Accessing Non-Dilutive Funding

SBIR/STTR grant funding for climate founders

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ScienceFounders.org

An open library and peer community community for science-based founders.

Free guides, templates, grant examples, and operating resources resources — with a private Slack community when written written materials are not enough.

11+

awarded SBIR proposals across 3 teams and technologies across DOE, DOE, USDA, DOT, etc.

$30M+

non-dilutive funding experience $11M+ in SBIRS, $18M+ in TRL6-8+ R&D awards, $3.3M ARPA-E.

75%+

DOE success rate as co-investigator / commercialization lead across SBIR, ARPA-E, BETO, etc.

PROGRAM BASICS

SBIR/STTR in one slide

1982
program created

0.4–3.2%
rough allocation of federal research dollars

<500
employees at the applying small business

51%+
U.S. citizen / permanent-resident ownership

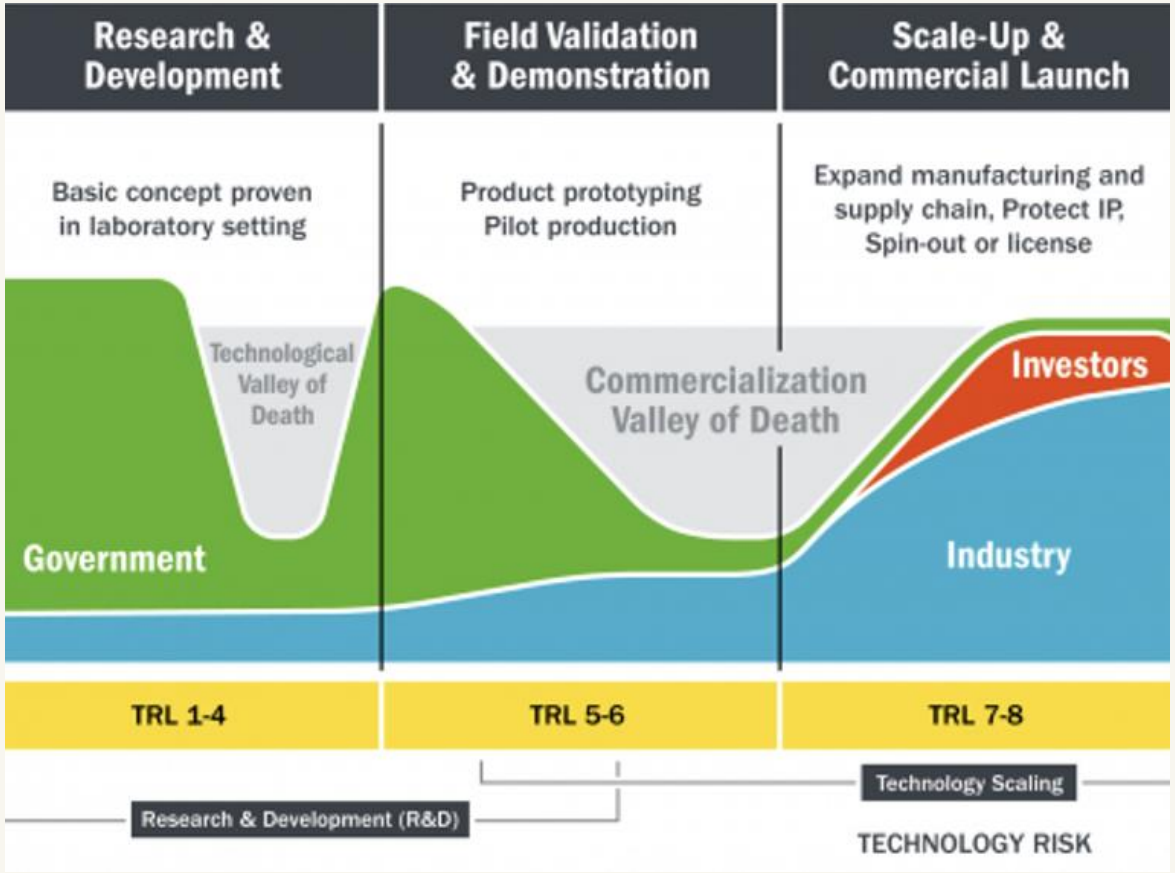
The baseline requirements are simple. The execution details are not.

- For-profit entity; SAM.gov registration; consistent NAICS code
- SBIR: PI primarily employed by the startup; outside work capped at ~19.6 hrs/week — academic founders holding startup equity are not, in practice, precluded
- STTR: research institution partner required, with an IP allocation agreement
- Each proposal must be distinct; bulk of R&D performed by the small business — SBIR ≥66% (Phase I) / ≥50% (Phase II); STTR ≥40% small business + ≥30% research-institution partner
- Letters of support / commitment help convert “interesting science” into credible execution

Sources: SBIR.gov; agency solicitation instructions vary and should be read carefully.

WHEN TO CONSIDER SBIR/STTRS

Use grants when technology risk is still real



Source graphic adapted from Energy.gov / DOE commercialization valley-of-death materials.

Best fit

- TRL 3–6: proof-of-concept through validation / demonstration
- Can support TRL 7–8 scale-up when the research question remains valid
- Useful pre-seed, seed, and sometimes Series A when commercial traction is not yet enough

Not a fit

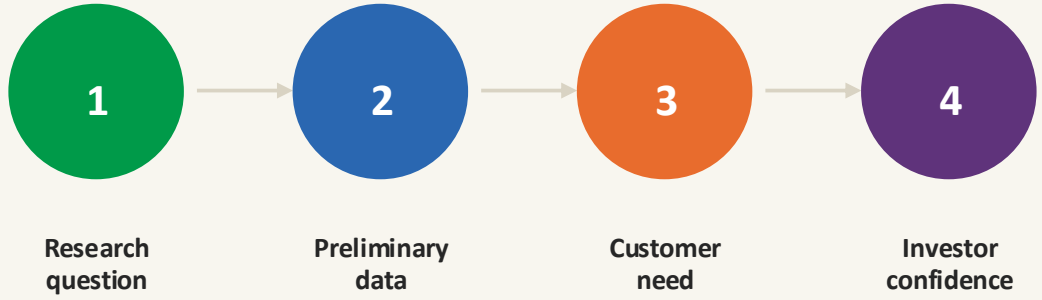
- If customer sales and pilots have a higher probability of success, do that instead.

STRATEGIC VALUE

A proposal is part of your technology roadmap

The best SBIRs force founders to explain the next experiment, the next market, and the path from science to revenue.

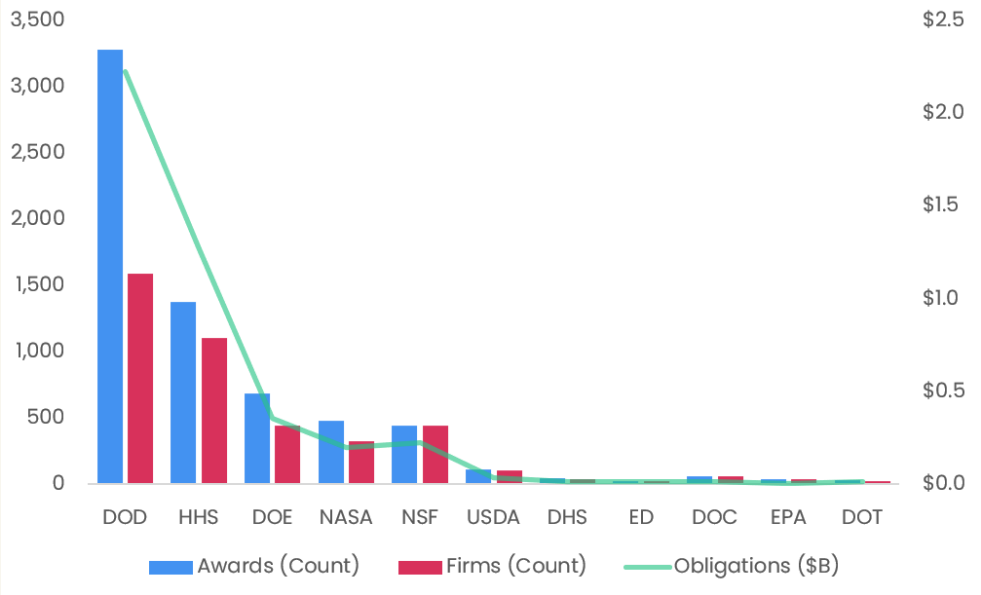
- Clarifies the technical milestone investors are actually underwriting.
- Creates a non-dilutive runway for experiments that would otherwise be too early.
- Builds a third-party validation trail: reviewers, program managers, subawardees, and customers.

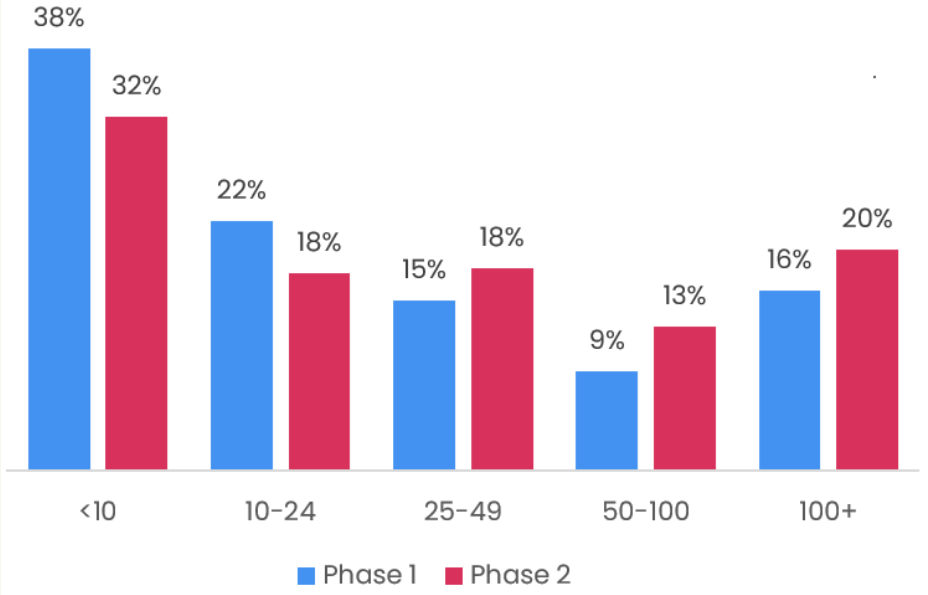


Founder exercise: write the grant as if it is the operating plan for the next 12–24 months.

FUNDING LANDSCAPE

Most awards go to very small companies





DOD dominates dollar volume, while Phase I/II awards are still heavily distributed to companies under 25 employees.

- Over half of all SBIRs are awarded to firms under 25 employees.
- Over a third are awarded to firms under 10 employees.

Source: HigherGov SBIR award and company-size analysis, as used in prior Science Founders deck.

AGENCY MAP

Climate founders can fit many agency missions

DOD

energy, sensors, materials, supply chain

DOE

energy, fuels, manufacturing, biomass

NSF

deep tech, AI, materials, science

NASA

remote sensing, energy efficiency, atmosphere

EPA

pollution, water, waste, monitoring

NOAA

ocean, fishery, sensing, environment

DOT

transportation, Volpe, infrastructure

DOD — Energy, sensors/imagery, materials, and supply-chain tech; weighs military-infrastructure applications and cost pain-points.
DOE — Energy, fuels, environmental impact of energy, manufacturing supply chains, and biomass (typically non-food); incremental national-scale efficiency.
USDA — Agricultural crops, forestry, food safety, processing, waste, and manufacturing technologies.
NSF — Hard-science innovations and foundational research with high potential impact.

NASA — Remote sensing, energy efficiency, and atmospheric science — esp. imagery and spectra analysis.
NOAA — Fishery, sensing, and environmental monitoring; valorization of oceanic natural resources.
EPA — Pollution prevention, water, waste, and environmental monitoring technologies.
DOT — Transportation and infrastructure innovations (incl. the Volpe Center).

The same science may be fundable under different mission framings — but each proposal must be a distinct research project.

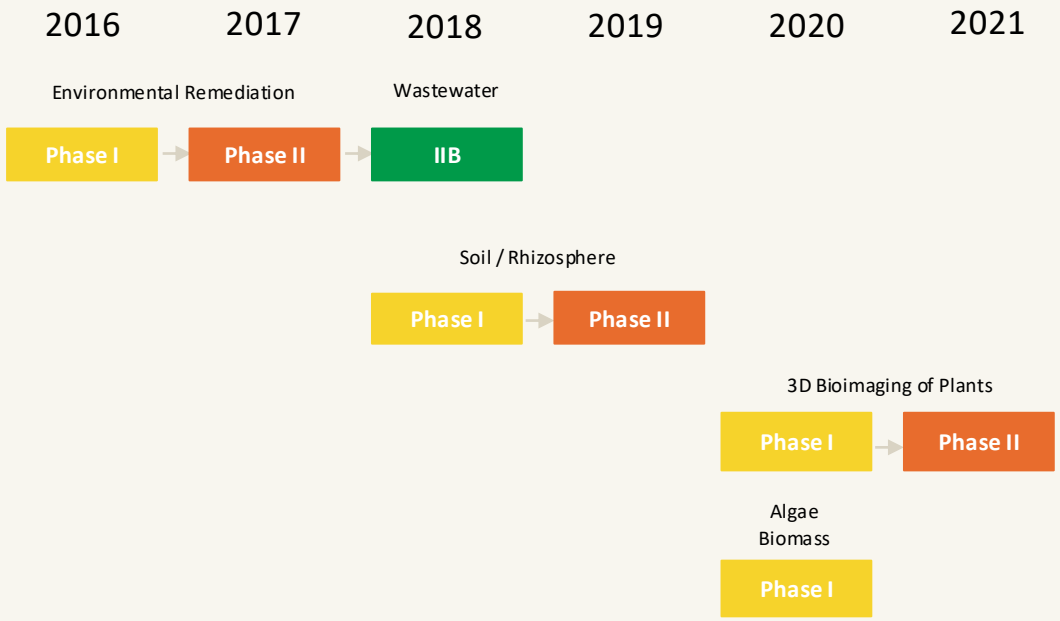
Agency descriptions adapted from prior Science Founders SBIR climate-founder deck.

PROPOSAL STRATEGY

One platform can support multiple distinct awards

As long as each research proposal is distinct, the same underlying technology can win multiple awards.

- Different analyte or end-use market
- Different apparatus, validation condition, or scale
- Different agency mission framing and reviewer focus
- Different commercialization pathway and support-letter ecosystem



Example: a single biosensor technology supported 8 DOE SBIR awards across related but distinct research questions.

PROPOSAL ARCHITECTURE

What a strong SBIR package must prove

Research narrative

The technical problem, proposed solution, preliminary data, workplan, milestones, team, and facilities.

Market opportunity

The financial and customer story: market need, beachhead, pro forma, business model, and route to revenue.

Supporting docs

Support letters, commitment letters, facilities evidence, subaward budgets, SAM/agency forms, and references.

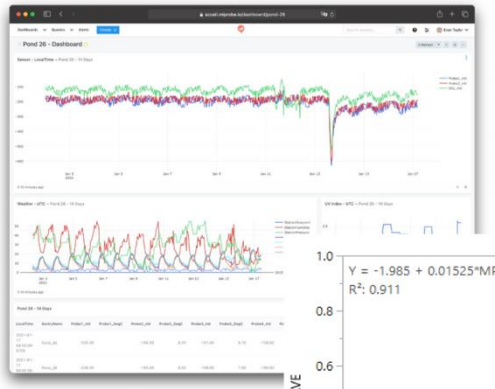
The best package makes reviewers feel the science, budget, people, and market all describe the same plan.

PROPOSAL WRITING

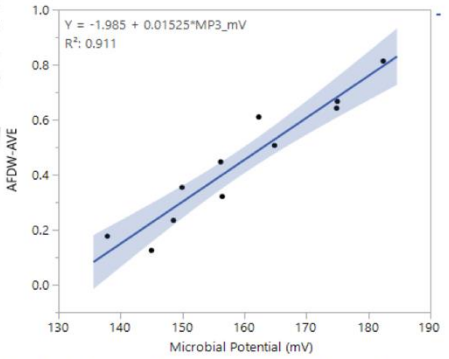
Core component: the research narrative

- **Technical problem & proposed solution**
  Compare your solution on cost, impact, and need.
- **Preliminary data that reduces reviewer risk**
  The more robust the data, the higher the odds of passing review.
- **Work plan: tasks, subtasks, milestones, deliverables**
  Use direct, active-voice language throughout.
- **Research team and qualifications**
  Strong PI with a deeply relevant background (usually a related PhD), plus a corporate/academic R&D team.
- **Readable Gantt chart aligned with budget**
  Tasks map directly to the proposed budget and timeline.

Rule of thumb: one page of high-quality narrative often takes a full person-day to write, cite, and synthesize. Full Proposals can be 10-20 pages.



Operational Dashboard showing both real-time MiProbe Sentry data and integrated local weather station data.



Validation of MiProbe microbial potential correlation to key process measurements. Demonstrated correlation for 2 strains already (marine and brackish). Two additional strains in progress

Microbial Potential vs. AFDW. Over 11 days of an automated pilot ORP deployment, Microbial Potential strongly correlated to average AFDW measurements, but was labor-free.

Screenshots courtesy of Burge Environmental, Inc. and published DOE reports.

TASKS & MILESTONES

Make the workplan boringly legible

DOE SBIR Funding: Years 0 - 4

		PH I	PHII Year 1	PHII Year 2	PHII Year 3	PHII Year 4
		0	1	2	3	4
($ in1000s)	Year	2020	2021	2022	2023	2024
SBIR Funding		$198.336	$792.920	$854.760	$558.334	$591.30
	Discount Rate		15.0%	15.0%	15.0%	15.0%
	Discount factor		0.93	0.80	0.69	0.59
Net Present Value (NPV)		$198	$736	$683	$385	$351

Market size PHII - Year 1	$7
Market growth rate	15.1%
First year of commercial sales:	2023

Ten Year Revenue Projection: Years 3 - 12

		3	4	5	6	7	8	9	10	11	12
($ in1000s)	Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
	Market Size	$ 8,812,315	$ 10,137,391	$ 11,742,899	$ 13,698,203	$ 15,979,084	$ 18,639,754	$ 21,743,450	$ 25,363,941	$ 29,587,279	$ 34,513,842
	Market growth rate	15.84%	16.24%	16.65%	16.65%	16.65%	16.65%	16.65%	16.65%	16.65%	16.65%
	Market Share										
Gross Revenues											
	Operating Margin	35%	35%	55%	70%	85%	85%	85%	85%	85%	85%
Operating Profits											
	Discount Rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
	Discount factor	0.69	0.59	0.51	0.44	0.38	0.33	0.28	0.24	0.21	0.18
Net Present Value (NPV)											

Project NPV and Investment Multiple

Cumulative NPV 10yr Profits:	$8,950
Cumulative NPV SBIR funding	$2,353
Project NPV	$ 6,597
DOE Investment Multiple	3.8

Simple works.

- Every task should connect to a milestone and budget line.
- Subtasks should name who does the work.
- Person-hours reduce perceived execution risk.
- Use active voice and direct technical language.

If reviewers cannot trace a dollar to an experiment, simplify the plan.

COMMERCIALIZATION PLAN

Core component: market opportunity

Translate research risk into a credible financial story.

- Company and team qualifications
  Track record, unfair advantages, key hires.
- Pro forma and projections aligned to agency templates
  Use agency templates; cite CAGR, NPV, LCOE.
- Market pain point, beachhead, TAM/SAM/SOM
  Map sizing to a 5–10 yr revenue indicator.
- Business model: early adopter → broader market
  Split initial vs. long-term markets; sales strategy.
- IP, licensing, technology acquisition strategy
  Support claims with third-party market-report links.

“Mickey Mouse diagrams” are fiction — but useful fiction when assumptions are explicit.

COMMERCIALIZATION CRITERIA

Grant reviewers are not investors

There is overlap in purpose, but the evaluation logic is different.

1 SBIR reviewer

Can this technical team execute the proposed R&D plan and plausibly commercialize the result?

2 Investor

Can this company become venture-scale and defendable with the capital available?

3 Founder implication

Use agency-specific language, templates, and pro formas. Do not simply paste an investor deck into a grant.

The proposal should read like an operating plan, not a pitch deck.

EVERYTHING ELSE

Supporting documents carry more weight than founders expect

Support letters

- Field leaders confirming the problem
- Potential customers facing it at scale
- Beta-test partners who could become customers
- Investors or industry experts validating interest

Commitment letters

- Subawardees commit to tasks, budget, and hours
- Facilities / resources made available
- Lab equipment inventory when applicable
- Contact information and agency-required wording

Ask for at least two letters in each important category. Templates on letterhead save weeks.

PRACTICAL LESSONS

Patterns from a 75%+ award rate

1 PhD-level PI almost always matters

I am aware of exactly three non-PhD PIs across hundreds of awards by myself or colleagues.

2 Spread tasks across team members

A proposal looks stronger when execution risk is not concentrated in one person.

3 Person-hours reduce risk

More hours at lower credible rates can look safer than a thin plan with high rates.

4 Collaborate to fill gaps

Up to 33% of Phase I budget can usually go outside the company; use it strategically.

5 Write tasks in active voice

Reviewers reward direct, simple, technical sentences.

The goal is not prose. The goal is reviewer confidence.

FOUNDER QUESTIONS

Frequently asked questions

Same proposal to multiple agencies?

No. Same platform can be okay; same funded work is not. Customize for mission and research scope.

Can the PI be academic?

STTR: yes.

SBIR: PI usually must be primarily employed by the company during the award. Up to 19.6 Hours/week outside the company (academic positions).

How long does it take?

1–2 months to prepare; 3–4 months to notification; 3–6 months to funding.

Do I need a PhD PI?

>95% of the time, PIs have PhD-level research backgrounds. Check awards in your topic area.

Hire a grant writer?

Only if they have performed on these grants before.

Note: SBIR funds cannot pay for proposal preparation or success fees.

Better to add collaborators who will actually execute the Phase I/II work or provide Technical and Business Assistance (TABA)

Tax impact?

More complicated after 2022-2025 law changes. Talk to a tax professional. There's both R&D Tax Credits (reduces liability) and R&D Payroll Tax Credits (Can improve cashflow even if not generating profit/revenue.

Always read the specific agency solicitation; SBIR/STTR rules vary by agency and topic.

ABOUT

Built from founder-operating experience

Evan Taylor

Founder & President, Science Founders
B.S. Sustainability, M.S. Environmental Engineering, Arizona State University

- Advisor, Industrial Scale-up — CoFlux Purification (PFAS Catalyst, TRL 4→6+)
- Fractional COO, R&D & Commercial Scale-up — State of Place (Built Environment AI, TRL 5→9)
- Co-founder, R&D & commercialization lead — MiProbe Technology (biosensors, TRL 4→8)
- Awarded $13M+ in DOE / DOT / USDA SBIRs across 13 Phase I / II / IIB proposals
- Founder & CEO, reNature — biofertilizer from idea to 24T/day, 20+ employees, investor buyout
- Burge Environmental — idea to first $1M in sales; now under licensing / acquisition
- Awards: VentureWell, Village Capital, Mass Challenge, Rice Business Plan, CleanTech Open, ASU Edson Prize
- Visiting Scholar, ASU Algae Center · Advisor — Climate Advisory Group, UC Davis Venture Catalyst · EIR — ClimateHaven, Mass Challenge

SCIENCE FOUNDERS RESOURCES

Everything here is meant to be reusable

Start with a guide

1. **The $500 Founder Guide**
   Formation, EIN, docs, accounting stack, and early operating hygiene.

2. **SBIR Agency Links & Resources**
   Where to find opportunities and prerequisites.

3. **Setting Up to Submit Federal Grants**
   SAM.gov, UEI/CAGE, Login.gov, ORCID, SciENcv, and agency portals.

4. **Real-World Awarded SBIR Docs & Templates**
   Redacted awarded narratives, market plans, and letter templates.

Need more help?

The private Slack community is for peer feedback, warm context, and founder-to-founder help under the Chatham House Rule.

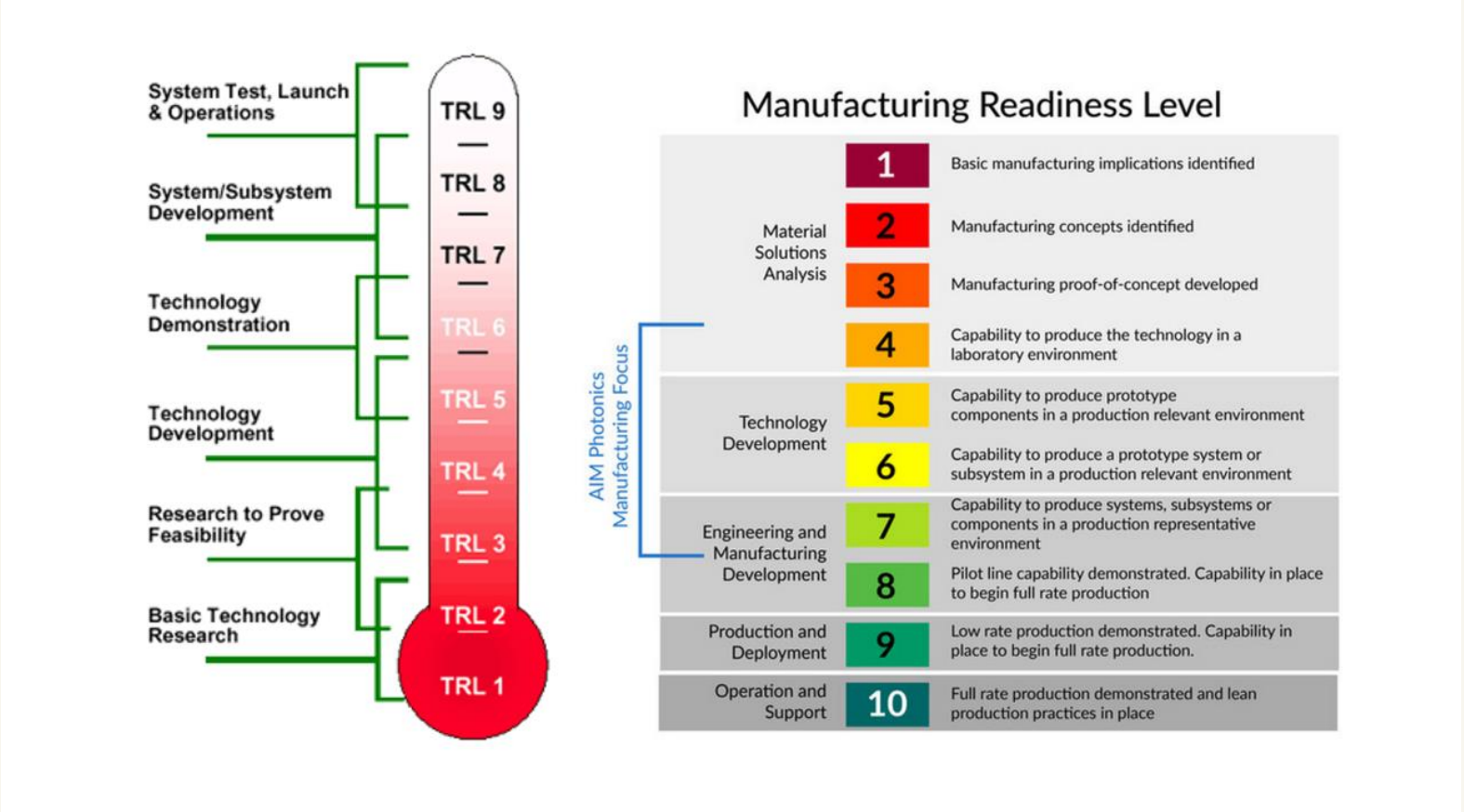
OPEN LIBRARY | PEER COMMUNITY

FREE RESOURCES | TEMPLATES

ScienceFounders.org

REFERENCE

Appendix: TRL & MRL



Source: Development of a Novel Technological Readiness Assessment Tool for Fuel Cell Technology.

REFERENCE

Appendix: SBIR / STTR comparison

Feature	SBIR	STTR
Partnering	Allows partnering	Requires nonprofit research institution partner
Principal investigator	Primary employment usually with small business	PI may be with research institution or small business
Work requirement	Subcontract up to ~33% Phase I / 50% Phase II	Minimum 40% small business / 30% research institution
IP allocation	Not required by program structure	Required between startup and research institution

Note: Check each agency solicitation before relying on summary rules.

REFERENCE

Appendix: 2025 policy update

Disruptions to business as usual

- More pronounced: NIH, NSF medical/social programs, NOAA, NASA
- Less pronounced: DOE energy, NSF materials / AI / deep tech, DOT, EPA
- Business as usual: DOD

Notes on current administration policies

- Project 2025 describes doubling SBIR and criticizes academia-focused R&D grants
- DEI / hiring policies no longer required in submittal docs
- Some terms are no longer aligned with administration priorities
- BIL and IRA funding specifically impacted

Treat policy updates as time-sensitive: verify links and language before every submission.

2026 UPDATE

Appendix: 2026 SBIR reauthorization

Program-wide changes

Strategic Breakthrough Phase II awards

Large-portfolio agencies can now award up to **$30M over four years** for capital-intensive technologies with high commercialization and national-impact potential.

Proposal submission limits

Participating agencies must set firm caps on how many proposals a small business may submit — curbing high-volume strategies and lifting application quality.

Agency-specific changes

NIH

Updated salary caps; biographical sketches and current & pending support must now use **Common Forms via SciENcv**.

DOE

Rescinded prior indirect-cost-rate caps (including the **15% executive-order cap**); now uses standard negotiated indirect rates for stronger cost recovery.

Net effect: bigger awards, cleaner cost recovery, and higher-quality applications — SBIR is scaling up for capital-intensive climate tech.

Source: 2026 SBIR/STTR Reauthorization; see agency solicitations (e.g., NSF 26-510).

Science Founders

Thank you

Evan@ScienceFounders.org

Projects | LinkedIn | GitLab | ORCiD

Additional support and community for science-focused founders is available through the Science Founders website and Slack community.

SBIR EXAMPLE DOCS

TEMPLATES

FOUNDER GUIDES

SLACK COMMUNITY