Fraser Alert
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FRASER INSTITUTE

July 2008

Eliminating Barriers to Worker Mobility: Increasing the Availability of Skilled Labor in Alberta's Oil Sands Industry

Main Conclusions

- The demand in Alberta for skilled workers is projected to continue to grow rapidly, especially for oil sands construction projects. A ready supply of out-of-province workers would help to prevent construction project delays and cost overruns.
- Provincial licensing and certification requirements, federal employment insurance rules, and the lack of reciprocal agreements with other countries constrain skilled workers from entering the Alberta workforce.
- To improve the mobility of skilled workers, Alberta should move unilaterally to honor certifications awarded to skilled workers in other provinces until mutual agreements are negotiated.
- The Canada Employment Insurance program should be reconfigured as a real "insurance" program, with worker contributions based on actual claims. Doing so would reduce the incentive for workers simply to collect payments instead of seeking employment in Alberta or other areas where demand for labor exists other than on a seasonal basis.
- Revise the North American Free Trade Agreement to facilitate the cross-border flow of skilled trades from Mexico and the United States in the same manner as teachers, doctors, and other professionals currently enjoy.
- To improve the accessibility of foreign workers to Alberta and other Canadian labor markets, Canada should seek bilateral arrangements with additional countries.

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Summary

A marked increase in demand for skilled labor in Alberta is driving up construction costs in the energy sector, particularly in relation to oil sands projects. Federal and provincial regulations and other government obstacles inhibit the ability of labor markets to adjust to increasing labor demand. Policy reform is needed to maximize the mobility of labor.

Specifically, the movement of workers within Canada is constrained by redundant licensing requirements imposed by the provinces. Canada's employment insurance program also impedes labor mobility by effectively rewarding workers who remain in areas with chronic unemployment rather than relocating to areas with greater employment opportunities.

Foreign workers face impediments coming into the country as well. The North American Free Trade Agreement (NAFTA) facilitates the cross-border movement of professionals, but fails to expedite the flow of skilled tradespeople. Workers from outside North America also face a variety of immigration hurdles.

In light of these problems, this report offers recommendations for policy reforms that would improve worker mobility, thereby increasing the supply of skilled labor in Alberta and elsewhere. Among the recommendations: 1) institute mutual licensing certification among the provinces; 2) eliminate incentives within employment insurance programs that keep workers in areas where employment is largely seasonal; and 3) revise NAFTA to facilitate the cross-border flow of skilled workers.

Introduction

Labor markets are basically the same as any other market, with one primary difference: the "goods" traded are the knowledge, experience, and creativity of individuals in exchange for compensation. Like other markets, labor markets operate best when participants are free to negotiate in their own self-interest. But government regulation impedes both workers and employers from adapting to changes in market conditions. Not only are these constraints costly to workers and employers, they can saddle investors with much higher costs and limit capital spending.

As this report details, there are many government-imposed barriers to a flexible labor market. For example, occupational certification and licensing requirements at the provincial level, and the federal employment insurance system both impede worker mobility.[1]

The stakes of inaction are high. Oil sands projects totaling $165 billion are either planned or underway (Alberta Economic Development, 2007). (Appendix A gives a detailed list of Alberta oil sands projects.) But the absence of sufficient labor could delay or even cancel such developments.

The primary objective of this report is to identify policy reforms that could improve worker mobility and thus increase the supply of workers in the province, particularly for oil sands project construction.

We begin with a review of research on the benefits of flexible labor markets, and outline some of the barriers to labor flexibility. Section 2 provides details on Alberta's current and future labor market conditions, with a focus on the oil sands industries. Section 3 offers policy recommendations to improve the flexibility of Canadian labor markets. These policies would benefit not only Alberta, but other provinces as well.

Section 1: Labor Market Flexibility

The research

Labor markets are among the most important components of an economy. They are the mechanism through which human knowledge, experience, and creativity are traded for compensation.

The labor market functions like markets for other products, i.e., as demand for the product (labor) increases, the price (wage) adjusts upward, and vice versa. And like other markets, the supply of labor responds to changes in wage rates. Labor is reallocated among various sectors of the economy as demand and supply dictate—and in response to government interference.

Flexibility is a key factor in an efficient labor market, which is characterized by job creation, low rates of unemployment, and high productivity. Flexibility refers to the ease with which workers and employers are able to adjust to changes in the market. Flexibility allows workers to change jobs, or even professions, in pursuit of the greatest return or benefits. Similarly, flexibility allows employers to customize their mix of labor and capital at will.

Regulation has a significant impact on labor flexibility. It can restrict opportunities for workers and constrain employers from adjusting their labor inputs. In other words, labor regulation can impede the extent to which workers and employers react to changes in market conditions.

A large body of research confirms that flexible labor markets improve labor market performance, i.e., job creation, low unemployment, and productivity growth. The seminal study was conducted by the Organization for Economic Cooperation and Development (OECD) in 1994. The "Jobs Study," as it is known, found that countries with more flexible labor markets experienced greater job creation and higher rates of economic growth.

In 2006, the OECD published a reassessment of the original Jobs Study. The follow-up studies (2006a, 2006b) also highlighted the importance of flexibility for workers and employers, including customized scheduling and compensation.

A number of other studies corroborate the findings of the OECD research. For example, a study by Alonso *et al.* (2004), using data from 19 OECD countries and spanning 35 years, found that more flexible labor markets produced lower unemployment rates and higher incomes per worker. Similarly, Rafael Di Tella and Robert MacCulloch (2005) examined how flexible labor markets compared to less flexible labor markets in 21 OECD countries from 1984 to 1990. They found that countries with more flexible labor markets enjoyed higher rates of employment and labor force participation.

Other studies have examined the relationship between labor flexibility and rates of unemployment. Kiander and Viren (2001) examined immigration data from 22 OECD countries from 1960 to 1997. They found that the United States, which maintained the most flexible labor market, quickly absorbed newcomers, resulting in no change to unemployment rates. In contrast, European countries with less flexible labor markets were slower to respond. A study by Nickell *et al.* (2005) examined unemployment patterns in the OECD countries from the 1960s to the 1990s. The researchers found that differences in unemployment rates corresponded to the level of labor flexibility.

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Other research has indicated that government interference in the labor market can give employees an advantage over employers, and vice versa. For example, Besley and Burgess (2004) examined the impact of one such imbalance. Using data from the manufacturing sector in India between 1958 and 1992, the researchers found that labor relations laws that favored one group over another reduced productivity, employment, and investment.

Government control of wages also constrains labor flexibility. If wage rates are prevented from changing with market conditions, workers receive a distorted signal regarding where to allocate their efforts and at what price. Consequently, the numbers and types of workers are mismatched to market demand. Bierhanzl and Gwartney (1998) found that more centralized control of wages and employment policies led to higher unemployment rates in OECD countries. Similarly, Bertola *et al.* (2002), using data for 17 OECD countries from 1960 to 1996, found that union policies governing wages and bonuses priced both young and elderly workers out of the labor market.

Flexibility is likewise crucial to remaining competitive in a global market. Several recent studies have documented that the speed of adaptation to market changes has a positive impact on both productivity and growth. Caballero *et al.* (2004), using data from 60 countries from 1980 to 1998, found that increased labor regulation lowered productivity. Cuñat and Melitz (2007) found that countries with more flexible labor markets adjusted to market "shocks" quicker and more thoroughly than those with inflexible labor markets.

In summary, a variety of research has demonstrated that increased labor market flexibility lowers rates of unemployment, improves productivity, and promotes economic growth.

Barriers to labor market flexibility

A number of government policies impede and restrict the level of flexibility in the Canadian labor market. These barriers include: 1) occupation certification and licensing; 2) employment insurance payments; and 3) provisions of international agreements that constrain the ability of foreign skilled workers from filling job vacancies in Canada.

Occupational licensing

Occupational licensing requires workers in particular employment categories or fields to obtain certification or a license. Approval for a certificate or license typically requires educational attainment and/or training, proof of residency, and payment of a fee—requirements that vary by jurisdiction.[2]

Licensing requirements encumber mobility by increasing the time and costs of changing jobs, particularly if a worker wants to move from one province to another. For example, a skilled tradesperson in eastern Canada, such as an electrician or plumber, who wants to obtain employment in the West must obtain new certification, regardless of demonstrable and ample relevant experience from the home province.

Employment insurance benefits

Canada's employment insurance program offers comparatively generous benefits to those who qualify. Basic benefit payments of up to $435 per week can extend for 45 weeks. In some instances, the payments can reduce the incentive to secure new employment quickly.

More important for the purposes of this analysis are the effects of the employment insurance system on seasonal workers and those in areas of high unemployment. Seasonal workers can receive up to 26 weeks of benefits during times of the year when they are not working. In addition, bigger benefits are paid to workers in areas where the unemployment rate is higher, i.e., benefits increase for every point of increase in the unemployment rate. Such generous benefits can alter workers' employment incentives. For example, some workers may remain in areas with high unemployment in order to collect greater employment insurance benefits. The International Monetary Fund (IMF) documented this effect in a 2003 study of 20 OECD countries. The study found that generous employment insurance benefits increased unemployment rates (IMF, 2003). Similarly, generous unemployment benefits for seasonal workers and those in high unemployment areas can distort the education and training decisions of younger workers.

Licensing requirements encumber mobility by increasing the time and costs of changing jobs, particularly if a worker wants to move from one province to another.

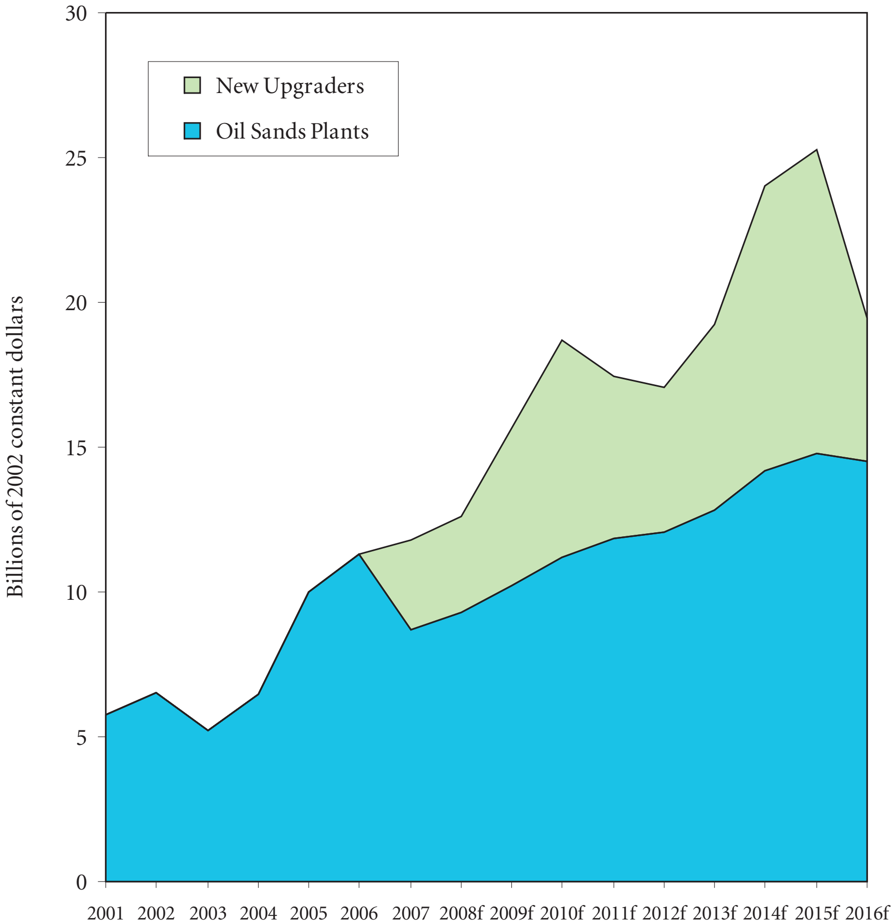
Research by Guillemette (2007) found that labor mobility, in general, would be improved in Canada if employment insurance benefits were reduced and payments were targeted to immobile seasonal workers rather than to all claimants.

Restrictions on foreign workers

The North American Free Trade Agreement currently facilitates the cross-border movement of professionals, entrepreneurs, and investors (Foreign Affairs and International Trade Canada, 2007). Specifically, professionals are permitted to work in Canada, the United States, or Mexico if a legitimate job offer has been extended and the individual possesses the appropriate credentials. However, NAFTA does nothing to facilitate the cross-border flow of skilled tradespeople.

Skilled workers entering Canada who wish to work in Alberta must meet certification requirements delineated by Alberta Apprenticeship and Industry Training (2007). If eligible, they are granted an initial 180-day work permit. During this period, they must pass a certification exam. If they fail to qualify, they must leave the country. For workers certified in skilled trades in their home country, the Canadian requirements—and the risk of having to return home—undoubtedly prevent some qualified workers from making the effort to find jobs in Canada. The requirements also are likely to discourage Canadian employers from recruiting foreign workers.

Figure 1: Projected Oil Sands Project Investment



Source: Construction Sector Council, 2008.

Section 2: Labor Market Conditions in Alberta

The demand for labor has increased markedly in Alberta's booming oil sands sector, but impediments to labor mobility are putting upward pressure on construction costs and placing new investment at risk. New project opportunities are expected to continue for the immediate future because of the immense resource base and rising price of oil. However, oil sands and other construction projects will require a large number of skilled workers, and completed projects will also increase the demand for maintenance and operations workers.

Employment in Alberta increased 17.3 percent between 2002 and 2007, and underwent an annual growth of 4.7 percent during 2007 (Statistics Canada, 2008). The unemployment rate in the province decreased to 3.5 percent in 2007, a rate that some economists consider to be full employment.

The construction sector has experienced exceptional growth, largely due to major infrastructure investment in Alberta's oil sands. Construction employment jumped 36.6 percent between 2002 and 2007, with an 11.9 percent increase in 2007 alone.[3]

Oil sands projects totaling $165 billion are either planned or underway, which accounts for about 64 percent of all major projects in the province (Alberta Economic Development, 2007). Figure 1 shows the Construction Sector Council's most recent (May 2008) projection of annual industrial investment in Alberta. The council indicates that investment spending on new industrial projects in the province will continue to grow until 2015.

Because of these strong investment projections, there are concerns that the labor market may not be sufficiently flexible to provide enough skilled workers to allow construction to proceed as planned. According to the Construction Sector Council (2008), skilled tradespeople who are crucial to oil sands construction, including pipe-fitters, sheet metal workers, and ironworkers, are expected to be in short supply during the next decade. Construction Sector Council projections (2008) indicate that employment in Alberta's industrial construction will continue to rise until 2015, leading to an even tighter labor market than currently is the case.

Figure 2 shows the extent to which employment is projected to increase up to 2016. Projections by the Construction Sector Council indicate that certain trades required for oil sands construction will be in short supply in the near to mid-term, as well as between 2010 and 2016, during which time construction activity in the province is expected to peak.

When labor is in short supply, employers tend to increase wages in order to attract workers. Statistics Canada reports that the average hourly wage rate in Alberta increased 6.1 percent from 2006 to 2007, from $21.12 to $22.40. Average wages in the construction industry, specifically, rose even more—7.1 percent—from $22.37 to $23.95 in the same period. Higher wages have translated into increased costs for new projects. One recent report by Wood Mackenzie (2007) concluded that costs for oil sands projects have increased by 55 percent since 2005.

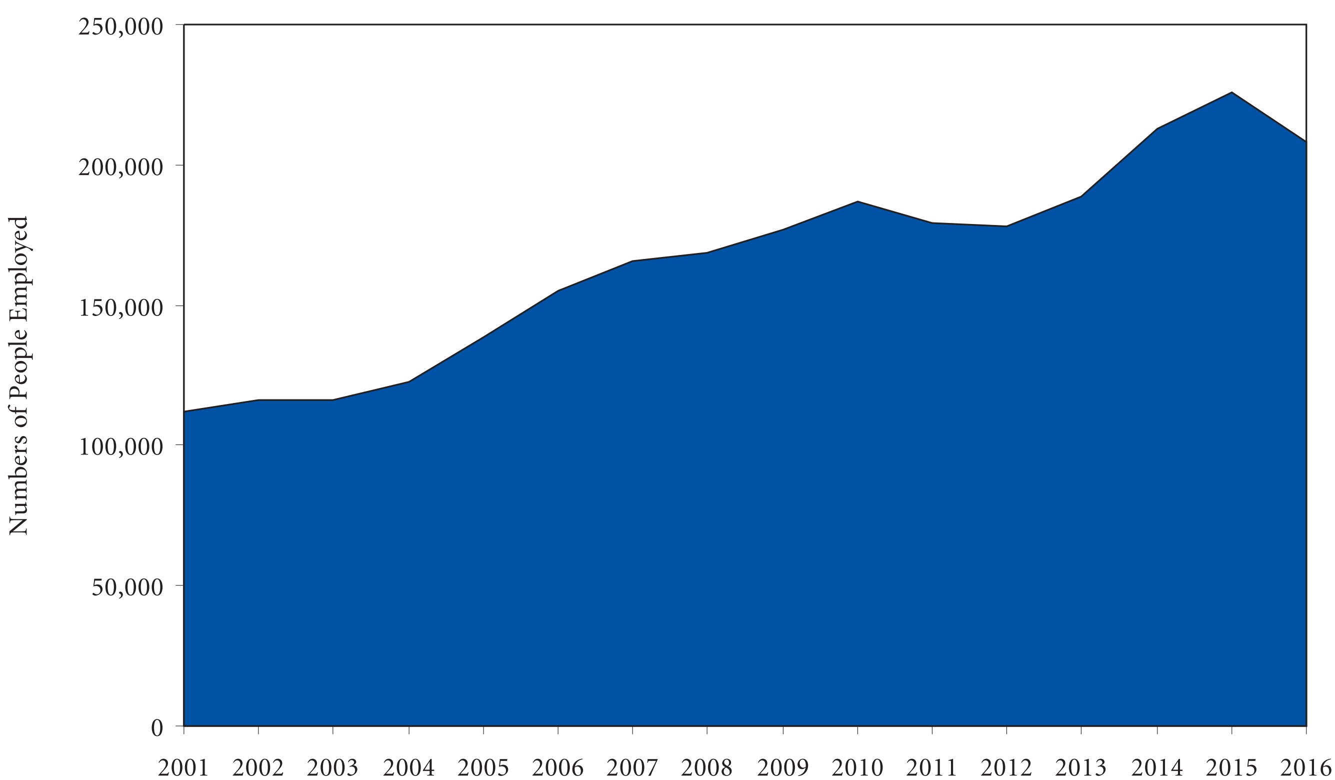
Higher labor costs in Alberta are prompting some companies to reconsider their construction plans. For example, some companies have cut the size of their projects or moved component assembly elsewhere, including overseas. Synenco Energy Inc., for example, announced that construction of its bitumen upgrading facility in the Northern Lights project had been put on hold due to cost increases; the estimates of project cost rose from $1.9 billion in 2005 to $6.3 billion (Synenco, 2005, 2007). EnCana Corp. has signed an agreement with ConocoPhillips Co. to forego bitumen upgrading in Alberta and instead ship bitumen or bitumen/synthetic crude oil blends to the United States for processing (EnCana, 2006).

Despite wage increases, Alberta's employers have been unable to attract a sufficient number of workers. The regulatory barriers to mobility apparently remain too significant to overcome, even with higher wages.

Section 3: Policy Recommendations to Increase the Supply of Labor

Policy reform is clearly needed if Alberta is to capitalize on its economic opportunities in the oil sands and other sectors. Specific reforms discussed in this section include unilateral recognition by Alberta of out-of-province credentials for occupational licensing, reforms to employment insurance, and reducing barriers to entry faced by foreign workers.

Figure 2: Alberta Industrial Construction Employment Projection to 2016



Source: Construction Sector Council, 2008.

Unilateral recognition of occupational licensing and certification

In 1958, federal officials attempted to standardize skilled trades certification by introducing the Red Seal Program (Alberta Apprenticeship and Industry Training, 2006). All the provinces recognize Red Seal certification, which may be obtained by successfully completing an exam.[4] Though this may seem like a simple process, only 16 percent of the 1.15 million skilled tradespeople in Canada are Red Seal certified (Alberta Federation of Labour, 2006). Alberta recognizes out-of-province credentials for 23 trades. However, 49 others require at least a Red Seal for workers without Alberta certification (Alberta Apprenticeship and Industry Training, 2007).

Although the Red Seal program is intended to facilitate labor mobility, the exam requirement discourages workers from seeking a Red Seal certificate. Short of eliminating certification altogether, only mutual or unilateral recognition would reduce this major impediment to labor mobility. British Columbia and Alberta achieved mutual recognition with the recent passage of their Trade, Investment, and Labor Mobility Agreement (TILMA), which provides for mutual recognition of occupational licensing between the two provinces.

Among the main objectives outlined in this agreement is an "increase in labor mobility by reciprocally recognizing occupational certifications" (Clemens *et al.*, 2006, p. 19). Because workers covered by occupational licensing will no longer have to recertify before working in the other province, the BC and Alberta skilled labor markets are essentially becoming integrated.[5]

It will likely take time for other provinces to join TILMA. As an interim measure, Alberta would do well to unilaterally recognize out-of-province trade certifications to mitigate the labor demand pressures...

TILMA still only covers British Columbia and Alberta.[6] The extension of mutual recognition across all provinces would improve the mobility of skilled workers and make it easier to relocate to areas such as Alberta, where the demand for skilled labor is strong.

It will likely take time for other provinces to join TILMA. As an interim measure, Alberta would do well to unilaterally recognize out-of-province trade certifications to mitigate the labor demand pressures in the oil sands sector. Doing so would allow certified workers from other parts of Canada to bypass the certification obstacles if they choose to seek employment in Alberta.

Similar bilateral agreements between Alberta and all other Canadian provinces would be a natural extension of this policy reform.

Reform employment insurance

The employment insurance program allows workers, subject to minimum periods of employment, to collect benefits based on their previous earnings. These benefits finance extended periods of unemployment, thereby reducing the incentive to find immediate employment.

More problematic are the benefits awarded to seasonal workers or those in areas with high unemployment. Absent subsidies from the state, workers in either circumstance would be more likely to relocate elsewhere. But the employment insurance system breeds dependency on government, which dissuades workers from seeking new opportunities.

As a first step, the program should be reconfigured as a true form of insurance, i.e., worker contributions would be calculated based on actual usage of the program. Such "experience rating" would weaken the incentive for a worker to remain in precarious employment.

Reduce barriers to entry for foreign workers

The supply of skilled workers from the United States and Mexico could be increased by extending the labor mobility clause in NAFTA to the skilled trades. In so doing, tradespeople from the United States or Mexico could obtain employment in Canada with a letter of offer from an employer and compliance with public health, safety, and national security requirements.

New Zealand and Australia have negotiated just such an agreement. The Trans-Tasman Mutual Recognition Arrangement allows the free flow of skilled workers (with the exception of medical practitioners) between the two countries. The agreement's objective was to reduce regulatory backlogs by allowing a "person registered to practice an occupation in Australia… to practice an equivalent occupation in New Zealand (and vice versa)… without the need to undergo further testing or examination" (Council of Australian Governments, 1998: 10). Such an agreement could be forged between NAFTA countries in order to overcome the delays and cost of licensing regulation.

Workers from non-NAFTA countries also represent a valuable source of labor. To expedite the entry of workers from other continents into Canada, the federal government should seek to negotiate Trans-Tasman type agreements with other countries where there are workers with skills and experience that match demand in Canada.

Conclusion

The benefits of a flexible labor market in which both workers and employers can readily adapt to changes in the market are clear and substantial. A key aspect of labor flexibility is worker mobility. However, such mobility is currently hindered by existing regulatory barriers that have been erected by the federal and provincial governments. But relatively simple policy reforms, such as those recommended in this report, would facilitate a more flexible labor market that would be beneficial to Alberta and the entire nation.

Alberta's energy sector, and in particular the oil sands, provide an example of the costs imposed by mobility barriers and less flexible labor markets. The solutions posed generally would benefit Alberta specifically since it is experiencing a marked increase in the demand for labor. However, it is critical to understand that the recommendations offered are general, and will benefit the entire labor market.

Notes

1 "Mobility" refers to workers' freedom to move from one location to another, as well as from one vocation to another, in response to changes in the supply of and demand for labor. Worker mobility is a crucial aspect of flexibility in a well-functioning labor market.

2 Advocates justify certification and licensing as necessary to maintain professional standards. Many economists have argued, however, that such requirements constrain the supply of workers and allow the profession to restrict the entry of others, thereby putting upward pressure on wages and compensation (Gunderson, 1994).

3 The mining and oil and gas extraction sector experienced record high employment growth over the past five years. From 2002 to 2007, total employment in the sector increased 59.5 percent, with an 8.3 percent increase in 2007.

4 Workers coming to Alberta can apply for a Certificate of Qualification based on work experience and demonstrated abilities. However, by taking a similar examination, workers can acquire Red Seal certification and practice their trade throughout the country.

5 Differences in other labor laws, such as labor relations and employment standard laws, still prevent full integration.

In the short period of time that the Agreement has been in effect, there has not been much increase in the overall supply of skilled labor in the two provinces. That is because both provinces are experiencing marked increases in demand for similar skilled trades. Of the 43 trades listed in BC as in high demand, 33 are also listed as in high demand in Alberta (Service Canada, 2006a; 2006b).

6 In 2007, Saskatchewan reviewed the BC-Alberta Trade, Investment, and Labor Mobility Agreement, but decided not to join.

Acknowledgements

We would like to thank the supporters of the Fraser Institute who generously made available resources to undertake this study. We would also like to express our appreciation to the anonymous external reviewers for their insightful comments and useful suggestions for improving the paper, as well as to Keith Godin, Senior Policy Analyst in the Institute's Fiscal Studies department, who provided numerous valuable comments and suggestions during the course of the study. Any errors, omissions, or mistakes remain the sole responsibility of the authors. As they have worked independently, the views and analysis expressed in this document remain those of the authors and do not necessarily represent those of the supporters, trustees, or other staff at the Fraser Institute.

Appendix: The Outlook for Alberta Oil Sands Production Investment

As table A1 indicates, construction in the Alberta oil sands sector is extensive. Plans currently in place to expand bitumen upgrading capacity in the province include 15 projects valued at more than $97 billion. Expanding bitumen upgrading capacity accounts for more than half of all planned oil sands construction in Alberta, and more than a third of all major construction projects in the province (Alberta Economic Development, 2007).

Table A1: Inventory of Major Alberta Oil Sands Projects

Company Name	Project Description	Project Location	Cost in Millions	Construction Schedule	Status
Albian Sands Energy Ltd.	"Jackpine" Mine Mining and Extraction Facility phase 1	Wood Buffalo	$2,000	2007-	Under construction
Albian Sands Energy Ltd.	Scotford Upgrader Expansion	Strathcona County	$5,600	2006-2010	Under construction
Albian Sands Energy Ltd.	Muskeg River Mine Expansion	Wood Buffalo	$5,000	2007-2010	Under construction
BA Energy Inc.	"Alberta Heartland" Bitumen Upgrader phases 2 and 3	Strathcona County	$2,000		Proposed
BA Energy Inc.	"Alberta Heartland" Bitumen Upgrader phase 1	Strathcona County	$1,150	2006-2009	Under construction
Canadian Natural Resources Ltd.	"Project Horizon" Mining and Drilling Project phase 1	Wood Buffalo	$7,750	2005-2008	Under construction
Canadian Natural Resources Ltd.	"Primrose East" Cyclic Steam Stimulation (CSS) Project	Lakeland County	$600	2007-2008	Under construction
Canadian Natural Resources Ltd.	"Project Horizon" Mining and Drilling Project phases 2 and 3	Wood Buffalo	$3,100	2007-2013	Under construction
Canadian Natural Resources Ltd.	"Kirby" In-situ Oil Sands Project	Wood Buffalo	$620		Proposed
Connacher Oil & Gas Ltd.	"Algar" SAGD Project (Pod 2)	Wood Buffalo	$326	2008-2009	Announced
Devon Canada Corp.	"Jackfish" SAGD Oilsands Project phase 2 (J2)	Wood Buffalo	$600		Proposed
Enbridge Pipelines Inc.	South Crude Oil Terminal and Tankage Facilities	Strathcona County	$71	2007-2008	Under construction
EnCana Corp.	"Borealis" SAGD Project	Wood Buffalo	$1,000		Proposed
EnCana Corp.	SAGD Bitumen Production	Wood Buffalo	$575	2000-2009	Under construction
EnCana Corporation	Foster Creek Commercial Thermal Recovery Project phase 3	Lakeland County	$844		Proposed

Table A1: Inventory of Major Alberta Oil Sands Projects

Company Name	Project Description	Project Location	Cost in Millions	Construction Schedule	Status
Fort Hills Energy Corp.	Sturgeon Upgrader (Bitumen) phase 2 / 3	Sturgeon County	$12,100		Proposed
Fort Hills Energy Corp.	"Fort Hills" Oil Sands Project and Upgrader phase 1	Wood Buffalo	$15,200	2007-2012	Under construction
Husky Energy	Upgrader Upgrades	Lloyd-minster	$75	2008	Announced
Husky Energy Inc./BP Plc	"Sunrise Thermal Project" SAGD Oil Sands Project phase 1	Wood Buffalo	$3,000		Proposed
Husky Energy Inc./BP Plc.	"Sunrise Thermal Project" phase 2	Wood Buffalo	$1,900		Proposed
Imperial Oil Resources	Heavy Oil Plant Expansion phases 14 to 16 "Nabiye"	Bonnyville	$650		Proposed
Imperial Oil Resources/ ExxonMobil Canada	"Kearl Lake" Oil Sands Mine (Kearl Lease 187) phase 1	Wood Buffalo	$2,300		Proposed
Japan Canada Oil Sands Limited (JACOS)/Nexen Inc.	Hangingstone SAGD Commercial Production Project	Wood Buffalo	$450		Proposed
MEG Energy Corp.	CONTROL BUILDING	Wood Buffalo	$5.3	2008	Under cosntruction
North American Oil Sands Corp.	"Kai Kos Dehseh" Bitumen (SAGD) Project phase 1	Wood Buffalo	$850		Proposed
North West Upgrading Inc.	Bitumen Upgrader phases 2 and 3	Sturgeon County	$3,200		Proposed
North West Upgrading Inc.	Bitumen Upgrader phase 1	Sturgeon County	$4,200	2007-2011	Under construction
Northern Lights Partnership	"Northern Lights" Oil Sands Mine and Extraction Plant phases 1 and 2	Wood Buffalo	$4,400	2007-2010	Announced
N-Solv Corp.	Pilot Plant	Wood Buffalo	$45		Proposed
OPTI Canada/Nexen Inc.	"Long Lake" SAGD Project phase 2 (Kinosis)	Wood Buffalo	$2,790		Proposed
OPTI Canada Inc./Nexen Inc.	"Long Lake" SAGD Heavy Oil Project phase 1	Wood Buffalo	$6,100	2004-2008	Nearing completion
Petro-Canada Oil and Gas	MacKay River SAGD Expansion	Wood Buffalo	$1,000		Proposed
Petro-Canada Oil and Gas	Strathcona Refinery Conversion to Upgrade Bitumen	Strathcona County	$2,200	2005-2008	Under construction

Table A1: Inventory of Major Alberta Oil Sands Projects

Company Name	Project Description	Project Location	Cost in Millions	Construction Schedule	Status
Petro-Canada Oil and Gas/Nexen Inc.	"Meadow Creek" SAGD Bitumen Production	Wood Buffalo	$800		Proposed
Petrobank Energy and Resources	Whitesands Commercial Bitumen Project phase 1	Wood Buffalo	$225		Proposed
Royal Dutch Shell	"Orion" Heavy Oil SAGD Facility (phases 1 and 2)	Bonnyville	$340	2005-2010	Under construction
Shell Canada Energy	Scotford Upgrader 2 (SU2)	Strathcona County	$22,000		Proposed
StatoilHydro Canada Ltd.	Bitumen Upgrader	Strathcona County	$7,500		Proposed
Suncor Energy Inc.	Steepbank Mine Extension	Wood Buffalo	$350	2007-2010	Announced
Suncor Energy Inc.	Upgrader Expansion	Wood Buffalo	$2,100	2006-2008	Under construction
Suncor Energy Inc.	"Voyageur" Oil Sands Third Upgrader (U3)	Wood Buffalo	$11,600	2007-2011	Under construction
Suncor Energy Inc.	"Voyageur South" Oilsands Mining Operation	Wood Buffalo	$4,400		Proposed
Suncor Energy Inc.	"Firebag" Oilsands Project stages 3 to 6	Wood Buffalo	$9,000	2006-2011	Under construction
Suncor Energy Services	"Voyageur Village" Administration and Support Buildings	Wood Buffalo	$216	2007-2009	Under construction
Suncor Energy Services	"Firebag" Administration Complex and Village Camp CORE	Wood Buffalo	$177	2007-2009	Under construction
Syncrude Canada Ltd.	Sulphur Emission Reduction Program (SERP)	Wood Buffalo	$772	2005-2011	Under construction
Syncrude Canada Ltd.	Phase 4: Upgrader Expansion Phase 2/Aurora Mine Train 3	Wood Buffalo	$2,300		Proposed
Total Canada Ltd.	Bitumen Upgrader phase 1	Strathcona County	$6,000		Proposed
Total Canada Ltd.	"Joslyn Creek" SAGD Project Phase 3 and North Mine Development	Wood Buffalo	$2,900		Proposed
Value Creation Inc.	"Terre de Grace" SAGD Oilsands Project	Wood Buffalo	$3,500		Proposed

Source: Alberta Economic Development, 2007.

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ISSN 1714-6720

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Editing, design, and production

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