

Quebec's \$6.7 billion Plan for a Green Economy is a huge boost for energy storage and EVs

While Quebec Canada is known for its French influence and pro-mining sector, it is starting to become well known for its support for pro-green policies. Just recently the Quebec Government announced their \$6.7 billion Plan for a Green Economy (2030 PGE).

As a part of the 2030 PGE, two of the most interesting announcements were Hydro-Quebec's move towards energy storage and Quebec's decision to ban the sale of new gasoline-powered cars from 2035. All of these recent Quebec pro-green policies are very positive for the energy storage, EV and battery markets; and also for the battery metal (and EV metal) miners; especially those with projects in Quebec.

A summary of the Quebec Government's \$6.7 billion Plan for a Green Economy (2030 PGE)

Making electrification a priority

The government is launching a major electrification undertaking mainly in the transportation industry, but also in the building heating and other industrial sectors. Over the next five years, 3.6 billion dollars stemming from the 2030 PGE implementation plan will be invested in the transportation sector, which alone accounts for over 43% of Québec's GHG emissions. In addition to those dollars, an unprecedented 15.8 billion dollars will be invested in public transportation through the 2020-2030 Québec Infrastructure Plan. Light trains, city and school buses, taxis, cars and trucks will all be progressively electrified. An ever greater number of Quebecers will travel in electric vehicles that are equipped as much as possible by means of Québec know-how and manufactured by local resources. The target is to have 1.5 million electric vehicles on Québec roads by 2030.

Measures that will stimulate the electrification of transportation, buildings and industries and reduce GHG emissions include:

- Renewing rebates for acquiring or leasing electric vehicles and charging stations for individuals, as well as aid programs for businesses and the taxi industry;
- Tightening the zero-emission vehicle standard to encourage manufacturers to supply the Québec market with more vehicles and a greater diversity of models;
- Prohibiting the sale of new gasoline-powered vehicles as of 2035;
- Accelerating the deployment by Hydro-Québec of fast-charging stations and standard charging stations;
- 768 million dollars to make the industrial sector greener and more competitive (support for GHG emission reduction projects, program improvement and personalized guidance);
- Injection of more than \$550 million to reduce GHG emissions linked to heating residential, commercial and institutional buildings by 50%. This target will be achieved by optimal complementarity between the electricity and gas networks and by the use of bioenergy, energy efficiency, and converting from fuel oil to electricity, as well as through the use of renewable natural gas and other renewable energy sources.

Source

Hydro-Québec's move towards energy storage using LFP batteries

On December 9, 2020, it was reported that Hydro-Québec announced the launching of a new subsidiary that specializes in energy storage systems in a bid to help speed up development of renewable power and commercialize technology it has developed over four decades.

A Reuters report quotes: "Hydro-Québec, Canada's largest electricity producer, on Wednesday entered the fast-growing market for storing renewable energy, where it could face competition from the likes of Tesla.....Hydro-Québec aims to capture 10% of a niche market expected to reach \$3 billion in the next 10 years."

Hydro-Quebec's new EVLO subsidiary will design, sell and operate storage systems aimed at other utilities, commercial and industrial markets for medium-and-large-scale storage. They intend to initially focus on North America and Europe.

Hydro-Québec is using lithium iron phosphate batteries (LFP). LFP battery is a type of lithium-ion battery using LiFePO_4 as the cathode material, and a graphite based anode. It means there is no use of nickel or cobalt, but still uses lithium and graphite.

Quebec to ban the sale of new gasoline-powered cars from 2035

The Quebec banning of 'new' gasoline cars from 2035 should mean that starting from 2035, 100% of new car buyers will buy electric vehicles (EVs). Of course EVs will be wildly popular well before then, especially post 2023 when they should hit purchase price parity with gasoline or diesel cars.

The Quebec Government stated: "...the 2030 Plan for a Green Economy (2030 PGE) along with its first implementation plan covering 2021-2026, backed by a budget of \$6.7 billion over five years. The magnitude of the amounts earmarked for this electrification and climate change framework policy is

indicative of the government's intent to make Québec a leader in the green economy by building on its major strength: its clean electricity."

Again this is another huge boost to the EV & battery manufacturers as well as the EV and battery metal miners. In the case of EVs, NMC (nickel, manganese, and cobalt) and NCA (nickel, cobalt, and aluminum) cathode batteries are currently the most popular in western markets as they offer the best energy densities. Lithium electrolyte and graphite based anodes are the usual other battery metals. Added to this would be the producers of rare earths neodymium-praseodymium (NdPr) used in EV motors. We should also add in copper as copper is integrally involved with clean energy and EVs. Finally, any companies that work in renewable energy and in particular emissions reductions.

Some potential winners from Quebec's support for energy storage and EVs

- Hydro-Quebec as an energy storage designer, seller and operator. Also their suppliers of LFP batteries.
- Potentially any Quebec based cathode, anode or battery manufacturers and/or EV manufacturers.
- Quebec based battery metal miners – Lithium, cobalt, nickel, manganese, graphite, and aluminum.
- Energy storage and EV suppliers and miners, ideally in Canada and perhaps USA.
- Companies working in the pro-green economy sector.

Some companies that we follow at InvestorIntel that focus on the above areas include: Appia Energy Corp. (CSE: API | OTCQB: APAAF), Avalon Advanced Materials Inc. (TSX: AVL | OTCQB: AVLNF), Canada Silver Cobalt Works Inc. (TSXV: CCW | OTCQB: CCWOF), CBLT Inc. (TSXV: CBLT), Critical Elements Lithium Corporation (TSXV: CRE | OTCQX: CRECF), dynaCERT Inc. (TSX: DYA | OTCQX: DYFSF), Exro Technologies Inc. (TSXV: EXRO | OTCQB: EXROF), Global Energy Metals Corporation (TSXV: GEMC |

OTCQB: GBLEF), Ideanomics Inc. (NASDAQ: IDEX), Imperial Mining Group Ltd. (TSXV: IPG), Kodiak Copper Corp. (TSXV: KDK), Nano One Materials Corp. (TSXV: NNO), Neo Lithium Corp. (TSXV: NLC | OTCQX: NTTHF), Neo Performance Materials Inc. (TSX: NEO), Nouveau Monde Graphite Inc. (TSXV: NOU | OTCQX: NMGRF), Search Minerals Inc. (TSXV: SMY), Vital Metals Limited (ASX: VML), and ZEN Graphene Solutions Ltd. (TSXV: ZEN).

Quebec Canada is supporting energy storage and electric vehicles etc with a \$6.7 billion plan for a green economy

If you are a Quebec or Canadian company focused on the green energy sector then InvestorIntel would be happy to hear from you to see if we can get your company some greater exposure. Together we can make a better world.

Nano One's Dan Blondal on improving the performance, durability, and safety of lithium-ion batteries

"We use a process that is environmentally friendly, we have no waste stream, we combine all of the coating and crystallization and all of the preparation of nickel, manganese, and cobalt all into one step. So there are fewer steps, there's less energy consumed, less waste, and results in a longer-lasting battery material that could lead to more durable battery." States Dan Blondal, CEO, Director & Founder of Nano One Materials Corp. (TSXV: NNO), in an interview with InvestorIntel's Ron Wortel at PDAC 2020.

Dan went on to say that Nano One has developed intellectual property and patents to make battery materials that can improve the performance, durability, and safety of batteries. Dan also spoke on Tesla's million-mile battery. He said that Tesla has used cathode material supplied by a Chinese manufacturer in the battery. Dan continued, "Nano One has intellectual property and patents that have nanocrystalline coated material which is very much akin to what they were using except ours is commercially viable." Dan also provided an update on Nano One's other battery technologies. He said that the company is working on lithium iron phosphate batteries used in electric buses, grid storage, etc. Nano One is also working on cobalt-free battery material which is aimed at next-generation solid-state batteries.

To access the complete interview, [click here](#)

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Nano One's Dan Blondal on making longer-lasting, longer-range battery materials for electric vehicles

"Cathode manufacturing is about taking sources of lithium, nickel, manganese, cobalt, iron, phosphorous and combining them into a mixed metal oxide. Basically it is a ceramic powder. Each of the little kernels of powder is a composite

crystal structured material that has layers lithium, nickel, manganese, and cobalt that allows you to charge and discharge... What we do differently at Nano One is we have developed a way to make these materials. We have not changed the formulation of the material but we have changed how we make the underlying crystals. It is the formation of those crystals and the raw materials that we choose to put in which help reduce the cost. The number of steps we use is far less than the number of steps the industry uses...We add everything together, coatings included. We eliminate a bunch of steps as a manufacturing advantage. The crystal structures that come out of our process are highly purified crystal structures that are less susceptible to cracking and degradation mechanism when you assemble them into a battery and when you charge and discharge the battery. We are shooting to improve the longevity and durability of those materials. By doing that, we are enabling electric vehicle manufacturers and battery producers to make a longer-lasting and longer-range battery for electric vehicles.” States Dan Blondal, CEO, Director and Founder of Nano One Materials Corp. (TSXV: NNO), in an interview with InvestorIntel’s Jack Lifton.

Dan went on to provide an update on Nano One’s joint development work with Pulead Technology. He said that Nano One and Pulead are working together to design a next-generation manufacturing facility for the production of lithium iron phosphate (LFP) cathode materials. Lithium iron phosphate batteries have a very strong future because they are the safest, longest-lasting and security of supply is high.

To access the complete interview, [click here](#)

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