

Jack Lifton on why President Biden's EV Plan for America simply does not add up

American President Biden has decreed that by 2030 one-half of all new American car/truck production shall be EVs. If 2030 is a 20 million car/truck build year this would mean that it would also be a 160,000 tons of lithium ($10,000,000 \times 16\text{kg Li/car/truck} = 160,000 \text{ tons}$) utilization year in and for the USA just for batteries for those cars. **This is twice as much lithium as was produced globally in 2020.** China, of course, has already committed to producing that number of EVs in 2030, but, unlike the free market USA, it, China's industrial policy long-term planning has already accumulated 60% of current global lithium production and an even higher percentage of lithium processing capacity for battery materials. Although it is very likely that Chinese BEVs will be sold in the USA by 2030 it is very unlikely that domestic American lithium-ion battery makers will fare well in price or volume with their Chinese competitors.

The increasing costs of maintaining global lithium production even, if possible, at twice current levels and the decline of resource grades that is inevitable combined with the increasing proportion of lithium necessary for even a low percentage conversion of the existing global ICE fleet are the reasons that the world's largest EV battery maker, China's CATL, is developing a sodium-based rechargeable battery for mass production and use. It will be used for stationary storage especially in China where vast spaces and large populations are still off the grid and where China plans to use wind and solar to feed the grid during the day and will conserve precious lithium by using sodium for stationary storage batteries to be able to maintain consumer electric power around the clock.

America's Global Environmental Elites (GEEs) do not understand China's long-term planning for the production of energy, its use, or distribution, so they cover their ignorance by simply declaring China to be the world's biggest "carbon" emitter, and ignore the reasons for China's long-term plan to reduce its dependence on fossil fuel energy production not to eliminate it! This ignorance is making America and the west increasingly unlikely to be able to compete industrially with China much longer.

The production of base, structural metals, such as iron(steel) and aluminum and the key technology metal, copper, require uninterrupted high-density baseload, which cannot be supplied by wind or solar even with battery storage. It is the same for heavy (cars, trucks, large scale machines) industrial manufacturing. The Chinese are now leading the world in these categories and in their maintaining and even increasing their baseload superiority. **Chinese electricity production is today twice that of the USA, and China alone produces 1/3 of the globe's electricity. This is not by chance.**

Nearly 10% of all of the electricity generated within China goes to the production of iron and steel, aluminum, and copper. To compete in volume production would require 20% of all of the power generated in the USA as well as a massive increase in mining. Economically, of course, this makes no sense. I note also that the Chinese steel industry produces enough steel each day and a half to build an entire American navy. Do we really want to decrease our capacity to make structural metals?

Be careful what you wish for.

Avalon ignites interest with high-purity lithium

NY based asset firm Lind: "the time is right to invest in Avalon"...

A project in the making since Clinton was president, Separation Rapids has had a difficult upbringing, but like a failing college student graduating with surprise honours, the site recently revealed its long-concealed potential, reigniting development and attracting considerable interest.

100% owned by Avalon Advanced Materials Inc. (TSX: AVL |OTCQX: AVLNF) ("Avalon"), Separation Rapids is one of the largest lithium-cesium-tantalum pegmatite deposits in the world, including an unusual density of the rare crystal-like mineral petalite, a source of high-purity lithium.

Since the results of a 2016 preliminary economic assessment ("PEA") confirmed that battery-grade lithium hydroxide could be reasonably and economically extracted from the resource, the project has gathered much more steam. More recently, major Australian processor Lepidico Ltd. have issued a letter of intent suggesting that they would purchase a minimum of 15,000 tpa for processing in their planned commercial facility. Additionally, Avalon have purchased a further 1,008 hectares of property from a neighbouring gold company.

According to the existing PEA, the mine has the potential to produce 14,600 tpa of lithium hydroxide for ten years, and another 100,000 tpa of feldspar mineral concentrates over twenty years. The discounted cash flow ("DCF") analysis yields a 19% internal rate of return ("IRR") on a pre-tax basis and a 16% IRR on an after-tax basis, assuming 100% equity financing. The Project's net present value ("NPV") at an 8% discount rate is CAD\$343 million pre-tax and CAD\$228 million after-tax.

Total Project construction capital costs are estimated at \$514 million, which is inclusive of \$86 million in contingencies and \$7 million in sustaining capital.

Lithium hydroxide is to be in increasing demand for its use in battery cathode chemistries, and with half of the world seemingly digging for the stuff, it's never going to be bad news to find that you're sitting on a fair amount of it already.

Petalite and lepidolite are not the only minerals of interest at the Separation Rapids project. Highly fractionated pegmatites, like the Separation Rapids deposit, contain many minerals of economic importance. The deposit has the potential for recovery of several valuable by-products including high purity silica, feldspar, rubidium, cesium and tantalum. By-product recovery offers the possibility of significant increases to both revenue and efficiency.

Petalite is also the preferred lithium mineral feedstock for certain specialty glass-ceramic products precisely because of its consistently low impurity levels. This is essential if you want to serve the needs of lithium ion rechargeable battery manufacturers. Growing demand for rechargeable batteries in electric vehicles and home energy storage is expected to result in continued rapid growth in global consumption of lithium. Many industry analysts are predicting that the demand for lithium will double over the next 5-10 years, creating a supply deficit, as existing producers struggle to meet the new demand.

No surprise, then, that Avalon scored C\$2.5m in a private placement deal earlier this month from New York based asset firm Lind; Phillip Valliere, Managing Director at Lind, had this to say:

"We have been following Avalon's progress for several years and, having developed confidence in the management team, we

*feel **the time is right to invest in Avalon** as it advances both its clean-tech materials business at its Separation Rapids Lithium Project as well as its East Kemptville Tin-Indium Project which is expected to be in a position to generate cash flow within the next two years."*