An Overview of Shale Gas Operator Activity in the Horn River Basin

Christopher M. Adams*
B.C. Ministry of Energy, PO Box 9323, 5th Floor - 1810 Blanshard St., Victoria, B.C.
Christopher.Adams@gov.bc.ca

The Horn River Basin covers an area of approximately 1.31 million hectares within the Fort Nelson/Northern Plains region of northeast British Columbia. It lies east of the Kledo-Bovie Lake Fault System and extends east to the Slave Point Platform. Prior to the increasing interest in shale gas activity, approximately 300 wells were drilled in the basin, mainly targeting the carbonate plays of the Mississippian. Since 2006, the area has firmly captured the interest of major producers looking to unlock the potential of organic rich shales. Since 2002, the BC Oil and Gas Commission has approved over 30 areas for special project status (formerly experimental scheme status) to test the potential reservoirs in the Upper Devonian/Lower Mississippian Exshaw shale and the Muskwa/Otter Park members of the Middle Devonian Horn River Basin. Special project recognition is granted to operators in particular regions of the province where methods used to extract a resource are untried and unproven. This status also allows for an extended confidentiality period of three years.

From 2006 to 2008, Crown petroleum and natural gas (PNG) rights purchased in the Horn River Basin increased almost eight fold from $126 million to almost $1.1 billion *(Figure 1)*. Despite a drop in land sale activity over the past two years, as producers set the stage for future drilling programs on their purchased parcels, land brokers and producers continue to chalk up impressive bonus totals that are directly attributed to shale gas development. In 2009, bonus payments garnered from PNG rights sales in the Horn River Basin managed to reach $316 million or 35 per cent of the $893 million provincial total. In 2010, bonus payments totaled in $131.3 million or 15 percent of the $844 million total *(Figure 2)*.

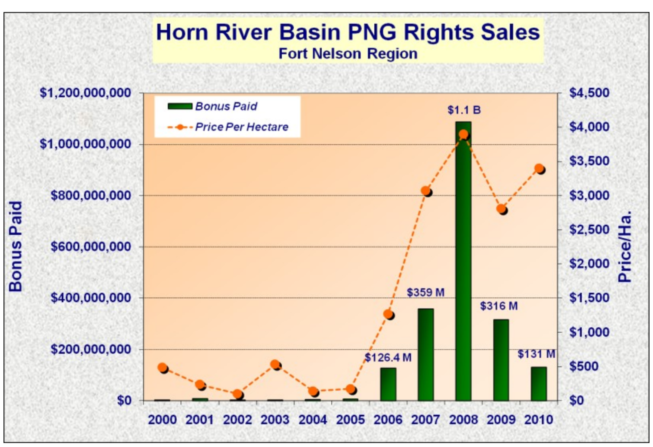

Figure 1: Horn River Basin sales increased dramatically in 2006 with a record $1.1 billion reached in 2008. Special project approvals for shale gas schemes were a key factor in fuelling the land sale rush.

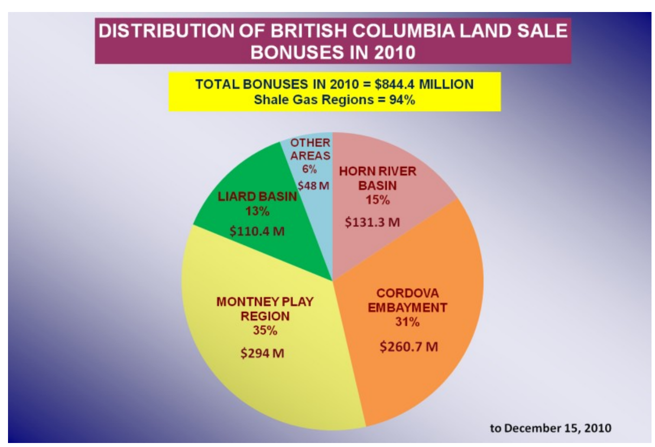

Figure 2: Shale gas regions have dominated land sale activity in British Columbia over the last few years. In 2010, 94 per cent of the $844 million ammassed in bonus payments were within these areas. The Horn River Basin captured over $131 million.

The Devonian shales of the Horn River Basin offer operators significant, high impact potential. Original gas-in-place is estimated at 500 trillion cubic feet (Tcf) by the Canadian Society for Unconventional Gas (Dawson, 2010), but the potential in the basin is not well understood because of relatively little drilling data. Producers such as EnCana Corporation, Apache Canada Limited., EOG Resources Canada Inc., and Devon Canada Corporation are among several top-tier shale gas operators in the region that are slowly attaining a better understanding of the reserves and the potential for well deliverability.

The most active of these heavyweight producers has been Apache Canada Ltd., which holds a 50-per cent interest with EnCana Corporation in over 182,000 gross hectares in the Horn River Basin. Apache's activity is primarily in the Etsho and Ootla areas where it estimates an unrisked resource potential between 9 and 16 Tcf (Apache, 2010). The producer is now in full development mode in the Horn River Basin and is expected to ramp up production to 200 million cubic feet (mmcf) per day in the first quarter of 2011. EnCana Corporation leads the way with deep horizontals and multiple fracture stimulations in the Horn River Basin. Although the company is looking for aggressive cost reduction strategies in a low natural gas price environment, it continues to capitalize on its 275,000 net acres in the basin by maximizing the number of wells per pad, lateral length per well, average fracs per well and water per frac. EnCana's forecast growth profile has production from the Basin reaching 500 mmcfe per day by the end of 2014 (EnCana, 2010). EOG Resources Canada Inc. has seen well performance meet or exceed expectations in the Horn River Basin. The producer, which has been operating in the basin since 2003, expects to complete 11 wells from its 2010 winter drilling program by early 2011. EOG has a moderately paced three-year drilling program in place on its 160,000 net acres (EOG, 2010).

The current challenge for many operators in the Horn River Basin is the short term economics of shale gas. As the northernmost shale gas play in North America, the region has limited infrastructure, is far from key consumer markets, and like other world class shale gas plays, finds itself contending with weak natural gas prices and an abundance of North American gas supply. Some shale gas operators have announced that they will be pursuing oil prospects or gas fields with high liquids content and will lower capital spending in the Horn River play in 2011.

References

Adams, C., 2009, Summary of shale gas activity in northeast British Columbia: BC Ministry of Energy, Mines and Petroleum Resources, Petroleum Geology Open file 2009-01.

Apache Corporation, 2010, 2008 Summary annual report, http://www.apachecorp.com

Dawson, F.M., 2010, Cross Canada check up unconventional gas emerging opportunities and status of activity, May 12, 2010, p. 5

EnCana Corporation, 2010, BMO Capital markets unconventional resource conference, January 11, 2011, http://www.encana.com

EOG Resources Inc., 2010, EOG Resources Presentation, August 2010, http://www.eogresources.com