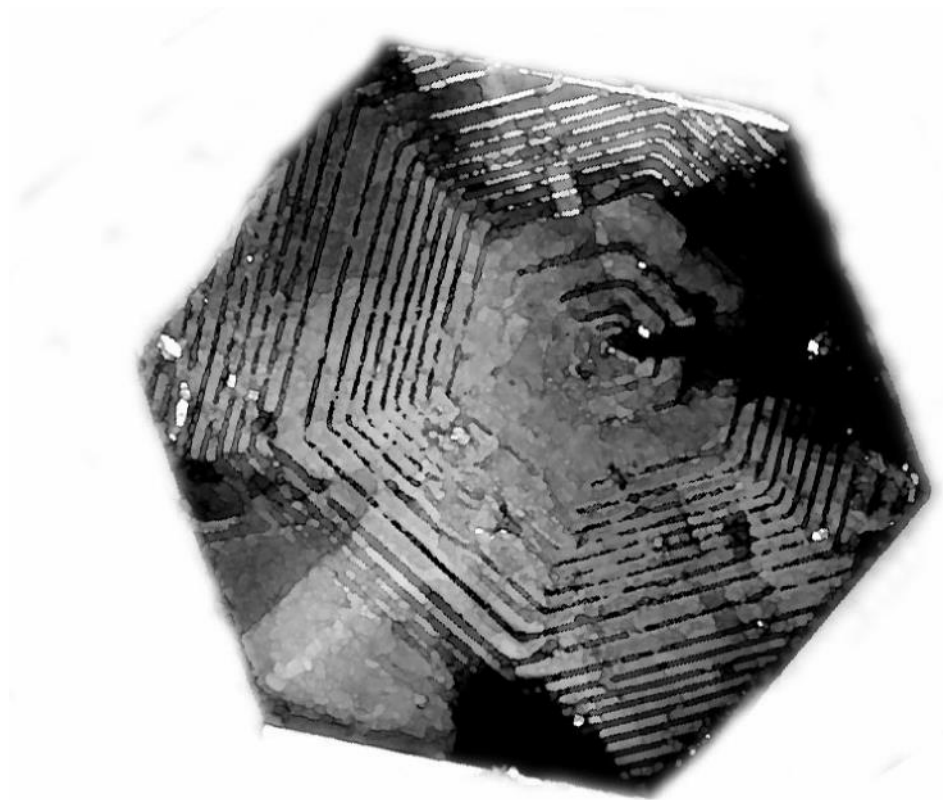

Nova Scotia

Natural Graphite

Marketing Study



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Executive Summary

Current geological data indicates that the province of Nova Scotia has the capability to become a major source of high quality natural graphite. There are three potential graphite mines within Nova Scotia: Boisdale Hills, Benacadie and Glendale. The Boisdale Hills deposit demonstrates the potential to become a world class graphite mine with production commencing within three to five years. There currently is not enough information available on the Benacadie and Glendale deposits to reach the same conclusion. There is also the possibility of additional deposits being found within the province.

There are many graphite deposits being developed in the world and current data indicates that the majority of these occur within Canada. This means that Canada could develop, in the near future, a significant pool of technical knowledge both in the mining and processing of graphite.

Graphite is sold by grade, particle size, and by critical contaminants. Secondly, the expansion ratio, pH, electrical conductivity and thermal expansion properties may also be important. Thus, the type of graphite that is produced by a mine is critical in determining the profitability of the operation. Low grade amorphous graphite could have a value as small as \$200 per tonne while an amorphous or flake graphite product grading 99.9% gC could be worth in excess of \$3,000 per tonne. This, also, means that a deposit with a 2% grade has the potential to be of higher value than one grading 20% and that the critical step in determining economic viability is the processing of the ore.

The total high quality graphite that is expected to be produced by 2012 is approximately ten times the tonnage that is produced today. However, graphite demand is expected to increase much faster than production. The high purity graphite markets, such as fuel cells and secondary batteries are expected to expand exponentially over the next ten years. Graphite consumed through the production of brake pads, refractories, silicone-carbide and electrodes are expected to double over the same period.

The majority of the global high purity graphite is currently being supplied by synthetic graphite as the required volume of high purity natural graphite is not being supplied. High grade natural graphite will be used in preference to synthetic graphite, when it is readily available, due to its superior characteristics.

The greatest economic impact for this province lies in the secondary processing of graphite and added value manufacturing. There is the potential for industry in the production of stationary and mobile fuel cells, batteries, brake pads, gaskets and other parts for the automotive industry. There are, also, niche markets that could be filled within electrical storage and

distribution systems and within a ceramics industry that includes refractories for both the metal and the thermal electrical generation industries.

Boisdale Hills

This area is composed of intercalated white and grey marbles and biotite schist. Marble deposits of graphite are rare. Generally, they are also easy to process to very high grades. The Superior deposit in British Columbia is very similar to this deposit. A large fraction of their production is the high value >99.9% graphite. The Boisdale Hills area has lower infrastructure costs, lower transportation costs, a ready pool of skilled labour and local potential for secondary or added value manufacturing. It is also accessible year round as opposed to Superior deposit that must contend with mountainous terrain and up to 30 m of snow in the winter months. Both deposits can be worked as open cast mines.

The Boisdale Hills area has an old mine (Frenchvale) that dates from the late nineteenth century. This area is composed of marble with flake graphite ranging from 2% to 9% in the host rock with higher concentrations along faults. Historical work has been done on the area by Consolidated Northland Mines Ltd (1956) and D.R. Harper in 1963. The geologic environment, in parts of this area, is very similar to those found in the graphite areas of the Grenville Province. This area has good potential to be one of the largest graphite mines in the world.