

Is there going to be a North American lithium “rush”?

General Motors has now announced that in partnership with Korea's POSCO Chemicals they would construct a lithium-ion battery cathode active material (CAM) manufacturing facility in Quebec, Canada, with a capacity to produce the cathode active material needed for 1,000,000 battery electric vehicles (BEVs) annually by 2025. This would mean that the factory's output would be enough for cathodes for at least 90 gigawatt hours of lithium-ion battery storage. This capacity would be more than all of the North American capacity planned or built up until now combined. The GM dedicated POSCO Chemical plant is projected to cost \$500 million. The cathode active material will be utilized in the new GM “Ultium” EV battery plants to be constructed by GM in the USA.

Doug Parks, GM executive vice president, Global Product Development, Purchasing and Supply Chain, said, “GM and our supplier partners are creating a new, more secure and more sustainable ecosystem for EVs, built on a foundation of North American resources, technology and manufacturing expertise,”

A 100 kWh lithium ion battery requires 6-8 kg of lithium, measured as but so far not used in its metallic state, so that 1,000,000 BEVs will require 6,000 to 8,000 tpa of lithium, which will be initially delivered as lithium carbonate or lithium hydroxide and then chemically transformed into cathode and electrolyte specific materials for use. Today, 8,000 tons of lithium metal would represent 10% of global production and 15% of all of the lithium used for battery construction.

Note also that GM produces, annually, in the USA today some 2.5 million cars and trucks, so that 1,000,000 represents 40% of GM North American production.

The key takeaway from Mr. Parks' statement is the term, "North American resources."

North America today does not produce anywhere near enough lithium for the new GM/POSCO facility's planned capacity.

North American car and truck sales are today 7 times those of just GM's domestic production. If GM is looking to differentiate itself and gain a competitive advantage from domestic sourcing of battery materials, lithium, in particular, then it will have to compete with its peers for the critical raw materials.

The biggest problem will be sourcing and processing lithium domestically.

The Biden administration's announced policy is to have 50% of car and truck production be EVs by 2030. This means that at least eight times as much lithium will be required per annum by 2030 as GM will need in 2025, or 50,000 to 75,000 tons of lithium, measured as metal, per annum! This would be essentially equal to the total global production of new lithium in 2021, and this is just for North America!

North American lithium exploration, mining, processing and fine chemical production of battery grade chemicals need to expand dramatically right now for there to be any hope of meeting the EV production goals even at the lower end.

There needs to be a North American "Lithium Rush."

Perhaps, lithium should be considered as white gold after all.