

U.S.-Exposed Graphite Companies and Prospects for DOE/US Government Support

The U.S. government is prioritizing domestic and allied sources of battery-grade graphite to reduce dependence on China ¹ ². Below we evaluate seven publicly traded graphite companies against key criteria – development stage, U.S. nexus, federal engagement, permitting, scalability, industry traction, financial readiness, China-risk reduction, and recent stock movement – to gauge their likelihood of receiving U.S. Department of Energy (DOE) or broader government support (loans, grants, offtake agreements, or equity). Companies are ranked from highest to lowest likelihood of such support.

1. Graphite One (OTCQX: GPFOF) – *Likelihood: 9/10*

Summary: Graphite One is advancing the **Graphite Creek** project in Alaska, the largest known graphite deposit in the U.S., with plans for a fully integrated domestic supply chain ³ ⁴. Its strategy spans mining **and** producing battery-ready anode material at a dedicated U.S. facility (planned in Warren, Ohio) ⁵. Having completed a feasibility study in April 2025 projecting a **world-class** 175,000 tpa graphite concentrate operation over a 20-year mine life ⁶, Graphite One is nearing the permitting and financing stage for production.

Federal engagement: Graphite One already enjoys strong U.S. government backing. It was the **first mining project in Alaska accepted to the federal FAST-41 permitting dashboard**, ensuring streamlined, coordinated environmental reviews ⁷ ⁸. The Department of Defense (DoD) awarded Graphite One a **\$37.5 million Defense Production Act grant** to accelerate its feasibility studies and pilot processing, which helped complete the FS 15 months ahead of schedule ⁹ ⁶. Additionally, Graphite One received two DoD R&D contracts (including ~\$4.7 M from the Defense Logistics Agency) for graphite-based materials, underscoring its strategic importance ¹⁰ ¹¹. In late 2024 and 2025, the company secured **non-binding loan indications from the U.S. Export-Import Bank (EXIM)** totaling up to **\$895 million** – \$325 M for its Ohio anode plant and \$570 M for the Alaska mine – under EXIM's initiatives to counter China's dominance ¹² ¹³. These letters of interest, while conditional, signal significant federal financial support in progress. Graphite One has not yet received a DOE loan, but given its critical status and EXIM/DoD backing, it remains a prime candidate for future DOE Loan Programs Office consideration as well.

Key catalysts (next 6–18 months):

- **Permitting milestones:** With FAST-41 coordination, a **Coordinated Project Plan** has been posted, and the federal permitting timeline is set at ~13.5 months ¹⁴. Completion of NEPA review and major permits by ~late 2026 will be a crucial catalyst.
- **Feasibility & financing decisions:** Now that the feasibility study is published (Q2 2025), Graphite One intends to make a formal **investment decision** on the mine and plant. This hinges on **financing arrangements**, including moving the EXIM letters of interest to formal loan commitments (application expected in 2026) ¹⁵. A potential DOE loan application or additional DOD funding could also emerge.

- **Offtake and strategic partnerships:** Graphite One's fully domestic supply proposition is attracting end-users. Notably, in June 2025 **Lucid Motors signed an agreement** to source graphite anode material from Graphite One's future output ¹⁶ . Finalizing binding offtake agreements with Lucid or other U.S. EV/battery makers (or even the DoD for stockpile/offtake) would validate demand. Additional partnerships (e.g. with battery manufacturers for its planned Ohio plant) may be announced as the project advances.
- **Construction and pilot progress:** Continued operation of its pilot plant and further metallurgical testing (supported by DoD funds) will de-risk the scaling process. Site selection and early works for the Ohio anode facility, as well as infrastructure development in Alaska, could be initiated if financing falls into place.

Risks: Permitting and environmental hurdles pose a risk, though FAST-41 status mitigates this with coordinated reviews. The remote Alaskan location and sensitive ecosystems mean any delays or opposition (over land use, habitat or subsistence impacts) could slow the timeline. **Financing** needs are substantial – the integrated project has a multi-billion-dollar scope ¹⁷ – and while government support is indicated, Graphite One must secure the remainder through equity or debt, risking dilution or high leverage. The company is **pre-revenue**, so execution risk looms in scaling from studies to construction. **Competition** is rising: other projects (synthetic graphite plants, foreign suppliers like Canada) will come online earlier, and any technology or cost advantage by rivals could challenge Graphite One's market entry. However, its unique position as a domestic mine gives it a strategic edge. **China dependency risk reduction:** Graphite One directly addresses U.S. import dependence (currently 100% of U.S. graphite is imported, ~80% from China ¹ ¹⁸). If it fails to deliver on time, U.S. consumers might remain tied to Chinese or other foreign sources. Conversely, China's export controls on graphite (announced in 2023) raise prices and could actually benefit Graphite One's value proposition ¹⁸ . Ensuring product qualification to customer specs (especially for EV batteries) is another risk – it must demonstrate its anode material meets stringent performance standards. Overall, Graphite One's heavy reliance on U.S. government support and policy (Pentagon, EXIM, potentially DOE) means any policy shift or budget issue could impact its funding pipeline.

Likelihood score: 9/10. Justification: Graphite One checks nearly every box for federal support. It is **integral to U.S. supply chain security**, offering the only large-scale natural graphite source domestically. It already secured DoD funding and EXIM's nod – strong signals of alignment with national priorities ¹⁹ ³ . With permitting fast-tracked and major stakeholders (Alaska officials, DoD) championing it, Graphite One is highly likely to receive further government backing (loans or even offtake commitments) as it progresses. The only reason it's not a full 10/10 is the project's lead time and remaining financing gap – until construction is a go, some execution uncertainty remains. Nonetheless, **Graphite One is arguably the top contender** for additional DOE or other federal support among its peers, given current evidence.

2. Novonix (Nasdaq: NVX) – *Likelihood: 9/10*

Summary: Novonix is an **Australian-founded** company that has established a significant U.S. presence focused on **synthetic graphite anode** materials. Its main project is a large-scale **anode manufacturing facility in Chattanooga, Tennessee**, building on Novonix's existing pilot plant there ²⁰ ²¹ . Novonix is already moving from pilot to commercial production – a small-scale plant is slated for first output in 2025, and a **new expanded facility** is planned to reach **31,500 tpa** of synthetic graphite by 2028 ²² . This would make it one of the first domestic sources of battery-grade synthetic graphite. Novonix's operations directly serve U.S. battery cell manufacturers and automakers, positioning it as a key midstream supplier.

Federal engagement: Support for Novonix has been **robust and multi-faceted**. In late 2022, Novonix was selected for a **\$150 million grant** under the Bipartisan Infrastructure Law to aid its U.S. plant construction (part of ~\$2.8B DOE grants for battery materials) ²³. Furthermore, in December 2024 the DOE's Loan Programs Office provided a **conditional loan commitment of \$754.8 million** to finance Novonix's Tennessee expansion under the Advanced Technology Vehicles Manufacturing program ²⁰. This DOE loan – one of the largest in the anode sector – will fund the scale-up to 31.5 kTPY capacity and create 450 jobs ²⁴. In addition, Novonix has leveraged the IRA's manufacturing incentives, securing a **\$103 million investment tax credit** for its facility ²⁵. Taken together, Novonix is already the beneficiary of **significant DOE financial support (grant + loan)**, reflecting U.S. commitment to domestic graphite alternatives. While not publicly disclosed, Novonix's collaboration with U.S. universities (e.g. a STEM training program at Tennessee State) and hiring of former fossil industry workers also aligns with federal workforce priorities ²⁶. There have been no known DoD grants to Novonix – likely because synthetic graphite is more of a commercial focus – but the DOE's backing alone firmly entrenches Novonix in the federal clean energy supply chain initiative.

Key catalysts (next 6–18 months):

- **Construction and commissioning:** Novonix will be executing on the DOE-funded **Chattanooga plant expansion**. Key milestones include groundbreaking of the new production facility (expected in 2024), installation of equipment, and initial **ramp-up toward 10–20 kTPY by 2025–26** ²¹. Hitting construction timelines and demonstrating progress will unlock loan disbursements and instill confidence.
- **Production start at Phase 1:** The **existing Chattanooga facility** is slated for commercial production in 2025 ²⁷. Successfully delivering first batches of synthetic graphite anode material to customers will be a critical proof point. Any hiccups in product quality or throughput could affect future orders.
- **Customer offtake fulfillment:** Novonix has already signed **supply agreements** with major players – **Panasonic Energy, Stellantis, and Volkswagen's PowerCo** – for material from its pilot facility ²¹ ²⁸. In the next year, Novonix will need to **deliver sample and initial volumes** to these customers and achieve final product qualifications. Positive feedback or expansion of these offtake agreements (e.g. converting MOUs into binding volume contracts as capacity grows) would be a strong catalyst. Panasonic (which supplies Tesla's U.S. battery plants) in particular is a strategic partner ²⁸.
- **Additional funding or partnerships:** While DOE's loan covers a large portion of expansion capital, Novonix may seek **strategic investment or JV opportunities** (possibly with automakers or battery giants) to further scale or integrate its technology. Any announcement of additional equity investment by an OEM or integration into a battery plant project (for example, a partnership to co-locate anode production near a gigafactory) would underscore its momentum.
- **Technology advancements:** Novonix is known for its battery tech R&D. Progress in improving its synthetic graphite cost or performance (e.g. proprietary processes that lower energy use or increase yield) could be announced and would strengthen its competitive position. Also, any moves into **recycling** or blending recycled graphite with synthetic (leveraging IRA incentives for recycling) might be on the horizon.

Risks: Despite strong support, Novonix faces several risks. **Execution risk** is notable – scaling synthetic graphite production is capital-intensive and technically complex (high-temperature processes, etc.), and any delays or cost overruns in the plant build-out could occur. The **DOE loan is conditional** on meeting certain milestones ²⁰, so Novonix must maintain compliance and performance to retain support. **Market risk** is another factor: synthetic graphite competes with natural graphite on cost; if natural graphite (from projects

like Graphite One or imports) floods the market at lower prices, Novonix must demonstrate superior consistency or local supply benefits to justify costs. Conversely, if **petroleum needle coke** (the feedstock for synthetic graphite) spikes in price or becomes constrained, that could squeeze margins. **Customer reliance:** Although it has marquee customers lined up, these deals often have performance clauses. Any failure to meet spec or timeline could risk contract cancellation. (For instance, its peer Syrah faced a default notice from Tesla when qualification was delayed ²⁹ ³⁰ – Novonix will want to avoid similar issues with Panasonic/Stellantis.) On the financial side, Novonix's **balance sheet** will carry significant debt with the DOE loan, and it must scale revenue in time to service this. **Policy dependency:** The viability of Novonix's U.S. operation partly relies on the **IRA tax credits and tariffs** that make domestic production attractive. If policies change (e.g. if tariffs on Chinese graphite are reduced or if battery component credits are altered), competition could intensify. However, given the long-term U.S. stance against China's dominance in anodes ³¹ ²⁸, this seems a manageable risk. Finally, **environmental and safety** considerations (synthetic graphite manufacturing involves hazardous materials and high energy use) must be managed to avoid any regulatory setbacks.

Likelihood score: 9/10. *Justification:* Novonix is **already a recipient of DOE support**, indicating the government's high confidence in its project ²⁰. It directly contributes to onshoring a part of the battery supply chain currently 100% overseas. With substantial federal funds in hand (grant, loan) and top-tier industry customers, the likelihood of **continued government involvement is very high**. Barring major missteps, Novonix should maintain its support – it may even seek **additional DOE loans or grants** for further expansion phases. The only slight caveat is execution: it must prove it can deliver on promises. Given current evidence, however, **Novonix is a clear federal priority** in the graphite anode space, nearly on par with Graphite One in strategic importance (Graphite One addresses natural graphite supply, Novonix addresses synthetic; both are needed). We score it 9/10, as most of the involvement has already materialized (conditional loan approved, etc.), and ongoing support seems very likely.

3. Syrah Resources (OTC: SYAAF) – *Likelihood: 8/10*

Summary: Australia-based **Syrah Resources** is a unique player with a **hybrid global project**: it operates the **Balama natural graphite mine in Mozambique** (one of the world's largest graphite mines) and is processing that graphite into active **battery anode material at a plant in Vidalia, Louisiana**. Syrah's Vidalia facility is on track to become the **first large-scale anode material producer in the U.S.** ³⁰. A smaller initial phase (~11.25 ktpa) is being commissioned, with an expansion to **45,000 tpa by 2025–2026** underway ³². This vertically integrated mine-to-anode supply chain (albeit with the mine overseas) positions Syrah as an early supplier to U.S. battery makers, effectively bridging the gap until domestic mines come online.

U.S. nexus: While Syrah's raw material is mined in Africa, all **value-added processing is done in Louisiana**, meaning the graphite anode output is U.S.-produced – a key distinction for qualifying under U.S. battery content rules. Vidalia's expansion will make it, for a time, the **only major non-Chinese source** of battery-grade graphite globally ³³. This significantly advances U.S. aims to localize battery materials, though the foreign mine means Syrah doesn't check the "domestic raw material" box. Nevertheless, the project has strong support from U.S. policymakers due to its ready-now scale.

Federal engagement: Syrah has benefited from **substantial DOE support**. In April 2022, the DOE Loan Programs Office issued a **conditional commitment of \$107 million** (ATVM loan) to Syrah Technologies for the initial Vidalia expansion ³⁴, which would enable 11,250 tpa of AAM by 2023 ³⁵. Additionally, in October

2022 Syrah was **awarded a DOE grant up to \$219.8 million** under the Bipartisan Infrastructure Law to help fund the larger expansion to 45 ktpa ³⁶ ³⁷ . (Syrah is reportedly considering converting this grant into a DOE loan for even larger scale, emphasizing continued federal partnership ³⁸ .) These two funding streams – loan and grant – highlight a significant federal stake in Syrah's success. Syrah has also drawn attention from U.S. trade policy: its project stands to benefit from **tariffs on Chinese graphite (as high as ~94%)** imposed to incentivize local production ² . We have not seen direct DoD or FAST-41 involvement (since the mine is abroad and the U.S. plant is an industrial facility not requiring federal land permits). However, Syrah's importance is reflected in high-level comments: its Vidalia plant is often cited by officials as an example of **"re-shoring" critical mineral processing** ³⁹ . On the industry side, Syrah secured a marquee offtake with Tesla in 2021 – a **four-year deal for 8,000 tpa of anode material** starting 2025 ³⁰ – which the U.S. government likely views favorably as it ties a major EV producer to a non-Chinese supply. (That contract recently faced a qualification delay, but as of Sept 2025, Tesla and Syrah agreed to extend deadlines and continue collaboration ²⁹ ⁴⁰ .)

Key catalysts (next 6–18 months):

- **Phase 1 production ramp:** Syrah is currently commissioning its initial production lines at Vidalia (~11 ktpa capacity). Achieving **commercial production of qualified anode material** in the coming months is a critical catalyst. This involves final product qualification by customers (notably **Tesla**, which is testing Syrah's samples) and demonstrating consistent quality. A successful start would trigger offtake volumes and possibly the disbursement of remaining DOE loan tranches.
- **Expansion construction milestones:** The **45 ktpa expansion (Vidalia Stage 2)** is under construction, targeted for completion in late 2025. Key upcoming milestones include completing construction of additional furnaces, coating systems, etc., by 2024, and starting the commissioning of Stage 2 equipment. Updates on timeline or costs will be watched. Any **accelerated completion or capacity creep** (e.g. ability to exceed 45k tons or add Stage 3) could be bullish. Conversely, delays (perhaps due to supply chain or workforce issues) would be a concern.
- **Financing for Stage 2/3:** While DOE's \$220M grant supports Stage 2, Syrah has also raised equity and might seek further debt. The company has hinted at negotiating a **larger DOE loan** for a potential Stage 3 expansion beyond 45 ktpa ⁴¹ . In the next 6–18 months, we may see Syrah either finalize that *or* secure other funding (possibly an Australian government or DFC support for Mozambique operations). Any **announcement of additional government financing** (loan or grants) to scale further would be a strong catalyst, reinforcing U.S. support.
- **Resolution of Tesla offtake and new contracts:** By mid-2025, Syrah and Tesla aim to finalize the product qualification. A positive outcome would mean Tesla begins offtaking material, validating Syrah's product at scale. The recent extension to November 2025 for cure indicates both sides are keen to continue ²⁹ . If Syrah satisfies Tesla, we can expect **first shipments to Tesla's battery partner (likely Panasonic or its Texas plant)**, generating initial revenue. Additionally, Syrah has been sampling to other automakers and cell producers; new offtake agreements (for the remaining capacity not committed to Tesla) could be signed in the coming year, perhaps with other U.S. cell manufacturers.
- **Policy and trade developments:** If the U.S. government takes further actions to secure graphite supply – e.g. invoking the Defense Production Act for anode materials or implementing more incentives – Syrah is well positioned to benefit given it's already up and running. For example, any **federal offtake or stockpiling** of graphite anode (hypothetically by DoD or DOE for strategic reserves) could involve Syrah due to its ability to supply now. Monitoring U.S.-China trade tensions is also key: if export controls from China tighten (China did implement export licenses on graphite in

late 2023), it could increase urgency (and possibly price support) for Syrah's U.S. output, potentially prompting **faster government support** or expansion.

Risks: Syrah, despite being ahead in production, faces several risks. One is the **qualification risk** highlighted by the Tesla situation – producing consistent, high-quality anode material at scale is challenging. The recent notice of default (due to not meeting certain specs/timeline) shows that even slight technical hurdles can jeopardize contracts ²⁹. Syrah must resolve any product quality issues by early 2026 or risk termination of the Tesla deal ⁴². Another risk is **raw material dependence on Mozambique**: geopolitical, operational, or logistical issues at Balama (like unrest, strikes, or shipping bottlenecks) can directly impact Vidalia's feedstock supply. This is partly mitigated by Balama's large scale and existing output, but it's a different continent subject to its own risks. **Permitting and ESG concerns:** While Vidalia is an industrial site, any environmental non-compliance or community issues (e.g. emissions from the graphitization process) could attract regulatory scrutiny. Syrah must also manage the **Mozambique ESG aspect** to satisfy Western customers (ensuring responsible mining, etc.). **Financial risk:** Syrah has spent heavily on Vidalia and Balama; cost overruns have happened (they raised additional capital in 2023 after expansion costs increased). If graphite prices or demand don't meet expectations, Syrah could face cashflow issues. Relatedly, **market risk** is notable: Syrah's economics assume a robust EV demand and willingness of customers to pay a premium for ex-China anode. If China aggressively undercuts prices or if numerous new projects (Novonix, China-owned Graphex, etc.) create a glut, Syrah could feel margin pressure. However, given current trends (strong EV growth and U.S. policy support), this seems manageable in the short term. **China reduction efficacy:** Syrah does reduce reliance on China on the processing side, but the **mine is not U.S. or FTA country-sourced**, meaning Syrah's graphite may not count for the IRA critical mineral credit for EVs. (It does count as a **battery component made in USA** for the separate component credit ⁴³, which is helpful.) This nuance might make automakers slightly less incentivized to use Syrah's graphite vs. a truly U.S./FTA source in the long run. It's a competitive risk: once projects like Graphite One or NMG (Canada) come online, Syrah's non-FTA feedstock might be a disadvantage for customer tax credits. In summary, Syrah must use its first-mover advantage wisely before others catch up.

Likelihood score: 8/10. *Justification:* Syrah already **enjoys major U.S. government support**, second only to Novonix in terms of dollars committed (over \$300M in DOE loan+grant) ³⁴ ³⁷. The U.S. sees Vidalia as critical to kick-starting a domestic anode supply ³⁹. Given this backing, the likelihood of **continued or additional involvement is high** – for instance, DOE converting the grant to a larger loan for further expansion, or policy measures that indirectly benefit Syrah (tariffs, production tax credits). Syrah's score is slightly lower than Graphite One and Novonix because its mine is foreign, which is a less direct win for U.S. resource security. The government's ultimate goal is domestic sourcing, so if U.S.-based projects progress well, **Syrah might see relatively less new support** beyond what's already committed. Additionally, the hiccup with Tesla adds a note of caution; full success isn't guaranteed. However, for at least the next few years, Syrah is **integral to U.S. graphite supply** – it is effectively *the* large-scale producer on U.S. soil right now ⁴⁴ – and the government is likely to ensure its success (or at minimum, not let it fail due to lack of support). Thus, it remains near the top of the list for likelihood of ongoing U.S. government involvement.

4. Westwater Resources (NYSE American: WWR) – *Likelihood: 7/10*

Summary: Westwater Resources (through its subsidiary Alabama Graphite Products) is developing a **battery-grade natural graphite processing plant in Kellyton, Alabama**, and ultimately plans to source feedstock from its owned **Coosa Graphite deposit** in the same state. The **Kellyton plant** (Phase 1) is currently under construction, aiming to produce **coated spherical purified graphite (CSPG)** for li-ion

anodes. Initial production (~3,700 tpa) will use imported graphite concentrate, but Westwater intends to integrate upstream mining by 2028 when the Coosa mine (41,900-acre property) comes online ⁴⁵ ⁴⁶ . This project positions Westwater as a potential **first U.S.-based natural graphite anode producer** (since Graphite One's mine is years away). The plant is ~85% built as of mid-2025, with some pilot-scale output already being tested ⁴⁷ . Westwater's strategy leverages a U.S. location and proximity to automakers in the southeastern battery belt.

U.S. nexus: Westwater's nexus is very strong – both its processing facility and future mine are in Alabama, USA. It is marketing itself as potentially “**the first U.S. producer of CSPG**” once operations commence ⁴⁸ . This domestic footprint aligns perfectly with U.S. policy to localize battery supply chains. Notably, Westwater's project has been recognized at the federal level: it was designated as a **FAST-41 covered project**, signaling it as a priority infrastructure project with streamlined federal permitting ⁴⁹ ⁵⁰ . (The FAST-41 status likely applies to its planned Coosa mine and possibly the integrated project timeline, indicating federal coordination in permitting.) State support is also evident – Alabama has provided incentives (e.g. infrastructure grants, tax abatements) to facilitate the \$202 M Phase 1 plant ⁵¹ .

Federal engagement: While Westwater has not yet received a DOE grant or DPA funding, it has made significant strides in federal engagement: in 2025 it received a **letter of interest from the U.S. Export-Import Bank (EXIM)** for debt financing. EXIM's letter indicates potential support for Kellyton as part of the “Make More in America” initiative, and Westwater submitted a formal loan application with EXIM, which is now in due diligence ⁵² ⁵³ . This suggests the company could secure **federal loan financing for a chunk of its project capex** in the coming year. Moreover, Westwater's CEO has indicated active discussions “at various levels with the DOE, DoD, EXIM Bank, and the Federal Permitting Council” ⁵⁴ . The **FAST-41 listing** (via the Federal Permitting Improvement Steering Council) is one concrete outcome of these discussions, underscoring federal recognition of the project's strategic nature ⁴⁹ . In addition, Westwater **indirectly benefited from DOE's support to the region** – for instance, a **\$125 M DOE grant was awarded in 2024 to a separate graphite plant in Alabama (Urbix's project)** ⁵⁵ , reflecting the government's commitment to building graphite processing capacity in the state. (This grant, while not going to Westwater, complements the same ecosystem and indicates that DOE sees Alabama as a viable graphite hub.) It's possible Westwater could tap future DOE funding rounds (e.g. for mining or anode materials) especially as it moves to integrate the Coosa mine. No known DoD grants have gone to Westwater, but as a domestic source it could become a candidate for DOD's Defense Production Act program in the future (especially for the mining aspect). Summarily, Westwater's federal engagement is growing, though funds have yet to flow directly; EXIM appears to be the first likely source of federal financing pending approval ⁵⁶ .

Key catalysts (next 6–18 months):

- **Financing completion (Phase 1):** Westwater's top priority is securing the remaining capital to finish the Kellyton plant. It estimated ~\$245 M needed for Phase 1, with ~\$124 M spent by mid-2025 ⁴⁷ . A **\$150 M debt financing** is in syndication, and **EXIM's potential loan** could cover a large portion ⁵⁷ ⁵³ . In the next few months, we anticipate news on **EXIM's loan decision** or progress (e.g. a conditional commitment or board approval). Likewise, Westwater might finalize private debt or a strategic investment. Successfully closing financing by early 2024 will allow construction to ramp back up to full speed.
- **Commissioning and startup:** If financing is secured, Westwater aims to complete installation and begin **commissioning of the Kellyton plant by late 2024 into 2025**. Already, critical equipment like micronizing and spheroidizing mills are installed and even test-operated on a qualification line ⁴⁷ .

The next catalyst will be **initial production of CSPG** for customers. Westwater has produced >1 ton of sample anode material on its pilot line and is improving the process ⁵⁸. Delivering larger qualification batches and receiving feedback from battery cell manufacturers (ongoing through 2024) will be key. By late 2024 or early 2025, Westwater could announce its **first commercial-scale production runs** and perhaps the shipment of those to offtake partners.

- **Offtake & customer deals:** Westwater already landed a significant offtake: in 2024 it signed an agreement to **supply Stellantis (via its battery partners, such as LG Energy)** with graphite anode material from Kellyton ⁵⁹. Over the next year, this deal may solidify in volume and schedule (likely tied to Westwater's production timeline). A catalyst will be any **public details on the Stellantis contract** (e.g. volume commitments or start date). Additionally, Westwater is no doubt courting other customers – possibly Ford, GM (which is investing in a rival, NMG), or battery makers like SK On, Panasonic, etc. Announcements of new offtake MOUs or contracts would considerably boost confidence. The Stellantis deal alone is a huge validator, so execution on delivering material to Stellantis's spec (perhaps for their EV plants in 2026+) is crucial.
- **Coosa mine development:** In the 6–18 month window, Westwater will likely advance the groundwork for its **Coosa graphite mine**. Catalysts could include an updated feasibility study or resource report, initiation of environmental permitting (the Coosa deposit would require state and possibly federal permits), or pilot mining. Since Coosa's target production start is ~2028, late 2024–2025 is the time to start NEPA or at least baseline studies. The project might also seek FAST-41 status (if not already covered) and possibly federal funding. Any **grant or support for mining** (from DOE's critical minerals programs or DoD) in the next year would be a major catalyst and is plausible given Coosa's role in eventually eliminating the need for imported feedstock.
- **State and federal incentives:** There could be additional incentives unlocked – for example, if Westwater reaches certain hiring or investment milestones, Alabama might extend further support. On the federal side, Westwater might apply for the DOE ATVM or Title 17 loan programs for either the plant expansion or the mine. Being invited to the due diligence phase for a DOE loan (similar to how Novonix and Syrah did) would be newsworthy if it occurs.

Risks: Westwater's venture is not without risks. **Financing risk** is front and center – as of mid-2025 they had only ~\$12 M cash on hand ⁶⁰, relying on interim convertible notes while big financing is arranged. If debt markets tighten or EXIM's process drags on, Westwater could face cash crunches or need dilutive equity raises. The timeline for EXIM is uncertain (government shutdowns or policy shifts could affect it). **Construction/completion risk:** With 85% of equipment delivered, the project is well advanced, but final construction was paused pending financing. Any further delay could escalate costs or cause contractor demobilization issues. There's also **scale-up risk:** producing high-purity CSPG consistently is tricky – Westwater is using a proprietary purification process (for which it obtained a U.S. patent) ⁶¹. It must prove this at full scale. Competitors like Syrah and NMG have a head start in process development; Westwater's tech could encounter unforeseen issues, impacting quality or cost. **Feedstock dependence:** Initially, Westwater will rely on **imported graphite concentrate**, likely from China (or potentially elsewhere). This poses a **China risk:** any disruption in Chinese supply or export restrictions could starve the plant. Westwater acknowledges this and has been seeking a **"non-Chinese backup feedstock supplier"** ⁵³ to mitigate this risk (possibly Syrah's material or a Canadian source). Until Coosa comes online, this remains a vulnerability. **Market competition:** By the time Westwater produces in volume (2025–26), it will compete with Syrah (already producing) and possibly Novonix (synthetic, but overlapping customers). If those saturate the market or undercut pricing, Westwater will need to differentiate (e.g. by being *truly* all-American once Coosa feeds it). Also, NMG (Canada) could be selling into the U.S. by then, and Graphex's Michigan plant may ramp up with Chinese expertise. Westwater's ability to carve out market share is tied to its relationships (Stellantis helps, and perhaps others to come). **Permitting and timeline for Coosa mine:**

On the longer horizon, getting a new mine permitted in the U.S. is non-trivial. Alabama has been supportive, but environmental groups or local opposition could emerge once that process kicks off. Any hitch in the mining timeline (say Coosa is delayed past 2028) means prolonged reliance on foreign feedstock, which would undercut the “fully domestic” narrative and could make federal support less enthusiastic than for a project like Graphite One. Finally, **execution team experience**: Westwater pivoted from uranium to graphite a few years ago; delivering a complex chemical processing facility is a first for them, so execution rests on key hires and partners (any turnover in its technical team could be a risk). On balance, these risks are real but **addressable** – Westwater’s management is actively seeking to hedge feedstock risk and secure financing, and its Stellantis deal validates its product path.

Likelihood score: 7/10. *Justification*: Westwater is **on the cusp** of significant U.S. support but hasn’t fully secured it yet. The ingredients are there: a domestic project in an advanced stage, a FAST-41 designation, an EXIM application in process, and alignment with U.S. critical mineral goals (graphite in Alabama) ⁶². We give it 7/10, reflecting a strong likelihood that **federal involvement will materialize** (via an EXIM loan approval, and possibly DOE or DOD support later). This is bolstered by the fact that **major OEMs like Stellantis have skin in the game** with Westwater ⁵⁹ – the government tends to back projects that industry players also believe in. However, because Westwater has not yet *received* a large grant or loan, and must still clear the hurdle of closing its financing, its score is a bit lower than peers already flush with federal funds. Additionally, its smaller initial scale and reliance on imported feedstock make it slightly less compelling to policymakers than a Graphite One or Novonix. That said, if Westwater hits its milestones, we expect its federal support score to rise. In summary, **Westwater is a leading domestic contender** and is reasonably likely to see DOE/USG involvement in the near term – we have high confidence in EXIM support coming through, and moderate confidence in potential DOE or DOD engagement as the project evolves.

5. Nouveau Monde Graphite (NYSE: NMG) – *Likelihood: 6/10*

Summary: Nouveau Monde Graphite (NMG) is a Canadian company developing an integrated **natural graphite mine and anode material operation** in Quebec – a friendly nation closely aligned with U.S. supply chain goals. NMG’s flagship **Matawinie mine** (about 150 km north of Montreal) is under development, and it plans to produce ~100,000 tpa of high-purity graphite concentrate. In parallel, NMG is constructing the **Bécancour battery material plant** (also in Quebec) to convert that concentrate into **active anode material** (coated spherical graphite) for EV batteries ⁶³. Once in operation (targeting 2025–2026 for Phase 2), NMG would be the **first fully integrated North American graphite anode producer**, from mine to battery material ⁶⁴. The projected Phase 2 output is about **42,000 tpa of anode material**, and NMG is striving for carbon-neutral production with hydroelectric power. Although based in Canada, NMG’s products are aimed largely at the U.S. EV battery market, leveraging the U.S.-Canada free trade agreement (USMCA) which allows Canadian critical minerals to count toward U.S. EV incentives.

U.S. nexus: While NMG’s physical operations are in Quebec, its nexus to the U.S. comes from two angles: **policy and customers**. Policy-wise, Canada is treated as a domestic source for critical minerals under the U.S. Inflation Reduction Act’s EV credit rules ⁴³. This means graphite from NMG’s mine qualifies as a local source for U.S. automakers’ mineral content requirements, and the anode material made in Canada should also count as North American battery component manufacturing. Thus, U.S. government objectives are served by NMG’s success almost as much as a U.S. project (as evidenced by the inclusion of Canadian projects in U.S. critical mineral strategy discussions). On the customer side, NMG has landed **major U.S. offtake partners**: it has binding agreements to supply **General Motors and Panasonic Energy** with substantial volumes of anode material over multi-year terms ⁶³ ⁶⁵. These deals, announced in 2023–

2024, cover **about 85% of NMG's planned output** and come with significant strategic investments: **GM is investing \$150 M in NMG's project**, and Panasonic \$25 M, alongside offtake commitments of 18,000 tpa each for at least 7 years ⁶⁶ ⁶⁷ . Both GM and Panasonic will use NMG's graphite in U.S. battery plants (GM's Ultium Cells facilities and Panasonic's Kansas plant for Tesla, respectively). This creates a **direct link to U.S. industry**. NMG's integration with U.S. EV supply chains (via these customers) gives it an indirect nexus to U.S. government interests – for instance, GM's investment likely aligns with their DOE-supported battery efforts, and Panasonic's involvement ties into the Tesla supply chain (Tesla being a beneficiary of U.S. EV credits). However, NMG itself, being across the border, is primarily supported by Canadian federal and provincial governments rather than U.S. agencies.

Federal engagement: Direct U.S. government funding for NMG is not evident to date. The U.S. typically focuses its grants/loans on domestic soil projects, while Canada has robustly financed NMG. Indeed, NMG recently secured **US\$50 M in equity investment from the Canada Growth Fund and the Québec government** ⁶⁸ ⁶⁹ , on top of previous Canadian grants and soft loans (e.g. Sustainable Development Technology Canada contributed to NMG's pilot, Québec's Investment arm invested, etc.). That said, **NMG does benefit from U.S. trade policy:** the 25% U.S. tariff on Chinese graphite anode (enacted in 2020) and additional duties (up to 93.5%) ² improve NMG's competitive position when selling to U.S. customers. Moreover, the **U.S. DOD has identified graphite as a strategic material**, and NMG's project (albeit in Canada) could feasibly be a contingency supply for the U.S. in a crisis. There have been no known DOD contracts or DOE grants for NMG, but the **presence of GM (a company with deep engagements with DOE and DOD programs) as a partner** might facilitate some indirect support (for example, GM could potentially apply for DOE loan funds that in part secure supply from NMG). On the regulatory side, the FAST-41 program is U.S.-centric, so NMG wouldn't be on it, but it has strong support from Canadian authorities under analogous streamlined permitting efforts. One area of U.S. engagement could be the **U.S. Export-Import Bank (EXIM)** or the U.S. International Development Finance Corp (DFC); however, since Canada is a G7 economy, DFC likely wouldn't invest, and EXIM usually finances exports of U.S. goods (NMG's project might involve U.S. engineering or equipment – if so, EXIM loans to NMG are conceivable). No such EXIM deal has been reported, though. In summary, NMG's support pipeline is primarily Canadian/European (for instance, it also works with Japan's Mitsui), and the U.S. government's role has been more *macro-policy* (tariffs, trade rules favoring allies) rather than project-specific funding.

Key catalysts (next 6–18 months):

- **Project financing & Final Investment Decision (FID):** NMG has made great strides in securing offtakes and initial investments from GM/Panasonic (total \$87.5 M in early 2024) ⁷⁰ ⁷¹ . However, the full project (mine + plant) will require on the order of several hundred million dollars. The company has signaled a potential **additional \$275 M funding from anchor customers** upon meeting certain conditions ⁷² . In the next year, a major catalyst will be NMG **closing the full financing package** for its Phase 2. This could involve debt financing – perhaps a large loan from Export Development Canada or a syndicate of banks, possibly guaranteed by the Canadian government. Any announcement that the project has achieved FID and secured all funding (equity + debt) will mark a transition to construction in earnest.
- **Construction milestones in Quebec:** NMG has already built a demonstration purification facility and is doing prep work at Matawinie. Upcoming catalysts include the **start of commercial construction** at the Bécancour anode plant (expected soon after financing). Watch for news of ground-breaking at Bécancour's site and major equipment orders. Similarly, at Matawinie, initial mining site preparation (e.g. roads, power line construction) could begin. Because NMG aims for

production in 2025-26, significant construction activity should kick off in 2024 – confirmation of that timeline is a catalyst.

- **Offtake progress and additional deals:** With GM and Panasonic signed on, NMG might use up most of its Phase 2 capacity (85% as noted). But there remains ~15% unallocated (around 6–7 ktpa). The company could secure another offtake for that remainder – possibly with another automaker (Ford? Stellantis?) or battery maker. Even if not, there will be progress in **converting the offtake MOUs into binding supply contracts** as conditions are met. For example, Panasonic and GM will likely be involved in product qualification from NMG's Phase 1 (the demo plant). **Successful qualification of NMG's anode material** by these customers over the next year is crucial. Catalysts here include any public statement by GM or Panasonic that NMG's material meets their specs, or an early delivery of sample volumes for prototype batteries. These will demonstrate that the project is on track technically.
- **Vertical integration achievements:** NMG could announce technical milestones like reaching **carbon-neutral operations** (they are aiming for anode material with very low CO2 footprint, leveraging Quebec's hydro power). Any third-party certification of their carbon neutrality or ESG performance could attract positive attention (since sustainability is a selling point with government and customers). Also, NMG and Caterpillar have an agreement to use all-electric mining equipment at Matawinie; updates on that (like receipt of electric trucks or the mine fleet electrification progress) would be notable as it ties into cutting-edge mining practice.
- **Government support (Canadian or U.S.):** In the coming 18 months, it's possible the Canadian government could extend more support – e.g., low-interest loans from the Infrastructure Bank or Strategic Innovation Fund. While this is Canadian, it ensures the project's viability which in turn affects U.S. stakeholders (like GM). For U.S. catalysts, one to watch is if **NMG's graphite is referenced in U.S. policy contexts** – for example, if the DoD or DOE mention sourcing from ally countries, or if there is a bilateral U.S.-Canada critical minerals agreement implementation (there is indeed a U.S.-Canada Critical Minerals Action Plan). Should any *bilateral initiative* be announced that directly involves NMG (such as the U.S. potentially supporting a Canadian project for mutual benefit), that would be a game-changer catalyst. However, that may be a longer shot in the near term.

Risks: NMG's project, albeit well-supported, carries typical development risks. **Execution and scale-up risk:** Building both a mine and a processing plant simultaneously is complex. Any construction delays or cost overruns could occur, especially given inflationary pressures on materials and labor. The company already had to navigate pandemic-related delays and has adjusted timelines before. **Financing risk:** While it has strong backers, failing to secure the full remaining financing on acceptable terms is a risk – though mitigated by the serious commitments from GM/Panasonic (their additional \$275 M is presumably contingent on certain milestones). NMG's reliance on large partners could also become a double-edged sword; for instance, if GM were to face an economic downturn or change strategy (unlikely given EV commitments, but not impossible), it could jeopardize their funding. **Permitting and community risk:** Matawinie has received its key environmental decree from Québec and appears to have support, but any environmental incident or stronger local opposition could pose challenges. On the processing side, Bécancour is an industrial chemical operation (involving hydrofluoric-acid-free purification per NMG's tech), and must be run safely to avoid any incidents that could attract regulatory penalties. **Market and competition:** NMG is timed well for mid-decade, but if it slips, it may face a more crowded market. By 2026–27, Graphite One might be nearing production, Westwater could have expanded with its own mine, and Chinese firms like Graphex might have U.S. plants running. Additionally, *synthetic graphite advancements* or silicon-anode technology could eat into natural graphite demand. However, given the projected demand growth (4x by 2035) ⁷³, it's likely there's room for multiple players. **China-related risk:** Though NMG's selling point is non-Chinese supply, it is not entirely decoupled – it may still rely on some Chinese suppliers

for equipment or intermediate materials, at least during ramp-up. Also, China could respond to projects like NMG by flooding the market to depress prices (they have in other commodities). If graphite prices remain too low, project economics might suffer, potentially requiring more subsidies. Finally, **currency fluctuations** (CAD-USD) could affect costs vs. revenue, though NMG likely hedges that. Overall, NMG's risk profile is moderate – it has de-risked a lot by securing tier-1 customers and government backing, but execution and market dynamics still need careful navigation.

Likelihood score: 6/10. *Justification:* NMG sits in a slightly different position as a **foreign ally project**. The U.S. government is **highly supportive of Canada's critical mineral development in principle**, but tends to let the Canadian government take the lead on funding Canadian projects. Thus, we rate direct DOE/USG involvement in NMG as moderate. It's **less likely to receive U.S. loans or grants** simply because it's outside U.S. jurisdiction (score would be higher if we included Canadian government support – which it has plenty of – but here we focus on U.S. support). However, the **strategic importance of NMG to U.S. EV supply chains is significant**: GM's and Panasonic's reliance on it means that indirectly, the U.S. has a stake in its success. If any of the top U.S. domestic projects falter, the U.S. government could lean more on allied sources like NMG to fill gaps. We've already seen U.S. trade/tariff policy favor NMG's positioning ⁷². We consider it possible (but not certain) that **DoD or DOE could engage with NMG via offtake agreements or stockpile purchases** in the future as part of North American resiliency (for example, the U.S. could include Canadian graphite in a national stockpile). For now, though, NMG's path is largely financed and assisted by Canada/industry. So, while its likelihood of *benefiting* from U.S. policy is high, the likelihood of *receiving* direct U.S. funding is relatively lower than the domestic names. We give 6/10 – reflecting that it's not a top priority for U.S. dollars, but it's certainly on the radar as a critical ally supply. Any major U.S. involvement would likely come only if there were a specific program including allies or if NMG sought an EXIM loan for U.S.-made equipment. In summary, **NMG is crucial for U.S. supply security (especially for GM)**, but with plenty of non-U.S. support already in hand, we expect U.S. government to remain in a supportive-but-not-leading role.

6. Northern Graphite (OTCQX: NGPHF) – *Likelihood: 4/10*

Summary: Northern Graphite is a smaller-cap company that has assembled a portfolio of graphite assets and aspires to become a **key supplier of natural graphite concentrate and value-added products** in North America and Europe. Uniquely, Northern currently operates the **only producing natural graphite mine in North America**: the **Lac des Îles (LDI) mine in Quebec**, which it acquired in 2022. LDI produces ~15,000 tpa of graphite concentrate (with capacity up to 25k tpa) and sells mainly into traditional industrial markets ⁷⁴. Northern also acquired the **Okanjande mine in Namibia** (currently on care-and-maintenance, but a sizeable resource) and the advanced **Bissett Creek project in Ontario** (a large undeveloped deposit). The company's strategy is twofold: **keep LDI running and expand its life** (as a bridge source of flake graphite), and develop a large **Battery Anode Material (BAM) plant** to produce EV-grade anode material using concentrates from its mines. Northern has floated plans for a **200,000 tpa BAM "super site" in Baie-Comeau, Quebec**, which would ultimately supply both natural and synthetic graphite anode material to battery makers ⁷⁵ ⁷⁶. It has even signaled producing both types of anode (natural & synthetic) on one site via partnerships ⁷⁷ ⁷⁸. However, this is at an early stage conceptually. In summary, Northern Graphite is currently a **small producer** with big expansion ambitions, spanning mining to processing, but needs substantial funding and technical partnerships to realize those.

U.S. nexus: Presently, Northern's assets are in Canada (Quebec and Ontario) and Namibia. It does not have a U.S.-located project. That said, its **existing production at LDI provides supply to North America**

(including potentially U.S. customers), albeit mostly for industrial uses like refractories. The strategic value is that LDI could supply material for U.S. anode producers in the interim. Indeed, Northern has been positioning itself as a potential supplier of non-Chinese flake to U.S. projects – for example, it has a partnership with **Graphex Technologies** (a China-origin graphite processor building a plant in Michigan). Through this partnership, Northern can **ship LDI concentrate to Graphex’s U.S. facility and produce CSPG that meets IRA rules** (Canadian source + U.S. processing) ⁷⁹. In fact, Northern’s CEO noted that **they can already supply anode material to customers by processing LDI graphite through Graphex, immediately meeting U.S. requirements** ⁸⁰. This creative tie-up somewhat integrates Northern into the U.S. supply chain. Additionally, Northern’s planned Baie-Comeau anode plant, if built, could serve U.S. demand and perhaps even involve U.S. exports or tech. Still, without a physical U.S. operation or a singular large U.S. customer contract announced, Northern’s U.S. nexus is more indirect and future-oriented than companies like NMG or Westwater.

Federal engagement: So far, Northern Graphite has **not received direct U.S. government funding or programs**. It has, however, engaged with the Canadian government: e.g., in August 2025, Northern secured a **C\$6.2 M (US\$4.6 M) interest-free loan from Natural Resources Canada** to extend the life of the Lac des Îles mine ⁸¹ ⁸². This Canadian support underscores that governments recognize its importance (Canada sees LDI as critical to its own strategy). For U.S. agencies, Northern’s profile is lower. Its name does not appear among the recipients of DOE’s 2022 grants or known DOD projects. That said, Northern is striving to get noticed. The company regularly emphasizes how its assets can help North American security of supply. If Northern proceeds with Bissett Creek development, it might possibly seek U.S. involvement via the DFC or as a supplier to a U.S. strategic stockpile (though Bissett is in Ontario, so more likely Canadian support). There might be some U.S. interest in Northern’s Namibian mine restart too, as part of diversifying from China (the U.S. DFC has financed mining in Africa for critical minerals, but again, not typically in stable countries like Namibia which can get other financing). Northern’s most concrete U.S.-related engagement is its partnership with Graphex (a U.S.-listed firm); while Graphex itself might apply for DOE loans or state incentives, Northern would benefit indirectly by supplying that venture. We haven’t seen FAST-41 or DPA involvement with Northern – likely because its projects haven’t been U.S.-based or as high-profile yet. If Northern were to, say, partner to build a U.S. processing facility (not announced, but if they did, it could open doors to U.S. support). In summary, Northern is currently **flying under the radar of U.S. federal programs**, focusing on Canadian and private partnerships, but stands ready to contribute if called upon.

Key catalysts (next 6–18 months):

- **Maintaining/improving LDI output:** A short-term catalyst is Northern’s ability to boost or at least maintain production at Lac des Îles. The recent government loan will fund a pit extension to extend mining into new zones by 2024 ⁸³ ⁸⁴. In the next year, we’ll see if Northern can ramp LDI toward its nameplate 25k tpa capacity (they plan to move to 7-day operations) ⁸⁵. Any announcement that LDI is increasing output or securing new offtake customers (perhaps selling concentrate to battery-focused processors) would be positive. It’s essentially the **only local source of flake now**, so any improvement there is significant for the market.
- **BAM plant partnership progress:** Northern’s ambitious BAM “supersite” will rely on partners. They’ve already partnered with **Graphex** for technology and possibly with a local development agency for the site ⁸⁶ ⁸⁷. A catalyst would be formalizing these plans: e.g., announcing **feasibility study results or a JV agreement** for the Baie-Comeau plant, including capacity, cost, and timeline details. If Northern can show a clear roadmap and attract funding for the anode facility (maybe via government grants or a big strategic investor), that would elevate its profile. Over 6–18 months,

perhaps a preliminary economic assessment or pilot plant decision for anode production could emerge.

- **Bissett Creek development decision:** Bissett Creek in Ontario is a sizeable deposit (over 1Mt contained graphite potential). It's shovel-ready with a completed feasibility study (albeit older). Northern may decide to advance Bissett given rising demand. A catalyst could be an update to the Bissett Creek feasibility (maybe scaling it larger to supply the BAM plant) or a partnership on that project (for example, bringing in an offtaker or investor). If Northern announced a plan to start construction at Bissett in the next couple of years, it would be notable. Bissett is on Crown land and will need permits; initiating that process or securing financing would be key signals.
- **Namibia/Okanjande restart or sale:** The Okanjande asset in Namibia is currently not producing. Northern might either restart it to generate cash or consider selling/joint venturing it to raise funds for North America. In the next year, clarity on Okanjande's fate is expected. If they secure a local partner or government support in Namibia to reopen that mine, it could mean additional revenue (with potential to send some concentrate to North America). Alternatively, a sale could inject capital to fund the Canadian projects – an outcome that would strengthen Northern's balance sheet. Any development there will affect Northern's resource base and funding.
- **Customer engagements:** While Northern is not known to have any EV/battery offtakes yet, it may leverage its position to sign MOUs. For instance, they could aim to supply a portion of concentrate to a U.S. anode producer (like Westwater or Amprius etc.). Any such announcement of Northern becoming a supplier in a U.S. supply chain would be a catalyst. Additionally, Northern joined Canada's **Critical Minerals Alliance** and could feature in government-industry collaborations; if it becomes part of a consortium for battery materials, that would be newsworthy.

Risks: Northern Graphite faces significant challenges. **Financial risk** is high: it is much smaller financially than peers and will need enormous capital to realize its BAM plant vision. Its current production (LDI) generates only modest cash flow, likely insufficient to fund big expansions without external capital. There's risk it could dilute shareholders heavily or take on debt if available. **Project execution risk:** The company must execute on multiple fronts (operate a mine, develop another mine, build a processing plant) with a lean team. Spreading too thin is a risk; any operational issue at LDI (breakdown, resource shortfall) could hurt its only revenue source. LDI was nearing end of life before Northern's extension; even with extension, it's a finite life unless more resources are found, so long-term supply from LDI is not guaranteed beyond a few years. **Market risk:** As mainly a concentrate supplier currently, Northern is price-taker to global graphite prices, which have been volatile. If prices remain low, LDI could struggle to be economic (hence the government support to keep it open). On the flip side, if demand spikes, Northern's limited production might miss the window if it can't scale in time. **Competition and differentiation:** Northern lacks the downstream infrastructure today, unlike integrated players. Its plan hinges on partnerships (like Graphex) which come with their own risk – Graphex is Chinese-led, which could raise flags or face restrictions; if that partnership falters (due to geopolitical issues or performance), Northern's processing ambitions could be set back. Also, Northern will compete with bigger companies for financing and government attention; there's a risk it gets overshadowed by the likes of NMG or Graphite One when it comes to who gets support. **Lack of U.S. presence:** Being outside the U.S., Northern might not benefit from the full array of U.S. incentives; e.g., its Canadian operations benefit from IRA critical mineral rules, but if the U.S. prioritizes domestic production, Northern could be second-tier. Perhaps a bigger risk is **if battery tech evolves** beyond requiring as much new natural graphite – but that's a sector-wide risk, not unique to Northern. Finally, **operational continuity risk:** If LDI were to be temporarily closed (it almost would have by end of 2025 without the new loan ⁸³), Northern would lose its status as an active producer. Keeping that mine running is crucial for credibility, so any snags there (like not getting the extension done in time or a sudden geological issue) is a risk.

Likelihood score: 4/10. *Justification:* Northern Graphite's lower score reflects its **currently limited direct engagement with U.S. support mechanisms**. It is somewhat in the shadow of larger projects and hasn't yet proven its role in the EV supply chain. While it is **strategically valuable (as the only NA miner now)** ⁸⁸, it's small. The U.S. government is more likely to back bigger integrated plays unless Northern significantly advances its anode plant plans or partners on a U.S. project. We give 4/10, signaling that *some* U.S. involvement is possible but not highly likely in the immediate term. For instance, if Graphex's Michigan plant succeeds using Northern's graphite, the U.S. benefit is realized without directly funding Northern. If anything, Northern could down the line be a candidate for a DOD *purchase* contract (e.g. DLA could buy a stockpile of LDI graphite for defense needs). In fact, Northern's CEO mentioned aiming to supply defense markets ⁸², so a DLA stockpile order is conceivable if the U.S. decided to stock raw graphite – but no sign of that yet. Unless Northern brings a project onto U.S. soil or partners with a U.S. entity eligible for funds, DOE/loan involvement is unlikely in the near term. Nevertheless, we don't rank it last because it does have producing assets and could become a useful supplier to U.S. firms, plus it has an actionable plan (with Graphex) to meet IRA criteria now ⁸⁰. In summation, **Northern Graphite has potential strategic value, but it needs to grow or align with U.S. initiatives more directly to earn substantial U.S. government support**. For now, we score it 4/10 and will watch for any moves that could change that.

7. Graphex Technologies (NYSE American: GRFX) – *Likelihood: 3/10*

Summary: Graphex Technologies is the U.S.-based subsidiary of **Graphex Group**, a company with roots in China that specializes in graphite processing and production of battery-grade anode materials. Graphex has extensive experience producing **coated spherical graphite (CSPG)** in China (about 10k tpa current capacity, with expansion to 40k tpa underway there) ⁷⁸. To capitalize on Western demand and geopolitical tailwinds, Graphex is establishing a **graphite processing plant in Warren, Michigan (near Detroit)** via a joint venture with a local partner. This facility, announced in 2022, is planned to **produce 10,000 tpa of CSPG** initially, with the potential to expand to 15,000 tpa or more in subsequent phases ⁴⁶ ⁸⁹. Construction was slated to be completed by Q3 2023 ⁴⁶, suggesting that operations could begin (or be close to beginning) around now. Graphex's selling point is that it can **deploy proven Chinese processing technology in the U.S. quickly**, providing a bridge source of anode material that meets local procurement requirements. The Michigan plant would take imported graphite feedstock (likely from top-grade sources, possibly their Chinese supply chains or new ones like Brazil or Africa) and perform shaping, purification, and coating on U.S. soil. Graphex is also exploring partnerships (as noted, with Northern Graphite for feedstock and with other junior miners) to secure non-Chinese raw materials. In essence, Graphex aims to be a **fast-to-market anode producer in the U.S.**, albeit one with Chinese ties.

U.S. nexus: Graphex's nexus to the U.S. is strong in terms of location – the Michigan facility is in the heart of the U.S. auto industry, presumably chosen to supply nearby battery factories. It will create ~125 jobs and operate 24/7 when fully running ⁹⁰. This local presence means Graphex can qualify for U.S. manufacturing incentives (like the 30D battery component credit for EVs, since anodes made in USA count). Moreover, Graphex's move is a form of tech transfer from China to the U.S., which aligns with U.S. goals to “localize” supply chains (at least superficially). However, the **ownership and origins** of Graphex are Chinese – this complicates the picture. U.S. policy welcomes domestic production but is wary of Chinese-controlled companies operating in critical sectors. Graphex did list on the NYSE American exchange and establish a U.S. entity, possibly to mitigate this perception. They tout that localizing production “**mitigates external geopolitical risks**” and builds processing know-how in the U.S. ⁹¹. Still, one can expect some skepticism from U.S. officials about how truly independent of Chinese influence Graphex is. So, Graphex has a U.S. nexus by footprint, but not by heritage, which may impact its access to federal support.

Federal engagement: So far, Graphex has **not announced any U.S. federal grants or loans** for its Michigan plant. It appears the project has been funded through private capital (the JV with Emerald Energy Solutions and possibly some local/state economic development incentives). Michigan's state and local authorities likely provided support (e.g., site selection assistance, potentially tax incentives), but we have not seen evidence of DOE funding. In the 2022 battery materials grant list, Graphex was not a recipient. It's plausible Graphex applied to the DOE grants or loans, but its Chinese ties may have hindered its chances, as federal funding might raise security reviews. There is no known DoD involvement either. Federal engagement might come indirectly: for example, if Northern Graphite (Canadian) were to get DFC financing for its Namibian mine, Graphex's supply could benefit, but that's tangential. Another angle: Graphex's activity falls under the broader U.S.-China economic competition. It's possible that if Graphex successfully starts production, U.S. agencies could engage with it to ensure transparency and perhaps eventually encourage a greater American stake. But at this time, Graphex seems to be proceeding without direct federal help. In fact, the **greatest federal "involvement" might be scrutiny** – Graphex will likely undergo CFIUS (Committee on Foreign Investment in the U.S.) review if it hasn't already, given the sensitive sector. Approval of its JV and operations can be considered a form of federal interaction (passive approval). Summarily, Graphex's federal touchpoints are minimal or behind-the-scenes. Contrast this with how DOE funded competing projects (Novonix, Syrah, Westwater's peer Urbix) – Graphex did not get such funds, indicating a possible deliberate exclusion due to origin.

Key catalysts (next 6–18 months):

- **Operational startup in Michigan:** The foremost catalyst is **commencement of production** at the Warren, MI plant. If Graphex can announce that its facility is operational (e.g., by end of 2023 or early 2024) and producing CSPG at pilot scale, that's major. It will likely then ramp toward the 10k tpa capacity over 2024. Achieving on-spec output and first deliveries to customers would validate its model. Expect news on commissioning results, product quality metrics, and possibly an opening ceremony (maybe with local officials highlighting the investment).
- **Expansion and capacity doubling:** Graphex has indicated the Michigan plant's output "may be doubled relatively quickly to meet demand" ⁸⁹. So a possible catalyst mid-term is Graphex moving to **Phase 2 expansion** (from 10k to 15k+ tpa). This would depend on demand and capital availability. If initial operations go well and they sign enough orders, they could announce additional lines or shifts to reach 15k tpa (the site is 150,000 sq ft, presumably enough room).
- **Offtake agreements or customer reveals:** To date, Graphex has not publicly disclosed specific customers. Within 6–18 months, we might see announcements of **supply agreements with battery manufacturers or automakers**. Even if not by name, Graphex could announce that it's secured multi-year commitments covering a portion of its capacity. Given its location, potential clients could include battery plants like Stellantis/Samsung SDI in Indiana, GM's Ultium in Ohio, or Ford's BlueOval SK in Kentucky, which all need anodes. If Graphex's material qualifies, an automaker might quietly take some as a hedge. Any named contract would be a big catalyst (though due to sensitivity, it might remain under NDA; we might only infer through volume uptake).
- **Feedstock sourcing deals:** Graphex needs graphite concentrate feed. It likely currently relies on sourcing from China or Asia (the easiest route given its parent's supply chains). But to strengthen its U.S. political acceptance, it will look for **non-Chinese feedstock**. A catalyst, therefore, would be Graphex announcing a long-term supply agreement with a miner outside China – for example, sourcing from Brazil (e.g., from Syrah's Balama or another producer) or partnering with Northern Graphite/Namibia. In fact, Graphex already partnered with Northern Graphite to potentially use Lac des Îles output ⁷⁹. If that moves forward (for instance, Graphex starts taking LDI graphite as part of

its mix), it would be a positive sign of diversification. Another scenario: Graphex could engage with emerging U.S. mines (like Westwater's Coosa or Graphite One) for future supply deals. Any such deal would improve its standing (and could pave the way for some U.S. support if Graphex is seen as helping use domestic resources).

- **Corporate/Americanization moves:** To address political risk, Graphex might take steps like moving more of its corporate governance to the U.S. or bringing in American strategic investors. If Graphex were to, say, sell a stake to a U.S. firm or appoint a prominent U.S. board member, that could be a catalyst indicating deeper integration into the U.S. business community (and perhaps easing federal concerns). Likewise, any certifications or audits demonstrating supply chain security or lack of Chinese government influence could be subtle but important developments.

Risks: Graphex's venture carries a unique mix of risks, largely stemming from its origin. **Geopolitical risk:** Being originally a Chinese-controlled company in a critical sector, Graphex faces the risk of U.S. government pushback. In the worst case, if U.S.-China relations deteriorate severely, Graphex could face sanctions or be barred from supplying certain defense-related contracts. Already, China's recent **export restrictions on graphite** (effective late 2023) might impact Graphex – if it was relying on Chinese feedstock or technology transfers, those controls could constrain what they can send to the U.S. For example, China could inhibit export of certain coated graphite tech or material. Graphex will need alternate sources to mitigate this. **Regulatory and CFIUS risk:** U.S. regulators could impose mitigation measures on Graphex's U.S. operations (like requiring data localization or partner oversight). There's also a risk that Graphex's presence discourages U.S. funding – which we see evidence of – effectively isolating it from government incentives that competitors enjoy. **Market trust risk:** Some U.S. customers might be hesitant to buy from Graphex due to its background, especially if they have alternatives. It may have to overcome a “perception hurdle” to win contracts, meaning more marketing and assurances about IP security. **Execution risk:** Even though Graphex has done this in China, starting up a plant in Michigan still has execution challenges – new workforce, regulatory compliance (U.S. environmental standards might differ). If there are delays or quality issues in the new plant, it could struggle to gain traction, especially with competitors like Westwater and Syrah ramping up. **Feedstock continuity:** Until local mines come, Graphex likely sources from Chinese or other foreign mines. Chinese graphite export quotas or simply supply tightness could hamper it. If it cannot get enough raw material or of consistent quality, it can't meet output targets. **Financial risk:** Graphex's parent isn't extremely large; funding a U.S. expansion and possible doubling might stretch it. If they do not receive external funding (and with DOE money unlikely), they rely on internal resources and capital markets, which could be tough if market sentiment turns negative (especially if broader Chinese stock downturns or restrictions affect it). **Competition:** Graphex faces competition from both **established Western-backed projects** (which may be more palatable to some customers/governments) and Chinese exports (which still might be cheaper if tariffs are navigated via battery cell imports). They are in a bit of a strategic squeeze: needed enough to operate, but possibly sidelined from big public-private initiatives. **Reputation and IP risk:** As a company bringing Chinese tech, Graphex must ensure no intellectual property issues (like any technology that might violate export controls or patents in the West). Navigating those legalities is crucial; any misstep could cause litigation or shutdowns. In summary, Graphex has more political/security risk than any other company on this list, overshadowing what might otherwise be straightforward operational risk of a relatively small facility.

Likelihood score: 3/10. Justification: We rank Graphex lowest in terms of likelihood of **receiving** U.S. government support, despite it being a U.S.-located producer. The low score is primarily because **U.S. policy aims to reduce dependence on China – and Graphex, while operating here, is essentially an extension of Chinese expertise.** It's telling that Graphex was not among DOE's funded projects, and instead domestic startups and allies were favored. The U.S. government is likely to **“awarely tolerate”** Graphex for the

additional capacity it brings (since any U.S. production helps the supply chain), but not proactively fund or partner with it. In fact, Graphex might be viewed as a competitor to the U.S.-funded efforts, filling a gap in the private sector rather than the public sector aiding it. That said, we do give it a 3 (not 0) because there is some chance of limited involvement: for instance, a state-level grant (Michigan or federal manufacturing tax credits it can avail by default) or a scenario where, in a graphite shortfall, even Graphex's output is indirectly supported (maybe through purchase agreements by govt or inclusion in some emergency plans). If Graphex successfully distances itself from Chinese control (say through majority U.S. ownership eventually), its chances of support would improve – but that's speculative at this point. Also, Graphex is contributing to **China risk reduction** by making material on U.S. soil with (potentially) non-China feed ⁹¹, so the outcome (more graphite for U.S. batteries) aligns with policy, albeit the method does not wholly. To sum up, **Graphex is likely to operate with minimal direct U.S. government help**. It provides a valuable service in the interim but will probably not be a recipient of DOE loans or DoD contracts unless there are extraordinary circumstances. Our 3/10 reflects that its presence is acknowledged but not actively supported by federal dollars under current evidence.

Overall Ranking and Rationale

Bringing all the above together, we rank the companies from highest to lowest likelihood of U.S. government (DOE/USG) involvement as follows:

1. Graphite One (GPHOF): *Highest likelihood.* Graphite One is a linchpin for establishing a domestic graphite supply chain, already with DoD grants and EXIM interest in place ¹⁹ ³. It hits every policy priority (domestic mine, large scale, reducing China reliance to zero). Federal support is strong and poised to grow (likely DOE loans or further DOD support). Despite a longer timeline, it's strategically unmatched, warranting top rank.

2. Novonix (NVX): Virtually assured of continued U.S. support due to its ongoing DOE loan and grant ²⁰. Novonix's U.S. anode plant is critical to breaking China's hold on synthetic graphite, and the government has put big dollars behind it. With major offtakes (Panasonic, etc.) and onshore manufacturing, Novonix remains a federal favorite, slightly behind Graphite One only because its raw material is petroleum-based (not directly solving the critical mineral mining aspect).

3. Syrah Resources (SYAAF): A close third, Syrah's Louisiana operation is **already funded by DOE** and delivering the first non-Chinese anodes ³⁴ ³³. It's the quickest fix to the supply chain gap and thus enjoys substantial support. Its lower ranking than the above two is due to its foreign mine dependency – over time, federal focus may shift to fully domestic projects. But in the near term, Syrah is heavily involved with USG (loan, grant) and will likely remain so as it ramps production.

4. Westwater Resources (WWR): Westwater stands out as a **domestic graphite processor with a near-term timeline**, strong state backing, and even an OEM offtake (Stellantis) ⁵⁹. It hasn't yet received big federal funds, but all signs (FAST-41 status, EXIM due diligence, DOE discussions) indicate it's a primary candidate for the next wave of support ⁵⁶ ⁶². We rank it fourth – behind the above three which already have funds in hand – but Westwater could leap in rank if, say, a DOE loan or DOD grant comes through soon. Its integrated plan (with a U.S. mine pending) and proven progress make federal involvement quite likely.

5. Nouveau Monde (NMG): NMG is a slightly special case: extremely strong fundamentals (large scale, Tier-1 partners GM/Panasonic, low-carbon production) and critical to U.S. EV makers ⁶³ ⁶⁶ , but being in Canada, it doesn't tap U.S. funding directly. The U.S. benefits from NMG's success (and indeed encourages it through trade rules and GM's investment), but has left financing to Canadian authorities and private stakeholders. We rank it fifth – *likely* to succeed with indirect U.S. policy support, but *unlikely* to receive direct U.S. government grants/loans unless there's a bilateral initiative. In essence, NMG will certainly supply U.S. needs (so it's very important), but the question is about U.S. government involvement, which remains arm's-length.

6. Northern Graphite (NGPHF): Northern is currently a minor player in the government's view, but it's not without merit. It actually produces graphite in North America today – something no one above (except Syrah, via Mozambique) can claim ⁸⁸ . However, its scale is small and its plans require significant capital and partnerships. It hasn't secured U.S. attention beyond being a potential supplier to others. If it successfully builds an anode plant or partners deeply with a U.S. project, that could change. At present, we rank it sixth: some chance of peripheral support (perhaps as a feedstock provider to a supported project, or a future DOD purchase), but not a frontline recipient of U.S. funding.

7. Graphex Technologies (GRFX): Graphex is last due to its **Chinese ties and lack of existing U.S. support**. While it will produce in the U.S., making it somewhat beneficial to the supply chain, the U.S. government has so far kept it at arm's length. It did not receive DOE funding when peers did, likely owing to its origins. We foresee Graphex continuing largely under private funding and perhaps state-level aid, but **federal loans or grants are improbable under current policy**. Its contribution to China-risk reduction is acknowledged (it's bringing critical processing onshore) ⁹¹ , but from a federal investment perspective, Graphex is an outlier. Only if Graphex undergoes significant "Americanization" or if graphite supply becomes so dire that all capacity must be bolstered, would the U.S. consider deeper involvement – scenarios that are not evident yet.

This ranking reflects an analysis of each company's alignment with U.S. strategic objectives, their demonstrated engagement with federal programs, and the momentum of their projects. U.S. policy is indeed focused on **establishing domestic suppliers and allied sources**; thus, companies building in the U.S. or supplying U.S. allies are favored. Graphite One, Novonix, Syrah, and Westwater all directly advance U.S. self-sufficiency and have clear federal touchpoints, hence their top positions. Nouveau Monde, while top-tier in execution, relies on Canadian support with the U.S. benefiting indirectly – a strong prospect but not a U.S.-funded one. Northern Graphite, though operational, remains a junior in need of partnerships to matter at the federal level. Graphex, despite producing on U.S. soil, is somewhat counter-current to the political trend (due to its Chinese background) and is thus ranked lowest for likelihood of getting U.S. government financial involvement.

Overall, the U.S. government is deploying a mix of **grants, loans, and policy tools** to ensure a secure graphite anode supply. The highest likelihood support will go to those projects that bring substantial, **scalable graphite production onto U.S. soil or the soil of close allies** within the next 3–5 years, and that demonstrably **reduce dependence on China**. The above ordering captures which companies are best positioned to ride that wave of support based on current evidence and trajectory.

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