

Emerging Growth Report

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First Graphene (ASX: FGR) Is on the Cusp of Innovation That's Second to None



First Graphene stock can soar on the transition from science to applied applications

[Emerging Growth Report on First Graphene \(ASX: FGR\)](#)

Although the novel coronavirus is on top of everyone's mind for obvious reasons, we must remember that prior to this global crisis, we were on the verge of multiple technological breakthroughs. This dynamic is perhaps most evidenced by the phenomenal rise of electric vehicles, with sales bucking the negative implications of the pandemic. But to truly spark mainstream integration of next-generation technologies, we must have next-gen materials. And that's where **First Graphene Ltd** (FGR.AX) comes into the picture.

To really appreciate the true potential of First Graphene, one must have a basic foundation of the namesake asset. A "miracle" material if there ever was one, graphene is [incredibly light and yet astoundingly robust](#). In fact, scientists believe that this material is the strongest of all known materials. Researchers Andre Geim and Konstantin Novoselov were the first to isolate graphene, winning the 2010 Nobel Prize in Physics as a result. *Scientific American* describes its profound potential as follows:

Graphene is transparent, flexible and strong, and it conducts electricity, making it an attractive material for a number of electronics applications. Tantalizingly, electrons move through its two-dimensional structure much more easily than through ordinary conductors, zooming through as if massless. Graphene has already been used to make [high-speed transistors](#), and flexible, durable conductive touchscreens are but one large-scale application that could be in the offing if [an effective means of mass production](#) can be developed.

At the Nobel announcement, physicist [Per Delsing](#) of the Chalmers University of Technology in Göteborg, Sweden, explained that a hypothetical one-square-meter hammock made out of graphene would be strong enough to support a four-kilogram cat. The hammock itself, just one atom thick, would weigh roughly one milligram—about the same as one of the cat's whiskers.

Naturally, several companies – including First Graphene – entered this exciting new frontier. Clearly, graphene represents a potential paradigm shift in advancing myriad innovations. In prior tech-based advancements, scientists and engineers deployed a “brute-force” approach. To increase performance, they applied additional materials or mechanisms. However, this greatly increased physical space requirements for the platform, as well as blowing up the price (cost) of the project.

Put another way, science helps bring to the playing field new knowledge. But *applied* science involves taking that knowledge and improving humanity through commercially and economically viable applications.

The electric vehicle market provides an easy-to-understand example. One of the consumer concerns about EVs is “range anxiety.” However, the technology to provide increased range already exists. You simply add bigger lithium-ion battery packs to the vehicle. However, that would blow up both the cost and physical space components of PPP (performance, physical spacing, price), leading to exorbitant prices for the consumer.

Hence, companies like **Tesla** (NASDAQ:TSLA) are aggressively searching for new battery solutions to deliver clean-emissions performance, while reducing physical requirements and thus lowering the price to the end-user. Here, many tech firms and automakers, most notably **Toyota** (NYSE:TM), are researching and developing [solid-state batteries](#). If companies can crack the solid-state code, they can lay the groundwork for fast-charging, long-range EVs at a much more affordable price point.

You might be surprised to know that solid-state batteries already exist. But the problem is that their performance is confined to laboratory results. One of the critical roadblocks is the durability of current solid-state battery experiments. Engineers can get around the problem but only at great expense. Thus, the trinity of PPP remains elusive for next-generation solutions.

And it's the same principle with graphene. As MIT News Office contributor David L. Chandler put it, "In its two-dimensional form, graphene is thought to be the strongest of all known materials. But researchers until now have had a [hard time translating that two-dimensional strength into useful three-dimensional materials](#)."

This latter point is crucial to the narrative behind First Graphene and FGR stock. There are countless companies already involved in the graphene space. But what will ultimately separate First Graphene from the others is the focus on applied science rather than "just" the science – in other words, the low-hanging fruit of graphene's discovery is already gone. Now, the battlefield is what companies can do *with* the discovery.

First Graphene to Become a Service of First Resort

When people want to search for something on the internet today, chances are, they go to Google. In the western world, Google has become so ingrained in our culture that it's become part of the lexicon. You don't say "look something up on the internet" anymore. Instead, it's *Google it*.

Strictly in this context, then, you might assume that Google was the original search engine. After all, we hear so much about the first-to-market advantage in business. While that concept might work for some product or service categories, such as a trendy beverage or video game that goes viral, it doesn't always correlate with long-term success.

The internet is a perfect example of this. Not too many people know that Archie was the [world's first search engine](#). It got its name through a shortened version of archive (without the "v".) In that sense, the brand was very appropriate. Even now, the concept of a search engine being a hyper-quick archival database is apt.

In this framework, Google was a late comer. However, it eventually won over the ultra-competitive internet, becoming the true service of first resort. Essentially, the only reason why people bother with alternative search engines is that they can't find it first on Google, not the other way around.

The search engine achieved its ubiquity because it was scalable, convenient and frankly superior. Based on these core attributes, it soon dominated the search engine ecosystem. Having established its supremacy, parent company **Alphabet** (NASDAQ:GOOG, NASDAQ:GOOGL) was able to introduce new business verticals, such as Google Translate.

It's the same principle with First Graphene. Management isn't bothering with the "cheap" victory of being first for its own sake. Rather, it's making sure that the applied science is both practical and feasible from the initial foundation. As anyone knows, a defect in the cornerstone would lead to catastrophic losses later. Thus, it pays in the long run to measure twice, cut once.

Honestly, this is all the more critical in the graphene arena because, as alluded to earlier, the sector is a frontier market. Mainly, the [industry lacks standardization regarding the uniform quality](#) of the graphene material. Thus, there already is and will be much chaos and confusion in the space – consumers not understanding what they're buying and unscrupulous corporations looking to prey upon their ignorance.

Critically, it's important to realize that the above description is no hyperbole. Here's what *The Graphene Council* had to say on the matter:

Standards in any industry are aimed at establishing a uniform quality of product. If you pay for the best, you can be assured you're getting the best because it has met the industry standards for achieving that grade.

Of course, in the absence of standards, markets have a way of establishing their own version until official ones are enforced. With an emerging material this is quite common; business must move on with or without standards. In this case, a buyer may discover that one supplier provides the right quality product while another does not, and fairly quickly the lower quality product loses market favor and so too the supplier.

However, these market-driven standards come at a cost. A buyer may have established a good relationship with a supplier and then bought product in bulk from them only to discover that the quality of the product was below that to which they had become accustomed.

Currently, there are no industry-sanctioned standards for graphene to ensure this does not happen. It is known, of course, that there are many different kinds of graphene and in these different types there are differing levels of quality. But if a large electronics manufacturer wants to start using graphene as a material to replace indium tin oxide (ITO) as a transparent conductor in its displays, it is going to need to have the same kind of assurances that they get from ITO standards. It's really that simple.

In other words, being first in a linear framework doesn't make much sense in the graphene market because the scale is not defined. For example, consider that the spot price of gold is near \$1,900. If someone sold you a gold coin for \$100, you might think it's a bargain. But later, when you find out that the coin was gold *plated* instead of being composed of pure gold, you would be rightfully upset.

Of course, we have anti-false advertising laws that prevent such shenanigans. Unfortunately, with graphene being such a novel market with currently limited commercial usage, this standardization does not exist.

Where First Graphene stands out is that the company simultaneously emphasizes commercial applicability (plus scalability) and premium quality. In this manner, First Graphene partners with its clients, ensuring them that they're getting the appropriate materials for their target projects. As well, the company educates the prospective consumer market, clarifying the distinction between the science and applied innovations of the graphene material.

Making a Good First Impression

As you know, when initiating a business relationship, you rarely if ever have a chance to redo your introduction. Put another way, if you don't impress your client/customer from the get-go, there's a high probability that you won't enjoy return business.

And that's why ethical organizations like First Graphene are perturbed at the exploitative and shameless conduct of certain competitors in this potentially high-profitability market. By flooding the commercial market with cheap, ineffective graphene, the commercial consumer market could quickly get the wrong impression about the true innovative potential in this "miracle" material.

This is the reason why First Graphene made the decision early on to concentrate maximum effort on premium quality when manufacturing its end-product, branded as [PureGRAPH®](#). It all begins with the company's sourcing of the core raw materials, which are only of the highest-purity standard. From there, First Graphene incorporates a unique process involving electrochemical exfoliation, which is a far gentler process than the brutish methodologies that the competition uses to break down the underlying material into a smaller (and thus more practical) size.

On a side note, the pummeling of graphite into a required physical volume format used by the competition introduces weaknesses in the core material. Further, since First Graphene's rivals don't always procure their graphite from the highest-quality sources, the foundation already begins with impurities. When integrated with the client company's materials (if it integrates at all), the end result may be less than advertised or desired.

In contrast, through First Graphene's emphasis on material procurement and processing, its clients receive only the best platform. Additionally, the company incorporates strict quality control mechanisms to ensure premium *consistency*. In this way, PureGRAPH® end-products are characterized by their "large platelet size, high aspect ratio, low defect levels and are free of metallic contaminants."

If that wasn't enough, PureGRAPH® also offers superior *value* relative to the competition. By purchasing the highest-quality material at the best possible price, client corporations essentially buy themselves insurance that their target projects are getting off on the right foot.

Better yet, the investment potential of FGR stock isn't just centered on lab experiments and field testing. As stated earlier, the low-hanging fruit of graphene's discovery has already come and gone. Where the real battle is occurring now is the transition from discovery to application. With First Graphene's superior foundation of consistent, premium-grade PureGRAPH® end products that can integrate with the client company's own materials, this transition is much more feasible.

Specifically, prospective buyers should key in on three attributes that make FGR stock stand out from the crowd:

- **Multiple application potential** – From energy storage to improved range and performance in electrical vehicles to fire-resistant structures to even something as mundane as textiles, graphene has the [capability to enhance virtually every area of our lives](#). Previously, just the material itself wasn't enough to forward innovations. However, by extracting usability out of the underlying asset, First Graphene is likely the only credible organization that has the scientific acumen, manufacturing processes and infrastructure to take the industry to the commercial level.
- **Science fact, not science fiction** – Any company can make whatever wild claims it wishes (to a reasonable extent, of course!) But it's only the standouts that deliver on the hype. With First Graphene, you're not just buying into scientific innovation but innovation that has provided real-world applications for major client corporations. For instance, First Graphene, in a partnership with **newGen Group**, forwarded graphene solutions to **Rio Tinto** (ASX: RIO) (NYSE:RIO) and **BHP Group** (ASX: BHP) (NYSE:BHP). Specifically, these mining giants utilized PureGRAPH® [“to increase strength and abrasion resistance](#) in wear liner products used in the mining and mineral handling industries.”

The results? A materials analysis revealed that PureGRAPH® improved tensile strength while simultaneously improving flexural strength and abrasion resistance. Just as importantly, First Graphene was able to work with different mining companies and incorporate its end-products across a variety of materials, confirming not only applicability but also versatility.

- **FGR is all about ESG** – Modern investors don't just care about profitability; they want to make sure that their capital is going towards improving the overall human condition. Therefore, it's no surprise that the concept of ESG investing, or investing based on environmental, social and governance concerns has accelerated, particularly among young Americans.

And don't be confused that ESG is merely about “tree hugging.” Rather, a *McKinsey & Company* research paper notes that many customers are [willing to pay more to go green](#). Logically, then, these same folks should be more willing to invest in a company that cares about environmental and sustainability concerns.

Though materials specialists don't necessarily ring up as an ESG play, FGR is different. Because the underlying PureGRAPH® asset is essentially an additive – consider graphene's ability to [protect concrete](#) structures against degradation or extend product life and durability through [composite materials](#) innovations – First Graphene *organically* improves sustainability by significantly helping to reduce waste.

Technical Analysis for FGR Stock and Risks to Consider

None of the above points would matter if at the end, few investors show up to put their money on the line. However, unlike the small-capitalization companies that often get lost amid the cascading waves of blue chips, FGR stock has enjoyed a slow but consistent and rising level of overall support.

In the past five years, you can clearly discern baseline price action that has kept trading from falling too far below particular thresholds. For instance, between April 2016 through June 2017, FGR stock held long-term support slightly above the 9-cent level (denominated in AU\$). Then, through late 2017 through April 2018, First Graphene shares enjoyed support that held at 13 cents.

After skyrocketing past the psychological threshold of 30 cents, FGR stock quickly corrected. However, shares found support at above 11 cents, demonstrating a resilience that isn't found among typical penny stocks. At time of writing, FGR is trading hands at 14 cents, demonstrating forward progress built over years of applied scientific innovations.

Of course, as with any investment, you want to be careful about what you're getting involved in. That goes five-fold for small-cap names. Before putting any money down, please be sure to conduct your own due diligence. None of what has been written here should be construed as investment advice.

Specific for First Graphene, the primary risk surrounds the company's ability to continue extracting scientific discoveries into practical, commercial applications. Here, a *New Yorker* article from 2014 dives into detail regarding the [constant battle between lab science and innovation-based profitability](#). In part, the article states:

Geim [one of the researchers who isolated graphene] had isolated the first two-dimensional material ever discovered: an atom-thick layer of carbon, which appeared, under an atomic microscope, as a flat lattice of hexagons linked in a honeycomb pattern. Theoretical physicists had speculated about such a substance, calling it "graphene," but had assumed that a single atomic layer could not be obtained at room temperature—that it would pull apart into microscopic balls. Instead, Geim saw, graphene remained in a single plane, developing ripples as the material stabilized.

In other words, the entire graphene market is in the tough transition phase between discovery and application. While many organizations believe they are near an eureka moment, the *New Yorker* warns that aluminum was discovered in the 1890s. It wasn't until three decades later that a new process incorporating electricity facilitated aluminum production at economically feasible rates.

Bottom line – with FGR stock, you are betting that First Graphene has the key to unlock graphene’s commercial usage. The evidence certainly points in that direction. However, most of the market is unaware of this company and of course, there is no guarantee that First Graphene will succeed. This is the compelling opportunity but also the risk inherent in every equity share of FGR.

A Powerful Innovator That Can Go the Distance

Increasingly, the world of technology has demonstrated that it’s not about who arrived at a solution first but rather, who offers the best. And that incorporates aspects beyond the headline application. Nowadays, true innovations must integrate economic feasibility, as well as significantly outperforming current solutions.

This is really where First Graphene makes a strong case for itself. Not only has the company delivered applicable scientific solutions to real-world problems, it has done so in an incredibly cost-effective package. In addition, FGR’s delivery of consistent, premium-grade products places it in prime position to become a service of first resort.



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