

Deployment Capital for Decarbonization

Navigating Federal Climate Funding for Early-Stage Startups

SUMMARY



There are over \$400 billion in funding opportunities made available through the Bipartisan Infrastructure Law and the Inflation Reduction Act, but it's difficult for startups to navigate the process.



These opportunities are not one-size-fits-all, as companies with different business models, customer demographics, and value chains should think about accessing funding differently. We believe there are 3 key ways companies can access funding: 1) directly, 2) through commercial partnerships, and 3) indirectly through non-commercial partnership (e.g. local government, non-profits, utilities, etc.).



We highlight the top public funding opportunities we're tracking within the energy and transportation sectors, particularly those applicable to early-stage software companies.



Navigating federal procurement as a startup with limited time and resources is challenging. We share how the process works, advice on getting started, and lessons learned from representative startup companies.

Authors:

Mark Loch

Operating Partner & Head of Insights

mark@blackhornvc.com

Amanda Rohrer

Senior Associate

amanda@blackhornvc.com

Andrew Lydon

Summer Associate

andrew@blackhornvc.com

Contributors:

Governor Bill Ritter

Operating Partner & Policy Lead

bill@blackhornvc.com

Bret Kadison

Senior Advisor

bret@blackhornvc.com



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VENTURES

THE BIL AND IRA HAVE CATALYZED A HISTORIC LEVEL OF PUBLIC FUNDING FOR CLIMATETECH

With over \$400 billion in funding from the Bipartisan Infrastructure Law (BIL; aka Infrastructure Investment and Jobs Act) and the Inflation Reduction Act (IRA) earmarked to fight the effects of climate change, the United States has a generational opportunity to execute on its decarbonization goals¹. These landmark pieces of legislation have opened up opportunities to de-risk a broad collection of projects and innovations that were once considered too risky. While this is exciting, the instructions to access this funding are confusing, and if people are not diligent, it is easy to get lost in the details. That is why our team at Blackhorn has sought to decipher when and how our portfolio companies (and early-stage startups not in our portfolio) might tap into new funding opportunities and other long-standing federal programs.

The funding made available through the BIL and IRA comes in many different forms. Some of the more talked-about initiatives include tax incentives that rely on some [tried and true approaches](#) while also doubling down on some [new critical priorities](#). Other monetary mechanisms featured include grants, loans and loan guarantees. Each of these opportunities is gatekept by different offices or programs and the requirements for these opportunities vary significantly. If you're a startup, it will be vital to understand what opportunities are available for you as a for-profit institution and what other options are catered towards parties like states, municipalities, co-ops, etc.

As an early-stage venture capital investor focused on software-enabled businesses, we sought to understand what nuances we and our portfolio companies should consider. Below we walk through ways startups can access funding, which funding opportunities we believe are most valuable for the startup ecosystem, and the variables we and our portfolio companies should consider when tactically pursuing opportunities.

THREE WAYS STARTUPS CAN ACCESS FUNDING

The decision to pursue federal funding can take a number of shapes and forms. We believe there are three key ways for-profit startups can access funding:

1. **Direct Opportunities:** Startups may be directly eligible to apply for this funding without it requiring any fundamental changes to their business model. There is billions of direct funding available ranging from small grants for early-stage companies still validating their technology up to billions in funding for large-scale project deployments.
 - a. Most of the capital in the IRA will flow toward established companies (Series B+) developing large infrastructure projects using proven technology, such as renewable energy projects and new EV and battery factories. While there is no official minimum, it appears most projects need to have a deployment opportunity of at least \$50M+ to be eligible for most of these funding opportunities.
 - b. Early-stage startups (Pre-Seed to Series A) that are still proving out their technology can access various grant opportunities through established R&D programs. [SBIR](#) typically awards Phase 1 grants between \$50,000 to \$250,000 and [EERE](#) offers a variety of funding opportunities across various renewable energy technology areas with awards often ranging from \$500,000 to \$3M.

2. Commercial Partnerships: Startups may struggle to access many funding opportunities on their own. This could be because a) Funding Opportunity Announcements (FOAs) or RFPs are more expansive than the scope of an early-stage startup, b) the administrative complexity and associated reporting burden requires too many resources, or c) the company lacks government relations expertise to navigate and/or influence government procurement offices. However, alongside the right ecosystem partner, many startups could apply for joint funding. Software startups in particular can benefit from co-applying alongside the right commercial partner, such as a hardware vendor, to provide a more complete deployment solution.

- a. For example, an early-stage startup providing AI-enabled utility inspection software could partner with a drone inspection hardware company to apply for utility pilot projects under the [GRIP Program](#). This not only enables software providers to access funding more directly, but results in a more competitive bid for both parties given the more comprehensive offering.
- b. Another example is an early-stage startup partnering with a larger, more established company that may have more administrative capacity to spearhead application writing and/or better government procurement capabilities. For example, an electric vehicle software startup could partner with EVgo - one of the nation's largest public EV fast charging station networks - for a [NEVI](#) grant.

3. Indirect Opportunities: A significant amount of funding is earmarked for non-commercial parties, such as utilities, non-profits, local government entities, or local co-operatives, making for-profit applicants ineligible. While startups can't access this funding directly, stakeholders in their value chain could tap into this funding, providing opportunities for this money to "flow down" to them. To best position themselves to benefit from and indirectly access this funding, startups could track where this money is flowing and/or provide summary tear sheets of relevant opportunities to parties in their ecosystem (customers, suppliers, etc.) and how they could act as a subgrantee or vendor.

- a. For example, states, tribes, local governments, and public utility commissions can receive funding from the \$5B Grid Innovation Program to deploy projects using innovative approaches to modernize the electric grid. Startups with grid modernization solutions can proactively target those parties receiving and looking to deploy these funds as target customers.

SNAPSHOT OF CLEAN ENERGY & TRANSPORTATION PUBLIC FUNDING OPPORTUNITIES

1. CLEAN ENERGY CREDITS & INCENTIVES		2. GRID MODERNIZATION
\$51B Renewable Electricity Production Tax Credits	\$25B Managed by the Office of Clean Energy Demonstrations	\$5B For the Grid Innovation Program
\$51B Clean Electricity Investment Tax Credits	\$9.7B For the Empowering Rural America (ERA) Program	\$3B For Smart Grid Grants
		\$1B For the Powering Affordable Clean Energy (PACE) Program
3.CLEAN TRANSPORTATION	4.CROSS-SECTOR	
\$7.5B Through the Clean Vehicle Credit	\$20B Through the Greenhouse Gas Reduction Fund	\$4.3B Funded via Small Business Innovation Research Programs
\$5B For the National Electric Vehicle Infrastructure Program		\$4B In Climate Pollution Reduction Grants
\$1B For the Clean Heavy-Duty Vehicle Program	\$10B+ In additional funding for DOE loan program office	

KEY ENERGY & TRANSPORTATION FUNDING OPPORTUNITIES WE'RE TRACKING

For the purpose of this piece, we've focused on two of our investment verticals: energy and transportation. Below we bucket key opportunities as direct/commercial partnerships or indirect. We combined direct and commercial partnerships because the same funding opportunity may be accessed in either way depending on the company's business model (e.g., software only vs. hardware + software business).

DIRECT/COMMERCIAL PARTNERSHIP OPPORTUNITIES:

1. [Advanced Research Projects Agency - Infrastructure \(ARPA-I\) & ARPA-E](#)

ARPA-I launching in 2023/2024, ARPA-E received ~\$470M of funding in FY2023.

- a. The DOT is launching ARPA-I to fund next-generation transportation technologies, mirroring the DOE's ARPA-Energy program. ARPA-I will focus on the development of early technologies transforming America's physical and digital infrastructure, making it an interesting opportunity for early-stage hardware and software startups.

- b. Since it was founded in 2009, ARPA-E has provided ~\$3.6B in R&D funding to over 1,500 energy projects.

2. Small Business Innovation Research (SBIR) Programs

\$4.3B in funding across 6,000+ awards in FY 2022

- a. A dozen federal agencies have SBIR/STTR programs providing annual grants to companies developing cutting-edge technology in their priority areas. Early-stage climate tech startups (Pre-Seed to Series A) should consider the EPA, DOE, and USDA SBIR programs if funding aligns with their existing technology roadmap. Phase I awards are generally between \$100,000 and \$250,000 while Phase II awards generally average \$750,000 over 2 years.

I. [DOE's SBIR/STTR Programs](#)

II. [EPA's SBIR Program](#)

III. [USDA's SBIR/STTR Programs](#)

3. Smart Grid Grants - Grid Resilience and Innovation Partnerships (GRIP) Program

\$3B in funding, first round was December 2022

- a. Smart Grid Grants are one of three opportunities within the GRIP Program with a focus on smart grid technologies that will increase the flexibility, efficiency, and reliability of the US electric power system. Startups deploying software and/or hardware solutions that increase transmission capacity, prevent wildfires or other grid disturbances, and help to integrate renewable energy, EVs, electrified buildings, and grid-edge devices may be strong candidates for this program.

4. Energy Efficiency and Renewable Energy (EERE) Grants

Received ~\$3.5B of funding in FY2023

- a. The DOE's EERE office includes funding for R&D and deployment across energy, buildings, transportation, industrial decarbonization and more. EERE provides funding through grants, competitions, accelerators, etc., making it a good fit for early-stage climate tech startups. It constantly updates its open funding opportunities [here](#), with most programs opening between May and September and closing by year-end.
- b. EERE has dedicated offices by technology area, such as the Vehicle Technologies Office and the Solar Energy Technologies Office.

5. DOE Loan Programs Office Loans & Loan Guarantees

~\$300B in funding earmarked for the Title 17 Clean Energy Financing opportunity

- a. The DOE's Loan Program Office aims to help later stage companies (Series B+) scale their deployment of clean energy and transportation projects. This includes \$97B in funding from the BIL for the Clean Energy Infrastructure Program, which focuses on projects that retool, repower, repurpose or replace energy infrastructure. The LPO typically finances \$100M+ projects, so it is best for hardware or hardware-enabled businesses that are ready to deploy big projects in the near-term.

6. Federal Tax Credits

- a. The investment tax credit (ITC) and production tax credit (PTC) are landmark credits that have been extended another 10 years through the IRA. The IRA also enabled these tax credits to be direct pay and transferable, creating a more liquid market for tax credits that should lower the costs of the transaction. The ITC and PTC are focused on businesses building or purchasing renewable energy and energy storage technology. Given their structure, these incentives are best for hardware or hardware-enabled businesses that are ready to deploy big projects in the near-term.

INDIRECT OPPORTUNITIES:

1. Grid Resilience Utility and Industry Grants & Grid Innovation Program within GRIP

\$2.5B and \$5B of funding, respectively

- a. The two other opportunities within the GRIP Program having funding available for other stakeholders in the electric grid ecosystem. They each focus on various opportunities to modernize the grid through innovative programs. Startups directly focused on elements of grid modernization should track where and how this funding is allocated.

2. National Electric Vehicle Infrastructure (NEVI) Formula Program

\$5B of funding through 2026

- a. NEVI provides funding to US states through 2026 to strategically deploy EV charging stations across the US and establish an interconnected network to facilitate data collection, access, and reliability. Clean transportation startups should track and potentially apply for funding through relevant state energy and transportation offices.

3. Greenhouse Gas Reduction Fund (GGRF)

- a. GGRF will fund clean technology projects in historically underserved communities through three program areas. The \$14B National Clean Investment Fund will provide grants to 2-3 nonprofits who will finance thousands of clean technology projects. The \$6B Clean Communities Investment Accelerator will provide grants to 2-7 nonprofits. And the \$7B Solar for All competition will award up to 60 grants to states, territories, municipalities and more to expand solar in low-income and disadvantaged communities.

4. Powering Affordable Clean Energy (PACE) Program

\$1B of funding

- a. The PACE Program is focused on renewable energy projects that will serve customers in remote areas - at least 50% of the population the project services must live in communities of 20,000 or fewer. This could be an opportunity for startups to partner with eligible entities, such as local co-ops in remote areas, to indirectly access this funding.

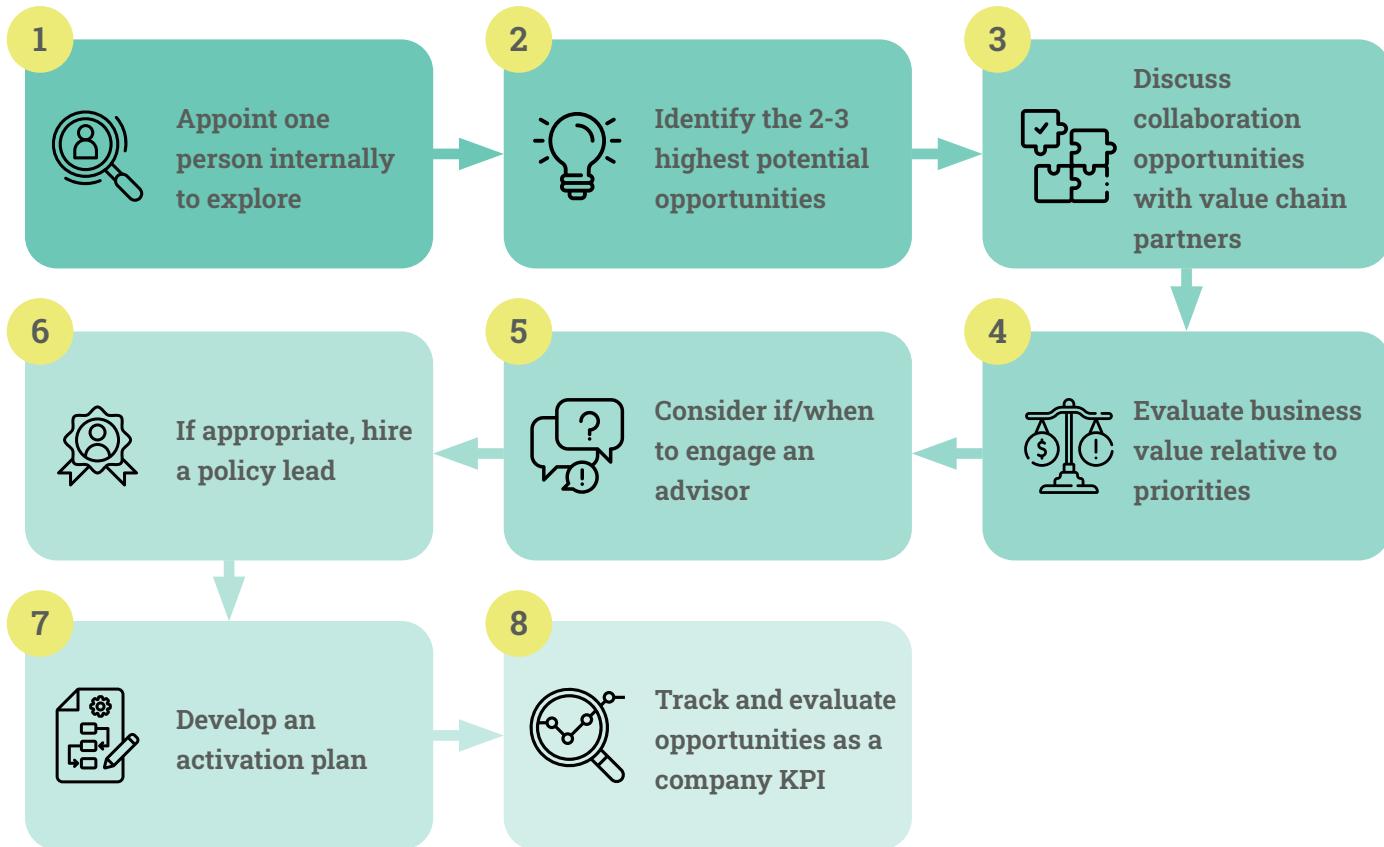
5. Empowering Rural America Program (New ERA) Program

\$9.7B of funding

- a. The New Era Program is similarly focused on helping rural Americans transition to clean energy, with eligible entities needing 50% of its consumers to be rural to qualify. This could be an opportunity to partner with local co-ops.

HOW TO NAVIGATE THE PUBLIC FUNDING JOURNEY AS A STARTUP

While there are a lot of opportunities available, only a few are applicable to each company. Startup leaders need to think strategically about where they spend their time and effort so they don't chase opportunities that are unlikely to materialize. Here's our suggestion on how to approach the space:



1. **Appoint one person internally to explore:** Given the complexity of public funding programs, we suggest establishing one internal point of contact to take charge of exploring relevant opportunities. This could be the CEO, a member of your business development team, a head of partnerships, or a chief of staff.
 - a. AI-enabled tools like [Streamline Climate](#) or [Pioneer Climate](#) could be a helpful starting point for companies on a tight budget.
 - b. Talk to your investors or other key stakeholders. At Blackhorn, we have several partners and advisors with relevant experience that can help our portfolio companies begin their journey and navigate the space.
2. **Identify the 2-3 highest potential opportunities (see below):** Companies should focus on narrowing the opportunity set to just 2-3 programs that are most appropriate given their business model. To help guide your decision-making, we built a heatmap of several business archetypes versus the key funding opportunities we are tracking. Before pursuing anything, be sure to triple check the eligibility criteria in the FOA to ensure you are eligible to apply directly.

We focused on the following considerations to prioritize the attractiveness of each opportunity:

- **Basic eligibility criteria** - Are you eligible to apply? Does it align with your company mission, business model, and technology roadmap?
- **Time required** - Do you have capacity to write a strong proposal and execute against it?
- **Total funding available** - Are there any restrictions (i.e., strings attached) with compliance (e.g. Buy American provisions)? Is the potential award amount worth the time required to apply?
- **Availability of partnerships** - Do you have existing relationships with relevant partners that you could collaborate with to provide a more complete solution? Or partners that could help drive success via letters of commitment?
- **External benefits** - Are there any benefits beyond the money itself, such as product or service validation potential?

COMPANY ARCHETYPE

FUNDING OPPORTUNITY		HARDWARE + SOFTWARE CLEAN ENERGY	HARDWARE + SOFTWARE CLEAN TRANSPORT	GRID RESILIENCE AND OPTIMIZATION SOFTWARE	ENERGY DEMAND FORECAST SOFTWARE
DIRECT OR PARTNER-ENABLED	ARPA-E OR ARPA-I				
	SBIR PROGRAMS				
	GRIP #2 (SMART GRID GRANTS)	N/A	N/A		
	EERE GRANTS				
	DOE LPO				
	TAX CREDITS				
INDIRECT	GRIP #1 & #3	N/A	N/A		
	NEVI	N/A		N/A	N/A
	GGRF				
	PACE PROGRAM				
	NEW ERA PROGRAM				
					
		HIGH CONVICTION OPPORTUNITY	MEDIUM CONVICTION OPPORTUNITY		
					
		LOW CONVICTION OPPORTUNITY	N/A	NOT APPLICABLE/VIABLE DUE TO BUSINESS MODEL	

- 3. Discuss collaboration opportunities with value chain partners:** Many opportunities include requirements or suggestions to collaborate with private, public and/or nonprofit organizations. It appears that companies with strong partnerships that are able to provide more comprehensive solutions and demonstrate how their approach will impact the local community are better-positioned for success.
- 4. Evaluate business value relative to priorities:** As you develop conviction around funding opportunities, we suggest your internal POC develop a business case to appropriately judge the value of the opportunity relative to other priorities. You want to ensure any funding opportunities you pursue align with your company mission, your technology roadmap, and your existing priorities.
 - a. Consider the technicalities of compliance with grants such as Buy American, Davis-Bacon Act (aka Prevailing Wages), etc.
- 5. Consider if/when to engage an advisor:** Consultants can provide considerable value to help companies identify the right opportunities and craft a winning application. Since they can be expensive, we suggest companies spend some time exploring to ensure there are at least 1-3 promising opportunities they would like to pursue more intentionally. If you decide to engage an advisor, consider their specific space of expertise and track record. For example, groups like [Boundary Stone](#) bring clean energy project expertise, but may not be as well-equipped to support companies serving legacy industrial sectors. Talk to your advisors and investors, who could be very helpful in navigating the selection process.
- 6. If appropriate, hire a policy lead:** At this stage, you may have discovered there are very real and significant public dollars available that align with your model and could meaningfully accelerate your business growth. If so, consider bringing subject matter expertise on board by hiring an internal policy or partnerships lead. There is no one-size-fits-all job description. Startups need to consider the differences between legislative, executive, and regulatory needs, which will vary drastically depending on the business.
- 7. Develop an activation plan:** Developing a proposal and supplemental materials can often take weeks. At this point, you've hopefully identified which programs align best with your business model and cultivated relationships with key partners and consultants. You should have also clarified priority levels, identified the person to project manage the proposal, and other people who will contribute to writing the narrative. The goal is to be ready to dive into the application process as soon as the next applicable funding opportunity is announced.
- 8. Track and evaluate opportunities as a company KPI:** As with any company initiative, set up a structure to track success and evaluate new opportunities as they arise. Companies that engage at the initial request for information stage have demonstrated greater success. Be patient, gather feedback, and build upon any lessons learned from each funding cycle.

REPRESENTATIVE STARTUP COMPANIES PURSUING PUBLIC FUNDING

To help bring the process to life, below are examples of two different company archetypes pursuing government funding opportunities.

HARDWARE + SOFTWARE CLEAN ENERGY PROVIDER

Who they are: Early-stage company that installs, owns, and operates solar panels on top of commercial and industrial real estate. The company built a proprietary software stack to sell clean energy back to commercial tenants that addresses split-incentive financial concerns between property owners and tenants.

Why is there an opportunity for funding: As the company has continued to scale, it has sought more affordable project financing for its solar panel installations. As it seeks to accelerate the deployment of distributed clean energy assets, it falls directly under the purview of the DOE loan program.

What they applied for: The company applied to the DOE's [Title 17 Clean Energy Financing](#) program for low-cost debt to finance and de-risk the deployment of additional solar projects. They requested \$500 million in loan guarantees. When combined with some of the [IRA's tax credit bonuses²](#), this would yield ~\$750 million in potential infrastructure spending.

What the process entailed: The company initiated the process by having a series of informal conversations with the DOE to ensure their business would be a good fit for the funding. Once they passed that checkpoint and recognized the scale and feasibility of the opportunity, they interviewed three parties to help them navigate the DOE LPO application process: 1) Boundary Stone, 2) Holland & Knight, and 3) [Roland Berger](#). A lobby shop, law firm, and consultancy were each offering similar services, demonstrating how critical it is for each company to take a tailored approach depending on their stage, business model, and funding opportunity. In partnership with their advisor, the team submitted part 1 of its DOE application in the first half of 2023.

- The time between the initial application submission and an initial response from the DOE is expected to be around 8 months. The process for initial contact to funding is expected to be 12-15 months.



Lessons learned along the way:

- Program officials were focused on companies that could demonstrate they could deploy funding dollars immediately, so the company was explicit in their application what new solar projects they could build in the next 12-24 months with this funding.
- After recognizing the opportunity, hiring a lawyer/consultant was highly beneficial in ensuring a strong and timely application. The company completed a thorough and targeted search to find the right partner with significant DOE experience and connections.

GRID RESILIENCE SOFTWARE COMPANY

Who they are: AI software provider of predictive analytics and actionable insights for infrastructure inspections. Their offerings help power utilities save an average 50% of costs on their data analysis and management process for asset inspections, operations and maintenance.

Why is there an opportunity for funding: The company could have submitted a solo application to the Smart Grid Grants GRIP #2 Program, but they already worked closely with a drone hardware provider and other value-add channel partners. So instead, they decided to join forces. By applying jointly, the company was able to pitch a lower barrier to entry for utilities to adopt a drones + AI inspection program, directly addressing [GRIP's](#) goal to "accelerate the deployment of transformative projects that will help to ensure the reliability of the power sector's infrastructure".

What they applied for: The company began by submitting their initial concept paper to the [GRIP](#) program. They were then asked to complete an invite-only full grant application - only one third of companies who submitted initial concept papers were asked to submit full applications. While they could have applied to all 3 of the GRIP programs, they only applied to the Smart Grid Grants program. The team felt they didn't meet enough of the criteria for the other two options to warrant spending additional time on those applications.

- They submitted a concept paper in December 2022, then submitted a full grant application in early 2023, and are expecting to hear a final decision by EOY 2023.



What the process entailed: In their application, they were very specific about how their product could execute on the Smart Grid Grant goals. Their proposal pitched a program that would allow up to 75 utilities the opportunity to enroll in six month pilot programs with their software + hardware solution. During the pilot, their hardware drone partner would first train the utility's employees to become drone pilots themselves. Then, the company would layer on its AI offering to help generate prioritized reporting and actionable information from the inspections. This would ultimately enable utilities to fast track their time to maintenance and reduce the number of failures on their grid and infrastructure.

- They requested about \$50 million (application maximum) in funding in their application.

Lessons learned along the way:

- Partnering with a hardware provider allowed them to submit a more comprehensive solution that can be implemented with any utility, making their application seemingly more compelling.
- As a startup, they were able to be more nimble during the application process. Large corporations appeared to struggle to collect all the information needed to submit the application in time.



CONSIDERING PUBLIC FUNDING OPPORTUNITIES AT BLACKHORN

As a result of this momentous funding opportunity, we as a team at Blackhorn are thinking about how our investment thesis accounts for these major tailwinds. But that is exactly how we view these funding opportunities, as tailwinds, and not as a core part of one's business model. As a startup, it is critical to think about how this funding could help you penetrate new customer segments, find a new business partner, or expand into new territories. They should be supplemental features to your business, as many of these funding opportunities are highly competitive and may not be realized. At Blackhorn, our underwriting process accounts for how prospective startups could utilize these funding opportunities to extend their cash runway, drive new business, or supplement their revenue. Companies who are tactical and creative about accessing this funding could separate themselves from the crowd and generate impactful tailwinds for their businesses.

At Blackhorn, we aim to support our portfolio companies as they navigate the funding search with our incredible team that brings a diverse set of perspectives in the space. Operating Partner and Head of Insights [Mark Loch](#) has nearly four decades of experience launching and building new business and social impact enterprises in the US, Africa, and Latin America. [Governor Bill Ritter](#) served as Colorado's 41st governor, during which he established Colorado as a national leader in renewable energy. Since then, he founded and leads the Center for the New Energy Economy at Colorado State University, where he helps state and federal policymakers create clean energy policy. Senior Advisor [Bret Kadison](#) brings experience from the Department of Energy as well as a senior executive and advisor at climate-related energy startups and corporates.

As discussed throughout this piece, there are so many opportunities with different requirements, deadlines, and eligibility restraints. That is why we at Blackhorn want to be your strategic partner and share some of the wisdom that we've gained throughout the process. This is certainly still a nascent development, as the U.S. just passed the one year mark of [signing the IRA](#), but we want to be here to help you navigate the twists and turns that will undoubtedly unfold.

