initiative notices - Grants.gov for active NIH and CDC/FDA notices

Confidence and caveat

High confidence on the **organizational fit** and **engagement vehicles** (ARPA-H, BARDA, NIH SBIR/STTR, NIBIB-led bioengineering, NCI/NINDS use-case fit). Lower confidence on any claim that would require a live check of the **current year's active solicitation numbers, exact award ceilings, or named current points of contact**, which should be verified directly on the official pages before outreach.

Department of Homeland Security (DHS) and CVD Graphene

Research in progress; browser access tool is currently unavailable due to a Playwright browser session lock (Browser is already in use). I could not complete the required live web verification and citation collection from DHS, SAM.gov, Grants.gov, or component sites in this run.

Please retry the task so I can complete the required primary-source research and produce the full briefing with citations.

Department of Transportation (DoT): CVD Graphene Adoption Briefing

Scope and conclusion

Within the U.S. Department of Transportation (DoT), the most plausible sponsors or adopters of chemical vapor deposition (CVD) graphene are the **modal administrations that run infrastructure, safety, and transportation-system R&D**, plus the Department's **SBIR program** and the **Volpe National Transportation Systems Center** as a technical integrator. Based on official DoT component missions and published innovation/acquisition pathways, the strongest fits are: - **Federal Highway Administration (FHWA)** for civil infrastructure sensing, corrosion monitoring,

composites/coatings, de-icing, and resilient pavement/bridge monitoring; - **Federal Aviation Administration (FAA)** for aircraft materials, structural health monitoring, lightning/EMI management, de-icing, and advanced sensors; - **Federal Railroad Administration (FRA)** for rail infrastructure monitoring, NDE, fire/smoke/materials safety, and communications/electronics applications; - **Federal Transit Administration (FTA)** for transit asset-management sensors, low-maintenance infrastructure materials, and bus/rail component durability; - **Pipeline and Hazardous Materials Safety Administration (PHMSA)** for leak detection, corrosion monitoring, barrier materials, and hazardous-material packaging/performance applications; - **National Highway Traffic Safety Administration (NHTSA)** for vehicle safety sensing and electronics only indirectly, with less evidence of direct materials-development contracting than the agencies above; - **Maritime Administration (MARAD)** for coatings, corrosion resistance, composites, and port/maritime sensing; - **DoT SBIR** and **Volpe** as cross-modal entry points.

Public sources reviewed do **not** show a current Department-wide, graphene-specific program of record. Instead, CVD graphene would most likely enter DoT through **SBIR topics, Broad Agency Announcements (BAAs), research grants/cooperative agreements, technical service contracts, test-and-evaluation work, and agency-specific R&D programs** tied to infrastructure durability, safety sensing, coatings/composites, or advanced electronics. Where public sources did not publish a named program manager or contracting officer for a specific materials topic, this briefing says **not published**.

1) Parent organization: U.S. Department of Transportation

Why DoT would sponsor or adopt CVD graphene

DoT's mission is to ensure a safe, efficient, and modern transportation system across aviation, highways, transit, rail, pipelines, and maritime transportation.[1] CVD graphene is not a transportation end-item by itself, but it maps to several DoT mission needs: - **structural health monitoring** of bridges, pavements, rail assets, pipelines, aircraft structures, and marine assets; - **corrosion protection and barrier coatings** for steel, aluminum, and composite transportation assets; - **lightweighting and multifunctional composites** relevant to aerospace, rail, and maritime uses; - **advanced sensing** for strain, crack growth, gas detection, chemical exposure, and condition-based maintenance; - **electromagnetic, thermal, or de-icing performance improvements** where vehicles or infrastructure require multifunctional surfaces/materials.

These needs align most directly with modal R&D offices rather than with the Office of the Secretary.[1][2]

Current status of similar technology-development work

- **Department-wide graphene-specific solicitation or program of record: not found** in reviewed DoT parent-level sources.[1][3]

- **Department-wide innovation vehicle relevant to graphene:** the DoT **Small Business Innovation Research (SBIR) Program** remains an active route for small-business R&D proposals tied to modal needs.[3]
- **Department-wide contract support/integration capability:** the **Volpe Center** performs applied transportation R&D and systems engineering across DoT modes, making it a plausible technical user or integrator for graphene-enabled sensing/materials projects, though not a modal sponsor by itself.[4]

Typical vehicles and publicly stated award sizes or topic ceilings

- **DoT SBIR/STTR:** DoT states that Phase I awards are generally up to **\$150,000** for about **6 months** and Phase II awards generally up to **\$1,000,000** for about **2 years**.[3]
- **Department-level procurement:** DoT acquisitions are handled through component and Department procurement offices; no parent-level graphene-specific contract vehicle found.[5]
- **Grants/cooperative agreements:** DoT parent grant pages aggregate component opportunities, but no graphene-specific parent opportunity was found.[6]

Published contacts

- **DoT SBIR Program** — published on the DoT SBIR page:
 - **Email:** dotsbir@dot.gov
 - **Source:** <https://www.transportation.gov/ost-r/innovation/small-business-innovation-research-program> [3]
- Parent-level graphene-specific program manager: **not published**.

How a developing company would engage

- Use **DoT SBIR** if the company is a U.S. small business and can frame CVD graphene as a transportation safety, sensing, inspection, infrastructure, or materials-performance innovation.[3]
- Track **SAM.gov** and modal research pages for BAAs, RFPs, or NOFOs tied to infrastructure materials, sensing, inspection, or aircraft/rail/pipeline safety.
- Engage technical stakeholders through the relevant modal administration or **Volpe** rather than the Office of the Secretary.

2) Cross-modal research and acquisition offices

2A) Office of the Assistant Secretary for Research and Technology (OST-R) / DoT SBIR Program

Why this office would sponsor or adopt CVD graphene

OST-R administers the Department's SBIR program and supports transportation innovation across modes.[3] CVD graphene is relevant when framed as a cross-modal enabling technology for: - low-power and distributed infrastructure sensors, - corrosion

and damage detection, - coatings and surface treatments that improve asset life, - lightweight multifunctional materials, - environmental or hazardous-gas monitoring in transportation settings.

Current status of similar technology-development work

- **DoT SBIR program: active.** DoT maintains an SBIR program page describing Phase I/II awards and the role of participating operating administrations.[3]
- **Graphene-specific topic: not found** in reviewed official DoT SBIR materials.
- **Transportation materials/sensing topics broadly: active program capability,** with topics issued in periodic solicitations aligned to modal needs.[3]

Typical vehicles and award sizes

- **SBIR Phase I:** generally up to **\$150,000 / ~6 months**. [3]
- **SBIR Phase II:** generally up to **\$1,000,000 / ~2 years**. [3]
- Any matching-fund or Phase IIB follow-on depends on the solicitation; no graphene-specific ceiling found.

Published contacts

- **DoT SBIR Program**
 - **Office:** Office of the Assistant Secretary for Research and Technology
 - **Email:** dotsbir@dot.gov
 - **Phone:** **not published** on the reviewed SBIR page
 - **Source:** <https://www.transportation.gov/ost-r/innovation/small-business-innovation-research-program> [3]

How a developing company would engage

- Watch the annual or periodic **DoT SBIR solicitation** and map CVD graphene to a modal topic statement.
- If no graphene-specific topic exists, engage during topic-development/outreach periods or discuss applicability with the published SBIR office email.
- Best for early TRL validation of sensors, coatings, or multifunctional materials.

2B) Volpe National Transportation Systems Center

Why this office would adopt or sponsor CVD graphene

Volpe is DoT's federal fee-for-service R&D and systems center, supporting sponsors across aviation, highways, transit, rail, maritime, pipelines, and emerging transportation systems.[4] Volpe could serve as: - a **technical evaluator** for graphene-enabled sensors or materials, - an **integration partner** for pilot demonstrations, - a manager of **test/evaluation contracts** on behalf of a modal administration.

Volpe is especially relevant when the need cuts across modes, such as infrastructure sensing, digital maintenance, or human/environmental safety testing.[4]

Current status of similar technology-development work

- **Volpe applied R&D support capability: active.**[4]
- **Graphene-specific BAA or program: not found** in reviewed official Volpe pages.
- **Cross-modal contract support for advanced sensing/materials:** plausible and consistent with mission, but no standalone graphene opportunity was found.

Typical vehicles and award sizes

- Volpe typically works through **interagency agreements**, sponsored R&D tasks, and contracts executed in support of customer agencies.[4]
- Public pages reviewed did not state graphene-relevant award ceilings.

Published contacts

- **General business/work-with-us contact route:** Volpe publishes “Work With Us” information, but a graphene-specific program manager is **not published**. [4]
- Named technical or contracting point specific to graphene: **not published**.

How a developing company would engage

- Usually **indirectly**, through the sponsoring modal administration or via Volpe’s business engagement channels.
- Best fit after identifying a modal sponsor that needs independent testing, systems engineering, or demonstration support.

3) Federal Aviation Administration (FAA)

Why FAA would sponsor or adopt CVD graphene

FAA’s mission covers aviation safety and the operation of the national airspace system.[7] CVD graphene fits FAA mission needs where it improves: - **aircraft structural health monitoring** and nondestructive evaluation; - **icing/de-icing, thermal management, or lightning/EMI protection** for aircraft structures and avionics; - **lightweight multifunctional materials** that affect airworthiness, durability, or maintenance; - **gas/chemical/environmental sensors** relevant to aviation safety or airport operations.

The most relevant sponsor level under FAA is the agency’s **research and development / acquisition functions**, especially the **William J. Hughes Technical Center** and FAA R&D programs, rather than operational field offices.[8][9]

3A) FAA Research, Engineering and Development / William J. Hughes Technical Center

Current status of similar technology-development work

- **FAA R&D capability and technical center infrastructure: active.**[8][9]
- **Graphene-specific BAA/RFP/program of record: not found** in reviewed FAA official pages.

- **Related work areas** such as aircraft fire safety, materials, structures, icing, human factors, and NAS safety R&D are **active program areas** at the Technical Center and FAA R&D enterprise.[8][9]

Typical vehicles and award sizes

- FAA uses **contracts, interagency agreements**, and research support vehicles; no graphene-specific ceiling found on reviewed pages.
- FAA research opportunities may appear through **SAM.gov**, agency announcements, or center-specific contract vehicles rather than a standing public graphene program.

Published contacts

- FAA public pages reviewed identify the **William J. Hughes Technical Center** and organizational points, but a published graphene-specific program manager or contracting officer was **not found**. [8][9]
- Named point of contact for graphene-related materials R&D: **not published**.

How a developing company would engage

- Monitor **SAM.gov** and FAA research announcements for topics involving aircraft materials, structural monitoring, icing, or sensor systems.
- Pursue **DoT SBIR** if an aviation-relevant topic appears.
- Engage FAA Technical Center stakeholders via published organizational channels when seeking test/evaluation relevance.

4) Federal Highway Administration (FHWA)

Why FHWA would sponsor or adopt CVD graphene

FHWA's mission includes improving the safety, mobility, and innovation of the Nation's highway infrastructure.[10] CVD graphene is a strong fit because FHWA funds and manages R&D on: - **bridge and pavement condition monitoring**; - **corrosion mitigation and protective systems** for steel/rebar and transportation structures; - **smart infrastructure sensing** for strain, cracking, moisture, and degradation; - **advanced construction materials** and long-life infrastructure technologies.

The practical office depth is **FHWA Office of Infrastructure Research and Development** and related Turner-Fairbank Highway Research Center (TFHRC) research programs, which are the clearest likely buyers/sponsors for materials and sensing development.[11][12]

4A) FHWA Office of Infrastructure R&D / Turner-Fairbank Highway Research Center

Current status of similar technology-development work

- **Infrastructure materials and sensing R&D capability: active** through TFHRC and FHWA infrastructure research offices.[11][12]
- **Exploratory Advanced Research (EAR) Program: active program capability** for higher-risk transportation research, including transformative concepts relevant to

advanced materials and sensing, though no graphene-specific current topic was confirmed on reviewed pages.[13]

- **Graphene-specific BAA/solicitation/program of record: not found** in reviewed official FHWA pages.
- **Related subject matter** such as advanced materials, infrastructure monitoring, and durability research is clearly active.[11][12][13]

Typical vehicles and award sizes

- **FHWA EAR Broad Agency Announcement / related research solicitations:** FHWA uses BAAs and research contracts for exploratory work; award sizes vary by solicitation. Public reviewed pages did not provide a standing graphene-specific ceiling.[13]
- **Contracts and task orders** supporting TFHRC programs are common.
- **Cooperative agreements / grants** may be used in some FHWA research and deployment programs, depending on the opportunity.

Published contacts

- **EAR Program organizational contact information** is published by FHWA, but a graphene-specific PM is **not published** on reviewed pages.[13]
- Named contracting/program contact for CVD graphene: **not published**.

How a developing company would engage

- Monitor **FHWA EAR** and TFHRC/FHWA research opportunity pages for advanced materials or sensing topics.
- Respond to **SAM.gov** solicitations supporting infrastructure monitoring, coatings, or durable materials.
- Use **DoT SBIR** for early-stage sensing/materials concepts; transition later to FHWA pilots or research contracts.

5) Federal Railroad Administration (FRA)

Why FRA would sponsor or adopt CVD graphene

FRA's mission is rail safety and rail-system development.[14] CVD graphene could support FRA interests in: - **track, bridge, and rolling stock structural health monitoring**; - **NDE/inspection sensors** for cracks, strain, heat, or corrosion; - **communications/electronics** for safer rail operations; - **fire safety/materials performance** in rail equipment or infrastructure.

The most relevant office depth is **FRA's Office of Research, Development and Technology**, which manages rail safety and technology-development work.[15]

5A) FRA Office of Research, Development and Technology

Current status of similar technology-development work

- **Rail technology R&D program: active.**[15]
- **Broad rail safety and infrastructure research topics: active capability.**
- **Graphene-specific BAA/topic/program of record: not found** in reviewed FRA official pages.
- **Rail Research and Development Center / testing support:** active institutional capability for evaluation and demonstration.[15]

Typical vehicles and award sizes

- FRA uses **research contracts, grants/cooperative agreements**, and at times competitive funding announcements depending on program authority.[15][16]
- No graphene-specific award ceiling found in reviewed official pages.

Published contacts

- FRA publishes organization-level information for the Office of Research, Development and Technology, but a graphene-specific program manager/contact was **not found**. [15]
- Named contracting point for graphene-related rail materials work: **not published**.

How a developing company would engage

- Track **FRA R&D** pages and **SAM.gov** for rail inspection, sensors, materials, and safety research opportunities.
- Use **DoT SBIR** for early TRL concepts that can later transition into FRA testing or demonstrations.

6) Federal Transit Administration (FTA)

Why FTA would sponsor or adopt CVD graphene

FTA supports public transportation systems, including safety, asset management, and innovation.[17] CVD graphene could be relevant to: - **transit asset-management sensing** for track, catenary, guideway, tunnels, stations, and bus depots; - **durable coatings/materials** that reduce lifecycle cost in harsh transit environments; - **battery, thermal, EMI, or electronics-adjacent uses** where transit vehicle reliability or safety is improved.

The practical office depth is **FTA research/innovation program offices**, especially innovation and demonstration functions rather than grant formula offices.[18]

Current status of similar technology-development work

- **FTA research and demonstration capability: active.**[18]
- **Graphene-specific solicitation/program of record: not found** in reviewed FTA official pages.

- **General innovation/demonstration programs** for transit technology are active, but no published current graphene vehicle was found.[18]

Typical vehicles and award sizes

- FTA commonly uses **grants/cooperative agreements** and demonstration funding under specific programs; size depends on NOFO.
- No graphene-specific award size was found in reviewed official pages.

Published contacts

- Graphene-specific PM or contracting officer: **not published**.
- Organization-level research contacts may be available per NOFO or program page, but no named graphene contact was found on reviewed pages.[18]

How a developing company would engage

- Watch FTA **NOFOs** and transit innovation/research pages for sensing, asset management, resilience, or advanced materials demonstrations.
- Partner with a transit agency/end user if a field demonstration is needed.

7) Pipeline and Hazardous Materials Safety Administration (PHMSA)

Why PHMSA would sponsor or adopt CVD graphene

PHMSA's mission is pipeline safety and hazardous materials safety.[19] This creates one of the clearest mission fits for CVD graphene in DoT because graphene can support: - **leak detection and gas sensing**; - **corrosion monitoring** and barrier/coating concepts for pipelines and storage assets; - **materials/liner/barrier enhancements** in hazardous-material containment; - **inspection and condition-monitoring tools** for integrity management.

The practical office depth is **PHMSA research and development / pipeline safety research functions**.[20]

Current status of similar technology-development work

- **PHMSA pipeline safety R&D capability: active**.[20]
- **Graphene-specific solicitation/topic/program of record: not found** in reviewed official PHMSA pages.
- **Related sensing, leak detection, and integrity-management research: active capability** consistent with published mission and R&D descriptions.[20]

Typical vehicles and award sizes

- PHMSA uses **contracts, grants**, and research partnerships depending on program authority.[20][21]
- No graphene-specific award ceiling found in reviewed official pages.

Published contacts

- Graphene-specific PM/CO: **not published**.
- Named public R&D contact specific to graphene was not found on reviewed official pages.

How a developing company would engage

- Monitor **PHMSA R&D** pages and **SAM.gov** for leak detection, corrosion, or integrity-monitoring topics.
 - Position graphene primarily as a **sensor/coating/integrity** technology, not as a generic nanomaterial.
-

8) Maritime Administration (MARAD)

Why MARAD would sponsor or adopt CVD graphene

MARAD promotes waterborne transportation, ports, and the U.S. marine transportation system.[22] CVD graphene is relevant to maritime needs because marine environments are highly corrosive and maintenance-intensive. Likely mission-fit applications include: - **anti-corrosion and barrier coatings** for ships, port equipment, and marine infrastructure; - **lightweight composites** for marine structures; - **sensing and monitoring** for hulls, port assets, tanks, and cargo environments.

The most relevant office depth is MARAD's **research/development and port/marine technology functions**, but public sources often stop at higher organizational levels.[22]

Current status of similar technology-development work

- **Marine transportation research/technology capability: active at organizational level.**[22]
- **Graphene-specific solicitation or program of record: not found** in reviewed MARAD official pages.
- Public evidence of a dedicated advanced-materials contracting office for graphene did not appear in the reviewed sources.

Typical vehicles and award sizes

- MARAD commonly uses **grants, cooperative agreements**, and contracts tied to specific port or marine programs.
- No graphene-specific award sizes found in reviewed official pages.

Published contacts

- Graphene-specific PM/contact: **not published**.

How a developing company would engage

- Engage through specific port, shipboard, or corrosion-resilience program opportunities when published.

- For maritime coatings and sensors, MARAD is more likely a **pilot/demonstration customer** than a standing graphene R&D sponsor.
-

9) National Highway Traffic Safety Administration (NHTSA)

Why NHTSA would sponsor or adopt CVD graphene

NHTSA focuses on vehicle safety.[23] CVD graphene is a weaker direct fit than for FHWA/FAA/PHMSA, but may matter in: - **vehicle sensing and electronics** relevant to crash avoidance or occupant protection; - **battery/fire/thermal/electromagnetic issues** where safety performance is implicated; - **test instrumentation** or standards-related vehicle safety measurements.

However, NHTSA public R&D contracting is more focused on safety analysis, testing, and rulemaking support than on sponsoring novel transportation materials platforms.[23][24]

Current status of similar technology-development work

- **Vehicle safety R&D capability: active.**[24]
- **Graphene-specific materials-development topic/program: not found** in reviewed official pages.
- Relative to other DoT modes, direct sponsorship likelihood appears lower.

Typical vehicles and award sizes

- NHTSA uses **contracts** for test, analysis, and safety research support; no graphene-specific vehicle found.

Published contacts

- Graphene-specific PM/contracting contact: **not published**.

How a developing company would engage

- Engage only if the graphene product is tightly linked to a **vehicle safety outcome** and can be tested within NHTSA's safety R&D framework.
-

10) Other modal administrations with lower relevance

Federal Motor Carrier Safety Administration (FMCSA)

FMCSA is primarily a safety-regulation and enforcement agency for commercial motor vehicles. Public reviewed sources did not indicate a likely direct technology-development buyer for CVD graphene. **Not prioritized.**

Great Lakes St. Lawrence Seaway Development Corporation / other small operating administrations

Public reviewed sources did not show a likely stand-alone graphene funding path. **Not prioritized.**

11) Acquisition and engagement pathways across DoT

Most likely practical pathways

1. **DoT SBIR** — best first route for a small business with an early-stage graphene-enabled sensor, coating, or multifunctional material tied to a modal problem.[3]
2. **FHWA / FRA / PHMSA / FAA research contracts or BAAs** — best for applied R&D once a transportation use case is specific and testable.[8][11][13][15][20]
3. **FTA or MARAD demonstration grants/cooperative agreements** — appropriate when adoption depends on field demonstration with an operator or infrastructure owner.[18][22]
4. **Volpe-supported evaluation** — useful when cross-modal test, systems engineering, or pilot assessment is needed.[4]
5. **Unsolicited proposal / capability briefings** — possible only where agency rules allow and where the concept is clearly unique; specific DoT-wide graphene procedures were not found in reviewed official pages, so use modal acquisition guidance and SAM.gov notices.

What to emphasize in outreach

Across DoT, graphene should be pitched in mission terms rather than as a novel material platform: - **For FHWA/FRA/FTA:** lower lifecycle cost, better asset visibility, real-time damage sensing, and corrosion/degradation management. - **For FAA:** safety qualification, structural/icing/lightning performance, and maintainability. - **For PHMSA:** leak detection sensitivity, corrosion/integrity monitoring, and hazardous-environment durability. - **For MARAD:** corrosion resistance and reduced maintenance burden.

Recommendation summary by office

Office	Why CVD graphene fits	Similar-work status	Typical vehicle	Published contact
DoT SBIR (OST-R)	Cross-modal sensors, coatings, materials, condition monitoring	Active SBIR program; graphene-specific topic not found	SBIR Phase I/II	dotsbir@dot.gov [3]
FHWA Office of Infrastructure R&D / TFHRC	Smart infrastructure, corrosion, bridge/pavement monitoring, advanced materials	Active research capability; graphene-specific BAA not found	BAA, research contract, SBIR transition	not published [11][13]

Office	Why CVD graphene fits	Similar-work status	Typical vehicle	Published contact
FAA R&D / William J. Hughes Technical Center	Aircraft materials, SHM, icing, lightning/EMI, aviation sensors	Active R&D capability; graphene-specific solicitation not found	Research contracts, SBIR, test/eval support	not published [8][9]
FRA Office of Research, Development and Technology	Rail asset monitoring, NDE, materials safety	Active R&D capability; graphene-specific topic not found	Research contracts, grants/cooperative agreements, SBIR transition	not published [15]
PHMSA R&D / pipeline safety research	Leak detection, corrosion monitoring, barrier materials	Active R&D capability; graphene-specific topic not found	Research contracts, grants, SBIR transition	not published [20]
FTA research/innovation offices	Transit asset management, resilient materials, sensors	Active innovation capability; graphene-specific opportunity not found	NOFO, cooperative agreement, pilot demo	not published [18]
MARAD technology/research functions	Marine coatings, corrosion protection, composites, port sensing	Active organizational relevance; graphene-specific opportunity not found	Grants, contracts, pilot demos	not published [22]
Volpe Center	Cross-modal evaluation, systems engineering, test support	Active support capability; graphene-specific vehicle not found	Sponsored R&D support, contract tasks	not published [4]

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- [5] U.S. Department of Transportation, “Office of Procurement and Grant Services / Office of the Senior Procurement Executive” or procurement operations pages, <https://www.transportation.gov/mission/office-procurement-operations>
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[22] Maritime Administration, “About MARAD” and related program pages, <https://www.maritime.dot.gov/about-marad>

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Environmental Protection Agency (EPA) — CVD Graphene Organization-Adoption Briefing

Research in progress: browser session unavailable in this run, so this placeholder should be replaced with sourced findings before delivery.

Intelligence Community (IC) and CVD graphene: organization-adoption briefing

Scope and method

This briefing stays within publicly acknowledged U.S. Intelligence Community research-buying organizations and only names unclassified offices, solicitations, and published acquisition channels. It focuses on the parent IC organization and the offices under it most likely to sponsor or adopt chemical-vapor-deposition (CVD) graphene for sensing, RF, photonics, thermal management, advanced packaging, flexible electronics, or low-observable/space-electronics use cases. Sources are official agency pages first, with SBIR.gov and SAM.gov-style official procurement channels referenced where relevant.

Top-line assessment

Within the IC, **IARPA** is the clearest publicly acknowledged early-stage sponsor for graphene-relevant research because it openly funds high-risk microelectronics, quantum, sensing, photonics, materials, and compute-enabling work through program-specific solicitations and its Broad Agency Announcement (BAA). **ODNI's Science and Technology Group / IC technical coordination functions** can shape priorities and convene transition paths, but public contracting detail is thinner. Among mission agencies, the most plausible unclassified adopters are the open acquisition and SBIR/research arms of **NSA, NGA, and NRO**, especially where graphene could improve RF performance, cryogenic/quantum interfaces, ISR sensor materials, radiation-tolerant or low-mass space components, thermal spreading, and advanced semiconductor packaging. CIA's public-facing contracting channels are real but its published technical buying details are comparatively sparse. Across the IC, direct "CVD graphene" topics are uncommon in public solicitations; engagement is more likely through broader microelectronics, advanced materials, RF, sensing, photonics, and space-hardware topics than through a graphene-named program.[1][2][3][4][5][6][7]

1) Office of the Director of National Intelligence (ODNI)

Relevant subgroup: ODNI Science & Technology / Research coordination functions

Why this office would sponsor or adopt CVD graphene

ODNI's S&T role is to identify, coordinate, and accelerate technologies relevant to Intelligence Community missions. Public ODNI descriptions emphasize cross-IC science and technology coordination, horizon scanning, and support to intelligence needs rather than direct large-scale production buying. That mission fits graphene where the material could improve collection systems, edge processing, RF front ends, EO/IR sensor interfaces, or secure microelectronics packaging for multiple IC elements.[8][9]

Current status of similar technology-development work

- **General IC research coordination / S&T role** — **active**, but publicly detailed graphene-specific contracting opportunities were **not found** on ODNI pages reviewed.[8][9] - **Direct ODNI BAA / SBIR for graphene** — **not found** in public-facing ODNI research pages reviewed.[8][9]

Typical vehicles and award sizes

- Public ODNI research pages reviewed describe the research function and links to IC innovation activity, but **did not publish a standalone ODNI graphene-specific BAA, SBIR topic, or public topic ceiling** in the sources reviewed.[8][9]

Published contacts

- Specific ODNI S&T program-manager contact details for graphene-relevant topics: **not published** in the sources reviewed.[8][9]

How a company would actually engage

- Track ODNI-linked IC research and transition pathways, but expect **actual contracting to occur through IARPA or component agencies** rather than through a public ODNI graphene office.[8][9]

2) Intelligence Advanced Research Projects Activity (IARPA)

Relevant subgroup: IARPA program offices and Office of Strategic Engagement / “Work With Us” acquisition channels

Why this office would sponsor or adopt CVD graphene

IARPA exists to fund high-risk, high-payoff research for future intelligence capabilities. Its “Work With Us” and research-participation materials show that it uses BAAs, program solicitations, proposers’ days, and R&D contracting to pursue transformative technology. CVD graphene fits IARPA when positioned as an enabling material for ultra-low-noise sensing, novel photonics, RF devices, neuromorphic/advanced compute hardware, cryogenic interfaces, secure microelectronics, or high-performance detectors.[1][10]

Current status of similar technology-development work

- **IARPA Broad Agency Announcement / research opportunities — active.** IARPA publicly instructs performers to monitor SAM.gov and its opportunities pages for current BAAs and program solicitations.[1][10] - **Graphene-named IARPA program — not found** in current public materials reviewed.[1][10] - **Adjacent topics (microelectronics, materials, photonics, sensing, quantum-enabling hardware) — active as a category,** though availability depends on current posted solicitations rather than a standing graphene line item.[1][10]

Typical vehicles and publicly stated award sizes or ceilings

- **Broad Agency Announcements (BAAs) and program-specific solicitations** are IARPA’s standard public R&D vehicles.[1][10] - Public “Work With Us” guidance explains the channel, but **does not provide a single uniform award ceiling** because values depend on each solicitation.[1][10] - For exact dollar values, companies must inspect the live notice on **SAM.gov** or the specific program package, where estimated award counts and values are usually stated.[1][10]

Published contacts

- IARPA public opportunities pages provide solicitation-specific contacts when a program is live; however, a standing public graphene point of contact was **not published** in the sources reviewed.[1][10] - Named generic office/channel: **IARPA Office of Strategic Engagement / Work With Us** — contact details are solicitation-dependent; for a graphene effort, rely on the POC in the active notice.[1][10]

How a company would actually engage

- **Primary route:** respond to an **IARPA BAA** or **program-specific solicitation** on SAM.gov/IARPA opportunities pages.[1][10] - **Secondary route:** attend **Proposers’ Days / industry engagement events** when a relevant program is announced.[1][10] - **Practical**

positioning: pitch graphene as a material-enabler inside a mission problem statement, not as a commodity material platform.

3) Central Intelligence Agency (CIA)

Relevant subgroup: CIA public contracting / procurement channels

Why this office would sponsor or adopt CVD graphene

CIA's open contracting face exists to acquire technologies supporting intelligence collection, analysis, technical operations, and enabling infrastructure. CVD graphene could fit if framed for specialty sensors, low-size-weight-and-power electronics, thermal spreading, or hardened technical systems. Public CIA pages, however, generally describe contracting access rather than publishing deep open research topic detail.[3]

Current status of similar technology-development work

- **Public contracting channel** — **active** via CIA "Work with CIA / Contracting." [3] - **Open CIA graphene-specific BAA, SBIR, or named advanced-material topic** — **not found** in the public CIA sources reviewed.[3]

Typical vehicles and award sizes

- CIA's public page describes how to do business and register interest, but **did not publish a public graphene-specific R&D vehicle or topic ceiling** in the sources reviewed.[3]

Published contacts

- Program-manager or advanced-material technical buyer for graphene: **not published** on the public CIA contracting page reviewed.[3]

How a company would actually engage

- Use the **CIA public contracting / vendor engagement channel** and watch for public notices; expect any transition to occur through standard procurement notices rather than an openly advertised graphene program.[3]

4) National Security Agency (NSA)

Relevant subgroup: NSA Research Directorate / NSA SBIR / NSA technology partnership channels

Why this office would sponsor or adopt CVD graphene

NSA's mission spans signals intelligence and cybersecurity, both dependent on advanced microelectronics, RF hardware, cryogenic/quantum-adjacent devices, secure packaging, and high-performance compute components. Graphene is mission-fit if it materially improves RF front ends, THz/IR detection, interconnects, thermal management, or specialty semiconductor structures relevant to SIGINT or secure processing.[4][11][12]

Current status of similar technology-development work

- **NSA SBIR/STTR program** — **active** when open cycles are posted through SBIR.gov and NSA participation pages.[11][12] - **NSA Centers of Excellence / research partnerships** — **active** as collaboration structures, though not themselves contract awards.[4] - **Graphene-specific NSA topic** — **not found** in public pages reviewed. - **Adjacent microelectronics / hardware security / advanced materials topics** — potentially relevant; must be checked topic-by-topic in current NSA SBIR and research announcements.[4][11][12]

Typical vehicles and publicly stated award sizes or ceilings

- **SBIR/STTR topics** via the federal SBIR process when NSA participates.[11][12] - Standard federal **SBIR award structure** applies when NSA topics are issued; exact ceilings depend on the current SBIR policy directive and topic release. - **Research partnerships / academic centers** may support collaboration but are not the main direct vehicle for a commercial material supplier.[4]

Published contacts

- NSA public research partnership pages identify institutional programs, but a specific public program manager for graphene-relevant contracting was **not published** in the sources reviewed.[4][11][12]

How a company would actually engage

- **Best open route:** monitor **NSA SBIR topics** on SBIR.gov and NSA's business/research pages.[11][12] - **Alternative:** engage via published NSA research/partnership channels when a topic aligns with secure hardware, microelectronics, or sensing.[4]

5) National Geospatial-Intelligence Agency (NGA)

Relevant subgroup: NGA Research / InnoVision / public “Doing Business with NGA” and SBIR-facing channels

Why this office would sponsor or adopt CVD graphene

NGA's GEOINT mission depends on advanced sensing, imagery exploitation, geospatial analytics, and resilient ISR-related hardware. CVD graphene could matter where it enables lighter sensor subsystems, improved detector interfaces, flexible or conformal sensing surfaces, better RF/antenna performance, thermal management for ISR electronics, or novel photonics for collection platforms.[5][13]

Current status of similar technology-development work

- **Doing Business with NGA / public acquisition channel** — **active**. [5] - **NGA innovation / research engagement structures** — **active** where posted. [5][13] - **Graphene-specific NGA BAA or SBIR topic** — **not found** in the public sources reviewed. - **Adjacent sensing, geospatial exploitation, advanced hardware topics** — plausible, but must be matched to current NGA notices and topic calls. [5][13]

Typical vehicles and publicly stated award sizes or ceilings

- Public NGA business pages describe routes to work with the agency, but a **uniform public award ceiling for graphene-relevant work was not published** in the sources reviewed.[5] - Where NGA uses challenge, BAA-like, or contracting notices, values are solicitation-specific.

Published contacts

- A named graphene-relevant program manager or contracting point was **not published** in the specific NGA pages reviewed.[5][13]

How a company would actually engage

- Start with **NGA's public business/innovation engagement channels** and respond to open solicitations that map graphene to ISR sensing or enabling electronics rather than to "materials" in the abstract.[5][13]

6) National Reconnaissance Office (NRO)

Relevant subgroup: NRO Acquisition and Research Center / public business and innovation channels

Why this office would sponsor or adopt CVD graphene

NRO develops and acquires overhead intelligence systems, making it one of the strongest mission fits inside the IC for advanced materials that improve size, weight, power, thermal stability, radiation tolerance, survivability, deployable sensors, and high-frequency electronics in space. CVD graphene is relevant if presented for lightweight conductive layers, thermal spreaders, advanced sensor materials, specialty RF components, or space-qualified electronics packaging.[6][14]

Current status of similar technology-development work

- **NRO Acquisition and Research Center / business with NRO channel — active.**[6][14]
- **Graphene-specific NRO BAA or open solicitation — not found** in the public sources reviewed. - **Adjacent space hardware, advanced component, and sensing opportunities — plausibly active** through posted NRO business notices, but not graphene-named in reviewed materials.[6][14]

Typical vehicles and publicly stated award sizes or ceilings

- NRO public business pages describe acquisition/research engagement, but **did not publish a standing public graphene award size or topic ceiling** in the sources reviewed.[6][14] - Award values are typically solicitation-specific.

Published contacts

- Graphene-relevant program manager or contracting officer: **not published** in the reviewed public materials.[6][14]

How a company would actually engage

- Use **NRO's public business / acquisition research channels** and target mission-specific space hardware problems rather than proposing graphene as a generic platform.[6][14]

7) Service intelligence open research faces

Relevant subgroup: Army, Navy, Air Force intelligence-linked research pathways (only where publicly acknowledged and open)

Why these offices would sponsor or adopt CVD graphene

Service intelligence functions consume ISR, EW, sensing, and secure electronics technology, but their open technology-buying channels usually sit in the service research organizations rather than inside intelligence headquarters. Because this briefing is constrained to IC and publicly acknowledged research buyers under or linked to intelligence, the strongest open routes remain IARPA and component-agency business/research pages. Publicly acknowledged service-intelligence-specific graphene buyers were **not clearly published** in the sources reviewed.

Current status

- **Specific service-intelligence office issuing graphene R&D solicitations — not found** in the public IC-facing sources reviewed.

How a company would actually engage

- If targeting intelligence use cases with service equity, start with **IARPA** or the relevant component agency open R&D channel, then transition to service labs only if a public solicitation explicitly links the requirement.

Cross-IC funding and contracting vehicles most relevant to CVD graphene

1. Broad Agency Announcements (BAAs)

The dominant open IC vehicle for advanced, pre-program-of-record R&D is the **BAA**, especially at **IARPA**.^{[1][10]}

2. SBIR/STTR

For IC components that participate publicly, **SBIR/STTR** is the most startup-accessible route, especially at **NSA** and occasionally through other defense-intelligence-adjacent entities using federal topic releases.^{[11][12]}

3. Standard procurement notices / SAM.gov opportunities

Mission agencies such as **CIA**, **NGA**, and **NRO** maintain business-with-us channels, with opportunities and instructions often routed through standard federal acquisition postings or agency vendor portals.^{[3][5][6][14]}

4. Research partnerships / innovation outreach

NSA Centers of Excellence and similar outreach mechanisms can help with positioning and networking but are usually **not substitutes for the actual contracting vehicle**.^[4]

Recommendation matrix

IC office	Why CVD graphene fits	Publicly visible similar-work status	Likely vehicle	Public award size info	Published contact status
ODNI S&T / IC research coordination	Cross-IC enabling tech for sensing, microelectronics, packaging	S&T coordination active; graphene-specific contracting not found	Coordination, downstream referrals	Not found publicly in reviewed sources	Not published
IARPA	High-risk, high-payoff enabling materials for sensors, RF, photonics, compute	Active BAAs/solicitations; graphene-named program not found	BAA, program solicitation	Solicitation-specific	Solicitation-specific; no standing graphene PM published
CIA contracting	Specialty technical systems, sensing, SWaP, hardened electronics	Contracting channel active; graphene-specific work not found	Procurement notice / vendor engagement	Not found	Not published
NSA research / SBIR	RF, secure hardware, microelectronics, cryogenic/quantum-adjacent	SBIR/research channels active; graphene-specific topic not found	SBIR/STTR, research announcements	Topic-specific / federal SBIR ceilings	Not published
NGA innovation / business channels	GEOINT sensors, detector interfaces, conformal sensing, thermal/RF	Active business channels; graphene-specific topic not found	Open solicitation / innovation call	Solicitation-specific	Not published
NRO acquisition/research	Space sensors, low-mass electronics, thermal and RF materials	Active business channels; graphene-specific topic not found	Open solicitation / acquisition research notices	Solicitation-specific	Not published

Practical engagement advice

1. **Lead with mission hardware effects, not with graphene as a material.** The IC's open channels buy capabilities: better detector sensitivity, lower RF loss, smaller cryogenic interfaces, lighter thermal spreaders, or more survivable space electronics.[1][5][6][10][14]
 2. **Prioritize IARPA first for early TRL work.** It is the clearest public IC R&D buyer for unconventional enabling materials.[1][10]
 3. **Use NSA SBIR if a topic appears that can absorb graphene as an enabling layer.** Don't wait for a topic titled "graphene"; match to secure hardware, RF, sensing, or advanced packaging.[11][12]
 4. **For NGA and NRO, map directly to ISR or space payload pain points.** Public evidence suggests these agencies are likelier adopters through mission-specific hardware opportunities than through a standalone materials line.[5][6][14]
 5. **Expect many contacts to be solicitation-specific or unpublished.** Where public sources stop at the office or portal level, that is the deepest reliable attribution available.
-

Sources

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5. NGA, "Doing Business with NGA."
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7. ODNI public research/S&T pages. <https://www.odni.gov/index.php/who-we-are/organizations/ic-cao/ic-cao-related-menus/research>
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 10. IARPA, opportunities and acquisition guidance on Work With Us / SAM-linked solicitation process. <https://www.iarpa.gov/work-with-us>
 11. NSA SBIR/STTR program pages and federal topic posting pathways. <https://www.nsa.gov/Business/Programs/Small-Business-Programs/>
 12. SBIR.gov, agency/topic portal including NSA participation. <https://www.sbir.gov/>
 13. NGA innovation/research/business public pages. <https://www.nga.mil/>
 14. NRO, business and innovation public pages. <https://www.nro.gov/Business-Innovation/>
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National Aeronautics and Space Administration (NASA): organization-adoption briefing for CVD graphene

Scope and framing

This briefing stays inside NASA and descends only to the mission directorate, named program, or center technology office level that would plausibly sponsor, manage, or adopt technology-development work relevant to chemical-vapor-deposited (CVD) graphene. It does **not** survey industry performers. Citations prioritize NASA, SAM.gov, Grants.gov, and the official NASA SBIR/STTR site.

Parent organization: NASA

NASA has several mission directorates and agency-level technology/funding channels that can sponsor advanced materials relevant to spacecraft, instruments, habitats, aviation, and in-space systems. For CVD graphene, the strongest fit is where NASA publicly solicits enabling materials for lightweight structures, thermal management, electronics/sensors, energy storage, radiation tolerance, and durable coatings. NASA's technology-development entry points are primarily the **NASA SBIR/STTR program**, **Space Technology Mission Directorate (STMD) solicitations**, center-managed **Research Opportunities in Space and Earth Science (ROSES)** when tied to instruments or detectors, and center procurement or BAAs where published. NASA also accepts **unsolicited proposals** under the NASA Grant and Cooperative Agreement Manual framework and maintains a public **SBIR/STTR Program Management Office** for directed engagement.[1][2][3]

1) Space Technology Mission Directorate (STMD)

Why this office would adopt or sponsor CVD graphene

STMD is NASA's mission directorate for crosscutting, high-payoff technology maturation for future exploration and operations. CVD graphene fits STMD's mission where the material enables lower-mass and higher-performance thermal spreaders, electromagnetic shielding, sensors, membranes, transparent conductors, flexible electronics, power devices, energy storage, or multifunctional composites for space systems. NASA describes STMD as the home for developing transformational space technologies and runs the agency SBIR/STTR program from this technology enterprise.[1][4]

1A) NASA SBIR/STTR Program Office (agency-level, managed under STMD)

Mission fit for CVD graphene

NASA's SBIR/STTR subtopics repeatedly include advanced materials, structures, sensors, electronics, thermal control, dust-tolerant surfaces, energy storage, and avionics packaging. A CVD graphene developer would fit here when proposing a space-relevant component or subsystem rather than a commodity material alone.[2][5]

Current status of similar work - NASA SBIR/STTR 2025 Phase I solicitation — active/recently active by fiscal cycle depending on date; NASA's official solicitations page publishes current open and archived topics.[2] - **Recent and archived subtopics in advanced materials / nanomaterials / thermal management / sensors — recently expired or archived**, but directly relevant as evidence of NASA demand. NASA archives prior-year subtopics and selections through the official SBIR portal.[2][5] - **Examples of similar NASA-selected work** in graphene or 2D-material-enabled devices may appear in the NASA SBIR portfolio search and annual selections; those should be treated as **historical awards**, not evidence of a currently open topic unless the solicitation page shows it open.[2][6]

Typical vehicles and award sizes - SBIR/STTR Phase I and Phase II are NASA's standard vehicles for early technology development and prototype maturation.[2] - NASA's solicitation page states current program structures and ceilings for each year; recent NASA SBIR/STTR solicitations commonly provide Phase I awards on the order of **hundreds of thousands of dollars** and Phase II awards around **\$850,000 to \$2 million+ depending on year and topic structure**. Offerors must verify exact ceilings in the current solicitation because NASA updates them annually.[2] - NASA also uses **sequential Phase II, Phase III/commercial follow-on**, and post-Phase-II transition mechanisms where available in the solicitation or program guidance.[2]

Published contacts - NASA SBIR/STTR Program Management Office — public contact page published by NASA SBIR/STTR:

- Office: NASA SBIR/STTR Program Management Office

- Email: **agency-sbir@mail.nasa.gov**

- Phone: **not published on the cited contact page**

- Source: NASA SBIR/STTR Contact page.[3] - **Center SBIR/STTR points of contact** are listed publicly by center on the NASA SBIR/STTR contact page; use the current page for

center-specific names because NASA updates them.[3] - A named topic manager or program executive for a specific graphene-relevant subtopic is often **not published until the solicitation**; if not shown in the topic text, it is **not published**.[2]

How a company would engage - Primary route: **respond to NASA SBIR/STTR topics/subtopics** through the NASA SBIR portal.[2] - Practical positioning: align a CVD graphene product to a specific NASA use case such as thermal straps/spreaders, multifunctional composite films, radiation/atomic-oxygen-resistant coatings, transparent heaters, EMI shielding, flexible sensors, or low-mass conductors. - Secondary route: contact the published **NASA SBIR/STTR PMO** or relevant **center SBIR representative** before release windows to understand where NASA expects advanced-material responses.[3]

1B) STMD technology programs and solicitations page

Mission fit for CVD graphene

STMD's solicitations/prizes page is the agency entry point for open technology opportunities including prizes, announcements, and NASA technology calls. CVD graphene would fit when a call is structured around enabling components, materials processing, thermal management, electronics, or lightweight systems rather than basic materials science alone.[4]

Current status of similar work - STMD Solicitations and Prizes page — active as a portal, but technology-specific opportunities vary by cycle.[4] - **Tipping Point / Announcement of Collaboration Opportunity / Flight Opportunities / NIAC / Centennial Challenges** — these are real STMD mechanisms, though not all are suitable for graphene. For a CVD graphene company, the most relevant are generally technology maturation calls and prize/challenge calls if they specify applicable hardware or material-performance outcomes. Current graphene-specific calls were **not found** on the general STMD portal from the cited sources; monitor the official page.[4]

Typical vehicles and award sizes - Prizes/challenges: award amounts vary widely and are stated in each challenge notice.[4] - **Technology solicitations/cooperative agreements/contracts**: values vary by call; STMD pages direct proposers to solicitation-specific terms.[4] - Because STMD uses multiple vehicles, exact ceilings for graphene-relevant work are **call-specific and not uniform**.[4]

Published contacts - Program-manager-level contacts for STMD opportunity pages are usually **solicitation-specific** and otherwise **not published** centrally for each material area.[4]

How a company would engage - Monitor **STMD solicitations and prizes** and engage only when a call names a hardware infusion path aligned to graphene-enabled performance.[4] - If no fit exists, use SBIR/STTR first, then pursue follow-on infusion with the relevant STMD or center customer.

2) Science Mission Directorate (SMD)

Why this office would adopt or sponsor CVD graphene

SMD funds space and Earth science instruments, detectors, and mission-enabling technologies. CVD graphene can fit SMD where it improves detector interfaces, transparent electrodes, lightweight high-conductivity structures, membranes, cryogenic or radiation-tolerant electronics, or sensor coatings used in scientific payloads. SMD's main competed research vehicle is **ROSES**.^[7]

2A) SMD via ROSES (Research Opportunities in Space and Earth Science)

Mission fit for CVD graphene

ROSES includes program elements for instrument technology, detector development, and mission-enabling science hardware. A graphene proposal would need to be framed as mission-enabling instrumentation technology or a science-use component, not materials work in the abstract.^[7]

Current status of similar work - ROSES omnibus NRA — active by annual cycle; NASA updates ROSES each year and posts amendments as program elements open/close.^[7] - Graphene-specific program elements were **not found as a standing named line item** in the cited high-level sources; the likely fit is under detector/instrument/technology elements when a specific payload use case is identified.^[7]

Typical vehicles and award sizes - Grants/cooperative agreements under ROSES.

Award sizes are **program-element specific** and stated in each appendix; no single SMD-wide ceiling applies.^[7]

Published contacts - ROSES program officers are listed inside the specific appendices and NSPIRES notices. At the SMD/ROSES overview level, a dedicated graphene contact is **not published**.^[7]

How a company would engage - Engage through **NSPIRES/ROSES** only if the graphene work is tied to a specific science instrument or detector application. For most commercial graphene developers, this is a secondary path behind SBIR/STTR.^[7]

3) Exploration Systems Development Mission Directorate (ESDMD)

Why this office would adopt or sponsor CVD graphene

ESDMD develops and operates systems for Moon-to-Mars exploration, including habitat, logistics, mobility, and related hardware. CVD graphene is relevant where it improves surface-system mass, thermal management, power storage, structural multifunctionality, or crew-system durability. ESDMD itself is mission-focused, but technology-development contracting for early-stage materials often occurs through STMD, center technology offices, or SBIR before infusion into exploration programs.^[8]

3A) Human health, habitation, and surface-system technology needs via exploration-associated programs

Current status of similar work - ESDMD is a strong **adoption customer** but a weaker publicly visible originator of early-stage graphene solicitations. In the public sources reviewed, a standing ESDMD-specific graphene solicitation was **not found**. - Relevant work is more likely to appear through **STMD programs, SBIR/STTR**, or center directorates supporting exploration hardware than through a dedicated ESDMD materials BAA.[2][4][8]

Typical vehicles and award sizes - For early-stage work: typically **SBIR/STTR** or STMD technology calls.

- For later infusion: program procurement is possible, but public award sizes and open calls are **program-specific and not uniformly published** at the ESDMD top level.[8]

Published contacts - A graphene-specific ESDMD materials point of contact was **not published** in the cited sources. Public program leadership exists, but not necessarily the contract manager for a graphene effort.[8]

How a company would engage - Use **SBIR/STTR or STMD** to mature the technology, then seek **infusion discussions with exploration program or center engineering organizations** once performance data is space-relevant.

4) Aeronautics Research Mission Directorate (ARMD)

Why this office would adopt or sponsor CVD graphene

ARMD sponsors aviation technologies including lightweight structures, advanced air vehicle materials, sensors, thermal management, electrified aircraft systems, and EMI/lightning protection concepts. CVD graphene can fit as a low-mass conductor, sensor layer, de-icing/heating element, barrier layer, or thermal/electrical enhancement for aeronautics structures and systems.[9]

4A) ARMD-relevant NASA SBIR/STTR topics and center aeronautics technology work

Current status of similar work - Publicly visible graphene-specific ARMD contracting opportunities were **not found** at the mission-directorate level in the cited high-level pages. - The most practical ARMD path is via **NASA SBIR/STTR subtopics** tied to aeronautics materials, advanced structures, icing, sensors, or electrified propulsion packaging when those appear in the annual solicitation.[2][9]

Typical vehicles and award sizes - Primarily **SBIR/STTR** for early-stage development; exact award levels follow the current NASA solicitation ceilings.[2] - Additional research grants or cooperative agreements may exist through ARMD-related NRA calls, but those are **call-specific**.[9]

Published contacts - Directorate-level public leadership exists, but named program-manager contacts for graphene-related materials opportunities are generally **not published** outside each solicitation.[9]

How a company would engage - Watch **NASA SBIR/STTR** and, secondarily, ARMD-related NRAs for materials/sensors/electrified-aircraft topics. Frame graphene around aviation certification-relevant performance metrics, not generic nanomaterial properties.[2][9]

5) Space Operations Mission Directorate (SOMD)

Why this office would adopt or sponsor CVD graphene

SOMD operates space communications, launch-support, and in-space operational infrastructure. CVD graphene could matter for durable sensors, thermal control, lightweight EMI shielding, antenna/radome functions, or avionics packaging where operational systems benefit from mass and reliability improvements.[10]

5A) SOMD as adoption customer rather than primary early-stage sponsor

Current status of similar work - A standing SOMD-originated graphene development opportunity was **not found** in the cited sources. - If relevant, SOMD would more likely **adopt** a graphene-enabled part after maturation under **STMD/SBIR** or through center procurement supporting operations infrastructure.[2][10]

Typical vehicles and award sizes - No standardized SOMD graphene vehicle was found publicly. Likely paths are **follow-on procurement, center-managed contracts**, or **SBIR Phase III** after technical validation.[2][10]

Published contacts - Graphene-specific program contacts were **not published** in the cited sources.[10]

How a company would engage - Treat SOMD as a downstream user. First mature through **SBIR/STTR** or another NASA technology call, then pursue operation-specific infusion.

6) Center technology offices that matter when they own the contract

Under the user's depth rule, centers should be named only where they are the likely contracting or technology-management office. For CVD graphene, two center-level entry points are repeatedly visible in NASA public sources:

6A) NASA Langley Research Center (LaRC) — procurement / technology for advanced materials and structures

Why this office would sponsor or adopt CVD graphene

Langley leads major work in advanced structures, composites, sensors, aerosciences, and aeronautics systems. Graphene-enabled films, coatings, sensors, or multifunctional composites can fit Langley's materials/structures mission areas.[11]

Current status of similar work - Langley appears regularly in NASA SBIR/STTR topic and center-contact structures.

- Center-specific open procurements are **opportunity-specific**; a standing LaRC graphene BAA was **not found** in the cited high-level sources. Use SAM.gov and NASA solicitation pages case by case.[3][11]

Typical vehicles and award sizes - NASA SBIR/STTR with LaRC-relevant topics.

- **Center procurements / SAM.gov solicitations** where published.

- No uniform public center ceiling for graphene-specific work was found.[2][11]

Published contacts - Center SBIR/STTR contacts are listed on NASA SBIR/STTR's contact page; proposers should use the current published center contact there.[3] - Contracting-office directories may be published by the center, but a graphene-specific point of contact is **not published** absent a solicitation.[11]

How a company would engage - Use **SBIR/STTR** first; if a LaRC technical customer emerges, track **SAM.gov** and center procurement notices for follow-on.

6B) NASA Glenn Research Center (GRC) — power, thermal, electronics, and materials

Why this office would sponsor or adopt CVD graphene

Glenn's public mission includes power, propulsion, thermal systems, communications, and materials, making it a strong technical home for graphene-enabled thermal spreaders, conductors, energy devices, or sensor components.[12]

Current status of similar work - GRC-relevant NASA SBIR/STTR opportunities appear through annual subtopics; a standing GRC-only graphene BAA was **not found** in the cited sources.[2][3][12]

Typical vehicles and award sizes - Primarily **SBIR/STTR**, then center/program follow-on awards where justified.

- No center-specific graphene ceiling was publicly found outside solicitation terms.[2][12]

Published contacts - Use the current **NASA SBIR/STTR center contact listing** for Glenn.

- A dedicated graphene program manager is **not published** in the cited sources.[3][12]

How a company would engage - Position CVD graphene for **thermal control, power-system packaging, or high-performance electronics interfaces** under SBIR; then seek Glenn technical championing.

Similar-technology status summary

NASA office	Why CVD graphene fits	Similar technology-development status	Vehicle(s)	Public contact status
STMD → NASA SBIR/STTR Program Office	Crosscutting space technology: thermal, sensors, materials, electronics, structures	Active by annual cycle; current and archived solicitations show repeated opportunities in advanced materials and related hardware areas[2][5]	SBIR/STTR Phase I, II, Phase III[2]	Published PMO email and center contacts[3]
STMD → Solicitations and Prizes	Technology maturation and challenge pathways	Active portal; graphene-specific call not found in general portal[4]	Prizes, announcements, collaboration opportunities, other STMD calls[4]	Solicitation-specific; otherwise not published [4]
SMD → ROSES	Graphene for detectors/instruments/science hardware	Active by annual cycle; graphene-specific standing element not found [7]	Grants/cooperative agreements via ROSES/NSPIRES[7]	Appendix-specific; otherwise not published [7]
ESDMD	Exploration systems as downstream adopter	Public graphene-specific early-stage solicitation not found [8]	Usually SBIR/STTR or STMD first; later program infusion[2][8]	Not published
ARMD	Aeronautics materials, sensors, electrified systems	Directorate-level graphene solicitation not found ; likely via SBIR topics[2][9]	SBIR/STTR; occasional NRAs[2][9]	Mostly solicitation-specific; otherwise not published
SOMD	Operational systems as downstream adopter	Public graphene-specific solicitation not found [10]	Follow-on procurement, center contract, or SBIR Phase III[2][10]	Not published

NASA office	Why CVD graphene fits	Similar technology-development status	Vehicle(s)	Public contact status
Langley / Glenn center technology customers	Structures, thermal, electronics, materials	Customer/technical-home role visible; center-only graphene BAA not found [11][12]	SBIR/STTR, SAM.gov center procurements[2][11][12]	Center contacts via NASA SBIR page; graphene POC not published [3]

Practical engagement path for a CVD graphene developer

1. **Lead with NASA SBIR/STTR under STMD.** This is the clearest, recurring, publicly documented NASA entry path for early-stage graphene-enabled hardware.[2][3]
2. **Propose a component with NASA mission metrics,** not graphene as a raw material. Strong examples: thermal spreaders, EMI shielding films, transparent heaters, multifunctional composite skins, flexible strain or chemical sensors, or low-mass conductors for space or aeronautics use.[1][2][5]
3. **Map the application to a likely technical customer:** Glenn for thermal/power/electronics, Langley for structures/sensors/aeronautics, or a science instrument office under ROSES if tied to a payload.[7][11][12]
4. **Use STMD solicitations/prizes opportunistically** if a non-SBIR call names a relevant transition target; otherwise treat it as secondary to SBIR.[4]
5. **Treat ESDMD, SOMD, and much of ARMD as adopters/integration customers,** not necessarily the first sponsor for material maturation.[8][9][10]
6. **If no topic fits, consider an unsolicited proposal** through NASA's proposal and grants framework, but only when the effort is clearly unique and mission-justified; unsolicited proposals are harder to place than SBIR/STTR.[13]

Published contacts table

Name	Title	Office	Email	Phone	Source
not published	Topic manager for graphene-relevant SBIR subtopic	NASA SBIR/STTR	not published	not published	Current topic texts vary by solicitation; use NASA SBIR portal[2]
NASA SBIR/STTR Program Management Office	Program office	STMD / NASA SBIR/STTR	agency-sbir@mail.nasa.gov	not published	https://sbir.nasa.gov/contact-us [3]
Center-specific names vary	Center SBIR/STTR representative	Relevant NASA center	published on current NASA SBIR/STTR contact page	varies if listed	https://sbir.nasa.gov/contact-us [3]
not published	Graphene-specific STMD program manager outside solicitation	STMD	not published	not published	STMD solicitations portal is opportunity-specific[4]
not published	Graphene-specific ROSES program officer at overview level	SMD / ROSES	not published	not published	ROSES contacts are appendix-specific[7]

Sources

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<https://www.nasa.gov/directorates/stmd/>
 2. NASA SBIR/STTR, **Solicitations**: <https://sbir.nasa.gov/solicitations>
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 6. NASA SBIR/STTR, **Selections / portfolio search**: accessible from
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 7. NASA SMD, **ROSES (Research Opportunities in Space and Earth Science)**:
<https://science.nasa.gov/researchers/sara/grant-solicitations/roses-2/>
 8. NASA, **Exploration Systems Development Mission Directorate**:
<https://www.nasa.gov/directorates/esdmd/>
 9. NASA, **Aeronautics Research Mission Directorate**:
<https://www.nasa.gov/aeronautics/>
 10. NASA, **Space Operations Mission Directorate**:
<https://www.nasa.gov/directorates/space-operations/>
 11. NASA Langley Research Center, official site: <https://www.nasa.gov/langley/>
 12. NASA Glenn Research Center, official site: <https://www.nasa.gov/glenn/>
 13. NASA, grants/proposal guidance and NSPIRES entry points:
https://www.nasa.gov/offices/ocfo/gpc/regulations_and_guidance/ and
<https://nspires.nasaprs.com/>
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National Science Foundation (NSF) and CVD Graphene

Research in progress. I encountered a browser-session tooling issue that prevented access to the web sources needed to verify NSF offices, solicitations, award vehicles, and published

contacts. To avoid inventing facts or contacts, I have not filled this briefing with unverified content.

Status: not completed due to inability to access required official web sources in this session.

Small Business Administration (SBA) and CVD Graphene

Scope and key conclusion

The U.S. Small Business Administration (SBA) does **not** itself perform or procure mission R&D on materials such as chemical-vapor-deposited (CVD) graphene. Within SBA, the relevant organizational role is the **SBIR/STTR policy and coordination function**: SBA administers the statutory Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs government-wide, sets policy directives, and coordinates participating agencies' topic releases, while the **participating R&D agencies** actually fund technology development and potential transition. SBA states that it "coordinates the SBIR/STTR programs across the 11 participating agencies," and SBIR.gov is operated for that purpose by SBA's Office of Investment and Innovation (OII).¹²

For CVD graphene, SBA is therefore a **policy coordinator and entry portal**, not the buyer. The practical path is to use SBA-managed SBIR/STTR infrastructure to identify and pursue topics from participating agencies whose missions align with graphene for electronics, sensors, thermal management, coatings, energy storage, membranes, or advanced materials.

Organizational depth: parent to relevant office

1) Small Business Administration (parent)

Why relevant to CVD graphene: SBA is relevant because it administers the statutory framework, policy directives, and common portal for federal SBIR/STTR opportunities; it is not itself the R&D sponsor for graphene.³⁴

¹ SBIR.gov, "About SBIR and STTR," <https://www.sbir.gov/about>

² U.S. Small Business Administration, Office of Investment and Innovation / SBIR-STTR program resources, <https://www.sba.gov/offices/headquarters/ovbd/resources/1499731>

³ SBIR.gov, "About SBIR and STTR," <https://www.sbir.gov/about>

⁴ Small Business Administration, SBIR and STTR Policy Directive pages / program policy resources, via SBA and SBIR.gov official resources, including <https://www.sbir.gov/policy-and-guidance>

Status of similar technology-development work inside SBA: Not found for SBA-issued contracts, BAAs, OTAs, or grants directly funding CVD graphene R&D. SBA's public funding-program pages state that SBA generally does **not** provide grants for starting or expanding a business, and instead points firms to SBIR/STTR when looking for federal innovation funding.⁵⁶

Typical vehicles / award sizes: SBA itself does not publish a graphene-specific contracting or grants vehicle. For innovation funding, SBA points to SBIR/STTR, whose award levels are governed through SBA policy directives and implemented by participating agencies.⁷⁸

How to engage: Through SBA's SBIR.gov portal, policy guidance, tutorials, and the annual or recurring topic releases of participating agencies—not through an SBA BAA or materials program office.⁹¹⁰

Published contacts: No SBA parent-office contracting/program contact specifically for CVD graphene is published. For technology-specific sponsorship at SBA parent level: **not published**.

2) SBA Office of Investment and Innovation (OII)

Why relevant to CVD graphene: SBA identifies OII as the office responsible for the SBIR/STTR programs and the operation of SBIR.gov. OII is the closest SBA office to a program-management function that would shape how a graphene startup accesses federal early-stage R&D funding.¹¹¹²

⁵ U.S. Small Business Administration, "Grants," <https://www.sba.gov/funding-programs/grants>

⁶ U.S. Small Business Administration, funding-program overview pages directing innovators to SBIR/STTR rather than general business grants, <https://www.sba.gov/funding-programs>

⁷ SBIR.gov, "About SBIR and STTR," <https://www.sbir.gov/about>

⁸ Small Business Administration, SBIR and STTR Policy Directive pages / program policy resources, via SBA and SBIR.gov official resources, including <https://www.sbir.gov/policy-and-guidance>

⁹ SBIR.gov, "About SBIR and STTR," <https://www.sbir.gov/about>

¹⁰ U.S. Small Business Administration, Office of Investment and Innovation / SBIR-STTR program resources, <https://www.sba.gov/offices/headquarters/ovbd/resources/1499731>

¹¹ U.S. Small Business Administration, Office of Investment and Innovation / SBIR-STTR program resources, <https://www.sba.gov/offices/headquarters/ovbd/resources/1499731>

Status of similar technology-development work: **Active**, but as policy/program coordination rather than direct graphene awards. OII maintains current SBIR/STTR resources, solicitations links, annual reports, and program guidance for participating agencies.¹³¹⁴

Typical vehicles / award sizes: OII itself is not the awarding office for graphene development contracts. The vehicles it administers or coordinates are SBIR/STTR policy, common registration, and topic-discovery infrastructure. Awards are then made by the participating agencies under their own solicitations.¹⁵¹⁶

Named program managers / contacts: SBA publicly lists SBIR/STTR-related contact points through SBIR.gov and SBA office pages, but a public OII official designated specifically for CVD graphene sponsorship was **not found**. Technology-specific sponsor contact: **not published**.

How to engage: Use OII/SBIR.gov for eligibility rules, tutorials, topic discovery, and agency links; then contact the specific participating-agency topic POC listed in the solicitation.¹⁷¹⁸

3) SBA SBIR/STTR program office / SBIR.gov coordination function

Why relevant to CVD graphene: SBA's SBIR/STTR role is to coordinate the participating agencies, maintain the common portal, issue policy directives, and support commercialization assistance. For a CVD graphene company, this is the office/function that explains how to compete for a topic and how Phase I/II/III pathways work.¹⁹²⁰²¹

¹² U.S. Small Business Administration, Office of Investment and Innovation, <https://www.sba.gov/offices/headquarters/ovbd>

¹³ U.S. Small Business Administration, Office of Investment and Innovation / SBIR-STTR program resources, <https://www.sba.gov/offices/headquarters/ovbd/resources/1499731>

¹⁴ U.S. Small Business Administration, Office of Investment and Innovation, <https://www.sba.gov/offices/headquarters/ovbd>

¹⁵ SBIR.gov, "About SBIR and STTR," <https://www.sbir.gov/about>

¹⁶ U.S. Small Business Administration, Office of Investment and Innovation / SBIR-STTR program resources, <https://www.sba.gov/offices/headquarters/ovbd/resources/1499731>

¹⁷ U.S. Small Business Administration, Office of Investment and Innovation / SBIR-STTR program resources, <https://www.sba.gov/offices/headquarters/ovbd/resources/1499731>

¹⁸ SBIR.gov, "Topics," <https://www.sbir.gov/topics>

¹⁹ SBIR.gov, "About SBIR and STTR," <https://www.sbir.gov/about>

²⁰ U.S. Small Business Administration, Office of Investment and Innovation / SBIR-STTR program resources, <https://www.sba.gov/offices/headquarters/ovbd/resources/1499731>

Status of similar technology-development work: **Active** as a coordination and policy function. SBA publishes the list of participating agencies and links to current and open topics through SBIR.gov.²²²³

Typical vehicles / award sizes: No separate SBA topic ceiling for graphene. SBA policy directives establish baseline SBIR/STTR structure; participating agencies publish their own current award amounts and topic ceilings within SBA's statutory framework.²⁴²⁵

Named contacts: Technology-specific contact at SBA coordination level: **not published**. Topic-level contacts are normally published by the participating agency within each solicitation.²⁶

How to engage: Search SBIR.gov topics, subscribe to agency solicitations, and engage only through published pre-release Q&A channels, topic authors, or solicitation help desks as permitted by each agency.²⁷²⁸

Participating agencies whose topics match CVD graphene

SBA lists the participating agencies in the SBIR/STTR program on SBIR.gov. For CVD graphene, the best mission-aligned participants are the agencies that routinely issue advanced-materials, microelectronics, sensor, energy-storage, membrane, coatings, aerospace, or defense topics.²⁹³⁰

²¹ Small Business Administration, SBIR and STTR Policy Directive pages / program policy resources, via SBA and SBIR.gov official resources, including <https://www.sbir.gov/policy-and-guidance>

²² SBIR.gov, "About SBIR and STTR," <https://www.sbir.gov/about>

²³ SBIR.gov, "Topics," <https://www.sbir.gov/topics>

²⁴ Small Business Administration, SBIR and STTR Policy Directive pages / program policy resources, via SBA and SBIR.gov official resources, including <https://www.sbir.gov/policy-and-guidance>

²⁵ SBIR.gov / agency solicitations and tutorials on proposal process, <https://www.sbir.gov/tutorials>

²⁶ SBIR.gov, "Topics," <https://www.sbir.gov/topics>

²⁷ SBIR.gov, "Topics," <https://www.sbir.gov/topics>

²⁸ SBIR.gov / agency solicitations and tutorials on proposal process, <https://www.sbir.gov/tutorials>

²⁹ SBIR.gov, "About SBIR and STTR," <https://www.sbir.gov/about>

³⁰ SBIR.gov, "Topics," <https://www.sbir.gov/topics>

Below, “match” means the agency has recurring topic space where CVD graphene could plausibly fit based on published mission/topic categories; SBA coordinates access, but the agency funds the work.

Strongest matches

Department of Defense (DoD)

Why mission fit exists: DoD components frequently seek advanced materials for sensors, EMI shielding, thermal management, flexible electronics, survivability, coatings, and microelectronics. CVD graphene aligns with these defense use cases.

Current status of similar work: Active SBIR/STTR program under DoD; current and recurring open topics are published through DSIP and linked from SBIR.gov.³¹³²

Typical vehicles / award sizes: DoD uses SBIR/STTR topics, Commercial Solutions Openings in some organizations, BAAs, and in some components OTAs outside SBIR. Award sizes vary by component and cycle; current amounts are stated in each solicitation rather than by SBA.³³³⁴

Published contacts: Topic authors and component help desks are generally published per topic; a standing single CVD-graphene PM across DoD was **not published** in SBA sources.

How to engage: Monitor DoD SBIR/STTR topic releases via SBIR.gov/DSIP and respond through official pre-release and submission channels.³⁵³⁶

Department of Energy (DOE)

Why mission fit exists: DOE funds advanced materials relevant to energy storage, power electronics, membranes, hydrogen, thermal interfaces, and quantum/microelectronic applications where CVD graphene may fit.

³¹ SBIR.gov, “Topics,” <https://www.sbir.gov/topics>

³² Defense SBIR/STTR Innovation Portal (DSIP), official DoD SBIR/STTR solicitations, <https://www.dodsbirsttr.mil/>

³³ Defense SBIR/STTR Innovation Portal (DSIP), official DoD SBIR/STTR solicitations, <https://www.dodsbirsttr.mil/>

³⁴ DoD SBIR/STTR program information and solicitation instructions, official DSIP pages, <https://www.dodsbirsttr.mil/submissions/>

³⁵ SBIR.gov, “Topics,” <https://www.sbir.gov/topics>

³⁶ Defense SBIR/STTR Innovation Portal (DSIP), official DoD SBIR/STTR solicitations, <https://www.dodsbirsttr.mil/>

Current status of similar work: Active SBIR/STTR solicitations and broader DOE funding opportunities.³⁷³⁸

Typical vehicles / award sizes: DOE SBIR/STTR Phase I and II awards are published in current funding opportunity announcements; DOE also uses FOAs and laboratory partnership mechanisms outside SBA's direct purview.³⁹⁴⁰

Published contacts: DOE solicitation contacts are published in each FOA; no SBA-level DOE graphene contact is published.

How to engage: Apply through DOE SBIR/STTR FOAs linked from SBIR.gov and engage via FOA-listed contacts and lab-partnership channels.⁴¹⁴²

National Science Foundation (NSF)

Why mission fit exists: NSF funds enabling platform technologies and deep-tech materials, including nanomaterials, electronics, advanced manufacturing, and sensing. CVD graphene often fits as a foundational materials innovation.

Current status of similar work: Active through NSF's SBIR/STTR program, which is open broadly to high-risk, high-impact technologies rather than only narrow topics.⁴³

Typical vehicles / award sizes: NSF publishes current Phase I and Phase II amounts in its SBIR/STTR program solicitations and program pages.⁴⁴⁴⁵

³⁷ SBIR.gov, "Topics," <https://www.sbir.gov/topics>

³⁸ DOE SBIR/STTR Programs Office, official funding opportunities, <https://science.osti.gov/sbir/Funding-Opportunities>

³⁹ DOE SBIR/STTR Programs Office, official funding opportunities, <https://science.osti.gov/sbir/Funding-Opportunities>

⁴⁰ DOE Office of Science SBIR/STTR program pages, <https://science.osti.gov/sbir>

⁴¹ SBIR.gov, "Topics," <https://www.sbir.gov/topics>

⁴² DOE SBIR/STTR Programs Office, official funding opportunities, <https://science.osti.gov/sbir/Funding-Opportunities>

⁴³ NSF Seed Fund (America's Seed Fund powered by NSF), official program pages, <https://seedfund.nsf.gov/>

⁴⁴ NSF Seed Fund (America's Seed Fund powered by NSF), official program pages, <https://seedfund.nsf.gov/>

⁴⁵ NSF SBIR/STTR solicitation and award information, official NSF pages accessible via <https://seedfund.nsf.gov/apply/>

Published contacts: NSF publishes program staff and solicitation contacts on official SBIR/STTR pages; technology-specific graphene contact not consistently dedicated, so **not published** for CVD graphene as such.⁴⁶

How to engage: Submit to NSF SBIR/STTR Project Pitch and solicitation process if the graphene technology has broad commercial potential.⁴⁷

National Aeronautics and Space Administration (NASA)

Why mission fit exists: NASA topics regularly cover lightweight multifunctional materials, thermal control, sensors, electronics, coatings, and space-environment-compatible materials—areas where CVD graphene may fit.

Current status of similar work: **Active** NASA SBIR/STTR subtopics released annually.^{48,49}

Typical vehicles / award sizes: NASA publishes current Phase I/II award structures and subtopic instructions in its solicitations.⁵⁰

Published contacts: NASA publishes subtopic managers and procurement contacts in the solicitation; a general SBA-level contact for NASA graphene topics is **not published**.

How to engage: Respond to annual NASA SBIR/STTR subtopics through the official solicitation and contact subtopic managers during permitted windows.⁵¹

Department of Health and Human Services (HHS), especially NIH and BARDA components where applicable

Why mission fit exists: Graphene may fit biosensors, diagnostics, drug-delivery interfaces, wearable devices, and some biomedical materials use cases; BARDA/NIH can be relevant if the application is medical rather than purely industrial.

⁴⁶ NSF Seed Fund (America's Seed Fund powered by NSF), official program pages, <https://seedfund.nsf.gov/>

⁴⁷ NSF Seed Fund (America's Seed Fund powered by NSF), official program pages, <https://seedfund.nsf.gov/>

⁴⁸ SBIR.gov, "Topics," <https://www.sbir.gov/topics>

⁴⁹ NASA SBIR/STTR Program, official solicitations and subtopics, <https://sbir.nasa.gov/solicitations>

⁵⁰ NASA SBIR/STTR Program, official solicitations and subtopics, <https://sbir.nasa.gov/solicitations>

⁵¹ NASA SBIR/STTR Program, official solicitations and subtopics, <https://sbir.nasa.gov/solicitations>

Current status of similar work: **Active** HHS SBIR/STTR programs, especially NIH omnibus and institute-specific topics.⁵²⁵³

Typical vehicles / award sizes: HHS agencies publish topic- or FOA-specific award sizes and omnibus deadlines.⁵⁴

Published contacts: Institute program contacts are typically published in FOAs; no single published CVD-graphene point at SBA.

How to engage: Use disease/device-specific NIH institute FOAs or other HHS innovation solicitations if the graphene application is biomedical.⁵⁵

Possible matches depending on end use

Department of Homeland Security (DHS)

Mission fit may exist for protective materials, sensors, infrastructure monitoring, and communications-related components. **Active** SBIR program; exact graphene fit depends on topical releases.⁵⁶⁵⁷

Department of Transportation (DOT)

Potential fit for infrastructure sensing, composites, de-icing, batteries, and transportation safety materials. **Active** SBIR program; specific graphene-relevant topics are intermittent.⁵⁸⁵⁹

Environmental Protection Agency (EPA)

Potential fit for membranes, sensing, remediation, and environmental monitoring. **Active** SBIR program; graphene relevance depends on environmental application and toxicity/regulatory framing.⁶⁰⁶¹

⁵² SBIR.gov, “Topics,” <https://www.sbir.gov/topics>

⁵³ NIH SEED / NIH SBIR-STTR official pages, <https://seed.nih.gov/>

⁵⁴ NIH SEED / NIH SBIR-STTR official pages, <https://seed.nih.gov/>

⁵⁵ NIH SEED / NIH SBIR-STTR official pages, <https://seed.nih.gov/>

⁵⁶ SBIR.gov, “Topics,” <https://www.sbir.gov/topics>

⁵⁷ DHS SBIR Program, official page, <https://www.dhs.gov/science-and-technology/sbir>

⁵⁸ SBIR.gov, “Topics,” <https://www.sbir.gov/topics>

⁵⁹ DOT SBIR Program, official page, <https://www.volpe.dot.gov/work-with-us/small-business-innovation-research-sbir-program>

⁶⁰ SBIR.gov, “Topics,” <https://www.sbir.gov/topics>

U.S. Department of Agriculture (USDA)

Potential fit for sensors, packaging, water treatment, and agricultural electronics. **Active** SBIR program; graphene fit is application-dependent.⁶²⁶³

National Oceanic and Atmospheric Administration (NOAA)

Potential fit for remote sensing, corrosion resistance, marine sensors, and environmental platforms. **Active** SBIR program; topic match intermittent.⁶⁴⁶⁵

Department of Education / Department of Commerce

Possible but generally weaker fit unless the application is tied to NIST measurement science or specialized educational technology. For CVD graphene, these are secondary compared with DoD/DOE/NSF/NASA/HHS.

SBA-coordinated mechanisms and how they work for CVD graphene

SBIR/STTR topic coordination

SBA states that it coordinates the 11 participating agencies and publishes the common policy framework. For a graphene company, SBA's role is to help identify where the technology belongs and what statutory rules apply; the agency issues the topic and makes the award.⁶⁶⁶⁷

Commercialization assistance and program rules

SBA's SBIR/STTR Policy Directive governs eligibility, data rights, Phase I/II/III structure, and program administration. This matters for CVD graphene because materials platforms

⁶¹ EPA SBIR Program, official page, <https://www.epa.gov/sbir>

⁶² SBIR.gov, "Topics," <https://www.sbir.gov/topics>

⁶³ USDA SBIR Program, official page, <https://www.nifa.usda.gov/grants/programs/small-business-innovation-research-program-phase-i>

⁶⁴ SBIR.gov, "Topics," <https://www.sbir.gov/topics>

⁶⁵ NOAA SBIR Program, official page, <https://www.noaa.gov/work-with-us/small-business-innovation-research-program>

⁶⁶ SBIR.gov, "About SBIR and STTR," <https://www.sbir.gov/about>

⁶⁷ Small Business Administration, SBIR and STTR Policy Directive pages / program policy resources, via SBA and SBIR.gov official resources, including <https://www.sbir.gov/policy-and-guidance>

often need multiple phases: feasibility demonstration, scale-up, prototype integration, and transition to an end-user agency or prime.⁶⁸

Engagement path in practice

1. Use **SBIR.gov Topics** and agency solicitation pages to identify an application-led fit, not “graphene” as a standalone material claim.⁶⁹
2. Map the technology to one or more agencies: e.g., defense sensor coating, NASA thermal film, DOE battery current collector, NIH biosensor.
3. During pre-release, ask the agency topic contact whether **CVD-grown graphene** is within scope; SBA does not answer topic-fit questions for the technical agencies.
4. Submit through the agency’s SBIR/STTR process under SBA’s common rules.⁷⁰⁷¹
5. For post-Phase II transition, follow the agency’s Phase III / procurement / partnership route rather than expecting SBA to buy the technology.⁷²

Published contacts and public-contact status

Because SBA is a coordination body here rather than the technical sponsor, technology-specific program-manager names for CVD graphene inside SBA were **not published** in the reviewed official sources. The usual publicly available contacts are:

- **SBA / SBIR.gov general program infrastructure and office pages:** official web contact channels and office descriptions, but not a named CVD graphene PM.⁷³⁷⁴

⁶⁸ Small Business Administration, SBIR and STTR Policy Directive pages / program policy resources, via SBA and SBIR.gov official resources, including <https://www.sbir.gov/policy-and-guidance>

⁶⁹ SBIR.gov, “Topics,” <https://www.sbir.gov/topics>

⁷⁰ Small Business Administration, SBIR and STTR Policy Directive pages / program policy resources, via SBA and SBIR.gov official resources, including <https://www.sbir.gov/policy-and-guidance>

⁷¹ SBIR.gov / agency solicitations and tutorials on proposal process, <https://www.sbir.gov/tutorials>

⁷² Small Business Administration, SBIR and STTR Policy Directive pages / program policy resources, via SBA and SBIR.gov official resources, including <https://www.sbir.gov/policy-and-guidance>

⁷³ U.S. Small Business Administration, Office of Investment and Innovation / SBIR-STTR program resources, <https://www.sba.gov/offices/headquarters/ovbd/resources/1499731>

⁷⁴ U.S. Small Business Administration, Office of Investment and Innovation, <https://www.sba.gov/offices/headquarters/ovbd>

- **Agency solicitation contacts:** published within each participating agency's current solicitation or topic page; these are the real technical entry points for CVD graphene opportunities.⁷⁵⁷⁶⁷⁷⁷⁸⁷⁹

Accordingly, for the required contact fields: - **Program manager / officer for CVD graphene at SBA:** not published - **Email:** not published - **Phone:** not published - **Source URL:** SBA SBIR/STTR office and SBIR.gov pages showing coordination role rather than technology-specific PM assignment.⁸⁰⁸¹⁸²

Bottom line

SBA would **not directly adopt or contract for CVD graphene as an end user**. Its relevant office is the **Office of Investment and Innovation / SBIR-STTR coordination function**, which would help route a small business to the agencies that do fund such work. The strongest SBA-coordinated pathways are the participating agencies whose missions naturally consume advanced graphene materials: **DoD, DOE, NSF, NASA, and in medical cases HHS/NIH**. Within SBA, direct graphene-specific contracts, BAAs, OTAs, prizes, or grants were **not found**.

Sources

⁷⁵ Defense SBIR/STTR Innovation Portal (DSIP), official DoD SBIR/STTR solicitations, <https://www.dodsbirsttr.mil/>

⁷⁶ DOE SBIR/STTR Programs Office, official funding opportunities, <https://science.osti.gov/sbir/Funding-Opportunities>

⁷⁷ NSF Seed Fund (America's Seed Fund powered by NSF), official program pages, <https://seedfund.nsf.gov/>

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⁷⁹ NIH SEED / NIH SBIR-STTR official pages, <https://seed.nih.gov/>

⁸⁰ SBIR.gov, "About SBIR and STTR," <https://www.sbir.gov/about>

⁸¹ U.S. Small Business Administration, Office of Investment and Innovation / SBIR-STTR program resources, <https://www.sba.gov/offices/headquarters/ovbd/resources/1499731>

⁸² U.S. Small Business Administration, Office of Investment and Innovation, <https://www.sba.gov/offices/headquarters/ovbd>