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HALLGARTEN + COMPANY

Coverage Update

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First Phosphate

(CSE: PHOS | FSE: KD0 I OTCQB: FRSPF)

Strategy: LONG

Key Metrics	
Price (CAD)	$0.91
12-Month Target Price (CAD)	$2.05
Upside to Target	125%
12mth high-low	$0.24 to $1.13
Market Cap (CAD mn)	$157.34
Shares Outstanding (mns)	172.9
Fully diluted	192.4

First Phosphate

Powering Up on the Trend towards LFP

- + A sea change in the chemistry of the principal lithium-ion format is propelling Phosphate out of the fertilizer and food-adjacent industries into the age of the so-called Green Transition
- + First Phosphate is aiming to be the newest large producer of Phosphate in North America and the only one fully-oriented towards the lithium iron phosphate (LFP) battery format
- + An offtaker, that already had an LOI with PHOS made a resounding show of confidence in the project with an advance against the future production
- + The PEA on Bégin-Lamarche project (BLM) was released in late 2024 showed the project generating an after-tax internal rate of return (IRR) of 33% and an after-tax net present value (NPV) of CAD$1.59bn at an 8% discount rate.
- + Initial capex of CAD$675mn (and sustaining capex of CAD$317mn)
- + The BLM project has excellent access/infrastructure and is strategically located in proximity to the port of Saguenay on the St Lawrence
- + In a major feather in its cap, PHOS was added to the CSE25 Index
- + Phosphate has a plethora of uses that go well beyond just the battery metal complex, thereby providing PHOS with varied options and diversified target audiences
- × Now we must await the publication of the Feasibility Study on BLM for the CapEx (and the value-added) of the production to Purifed Phosphoric Acid (PPA) to be fleshed out
- × The financing environment continues to be tough in the battery metals complex, with only projects with a realistic perspective of production (such as BLM) receiving support from investors

Keeping Up the Momentum

The last year at First Phosphate can be viewed as one of consolidation after a plethora of developments on the resource, mine planning and partnership fronts in 2024. The company has more technical and producer partnerships than other phosphate companies could even dream of. The task in 2025 was to deepen those arrangements.

The task since the start of 2025 has been to carve out a path towards development. The next development will thus be a Feasibility Study (FS). This planning comes against a backdrop of change and rupture in supply chains globally and particularly between Canada and the US. To an extent, rancour from Washington towards Ottawa is trumped (pardon the pun) by the US being spectacularly un-endowed on the phosphate front. This makes Quebec the (future) go-to place for phosphate of US offtakers whether Washington likes it or not.

Significant new mine developers of Phosphate supply are very few. As for those in Quebec, that of First

Phosphate has a significant advantage in being much closer to the St Lawrence Seaway. It has seized the advantage presented by the rise of the LFP format to put together a string of alliances with those involved in the new batteries and their precursor chemicals.

The FS to have credibility must be crafted to reflect the new reality of US onshoring policy which may become a bi partisan article of faith.

In this coverage update, we review the new commercial landscape in North America and revisit at the maiden PEA on the Bégin-Lamarche project. We look at funding in from an offtaker, the evolving relationship with the relevant First Nation and next steps for the project and its development.

Politics to the Fore

The Trump Administration finds itself on the horns of a dilemma with a policy pivot away from the energy transition and mandates on phasing out ICE vehicles, while perversely talking up America First supply chains. The supply chains for electrical vehicles are now facing somewhat of a headwind in creating a vertically integrated EV flowchart putting America First while reducing the economies of scale provided by an impetus thru forced conversion of the fleet and thus the OEM industry.

The paucity of phosphate resources in the US makes Canada the natural supplier of this vital input but the onshoring shift has propelled the imperative away from processing and value-added within Canada towards scenarios where the mid- and downstream will be in the US despite the fact that all levels of government in Canada are far more disposed to fund buildout of the midstream than is the US.

This necessitates a rethink of what the parts of the equation might look like from the minesite to the OEM production line. And this in turn predicates some of the decision making for First Phosphate´s mooted FS.

The Project

The Bégin-Lamarche project is located approximately 50 km driving-distance north of the City of Saguenay, Québec's sixth largest city, offering a skilled industrial workforce, strong local infrastructure, and which is 30 km driving distance from the deep-sea Port of Saguenay.

The deposit at Bégin-Lamarche contains a significant phosphate Mineral Resource that is associated with well-defined oxide-apatite peridotite (OAP) intrusions within the large Lac-Saint-Jean anorthosite suite (LSJAS). The LSJAS is the largest anorthosite phosphate mineralized anorthosite worldwide.

The phosphate deposit is comprised of three mineralized zones within the deposit. The three zones are continuous, only separated by faults within the deposit and extend to a length of 2,500 m. These are:

- The Mountain Zone is a single phosphate-bearing mass having a diameter of up to 200 m and a length of 250 m. Drilling at the Mountain Zone intersected massive apatite (phosphate-bearing mineral) veins of up to 2 m.

- The Northern zone is comprised of two phosphate layers ranging from 100 to 200 m in thickness and a length of 600 m.
- The Southern Zone bears four phosphate layers, one of them having up to 200 m in thickness and extending to 1,700 m

The PEA

In early December of 2024, the much-anticipated Preliminary Economic Assessment (PEA) on the Bégin-Lamarche (BLM) project was released. In management's opinion the PEA provided a potentially viable case for developing the deposit by open pit mining for the primary production of phosphate concentrate and secondary by-product recovery of a magnetite concentrate.

The release PEA put significant flesh on the bones of a project that, to use a racing analogy, came up fast on the outside during 2024 and significantly overhauled the lead of First Phosphate's original flagship project and more interestingly, pushed Arianne Phosphate's near(ish) project into a distant second place. The most salient details of the PEA are:

- Production of an annual average of 900,000 tonnes of beneficiated phosphate concentrate at 40% P_2O_5 content and 380,000 tonnes of magnetite at 92% Fe_2O_3 content
- A 23-year mine life
- The project generates a pre-tax internal rate or return (IRR) of 37.1% and a pre-tax net present value (NPV) of $2.1bn at an 8% discount rate at an approximate three-year trailing average phosphate price plus a premium for purity and potential secure source of supply, and a two-year trailing average magnetite price (plus a premium for purity)
- The project generates an after-tax internal rate or return (IRR) of 33% and an after-tax net present value (NPV) of CAD$1.59bn at an 8% discount rate.
- The project would generate an after-tax cash flow of CAD$700mn in years 1 to 3, resulting in a 2.9-year payback period from the start of production. Pre-tax cash flow in years 1 to 3 is CAD$783mn for a 2.6-year payback period
- Initial capex for the Project is of CAD$675mn
- The Project has no outstanding royalties or financing streams registered against it.

The PEA used the Indicated and Inferred Mineral Resources published in September 2024 in its calculations.

The Maiden Resource Estimate at Bégin-Lamarche

The Maiden Resource on Bégin-Lamarche was published in September of 2024 and was based upon 120

drill holes, totalling 29,762 metres. The database contained 7,968 assays for P_2O_5, Fe_2O_3 and TiO_2. The most salient features were:

- An Inferred pit-constrained Mineral Resource: 214mn tonnes @ 6.01% P_2O_5 (phosphate)
- An Indicated pit-constrained Mineral Resource: 41.5mn tonnes@ 6.49% P_2O_5

Including Mountain Zone:

- Indicated Mineral Resource of 9.3mn tonnes @ 8.19% P_2O_5
- Inferred Mineral Resource of 6.8mn tonnes @ 8.57% P_2O_5

Bégin-Lamarche

Pit-constrained at 2.5% P205 cut-off

	Zone	Tonnes mns	P2O5 %	P2O5 tonnes	Fe2O3 %	Fe2O3 tonnes	TiO2 %	TiO2 tonnes
Indicated	**Mountain**	9.3	8.19%	758,000	9.95%	900,000	3.23%	299,000
	Northern	32.2	6.00%	1,934,000	10.91%	3,500,000	3.33%	1,073,000
	Total	41.5	6.49%	2,692,000	10.69%	4,400,000	3.31%	1,372,000
Inferred	**Mountain**	33.2	8.57%	584,000	10.34%	700,000	3.68%	251,000
	Northern	44.3	6.98%	3,090,000	11.14%	5,000,000	3.26%	1,442,000
	Southern	162.9	5.63%	9,177,000	10.85%	17,600,000	3.73%	6,080,000
	Total	240	6.01%	12,851,000	10.89%	23,300,000	3.63%	7,773,000

Note: P_2O_5 = phosphorus pentoxide, Fe_2O_3= iron oxide/ferric oxide, TiO_2 = titanium dioxide.

By-Products

Notably, the potential for by-product credits was raised by recovering two additional primary mineral products: a magnetite concentrate (iron) and an ilmenite concentrate (titanium). Additionally, the Bégin-Lamarche deposit contains very low levels of potentially deleterious elements.

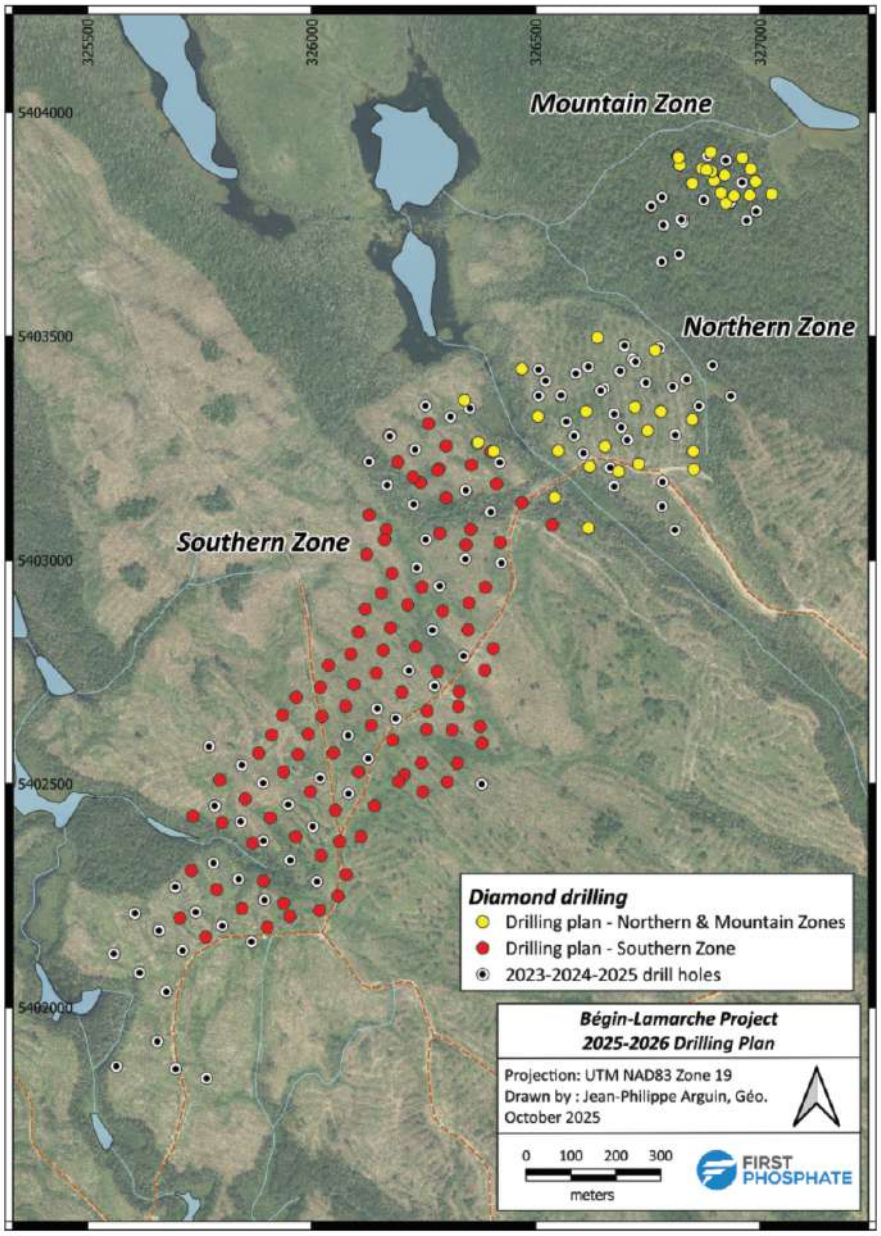
Metallurgical test work indicates an anticipated apatite concentrate grade of 40% P_2O_5 at a 91% recovery

Further Work

In late October of 2025 the company elucidated its plans to undertake a 30,000-metre accelerated drill program at its Bégin-Lamarche property starting in that month.

The drilling program is targeted at refining the Maiden Resource Estimate of September 2024 and confirming the final geological model for the property. The goal is a full and comprehensive understanding of the deposit is anticipated after completion of this drill program.

The campaign covers the entire 2.5 km-long known phosphate mineralization zone at 50x50 m intervals.



The drill program began with two drill rigs and increased to four rigs by mid-November with expected completion by April of 2026.

Position/Position/Position

The map that follows shows the relationship of Bégin-Lamarche to the port at Saguenay, the Hébertville Station intermodal rail station and First Saguenay secondary processing facility for iron phosphate precursor.


LFP BATTERY VALLEY - QUÉBEC - CANADA
Atlantic Ocean
Bégin-Lamarche Phosphate
Hydro-Québec 3000 MW
Wind Project
Deepsea Port
Large Vessel Access to the World
NATO Base Bagotville Airport
First Phosphate LFP Plant
Rail to North America
New Brunswick
Maine
Rail to North America
Québec City
Bécancour Battery Valley
USA
FIRST PHOSPHATE

One wonders to what extent the First Saguenay module of the business plan will stand the test of time with the America First mantra being a driver for the mid-and downstream. In our previous update we had noted that Initial production from First Saguenay was anticipated for the first quarter of 2026 to meet anticipated demand from existing partners, American Battery Factory and Ultion, as well as other potential clients in the fields of energy storage, electric vehicles and specialized battery products with which the PHOS was in advanced discussions.

This will clearly not happen and the sighting of all aspects of the supply chain once material leaves the mine must be subject to the caveat of "watch this space".

Gearing Up for the Feasibility Study

In late 2024, the company began the first phase of its project feasibility study with Ultion Technologies, a US-based company that is a pioneer in the LFP battery industry. The study is to determine the infrastructure required to support the permit applications as well as the lease facility retrofitting requirements.

The technology to be implemented is proven and already operating in two other facilities in the world, one with a capacity of 10,000 tonnes per annum and another with a capacity of 50,000 tonnes per annum. As a result of the industrial capacity of the chosen technology, First Saguenay expects to be able to move directly into commercial-size, scalable production without having to go through a pilot stage.

The Offtake Deal

In a somewhat mysterious, but momentous, announcement on the 18th of December of 2024, the company announced that it had signed two long-term offtake agreements with "creditworthy" offtake partners for its future output from the facility in Saguenay-Lac-St-Jean. The two deals significantly de-risked the project, whilst enhancing the prospective financing thereof.

The definitive terms of the offtake agreements shall be finalized in separate agreements to be entered into between the parties. The agreements contain termination rights by the Purchasers if the first delivery of product is not made by a certain date unless the parties agree to an extension as well as other normal course termination provisions. The commencement of the industrial is subject to a number of conditions, including permitting and financing which the Company continues to work towards diligently.

In the first week of January of 2026, the company announced an initial payment under an amendment made to its existing, long-term phosphate concentrate offtake agreement in the form of an LOI with the existing mystery partner. The transaction surprised watchers as so many in the mining markets are used to LOIs that are merely puff pieces not worth the paper they are written on. "Show me the money".. and they did.

The purchaser has agreed to provide a lump-sum pre-payment equivalent to US $530,000 to assist First Phosphate in advancing the Bégin-Lamarche phosphate mining project to a feasibility study and an

eventual production decision.

First Nations – Advancing Together

At the same time as the offtakes were announced the company also signalled that it was entering the next phase of discussions with the Pekuakamiulnuatsh First Nation regarding a possible financial involvement in First Phosphate.

The project site is within the ancestral lands of the Pekuakamiulnuatsh Takuhikan First Nation, which confers certain rights to indigenous peoples in the area. A formal collaboration agreement with Pekuakamiulnuatsh Takuhikan First Nation was signed in April of 2024 which includes the ability for the First Nation to become involved financially in the mining activity and other related downstream facilities to be developed by First Phosphate.

It's interesting to note that this, in particular, are noted for their proactivity, an example of which is their relationship with Rio Tinto Aluminium, dating back to an accord in 2022, and to their recent Supreme Court victory against the province of Quebec in establishing their rights to an adequately funded police force.

Under the collaboration agreement signed on April 9, 2024, the company has issued 240,132 shares to Pekuakamiulnuatsh First Nation for the exploration and development expenditures undertaken by the Company on the First Nation's lands in calendar 2025. Please also update as per new issuance to PFN, see: https://firstphosphate.com/phosphate-offtake-prepayment-begin-lamarche/

Financing

In the first days of 2025, the company announced that the company had raised total gross proceeds of $2,695,459. The company issued 7,448,455 Flow-Through Shares for gross proceeds of $2,606,960 and 252,857 Hard Dollar Units for gross proceeds of $88,500. Interestingly the warrants attached to the Hard Dollar Units consisted of a half-warrant per unit with each whole warrant exercisable for one common share at a price of $0.50 per share until December 31, 2025. These were massively in the money by year end.

In November the company was targeted by a strategic investor and the company engineered a non-brokered private placement to a strategic investor for gross proceeds of a minimum of $2,000,000 million. This consisted of Flow-through shares at $0.90 and hard dollar units at a price of $0.90. Each Hard Dollar Unit comprised of a common share and a full warrant at a price of $1.25 per share until April 30, 2026.

In late December of 2025 the company closed the fourth and final tranche of a non-brokered private placement financing which raised, in total gross proceeds the sum of CAD$9,615,478 through the issuance of 8,009,333 Flow-Through Shares for gross proceeds of $7,208,400, and through the issuance of 2,674,531 Hard Dollar Units for gross proceeds of $2,407,078.

When including this latest financing, First Phosphate had raised a total of approximately CAD$49.7mn in ten non-brokered private-placement financings since June 2022.

The CSE25 Recognition

An end of year bonus for First Phosphate was its recognition as index-worthy when it was announced that, effective the 19th of December 2025, its common shares have been added to the CSE25 Index as part of the Canadian Securities Exchange's quarterly index rebalancing. This can of course be a two-edged sword for index-trackers.

The CSE 25 Index is comprised of the 25 leading companies listed on the CSE, selected based on market capitalization and liquidity criteria. Inclusion in the index increases visibility among institutional and retail investors and results in broader exposure through index-linked investment products and mandates.

Competition is Left in the Dust

Unfortunately for Arianne Phosphate (TSX-V: DAN |OTC: DRRSF) with its Lac à Paul greenfield project, First Phosphate is pulling well ahead in the competition. This raises the question for investors and government as to whether the company will just be left as an also-ran.

The claims around the project are mighty indeed with management claiming it is "fully permitted and construction-ready" and has made "significant improvements" since its 2013 FS. The project might create ~1,000 jobs during operation and supposedly contribute CAD$12bn in economic benefit to the region. An updated engineering study was undertaken in late 2022 and early 2023 and estimates CapEx for the Lac à Paul project to be an eye-watering ~US$1.55bn, based on a $1.35 US/CAD exchange rate.

When we wrote our Initiation in October of 2024, we noted that First Phosphate was "just about as far away from having a mine as Arianne". That is no longer true with First Phosphate having made a quantum leap forward while Arianne has been idling in neutral.

If Arianne could glean the cash to build, they still would have numerous bridges to build (literally) and a new port to build on the north side of the Saguenay for about CAD$500mn. To put this in perspective, CAD$675mn is the cost mooted by the PEA for First Phosphate's mine where a significant component of the value added resides.

In contrast, First Phosphate resolved to build a PPA plant as opposed to a new port. The company intends to use existing infrastructure as the company regards itself as being in the LFP business, not in the port construction and administration business.

Risks

It is important to highlight some of the potential risks for First Phosphate and thus one should consider:

- ✕ Financing challenges
- ✕ Phosphate (and potential PPA) price fluctuations
- ✕ Entry of other challengers to the PPA space
- ✕ Other battery formulations advance more rapidly

Financing challenges come with the territory in the mining space. As noted, the company has aspirations to JV with various of the PPA producers or technology developers to build plants to capture the value-added and enhance margins. However, in the first instance it needs to fund the initial mine and that should be around CADUS$675mn which it must either source itself or by taking on a strategic partner.

It is key to remember that First Phosphate is not dependent upon the EV boom. Its product is readily sellable even in the context that EV's had never been invented or even heard of. While EV demand and uptake of LFP formulations adds icing to the cake of potential markets, it is not the be-all-and-end-all.

At the current time there are no other advanced developers in the Phosphate space that are targeting the marketplace in the way First Phosphate has been doing. Additionally, its alliances, while not precluding major players doing deals with other potential entrants, do give the company a significant advantage over other interlopers.

Novel battery formulations are appearing at a steady pace but as the industry advances, the cost of switching formats for end-users (e.g. retooling) becomes more disruptive to their business models and credibility.

Investment Thesis

Decisions, decisions is the backdrop to any move to a Feasibility study whether PFS or DFS. The onset of the Trump regime in the US makes getting these decisions right from an earlier stage into an imperative for the sake of credibility with funders.

The publication of the PEA on Bégin-Lamarche justified the decision to pivot from the original project that First Phosphate targeted for its aspirations in becoming North America's next Phosphate producer. The size of the deposit, the stronger grades and the by-product potential combine with a plethora of infrastructure and positioning advantages to make BLM the most doable new phosphate project on the drawing boards.

First Phosphate has become a company on a mission to secure partnerships on all fronts and at all levels to ensure the best & brightest are applied to the task of establishing it in the value-added part of the battery chain and ensuring North American offtakers for its eventual production from a processing plant whether located in Quebec or the US.

The next step at Bégin-Lamarche is to publish a Feasibility Study (adding the value-added PPA production plans).

Rationale & Rating

As we have noted the hare and the tortoise race between PHOS and its near neighbour has seen PHOS pull far ahead of a "competitor" that had a headstart but has now been left well-behind. This will increase perceptions that in a two-horse race, only one will make it to the finish line. This already seems to have happened in 2025 with PHOS sucking the oxygen out of the room for its own consumption, powering up its stock price massively.

We cannot see any prospect of reversal in this trend. The coming year will be one in which partnerships solidify from amorphous collaborations into a competitive tension as offtakers jockey to secure their share of the future BLM output and those relations will then inform decisions such as the sighting of PPA processing in the FS, which is scheduled for December of 2026. In the meantime, the current drilling program will reach fruition and likewise inform the FS.

We were quite pleased to see that our twelve-month target of CAD$1.15 set in late 2024 was almost nailed on the head by the market performance. In this update we are reiterating First Phosphate with a **LONG** rating and upping our 12-month target price to CAD$2.05. This target may be overtaken by events with a decisive

Appendix I: Phosphate

What is it?

Phosphate (which has the chemical symbol P) is the naturally occurring form of the element phosphorus, found in many phosphate minerals. In mineralogy and geology, phosphate refers to a rock or ore containing phosphate ions. Phosphorite are mined to obtain phosphorus for use in agriculture and industry. Phosphorous has a concentration in the Earth's crust of about one gram per kilogram (compared with copper at about 0.06 grams). In minerals, phosphorus generally occurs in the mineral apatite.

Multiple Phosphate Formats

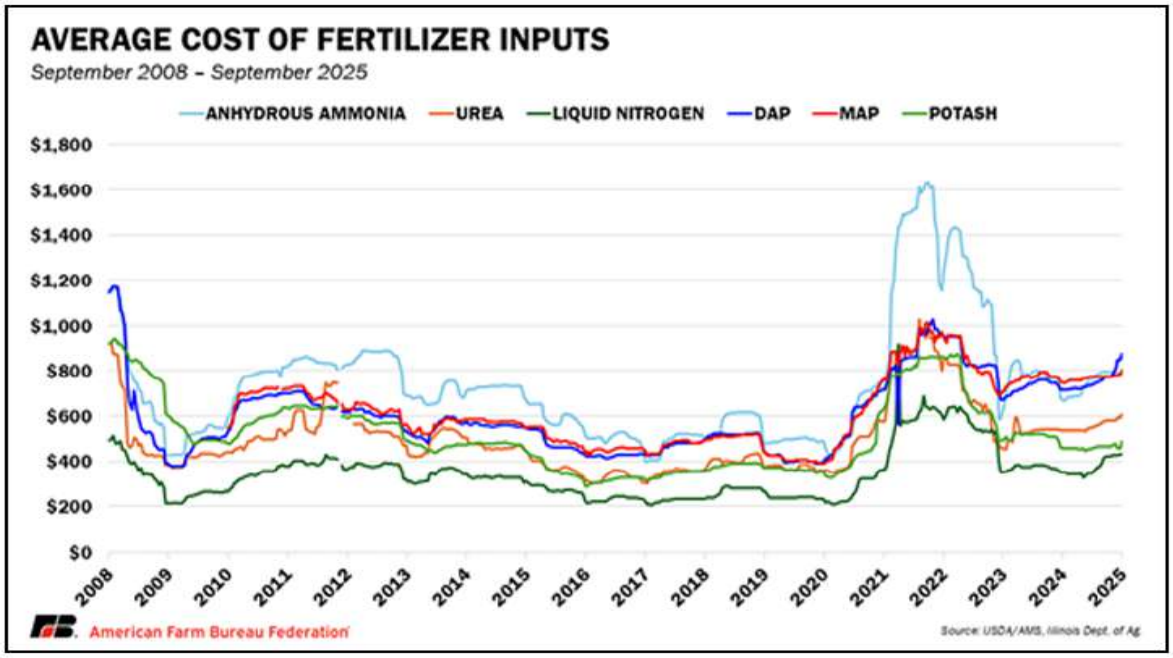
There are four primary phosphate sources for chemical and industrial applications:

- TSP (0-46-0)
- MAP (11-52-0)
- DAP (11-46-0)
- tMAP (12-61-0)

Triple Super Phosphate (TSP) is the form of phosphate production that does not require any nitrogen content, thus giving TSP a unique advantage in the phosphate space since it does not have a dependence on ammonia supplies. Sedimentary phosphate rock must be reacted with phosphoric acid to produce TSP, so most of the TSP production comes from world areas where there are ample phosphate rock reserves. Morocco, China and Algeria have some of the world's largest reserves of phosphate rock, and Morocco's OCP Group is already a leading TSP producer and supplier for the global fertilizer market.

Companies aspiring to produce TSP must have access to phosphoric acid facilities, so the countries with phosphate manufacturing capacity will have an advantage in securing phosphate rock for TSP production in the future. Due to volatile ammonia prices, TSP production is an attractive source for investments in countries near the Middle East and North Africa where phosphate rock reserves can be found in Morocco, Algeria, Egypt, Tunisia, Syria, Israel, Jordan and Saudi Arabia.

The subject of this update, First Phosphate, is aiming to be the newest large producer of Phosphate in North America and the only one fully oriented towards the lithium iron phosphate (LFP) battery format. The U.S.'s critical minerals push has characterized phosphates in the competition with China for LFP battery production and supply chains in North America.



Source: American Farm Bureau Federation/USDA - https://www.fb.org/market-intel/fertilizer-outlook-global-risks-higher-costs tighter-margins

Trade & Tariffs

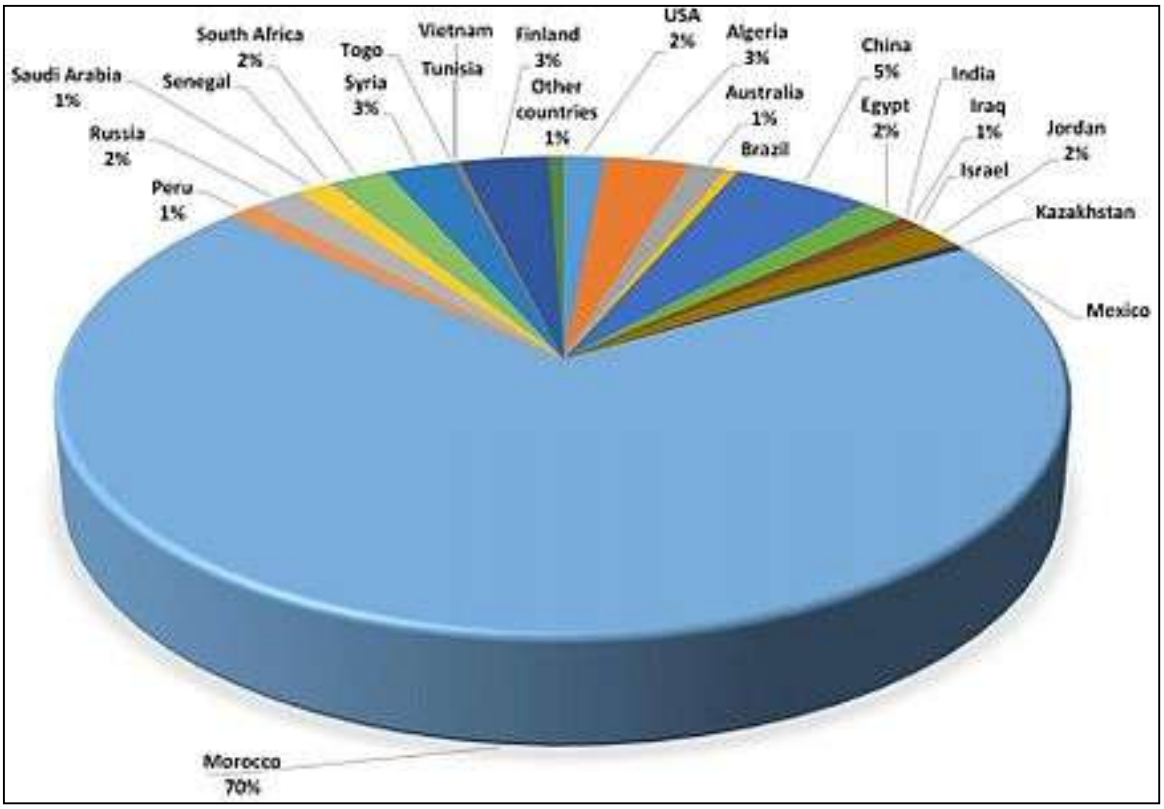
Morocco's phosphate exports were recently hit with countervailing duties (CVDs) by the U.S. government. The case at the United States International Trade Court (USITC) is ongoing, even as The Mosaic Company announced its withdrawal from the case after the ruling of the 2.12% rate. Unfortunately for OCP North America, the 2.12% rate was not the final ruling, and the higher tariff rate has been set at 16.81% until further notice, although that means the tariff rate will go into effect immediately. This CVDs case revolves around global agriculture market trends and government subsidies; however, U.S. and Canadian farmers should be concerned about how LFP battery demand will disrupt the supply and demand for phosphate fertilizers.

China's fertilizer export restrictions have hit the phosphate fertilizer market hard. It's obvious that there had never been any expectations for China to basically exit this crucial global fertilizer market. The world

is already scrambling for phosphate supplies, and even Syria is becoming a country that sounds attractive in this regard; however, Syria would be exporting phosphate rock, as does Egypt at this time. Saudi Arabia, Israel and Jordan are still the primary phosphate suppliers from the Middle East region.

Morocco was put out of the U.S. market due to CVDs case, so while OCP Group's phosphate supplies are currently not relevant to the U.S. fertilizer market, the case for the E.U. and other parts of the world is likely to see an increase in the dependence on Morocco for phosphate fertilizer supplies. The latter is not an attractive prospect for global phosphate prices, as Morocco imports massive amounts of ammonia and sulfur to produce MAP, DAP and TSP fertilizer products.

The reemergence of phosphate mining in Canada is nothing new. There are also some advantageous political dynamics at play for Canadian phosphate projects. The Canadian government is keen to establish the province as a force in the mining and fertilizer space. Ontario's Premier Doug Ford set out to create special economic zones (SEZs) that would suspend provincial and municipal laws for certain projects since it is such an important growth sector for Canada's mining industry.



Take global phosphate mine production as an example. China and Russia both increased phosphate

mine production from 2023. USGS data shows that China increased phosphate mining output by 5,000 tons from 105,000 in 2023 to 110,000 in 2024. Russia only increased phosphate mining output by 1,000 tons from 13,000 in 2023 to 14,000 in 2024. Nevertheless, Russia still had a higher increase in production capacity than Jordan, which increased phosphate mining output by only 500 tons from 11,500 in 2023 to 12,000 in 2024.

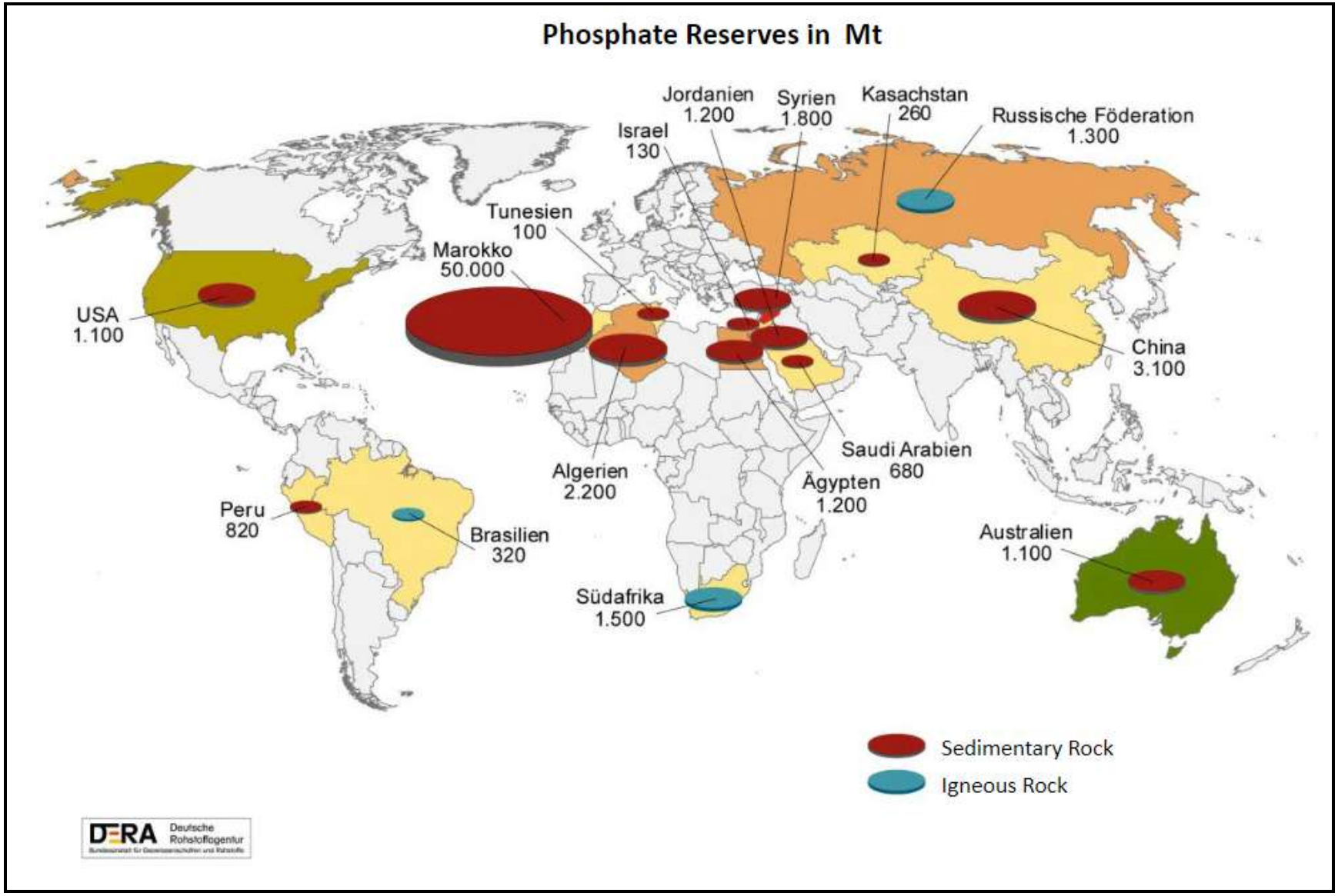
	Mine production[e]		Reserves[4]
	2023	2024	
United States	19,600	20,000	1,000,000
Algeria	2,000	2,000	2,200,000
Australia	2,500	2,500	[5]1,100,000
Brazil	5,280	5,300	1,600,000
China[6]	105,000	110,000	3,700,000
Egypt	5,000	5,000	2,800,000
Finland	906	900	1,000,000
India	1,800	1,600	31,000
Israel	2,310	2,300	60,000
Jordan	11,500	12,000	1,000,000
Kazakhstan	1,500	1,700	260,000
Mexico	439	360	30,000
Morocco	33,000	30,000	50,000,000
Peru	4,700	5,000	210,000
Russia	13,000	14,000	2,400,000
Saudi Arabia	9,900	9,500	1,000,000
Senegal	2,400	2,500	50,000
South Africa	1,720	2,200	1,500,000
Syria	800	2,000	250,000
Togo	1,610	1,500	30,000
Tunisia	3,600	3,300	2,500,000
Turkey	960	800	71,000
Uzbekistan	800	900	100,000
Vietnam	2,500	2,600	30,000
Other countries	730	770	800,000
World total (rounded)	233,000	240,000	74,000,000

Source: U.S. Geological Survey, Mineral Commodity Summaries, January 2025

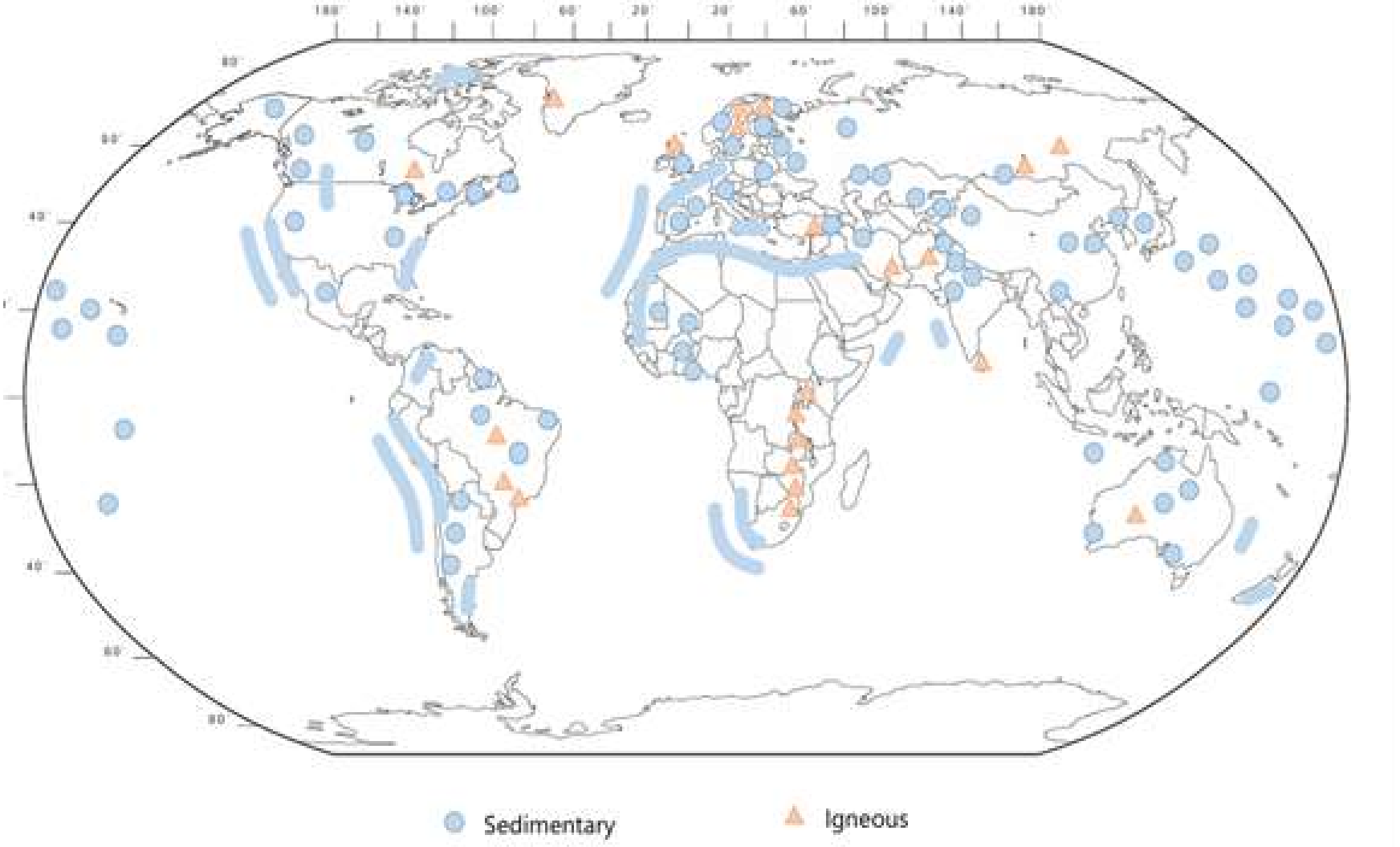
Why depend on phosphate production capacities from future Moroccan, Chinese and Russian phosphate mineral sources when Canada has igneous rock reserves?

On Apatite

Apatite is fairly common as an accessory mineral in igneous and metamorphic rocks where it is the most common phosphate mineral form to be found. Occurrences are usually found as small grains which are often visible only in thin sections. The chemical formula of apatite is $Ca_5(PO_4)_3(F,Cl,OH)$. The molecular weight of the phosphate molecule (PO_4) in apatite is 41.8%. Apatite is also found in clastic sedimentary rock as grains eroded out of the source rock over time. Phosphorite is a phosphate-rich sedimentary rock containing as much as 80% apatite which is present as cryptocrystalline masses. Economic quantities of apatite are also sometimes found in nepheline syenite or in carbonatites.



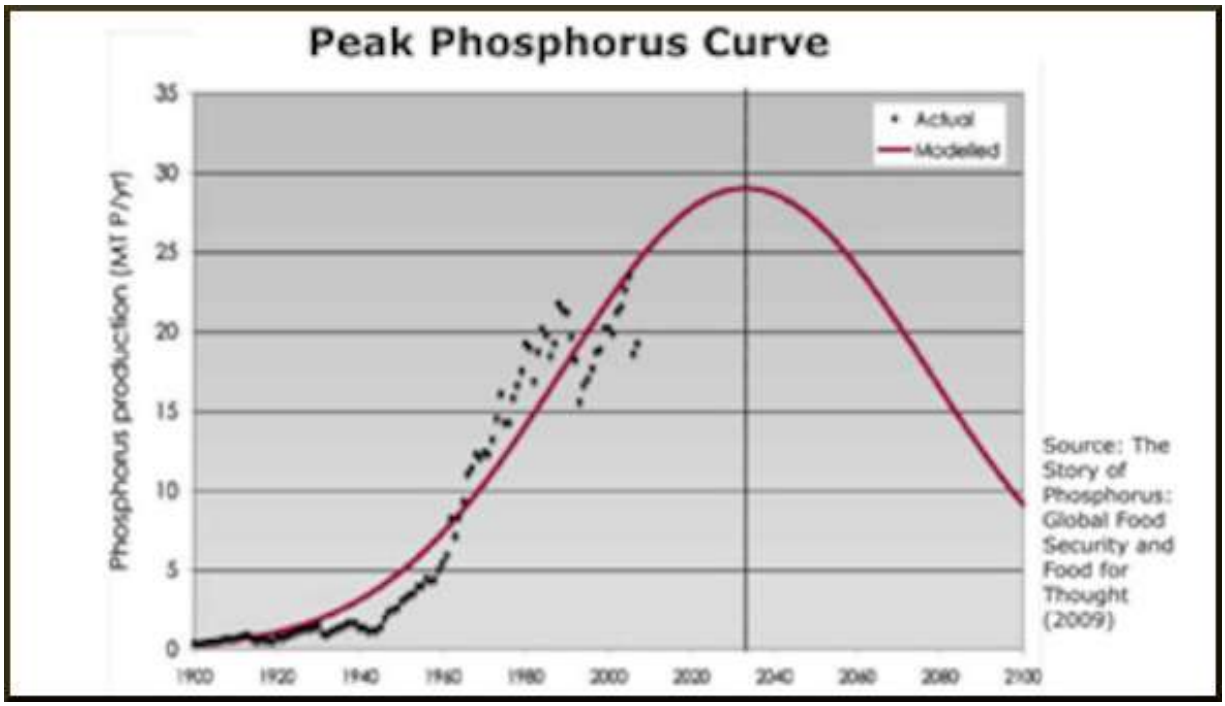
Source: *Deutsche Rohstoff Agentur*



Source: Argus/International Fertilizer Association, https://www.fertilizer.org/wp-content/uploads/2023/04/2023_Argus_IFA_Phosphate_Rock_Resources_and_Reserves_Final.pdf

“Peak” Phosphorus

In 2007, at the current rate of consumption, the supply of phosphorus was estimated to run out in 345 years. However, some scientists thought that a "peak phosphorus" would occur in 30 years and Dana Cordell from Institute for Sustainable Futures said that at "current rates, reserves will be depleted in the next 50 to 100 years".

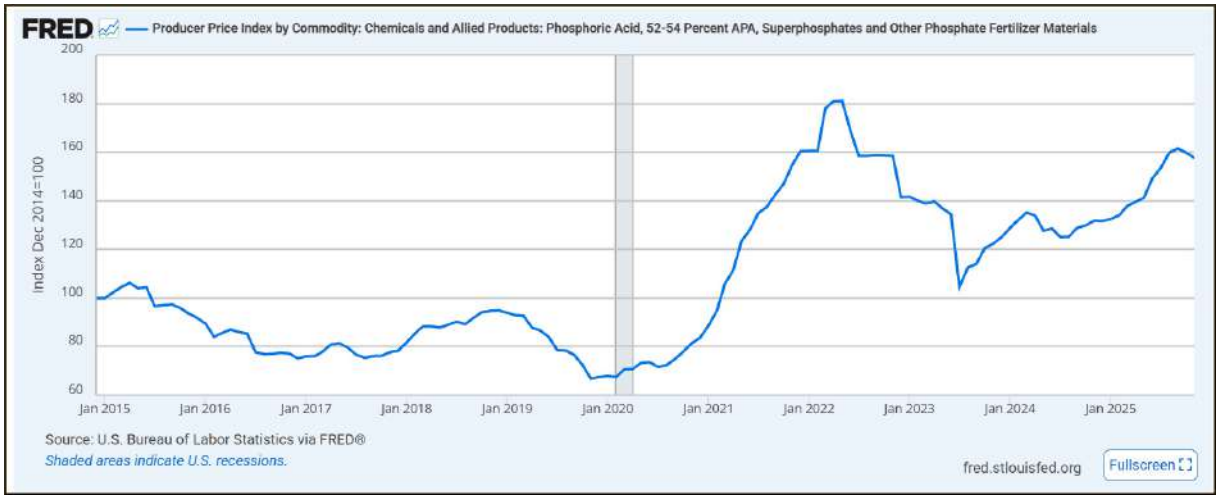


These estimates though are predicated upon the identified projects as of those times. While the universe has not changed massively since that time it has seen the addition of the likes of First Phosphate.

Drivers

Due to high fertilizer prices, several junior phosphate companies have emerged from the shadows, and not all of them are even trying to break into the phosphate fertilizer market. Volatile phosphate prices in the $800-$900 per ton range were a new reality in the global fertilizer markets in 2025. Those higher phosphate prices found their way into higher prices for NPKs, and other specialty fertilizer products as well, despite downward pressures on nitrogen and potash prices.

In recent years, the producer price index (PPI) has shown signs of stress for phosphate producers.



Source: St Louis Federal Reserve & US Department of Labour

In the U.S., phosphate was added to the USGS critical minerals list recently. Throughout 2025 phosphate fertilizer prices in the U.S. hovered at extreme highs of USD $847-$921 per tonne. An Iowa senator, backed up by a Michigan senator, issued an official letter to the U.S. Department of the Interior requesting to make phosphate a critical mineral in the U.S. The objective of this critical mineral push, according to their letter, is to increase domestic phosphate production within the U.S but it also mentions that it would decrease dependence on China for phosphate products.

Summation

Lowering phosphate prices and decreasing dependence on imports from China will require more than just boosting domestic production in the U.S. There must be a complete rethink on the entire phosphate supply chain in North America. In the U.S., domestic phosphate production should be reserved for fertilizer projects and national food security programs, without the need for consideration of LFP battery plants since Canada can provide LFP batteries. Rising phosphate fertilizer prices are not the only cause for phosphate becoming a critical mineral in the U.S. and Canada, LFP batteries are where the criticality aspects of the global minerals supply chains matter as well.

Appendix II: PPA

The Icing on the Phosphate

The new applications in the EV industry have the potential to not only be enormous but also change the direction of travel of battery formulations. The mineral has already been long in use as the electrolyte in Li-Ion batteries but now is part of the challenger battery cathode material, Lithium Iron Phosphate (LFP), to the "inevitability" of Lithium Ion's coronation as the be-all-and-end-all for EV energy storage.

The company's thesis is that, with anticipated primary recovery of a >40% pure phosphate concentrate, amongst the world's purest, this will be ideal for the creation of large quantities of PPA for the LFP battery industry. 90% of such concentrate can be converted into battery-grade PPA and thereby by passing the fertilizer markets entirely and focusing strictly on the value-add battery market. Added to this are secondary recoveries of ilmenite (~39% TiO_2) and magnetite (~68% Fe) which should greatly reduce costs of production of the Phosphate concentrate. The company is advanced in investigating the potential to upgrade the magnetite recovered into iron powder: this is equally valuable material input in the LFP Cam production process which also has a scarcity factor in North America.

The Shifting Tides of Battery Metal Formulations

As we noted in our Initiation, a scramble has developed by OEMs and others to evolve, and trial, other metal formulations to short-circuit (pardon the pun) the Li-ion dominance. With this goal, Lithium Iron Phosphate (LFP) batteries have been making a push for breaking Lithium-ion's dominance, with some success so far in heavyweight formats, such as buses.

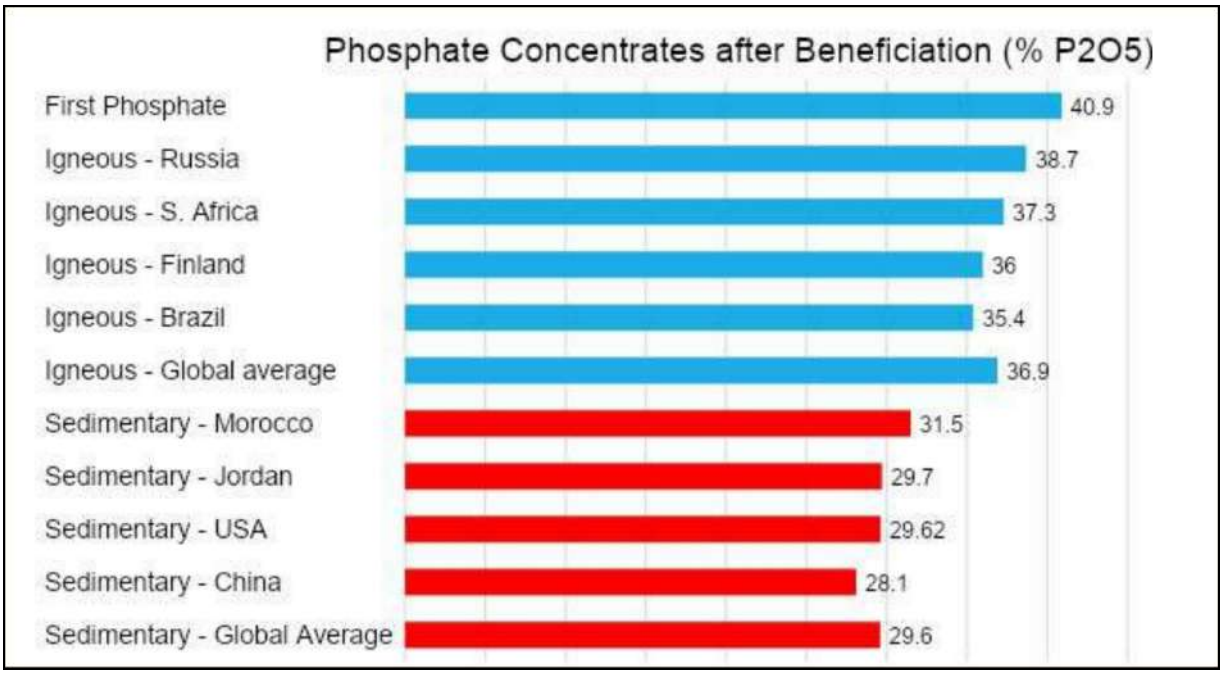
LFP's major commercial advantages are that it poses few safety concerns such as overheating and explosion, as well as long cycle lifetimes, relatively high power-density and has a wider operating temperature range. Power plants and automobiles use LFP.

The Strategy

Early on, First Phosphate teamed up with Queen's University. In their opinion, although enormous reserves of phosphate rock exist, only a small portion is ideally suited for LFP battery production. The raw material for cathode manufacture is generally constrained by the supply of pure phosphoric acid with low trace element concentrations.

The university's research showed that phosphatic ores derived from anorthosites (< 3 ppm of Cd, Pb, U, and Th) may be the best source to produce much larger quantities of purified phosphoric acid with low levels of deleterious trace elements (90% feedstock conversion for igneous phosphate vs generally 20% for sedimentary ores). To that end the company has focused its attentions on that mineralisation and partnerships that can mobilise First Phosphate's potential output of Purified Phosphoric Acid, inserting the company in the value-added chain of LFP's in North America.

The igneous phosphate ore found at the Bégin-Lamarche project is mostly from nelsonite and oxide-apatite-mafic- ultramafic rocks. The P_2O_5 of the ultramafic rock ranges from 2.6% to 15.0 wt.%. The average P_2O_5 grading of the phosphate is 6.01%. Testing suggests that the phosphate ore from this deposit could produce a high-quality phosphate concentrate with a P_2O_5 content of ~40.9 wt.%, which is above the global average P_2O_5 of marketable phosphate concentrates produced from igneous ore from other countries (36.9 wt.%).



Process

The process for creating PPA is three-stage:

- Phosphate-bearing rock is crushed and processed to obtain Concentrated Phosphate Rock (25%-41% purity level). Sedimentary Rock (25%-34%). Igneous Rock (38%-41%)
- The concentrated Phosphate rock is then processed into medium-purity Merchant Grade Phosphoric Acid (MGA) for fertilizer and animal feed
- The next stage in upgrading takes Merchant Grade Phosphoric Acid (MGA) via further processing

to Purified Phosphoric Acid (PPA)

Awaiting the Feasibility Study to Quantify PPA Potential

First Phosphate will be leading the North American push for LFP battery production in the near term. First Phosphate is working to secure high-purity phosphate for cathode active material (CAM) for the North America LFP battery supply chain. First Phosphate can deliver purified phosphate directly into the LFP battery ecosystem for energy storage, industrial use and other kinds of high-tech applications.

All this discussion leads to the question of what relevance is this to First Phosphate when its extant PEA is based upon essentially selling a Phosphate product to global markets that does not include the value-added of a PPA upgrading component. This absence leaves a large part of the story untold for while it involves a significant CapEx component (possibly as high as CAD$500mn) for constructing a PPA plant at Saguenay (or in the US), it also omits the much higher revenue potential from production of the elaborated product, that could generate revenues per tonne of final product that are six-times those for the fertilizer product.

The granular details of this aspect awaits the Feasibility Study before this component is brought into focus.

Appendix III: Partners

A-List of Technology and Infrastructure Partners

The A-List in North American Battery Evolution

A key tenet at First Phosphate is not to reinvent the wheel, but rather to partner with technology leaders in the fields of phosphate processing and LFP applications. To this end it has cooperation and R&D relationships with the following entities, categorized by contribution/role:

Technology & Knowhow

- Queens University
- Lithium Australia
- CMAX Retombees
- Agrinova
- Integrals Power

Midsteam Processing & Offtakes

- Prayon Technologies
- American Battery Factory
- GKN Hoeganaes
- Norfalco (Glencore)
- Ultion Technologies

Logistics & Facilities

- Saguenay Port
- Groupe Goyette
- Craler – TFI International

- Rapidwall / Rapidseal

Prayon – Technology for Phosphate Processing

In December of 2024, the company deepened further its relationship with Prayon S.A. when it signed a technology license agreement with the Belgian group for the technology to produce merchant grade phosphoric acid (MGA) from igneous apatite phosphate rock as well as high-purity gypsum.

Prayon granted First Phosphate a license to use its technology to design, build, operate and maintain, within Canada, a Merchant Grade phosphoric acid manufacturing plant, with a production capacity of 600 metric tpd per day of P2O5.

First Phosphate selected Ballestra S.pA. of Milan, Italy from a group of official permanent licensees of Prayon to fulfill the service agreement for the engineering services portion (FEED and EPC/EPCM) for the project.

The relationship here dates back to February of 2023 when First Phosphate sighed an MOU with Prayon, a Belgian corporation. The MOU engages the parties to collaborate towards assessing feasibility and potential partnership in the areas of phosphate concentration production and offtake; LFP grade phosphoric acid toll processing; license for LFP grade phosphoric acid production facility; and development of LFP cathode active material manufacturing plant.

Prayon is a leading force in phosphate R & D and production. Originally called S.A. Métallurgique de Prayon, with a focus on Zinc and Phosphorus, it has been in business for over 140 years and now has 1,400 employees. The group has production sites in Belgium, France, Switzerland and the United States, research and development sites in Belgium and a testing and validation facility in Bulgaria (Technophos). OCP and Wallonie Entreprendre (WE) are Prayon's two shareholders.

The Central-Prayon Process (CPP) is used at its central production site in Engis, Belgium and has been in operation for more than 40 years. It is a model of circular economy in the phosphoric acid world as more than 90% of its co-product phosphogypsum is reused in the cement or plaster industry.

Important disclosures

I, Christopher Ecclestone, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

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