




Issue 64: November 8, 2020:

Sustainable LiTHiuM Rocks!
North America's Lithium Triangle

Lithium 3.0 – which began selectively pre-Battery Day and broadened thereafter with **Tesla's Piedmont Lithium** and **Leading Indicator Ganfeng** – has now gained momentum with the catch-up and potential for renewed leadership from **Lithium Proxy Albemarle** and **Livent** following their earnings results and calls last Thursday. ALB and LTHM shorts are no doubt being squeezed as China and Europe EV sales continue to outperform expectations and the two Tesla suppliers continue a Mexican standoff - Livent is stopping production for 2 months in Q4 to improve spec and ALB is suggesting flat 2021 volumes. By Friday trade it had also become likely that America voted for a kinder, gentler gridlock. Battery Biden. Build Back Better.

I believe it is also beginning to sink in with the smartest longer term money that 're-investment economics' – a phrase repeated multiple times from Albemarle and Livent management – will eventually be achieved at least as it pertains to 'specialty hydroxide' – i.e., long-term predictable contracts at low-to-mid-teen prices. And, that there is a 'relative value' disconnect on USA stock exchanges between these proven critical suppliers to the Energy Transition and other 'EV-themed' plays, many of which are pre-revenue.

							
USA-listed Tesla-revolution Scoreboard Nov 1, 2020		Product(s)	Ticker	Market Cap Today	Share Price 09/30/20	Share Price 10/31/20	1 mo
EV & Battery SPACs Target/Sponsor		Aggregate Market Cap		\$ 37,449			
Nikola (SPAC Merger Consummated)	EV - Truck (Class 8, Pickup)	NKLA	\$ 6,608	\$ 20.5	\$ 18.3	-11%	
Hyllion (SPAC Merger Consummated)	EV - Truck (Class 8)	HYLN	\$ 3,057	\$ 49.8	\$ 18.9	-62%	
Fisker (SPAC Merger Consummated)	EV - SUV	FSR	\$ 2,981	\$ 14.4	\$ 10.1	-30%	
Velodyne (SPAC Merger Consummated)	EV - Lidar/Autonomous Vehicles	VLDR	\$ 2,108	\$ 24.8	\$ 12.2	-51%	
QuantumScape/Kensington Capital	Battery - Solid State	KCAC	\$ 5,282	\$ 16.8	\$ 11.8	-30%	
Chargepoint/Switchback	EV - Charging Stations	SBE	\$ 4,034	\$ 15.6	\$ 13.2	-15%	
Luminar/Gores Metropoulos	EV - Lidar/Autonomous Vehicles	GMHI	\$ 3,456	\$ 11.4	\$ 10.2	-11%	
Lordstown Motors/Diamondpeak Holdings	EV - Truck	DPHC	\$ 2,986	\$ 25.8	\$ 18.2	-29%	
Canoo/Hennessy Capital	EV - B2C Lifestyle Vehicle, Subscription	HCAC	\$ 2,509	\$ 11.1	\$ 10.3	-8%	
MP Materials/Fortress Value	Rare Earths/Magnets	FVAC	\$ 1,637	\$ 14.2	\$ 11.1	-22%	
XL Fleet/Pivotal	EV- (Retrofitting) Trucks	PIC	\$ 1,444	\$ 11.5	\$ 10.0	-13%	
Romeo Systems/RMG Acquisition	EV - Battery Packs	RMG	\$ 1,347	\$ 10.7	\$ 10.1	-6%	
USA-Listed EV Resource Plays		Aggregate Market Cap		\$ 22,406			
Albemarle	Lithium + Bromine + Catalysts	ALB	\$ 9,914	\$ 89.3	\$ 93.2	4%	
SQM	Lithium + Iodine + Specialty Plant Nutrition	SQM	\$ 9,741	\$ 32.4	\$ 37.0	14%	
Livent	Lithium - Pure-play producer	LTHM	\$ 1,572	\$ 9.0	\$ 10.8	20%	
Lithium Americas	Lithium - Pure-play developer	LAC	\$ 874	\$ 11.4	\$ 9.6	-16%	
Piedmont Lithium	Lithium - Pure play developer	PLL	\$ 305	\$ 23.4	\$ 19.9	-15%	



1.4% Cold Hard Facts

A quick memory-lane walk down the Rocky Streets of Philadelphia. Following Livent's spinoff IPO from FMC in October 2018, sell-side Wall Street consensus – based on company guidance which articulated the majority of 2019 revenue was under long-term contracts at fixed prices – looked as follows:

	<u>Livent</u> <u>Target</u> <u>Price</u>	<u>EV/</u> <u>EBITDA</u> <u>2018E</u>	<u>EV/</u> <u>EBITDA</u> <u>2019E</u>	<u>EV/</u> <u>EBITDA</u> <u>2020E</u>	<u>Sales</u> <u>2018E</u>	<u>Sales</u> <u>2019E</u>	<u>Sales</u> <u>2020E</u>	<u>EBITDA</u> <u>2018E</u>	<u>EBITDA</u> <u>2019E</u>	<u>EBITDA</u> <u>2020E</u>
Bank of America	\$ 20	13	11	9	\$ 445	\$ 515	\$ 594	\$ 184	\$ 228	\$ 272
Goldman Sachs	\$ 22	13	11	9	\$ 432	\$ 490	\$ 590	\$ 189	\$ 225	\$ 286
Credit Suisse	\$ 20	13	11	9	\$ 434	\$ 523	\$ 616	\$ 190	\$ 234	\$ 278
Nomura	\$ 20	13	10	9	\$ 442	\$ 569	\$ 699	\$ 187	\$ 236	\$ 284
BMO	\$ 18	11	11	10	\$ 461	\$ 530	\$ 584	\$ 207	\$ 225	\$ 238
Consensus	\$ 20	13	11	9	\$ 443	\$ 525	\$ 617	\$ 191	\$ 230	\$ 272
					Growth	19%	17%		20%	18%

Source: RK Equity

Last Thursday Livent reported just \$1M in Q3 EBITDA, a \$4M annual run-rate equivalent, or 1.4% of \$272M consensus 2020 forecasts. Why then did LTHM rise 15% - vastly surpassing Albemarle's 6.4% uptick?

In my opinion, investors are applauding Livent's post-Halloween Thriller announcement – a savvy pivot in strategy from high altitude brine – the Argentina Dead Man Hombre Muerto – to rocking with the frigid French Canadian undead.

From Digging Paul's Grave...



Argentina Carbonate to Hydroxide is Best!?

...To Digging Paul Graves



1.4% Whabouchi Spodumene Rocks!
New Nemaska is aLivent!



As I have previously sought to disaggregate how much value Mr. Market affixes to **Lithium Americas** Cauchari, Argentina asset vs. its Nevada Thacker Pass, so too I now attempt a similar (admittedly imperfect) exercise for Livent and its 25% interest in New Nemaska. Taking LTHM's 8.6% incremental rise vs. ALB on November 5, the first trading day after the announcement, translates into \$153M of additional value. On a 100%-equivalent basis, this would imply approximately \$600M for Nemaska...

	Nov 5 LTHM price	\$ 11.85
	Nov 6 LTHM price	\$ 13.65
	LTHM up %	15%
	ALB up Nov 6	6.4%
	LTHM extra rise ex - ALB (ie NEWmaska news)	\$ 1.05
	LTHM Shares Outstanding (M)	146.3
	Value (M) of LTHM 25% Nemaska stake	\$ 153
	Value (M) for 100% of Nemaska	\$ 612

...which is twice the ~\$300M for integrated peer Piedmont and on par with ~\$550M Thacker Pass clay.

RK Equity				
Lithium Market Scoreboard Nov 1, 2020		USD Mkt (\$m)	Type	Li Project
Emerging - Funded or Partnered		\$ 4,574		
	Lithium Americas (NYSE)	\$ 874		Arg, USA
	LAC - Cauchari (RK est.)	\$ 319	Brine	Arg
	LAC - Thacker Pass (RK est.)	\$ 555	Clay	USA
	NEWmaska (Livent, IQ, Pallinghurst)	\$ 600	Rock	Canada
	Covalent (SQM/Wesfarmers: RK est)	\$ 1,100	Rock	Australia
	MARBL Wodgina (Albemarle MinRes: RK est)	\$ 2,000	Rock	Australia
Advanced Development/Exploration		\$ 1,965		
	Piedmont Lithium (NASDAQ)	\$ 305	Rock	USA
	Liontown Resources	\$ 292	Rock	Australia
	Ioneer	\$ 206	Rock	USA
	Standard Lithium	\$ 158	DLE	USA
	Sigma Lithium	\$ 156	Rock	Brazil
	AVZ Minerals Ltd.	\$ 153	Rock	DRC
	Millennial Lithium	\$ 94	Brine	Arg
	Critical Elements Corporation	\$ 92	Rock	Canada
	Neo Lithium Corp	\$ 91	Brine	Arg
	Bacanora Lithium	\$ 85	Clay	Mexico
	European Metals Holdings	\$ 85	Rock	Czech
	Mali Lithium	\$ 71	Rock	Africa
	Vulcan Energy Resources	\$ 64	DLE	Germany
	Savannah Resources	\$ 42	Rock	Portugal
	Frontier Lithium	\$ 36	Rock	Canada

NOTE: I've included in my lithium scoreboard above the Covalent and MARBL JVs and valuations paid for them by Wesfarmers and Albemarle. More on this below, but first some words about ...



ESG meet SSS

A specialized consultancy **Minviro** has carved out a great niche as a world class provider of life cycle assessments (LCA) of lithium and other battery materials. Some lithium companies which sell chemicals made from brines may have the lowest CO2 intensity in their manufacturing process (and other brines are worse on CO2 than some hard rock), but that’s just one impact category when counting up environmental impacts. There is more on buyers’ minds than just CO2.

‘Sustainability’ and environmental, social and governance (‘ESG’) considerations are more than just carbon footprint. Land and water footprint as well as indigenous and sovereign risk issues greatly factor into decision-making in board rooms in California, Germany, Detroit, and elsewhere. Additionally, for the energy storage rEvolution, sustainability is but one of several Supply ‘S’s’ of critical importance: Security, Scalability and Short distance are also mission critical for critical mineral lithium.

It is notable in an anti-mining world that French banks SG & BNP have blessed spodumene mining (**Sigma Lithium, Pilbara Minerals**) with ‘Green Loans’. And VW & BMW have trumpeted ‘sustainable’ deals with Ganfeng for coal-fired China hydroxide conversion of diesel-fueled Australia mines.

Tesla believes ‘geographic proximity’ - how far a lithium (or nickel) molecule travels - is critical. In addition to sustainability, security, scalability, and, of course, cost - integrated rock-to-hydroxide is more often cheaper - localized supply is more manufacturing efficient (‘highway speed’): just-in-time, working capital management etc. Tesla flagged an 80% reduction in a key metric -- kilogram x kilometer -- by sourcing spodumene from Piedmont in North Carolina to its own hydroxide plant in Texas.

When looking for sustainable blue sky in green field lithium projects **KISS SSS: Short, Scalable, Secure**. Election season recalls Watergate’s ‘follow the money’. Livent electing to lavish green on clean energy rock, just as Albemarle, Wesfarmers and SQM have, is another hard data point about rock’s ESG bona fides. Mr. Market valuations say the same about various lithium types and geographies.

ROCK THE VOTE

Type	Aggregate Market Value (M)
Rock	\$ 5,139
Clay	\$ 640
Brine	\$ 504
DLE Brine	\$ 222

Geography	Aggregate Market Value (M)
Australia	\$ 3,392
North America	\$ 2,038
USA	\$ 1,225
South America	\$ 661
Africa	\$ 224
Europe	\$ 191

#HydroxideSurge

#S3XLithium

#HardRockIsPreferredFeedstock



Livent's unsecured convertible bond in June adhered to 'Green Notes' Principles set in 2018 which demonstrate brines also have 'sustainable' credibility. Low carbon footprint brines are excellent, low cost routes for exporting lower value 'commodity carbonate' and (increasingly popular) 'commodity chloride' from Argentina.

Orocobre is focusing its future expansions and **Galaxy** its start up on producing and exporting non-battery quality brine from Argentina and converting to higher value chemicals locally in Asia. I believe Livent's focus on Nemaska – and articulation it will unlikely invest any new capex in Argentina in 2021 due to economic, Covid and other considerations – could turn into a long-term 'Philadelphia Freedom' from Argentina bondage.

*"Argentina remains, in our view, one of the world's if not the world's best source of **lithium carbonate**...as we sit here today, I don't expect that there'll be any capital deployed in 2021 down into Argentina. I don't think the pricing environment is going to support it. I'm not sure the Argentinean political environment will be much clearer during 2021...the thought that we will be deploying a lot of capital that quickly into Argentina, I just do not think that is the most likely outcome today. We are sitting here looking at multiple ways to start again... we have lots of options as to how we do it, the pace that we do it. We could frankly roll together two phases and go bigger. **We could phase it and stage it more** and start to maybe increase production of LCEs in various forms, **chloride, for example first** and carbonate to follow."*

– Paul Graves, November 6, 2020

Throughout 2021, I expect we will start hearing from Paul Graves – the silver tongue from Goldman Sachs – a sustainable drumbeat EV-angelizing hydro-powered, integrated hard rock to lithium chemicals ahead of a full funding for an ~20-25kta integrated operation in Quebec.



Livent's Hi IQ Strategy

I summarize below additional points from Livent's call last week, but would encourage reading the [full Q3 earnings transcript here](#). For some history, see a LinkedIn note I wrote in July 2019, [Nemaska Lithium Matters – Jupiter's Halo](#) and listen to a post-mortem on [Emily Hersh's Minerals Manhattan Project: Nemaska Implosion and Lithium Stonks](#).

Livent is partnering 50/50 with **Pallinghurst** in **Quebec Lithium Partners** which will own 50% of 'New Nemaska Lithium' (mostly Whabouchi with some additional IP). Investissement Québec (IQ) – a private equity arm funded by the Quebec government – holds the remaining 50%. Livent, then, essentially gets 25% economic interest in New Nemaska.

Livent **New Nemaska Lithium**

THE PALLINGHURST GROUP

Investissement Québec

Structure

- New Nemaska to be owned by Investissement Québec (50%) and Québec Lithium Partners ("QLP") (50%)
- Livent investing in New Nemaska via joint venture with Pallinghurst (equal 50% ownership in QLP)
- Opportunity to increase ownership in the business over time

Role

- Livent to have Board representation at New Nemaska
- Shared responsibilities for the planning, development and future operation of the project
- Contribute expertise in development, production and commercialization of performance lithium compounds

Rationale

- Top-tier spodumene resource with access to existing infrastructure
- Strategic footprint to serve customers in North America and Europe
- Favorable sustainability profile with use of renewable hydroelectric power
- Resource diversification

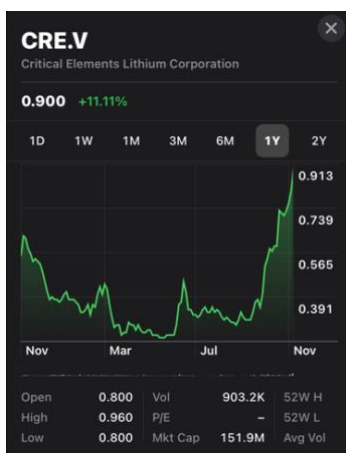
Pallinghurst is a proven, well capitalized mining private equity firm led by Brian Gilbertson (ex-CEO of BHP Billiton, Gencor, Vedanta, Rustenburg Platinum). Among their recent successes is ASX-listed **Jupiter Mines**, a manganese project in South Africa. Last November Pallinghurst announced a \$2B battery materials partnership with **Traxys**, a Tier One global commodity trading firm. Pallinghurst is already deeply invested in Quebec and with IQ through TSX-listed **Nouveau Monde Graphite** – a world class green graphite greenfield for which Traxys has a 25kt concentrate offtake and joint marketing agreement.

Livent was owed \$20M as a secured creditor of Nemaska - \$10M in real cash invested and \$10M in damages for Nemaska's not delivering carbonate. Livent will spend ~\$10M over the next 6-9+ months 'optimizing' the Whabouchi mine plan (most likely smaller scale) and figuring out which conversion technology to use and where to situate a plant (unlikely Shawinigan). Over the short and medium-term, Livent will leverage Pallinghurst's mining skills and capital while providing its leading chemical conversion skills that are in short supply globally.



Livent mentioned scope for greater ownership/control at New Nemaska. Over time, Pallinghurst will want a return and exit, so Livent has a longer-term path to self-sufficient resource diversity in a rock solid Canadian jurisdiction.

IQ represents relatively cheap funding. While on paper it looks to earn private rates of return, in reality it's the Quebec government which mainly wants value-added jobs. French Canada is like Europe putting real money where its 'Propulsion Quebec' and 'EV Nord' battery materials mouth is; unlike Australia, who write 'Lithium Valley' theses but ignore bankrupt SC6 suppliers seeking royalty relief. **Critical Elements** parabolic rise is no doubt a reflection that Old Man Rockin' in the Free World Quebec is back.



Livent in some ways is taking a page from **Ganfeng's** shrewd deal-making playbook. Or **SQM's** cheap entry into Lithium America's Cauchari circa 2016 or **Kidman's** Mt. Holland in 2017. **Livent/Nemaska** now looks like **Ganfeng/Bacanora** – a large, North American project with well capitalized and skilled joint venture partners currently optimizing studies before making final investment decisions in 2021.

Will Whabouchi make hydroxide directly? Or carbonate that Livent subsequently converts in North Carolina? Or both? Unclear. Might Whabouchi simply produce and export spodumene? Unlikely in my view, except perhaps on a short-term basis.

Will Livent re-sign Nemaska off-takes with **Johnson Matthey**, **LG Chem** and **Northvolt**? And provide new, additional volumes to expand its **Tesla** relationship? All of the above are likely in my opinion. I expect to see binding, long-term off-takes by second half next year -- at prices, unlikely to be published, but likely to be in the low to mid-teens, reflective of 'incentive pricing' economics.

Like Bacanora, Livent may need to seek equity capital to fund its share of Nemaska -- potentially by 2H 2021. Despite a share price now substantially above the \$8.73 conversion price of its June "Green Notes," Livent can't force convert/call these bonds before June 2023; Argentina EBITDA will unlikely provide for additional debt capacity in time. I believe Livent may also become a more attractive M&A candidate for those currently loth to invest in single asset Argentina.



I've talked often about 'Carolina to Quebec' hard rock to #HydroxideHub.

Adding Tesla Texas to this mix, an exciting new **Lithium Triangle** is emerging in North America...



\$LTHM
\$ALB
\$PLL
\$TSLA



RK Equity Research, Capital Raising, Advisory, Merchant Banking
11 Years Experience with Lithium Battery Materials Developers



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