Noble Forest Carbon Project

Project History:

Noble Mineral Exploration has purchased from AbiBow Canada Inc. the Smooth Rock Falls Freehold lands in northeastern Ontario. The property consists of two blocks (Block A and Block B in 15 townships in northeastern Ontario and is collectively referred to as Project 81 – see attached map in Appendix B). These lands were managed for their forestry potential by AbiBow, and its predecessor companies, for over 100 years.

The freehold lands were accumulated over time during the early 1900s primarily through the purchase of old veteran lots that were distributed to veterans of the Boer War at the turn of the 20th century. The area was heavily harvested in the 1960s and 1970s using un-sustainable forest management practices, which resulted in a very poor age class distribution and an overall degraded state of the forest.

In 2002 the previous owners of the property had developed an updated Forestry Management Plan (FMP) for the property showing that the forest could support an annual sustainable harvest that could yield 54 m^3/ha of conifer, and 9 m^3/ha of hardwood. These forest production rates are significantly lower than provincial averages, which are 146 m^3/ha for conifer and 277 m^3/ha for hardwoods for a medium site class; and 238 m^3/ha for conifer and 328 m^3/ha for hardwoods for a good site class. The differences in the yield rates of the Freehold lands and the provincial averages indicate the degraded nature of the forest.

In order to reverse this, Noble is proposing to initiate a carbon sequestration project that will return the forest to its full production potential. Noble will restrict harvesting on the property in order to allow the forest to regenerate from its current degraded state with a poor age class distribution, into a productive state with a fully balanced age class with yields that would fall within the ranges of the current provincial averages.

Carbon Market:

The carbon market is one of the most rapidly growing financial markets in the world today. It has its origins in the Kyoto Protocol, which went into force in 2005, establishing emission reduction targets for industrialized countries for the period 2008-2012. Carbon markets globally are grouped into two broad categories: (i) Compliance markets, and (ii) Voluntary markets.

Compliance markets are created by governments whose firms are subject to legally binding carbon emission reductions. These markets are regulated by mandatory regional, national, and international carbon reduction regimes. The Kyoto compliance market is one example, now active only in the European Union, trading under the EU's Emissions Trading Scheme, with other examples being the Western Climate Initiative and Australia's Carbon Farming Initiative.

Voluntary, or non-compliance carbon markets function outside the compliance markets in countries such as the US that have not ratified Kyoto, or in countries such as Canada that have withdrawn from their Kyoto obligations in favour of developing a domestic and/or regional system. These markets enable unregulated businesses, nongovernmental organizations and individuals to purchase carbon offsets on a voluntary basis to reduce their carbon footprint. Although these markets started out much smaller than the compliance Kyoto market, voluntary markets are taking hold internationally and are already a substantial economic force.[5]

Although Canada has not yet established the final rules and guidelines for their greenhouse gas regulations there is a range of existing or planned provincial and regional emission trading legislative initiatives currently under way.

When Canada signed the Copenhagen Accord in December 2009, it committed to reduce its greenhouse gas (GHG) emissions to 17% below 2005 levels by 2020, establishing an annual reduction target of 607 Megatonnes (Mt), mirroring the reduction targets set by the United States. To meet these targets, Canada is moving toward regulating GHGs on a sector-by-sector basis, aligning with the U.S where appropriate, starting with the transportation and electricity sectors. Plans are now in place to move forward with regulating other key economic sectors including Large Final Emitters (LFEs) defined as any industry emitting more than 25,000 tCO_2 annually, which includes the oil and gas, mining and mineral refining sectors.

Until the federal government finalizes the regulations relating to the emission reduction obligations for the LFEs, large corporations are being cautious on the types of GHG projects in which they invest. They need to be confident that if they voluntarily take action in advance of the federal GHG regulations, the emission reductions for the specific project will count toward their ultimate GHG targets under any upcoming compliance regulations.

Forestry projects have been recognized globally in both compliance and voluntary GHG crediting programs because of their economic and environmental efficiency and their potential to deliver sustainability co-benefits. The Intergovernmental Panel on Climate Change (IPCC) estimated that the global mitigation potential of forestry in 2030 will be between 1.2 billion and 4.2 billion tonnes of CO_2 per year. In 2007, 18% of voluntary carbon market trades (7.6 million credits) were forestry offsets, and in 2008 the volume of forest offset trades increased, with many traders being first-time buyers of forest offsets.[1]

[1] Neef, T., L. Eichler, I. Deecke and J. Fehse. 2009. The Forest Carbon Offsetting Report 2009. EcoSecurities Report. Available at http://www.ecosecurities.com as quoted in Golden, Denise M., M.A. (Peggy) Smith and Stephen J. Colombo. The Forestry Chronicle, September/October 2011, Vol 87, NO 5, p628. Forest carbon management and carbon trading: A review of Canadian forest options for climate change mitigation.

The Noble Carbon Project:

Globally, the boreal biome is the world's largest and most important forest carbon storehouse holding almost twice as much carbon per unit area as tropical forests. Canada's boreal forest stores about 71.4 billion tonnes of carbon in its forest ecosystems and 136.7 billion tonnes in peatland ecosystems.[2]

In order to develop a carbon offset project Noble is planning to use the boreal forestry assets within their recently purchased freehold lands in Northern Ontario. The forest is currently in a degraded state, due to previous logging practices, and is estimated to contain approximately 3.1 million tCO_2 (see Scenario 1 in Appendix A). In order to reverse the degraded nature of the property, Noble is planning to initiate a carbon project that will restrict harvesting, allowing the forest to return to its maximum carbon sequestration potential which is estimated to be 15.6 million tCO_2 (Scenario 3 in Appendix A).

The difference between the degraded carbon holding capacity of 3.1 $MtCO_2$ and the full capacity of 15.6 $MtCO_2$ will provide a carbon offset of 12.5 $MtCO_2$. These carbon sequestration estimations are based on a similar project that has been registered under the Verified Carbon Standard (VCS), as outlined in Appendix A. However, the ultimate amount of carbon offsets allowed will be dictated by the specific rules, regulations and carbon offset methodologies that are currently under development by the provincial and federal governments.

In order to initiate the carbon project in advance of the full GHG regulations being announced, Noble will offer the freehold property as a direct land offset that would replace forest and biodiversity loss due to clearing of land in the boreal forest for industrial development such as building of mine sites, or clearing of right-or-ways for roads, rail lines, pipelines, or electric transition corridors. The footprint for these types of projects vary from 500 to 2,000 ha for a typical mine site; 2,000 to 5,000 ha for an oil sands project, and; 10 ha per kilometer of corridor (assuming a width of 100 meters).

In this case, the protected and reclaimed boreal forest in the Nobel Forest Carbon Project would offset the forests and biodiversity that is lost during the development of new projects in Canada's north on a hectare for hectare basis (i.e. one hectare of protected, reclaimed boreal forest replacing one hectare of cleared land). In addition, the purchaser would have the option of converting the protected carbon within the reclaimed forest into tradable carbon offset credits as the federal and provincial governments finalize and implement their respective emission reduction regulations.

[2] Boreal Carbon the World Forgot – Canadian Boreal Initiative

Appendix A – Carbon Sequestration Potential

To estimate the amount of standing timber on the site the inventory summary graph from the Abitibi 2002 FMP was used for three species: Black Spruce, Balsam Fir, and Poplar. Although there are other tree species on the site, these three species make up 96% of the working groups at 74%, 12% and 10% respectively. Using the estimated volume for mature forest for each type (see attached charts) the following estimates were made based on the three scenarios listed below:

Scenario 1: Abitibi FMP Estimate for Harvestable Volume (m3) – current forest

Working Group	**Ha. per species**	**Harvestable m^3**	**Total m^3**	**Estimated tCO_2**
Spruce	36,454	54	1,968,516	2,637,811
Balsam	5,911	54	319,194	427,719
Poplar	4,926	9	44,334	59,407
Total:	47,291			3,124,937

Scenario 2: Provincial Average Harvestable Volume (m3) – medium site class (achieved in 10 years) :

Working Group	**Ha. per species**	**Harvestable m^3**	**Total m^3**	**Estimated tCO_2**
Spruce	36,454	146	5,322,284	7,131,860
Balsam	5,911	146	863,006	1,156,428
Poplar	4,926	277	1,364,502	1,828,432
Total:	47,291			10,116,720

Scenario 3: Provincial Average Harvestable Volume (m3) – good site class (achieved in 20 years):

Working Group	**Ha. per species**	**Harvestable m^3**	**Total m^3**	**Estimated tCO_2**
Spruce	36,454	238	8,676,052	11,625,909
Balsam	5,911	238	1,406,818	1,885,136
Poplar	4,926	328	1,615,728	2,165,075
Total:	47,291			15,676,120

Notes on Calculations:

1. Harvestable areas were taken from Abitibi 2002-2012 Forest Management Plan using mature harvestable ages for Black Spruce @ 81-120 yrs, Balsam @ 81 -110 yrs and Poplar @ 61-91 yrs.
2. Total harvestable volumes do not take into account any harvesting that was done by Abitibi or private contractors since 2002 so this volume could be lower than stated.
3. Conversion of Total m^3 to Estimated $tC0_2$ used a ratio of 1:1.34 from a similar project in B.C. that was recently registered under the Verified Carbon Standard.
4. Provincial Average Harvestable Volume for medium and good site classes were taken from the publication: Planting Trees for Carbon Credits, prepared for the Tree Canada Foundation, 1995.

Pricing Discussion:

In 2011, forest carbon project developers reported the highest overall value ever attributed to the global marketplace for forestry offsets—totaling $237 million. Last year, projects managed to obtain prices that were double the 2010 average, seeing a market-wide average price of $9.2/t$CO_2$ in 2011.[3]

These figures are reflected in the increase in the number of governments in locations like California, Australia and Canada that include forests in their national or regional emission reduction programs. In California for example legislation has been passed to reduce GHG emissions to 1990 levels by the year 2020, ultimately achieving an 80% reduction from 1990 levels by 2050. Their program started on January 1, 2012 with enforceable compliance obligations beginning with 2013 emissions.

Prices for California's emission allowances will start at $11 a tonne next year when their emissions-trading program goes into effect, and will reach $47 a tonne in 2020. According to Bloomberg New Energy Finance the carbon allowances will average about $29 per tonne between next year and 2020. [4]

California is working closely with British Columbia, Ontario, Quebec and Manitoba through the Western Climate Initiative (WCI) to develop harmonized cap and trade programs that will deliver cost-effective emission reductions. The WCI jurisdictions have formed a non-profit corporation, WCI, Inc. to provide coordinated and cost-effective administrative and technical support for its participating jurisdictions' emissions trading programs.

[3] Molly Peters-Stanley, Katherine Hamilton, and Daphne Yin, *Leveraging the Landscape State of the Forest Carbon Markets 2012*, for Ecosystem Marketplace, November 2012, Executive Summary p 1

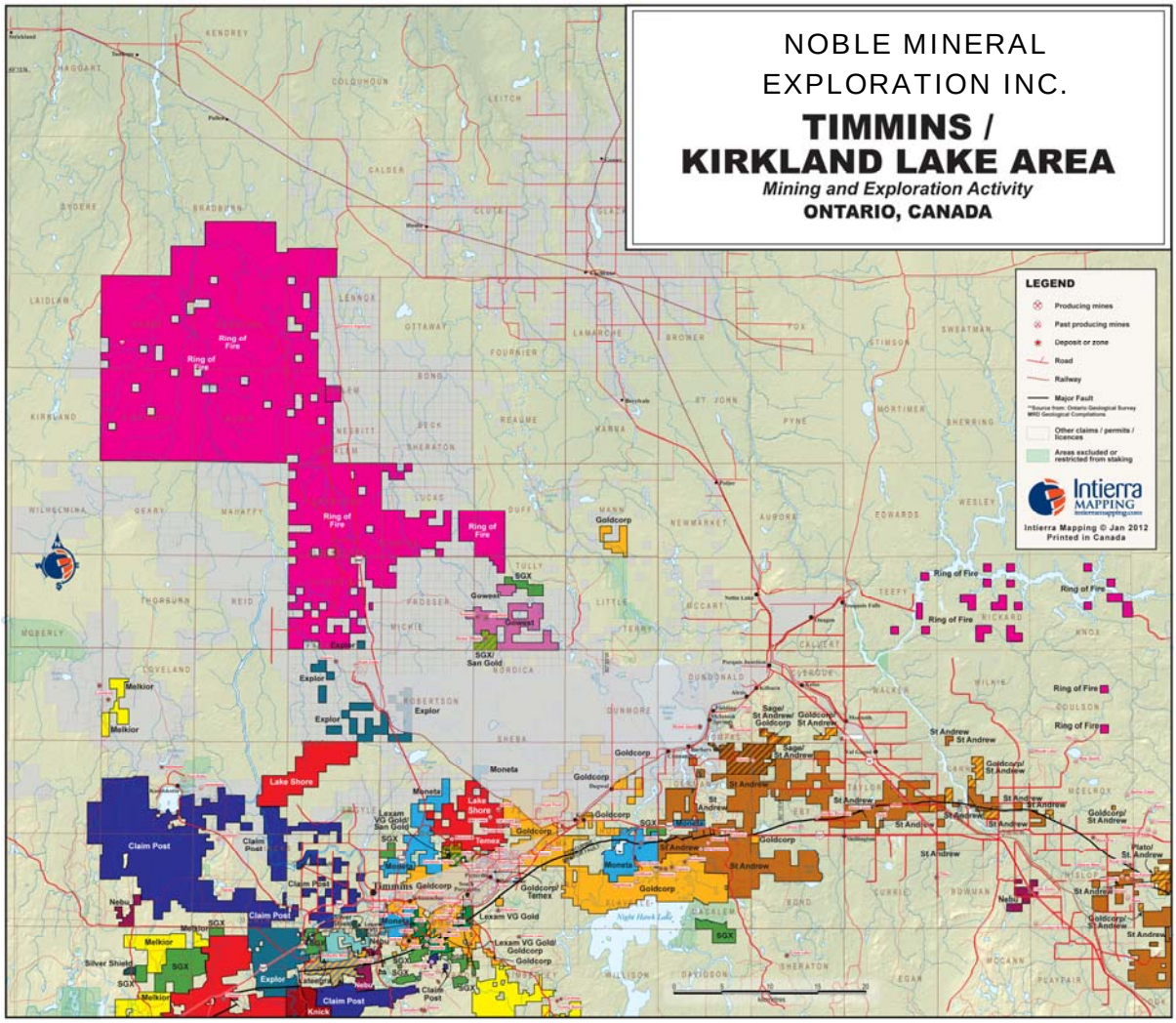
[4] **http://www.bloomberg.com/news/2012-11-06/california-carbon-forecast-cut-before-auction-bnef-says.html**

Appendix B – Site Map

Google Earth Link:

https://maps.google.com/maps?ll=48.834114,-81.336768&z=9&t=h&hl=en

Block A Location Map:



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