



2014–2023
Key Highlights

Construction and Maintenance Looking Forward

Alberta Oil Sands

BuildForce Canada estimates that, in 2013, the construction workforce in Alberta's oil sands had fully recovered from the major 2009 downturn and had passed the peak level achieved in 2008. The recovery has doubled the workforce that remained at the low point of the slowdown. Once again, demands for skilled trades and speciality occupations have exhausted the available labour force in Alberta and across other Canadian labour markets. These labour requirements have set the pace for a new wave of interprovincial mobility, immigration and human resources strategies to accommodate the change.

Alberta's dramatic economic development continues. The 2014 *Construction and Maintenance Looking Forward* scenario includes expansion plans for the oil sands that will almost double production capacity across the 2014–2023 period, with much of the increase concentrated in in-situ operations. This expansion increases construction activity and raises labour requirements for the oil sands by more than 40 percent. These demands have taken a special, often dominant, place across Canadian labour markets. The oil sands labour market, by itself, is larger than the entire construction workforce in seven provinces. Demands for workers with specialized skills and experience is concentrated among a selected group of trades and occupations that are also in strong demand elsewhere.

As demands grow for resource development in other provinces, the evidence mounts that the oil sands will need to continue to draw a distinct group of skilled trades and occupations that have been in big demand across Canada for more than a decade.

BuildForce Canada uses a scenario-based forecasting system to assess future labour market conditions. This labour market information (LMI) system tracks conditions for 33 trades and occupations.¹ BuildForce consults with industry, including owners, contractors and labour groups, to validate the scenario assumptions and construction project lists, and seeks input from government on related analysis. This approach provides current information and first-hand assessments of labour markets for individual trades and occupations.

This special edition of *Construction and Maintenance Looking Forward* provides a detailed look at market conditions for the BuildForce trades and occupations that are unique to the oil sands projects.² An assessment of market conditions for these occupations is also included in the Alberta *Construction and Maintenance Looking Forward* review for province-wide markets.

¹ This group includes on-site workers – 75 percent of the full construction workforce.

² Twenty-one of the 33 trades and occupations tracked by BuildForce are unique to the oil sands.



OIL SANDS DEVELOPMENT AND LABOUR REQUIREMENTS

BuildForce research and collaboration with owners and contractors has identified a key group of trades and occupations that are pivotal to the oil sands expansion. Requirements for these workers grew dramatically and steadily for a least a decade before the 2009 recession and has continued in the years since. Specialized skills have been in big demand, requiring industry to invest in recruiting and training. While the BuildForce LMI tracking system is limited to broad occupations, actual skills requirements are often more specialized.

The following list of trades and occupations (with specializations noted in parenthesis) have been a focus of requirements in the oil sands and related resource projects:

- boilermakers
- bricklayers (in refractory work)
- carpenters (often as scaffolders)
- construction estimators
- construction managers
- construction millwrights
- crane operators
- electricians
- heavy equipment operators
- heavy-duty equipment mechanics
- insulators
- ironworkers (structural and reinforcing)
- steamfitters and pipefitters
- trades helpers and labourers
- truck drivers
- welders

Labour demand for this group spans off-site prefabrication and modular construction, on-site construction, maintenance and sustaining capital work. Sustaining production from the oil sands deposits requires regular and large-scale shutdowns for maintenance and equipment replacement. Maintenance and sustaining capital work will sustain a very large workforce of the key construction trades and occupations long after construction projects are complete.

The labour market assessments must also take into account the competing demands in other industries and provinces. Employers in the other industries in Alberta and in other provinces require the same or similar skills and, as these demands rise and fall, conditions in the oil sands could be altered.

The timing and structure of oil sands projects is changing. During 2013, global market uncertainties seemed to signal a slowdown or pause in the pace of construction. Oil sands development was expected to remain on the current high plateau across 2015 and 2016, but major projects announced late in 2013 altered the scenario and anticipated another round of hiring for 2014. The new scenario has a further acceleration in employment growth in 2014 that will again test recruiting and add more new workers than were hired in each year from 2011 to 2013.

Growth in labour requirements for the oil sands continues, but slows from 2015 to 2019, with a final surge in construction in 2019, bringing the workforce to a new level 20,000 higher than 2013. While there are no major projects announced for the period after 2019, employment levels remain near their peak levels. This reflects, in part, the ongoing need for maintenance and sustaining capital work on the expanded oil sands industry.

These labour requirements represent a growing proportion of the overall Alberta workforce. The oil sands workforce made up one third of the total provincial non-residential construction workforce in 2013 and this proportion rises to almost 50 percent as it peaks in 2019. Specialized labour demands for the oil sands are a dominant factor in many labour markets.

THE AVAILABLE WORKFORCE

Labour requirements described above are identified specifically for the oil sands sector in the BuildForce LMI system. Their impact on labour market supply-demand balances is assessed in the context of the Alberta market for each trade and occupation. Findings from the Alberta *Construction and Maintenance Looking Forward* analysis set the stage with estimates of unemployment and the availability of the needed trades and occupations in other sectors of the province.

At the beginning of the scenario in 2014, labour markets are tight, as both oil sands and other non-residential construction work has expanded since 2010, passing the peak levels reached in 2008. Unemployment rates are low – approaching the record lows from 2008. With virtually no unemployed workers available in the province, market adjustments are driven by mobility across regions and industries.

New evidence provides estimates that divide this mobile workforce into two components: non-resident and permanent. The non-resident group has emerged over the past 10 years as an important workforce that includes both interprovincial employment and temporary

² See “Inter-provincial Employees in Canada” by Christine Laporte and Yuqian Lu, *Analytical Studies Branch, Social Analysis Division, Statistics Canada, 2013, 11-626, No. 29.*

foreign workers. Research at Statistics Canada estimates that a large and growing workforce reports a residence in one province and work in another.² This interprovincial employment includes both the long-recognized construction workforce in Alberta as well as the new labour force filling jobs on the major projects in many other provinces on a fly-in, fly-out basis. This group is supplemented by the temporary foreign workers that have been recruited on a similar basis.

At two points in the scenario – from 2014 to 2015 and again in 2019 – the Alberta and the regular out-of-province workforce are not enough to meet demands and the industry will again look to international markets for permanent immigration and temporary foreign workers. At these points of market tightness, the numbers of additional foreign workers required to meet oil sands demands are large, but not as high as the requirements during the previous peak in 2008.

RISKS AND OPPORTUNITIES FOR MOBILITY

The ranking system in the BuildForce LMI analysis has been adapted to track labour markets specific to the oil sands. The key driver that distinguishes this market from the overall provincial rankings is employment growth. Each labour market is assigned an annual ranking from 1 (very weak markets where job search is difficult) to 5 (where labour shortages will force recruiting from distant markets). Rankings are offered as a summary that combines the measures of employment growth, unemployment and net in-mobility³ requirements.

Each trade and occupation has distinctive features unique to the oil sands that drive markets and are often not adequately described in statistics. Comments attached to the rankings add important dimensions that describe special circumstances. Industry stakeholders have contributed their experience and expectations, and their ideas are reflected in both the rankings and the comments where the system might not fully capture market realities.

Rankings for the oil sands markets are generally higher than the equivalent rankings for the province because employment is growing more rapidly across

the scenario period. For example, employment in the oil sands construction workforce grows by almost 40 percent from 2014 to 2023, while the overall non-residential construction workforce in Alberta grows by just 10 percent. Higher rankings in the oil sands markets signal the potential for movement of the workforce from projects and jobs elsewhere in the province to the oil sands. This is a familiar pattern that represents both a challenge to employers outside the oils sands and an opportunity for recruiting.

But, labour market assessments for the overall province suggest that oil sands labour requirements will not be met locally. From 2014 to 2015 and again in 2019, conditions in other industries and construction sectors for all the key oil sands trades and occupations severely limit availability, with market ranks of 4 being common.

Where rankings differ across provinces or industries they signal another potential for mobility. For example, the *Construction and Maintenance Looking Forward* reports show strong demand for resource projects in Saskatchewan and Newfoundland and Labrador in 2014, and these demands will compete with needs in the oil sands. Projects in these two provinces are expected to peak and then ramp down after 2015 and this may represent a hiring opportunity for oil sands employers.

If the Alberta project schedules remain as proposed, resource projects now scheduled in British Columbia from 2015 to 2018 would almost certainly compete with Alberta's hiring plans at that time. There are many other examples that emerge from the *Construction and Maintenance Looking Forward* analysis for other provinces. Much depends on the timing and nature of projects and the related skills demanded. For example, a classic competition that could emerge in the 2014 scenario would be between projects needs for LNG⁴ plants in British Columbia and the oils sands expansion from 2015 to 2019.

The *Construction and Maintenance Looking Forward* national report summarizes the rankings across provinces and occupations and provides an overview of the challenges facing the construction industry around training, recruiting, promoting mobility and balancing markets.

³ In-mobility refers to the arrival of workers from outside the local construction industry.

⁴ Liquefied natural gas

MARKET RANKINGS

1	Workers meeting employer qualifications are available in local markets to meet an increase in demand at the current offered rate of compensation and other current working conditions. Excess supply is apparent and there is a risk of losing workers to other markets.
2	Workers meeting employer qualifications are available in local markets to meet an increase in demand at the current offered rate of compensation and other working conditions.
3	The availability of workers meeting employer qualifications in the local market may be limited by large projects, plant shutdowns or other short-term increases in demand. Employers may need to compete to attract needed workers. Established patterns of recruiting and mobility are sufficient to meet job requirements.
4	Workers meeting employer qualifications are generally not available in local markets to meet any increase. Employers will need to compete to attract additional workers. Recruiting and mobility may extend beyond traditional sources and practices.
5	Needed workers meeting employer qualifications are not available in local markets to meet current demand so that projects or production may be delayed or deferred. There is excess demand, competition is intense and recruiting reaches to remote markets.

RANKINGS FOR TRADES AND OCCUPATIONS IN THE ALBERTA OIL SANDS

TRADES AND OCCUPATIONS	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Boilermakers	4	5	5	4	4	4	4	4	3	3	3

Employment requirements related to ongoing maintenance, sustaining capital and new oil sands projects continue to rise across the scenario period, maintaining tight labour market conditions to 2020. The age profile for this trade is younger than average. Estimated new entrants into the labour force may not meet replacement demand requirements. Workers from outside the local market will be required across the scenario to meet requirements. Consecutive years of high rankings for this trade signal a potential role for non-resident workers from out of the province to help meet local construction requirements.

Bricklayers (primarily refractory)	4	4	4	4	3	3	4	3	3	3	3
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Demand requirements related to ongoing maintenance and new oil sands projects continue to rise steadily, tightening labour market conditions to 2016 and then again in 2019. The potential for mobility from other construction sectors is limited, as employment in the oil sands is often specialized in refractory work. The age profile for this trade is older than average and contributes to tighter market conditions. New entrants into the labour force are expected to meet replacement demand requirements, but workers from outside the local market will be required across the scenario period to meet requirements.

Carpenters (including scaffolders)	4	4	4	4	3	3	4	3	3	3	3
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Demand requirements related to oil sands projects continue to rise from already tight levels through 2016 and then again in 2019. The potential for mobility between the residential and non-residential sectors is limited. Carpenters working on oil sands projects are often specialized, including scaffolding work. The age profile for this trade is younger than average. New entrants into the labour force are expected to meet replacement demand requirements, but workers from outside the local market will be required to meet peak demands early in the scenario period.

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TRADES AND OCCUPATIONS	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
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Concrete finishers (cement masons)	4	4	4	4	3	3	4	3	3	3	3
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Demand requirements related to oil sands projects remain near current levels, with tight labour markets to 2016. As growth slows in 2017, labour markets return to balanced conditions, but tighten again briefly in 2019 as new projects start. The age profile for this trade is younger than average. New entrants into the labour force are expected to meet replacement demand requirements, but workers from outside the local market will be required across the scenario period to meet requirements.

Construction estimators	4	4	4	4	3	3	4	3	3	3	3
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Demand requirements related to oil sands projects continue to rise across the scenario period, with tight labour market conditions to 2016 and then again in 2019 as new projects start. The age profile for this occupation is older than average. New entrants into the labour force are expected to meet replacement demand requirements, but workers from outside the local market will be required to meet peak demands early in the scenario period.

Construction managers	5	5	4	4	3	3	4	3	3	3	3
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Employment requirements related to oil sands projects continue to build to new peak levels early in the scenario period, with tight labour markets to 2016 and then again in 2019 as new projects start. A potential for mobility from other construction sectors may help to meet market requirements, but mobility may be limited by the portability of skills to meet the growing oil sand projects. The age profile for this occupation is older than average. New entrants into the labour force do not meet replacement demand requirements. Consecutive years of high rankings for this occupation signal a potential role for non-resident workers from out of the province to help meet local construction requirements.

Construction millwrights	4	4	4	4	3	3	4	3	3	3	3
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Employment requirements related to oil sands projects continue to rise from already tight levels, tightening labour market conditions to 2016 and again in 2019 as new projects start. Millwrights are not used intensively on oil sands projects. The age profile for this trade is about average. New entrants into the labour force are expected to meet replacement demand requirements over the scenario period, but workers from outside the local market may be required across the period to meet requirements.

Contractors and supervisors	4	4	4	4	3	3	4	3	3	3	3
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Demand requirements related to oil sands projects continue to rise across the scenario period, tightening labour market conditions to 2016 and then again in 2019 as new projects start up. A potential for mobility from other construction sectors may help to meet market requirements, but mobility may be limited by the portability of skills to meet the growing demands for major oil sands projects. The age profile for this group is older than average. Replacement demand requirements are not met by new entrants into the labour force. Consecutive years of high rankings for this group signal a potential role for non-resident workers from out of the province to help meet local construction requirements.

Crane operators	4	4	4	4	4	3	4	3	3	3	3
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Employment requirements related to oil sands projects rise across most of the scenario period, creating tight labour markets to 2019, but with a brief pause and balanced markets in 2018. The age profile for this trade is about average. New entrants into the labour force are expected to meet replacement demand requirements, but consecutive years of high rankings for this trade signal a potential role for non-resident workers from out of the province to help meet local construction requirements.

Electricians	4	4	4	4	4	3	4	3	3	3	3
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Employment requirements related to oil sands projects continue to rise, creating tight labour markets to 2019, but with a brief pause and balanced markets in 2018. The age profile for this trade is younger than average. New entrants into the labour force are expected to meet replacement demand requirements, but consecutive years of high rankings for this trade signal a potential role for non-resident workers from out of the province to help meet local construction requirements.

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TRADES AND OCCUPATIONS	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Heavy equipment operators (except crane)	4	4	3	4	3	3	4	3	3	3	4
Employment requirements related to oil sands projects continue to build across the scenario period, with tight labour market conditions in 2014 with the start-up of major projects and then again in 2016 and 2019 as new projects start and wind down. The age profile for this trade is about average. New entrants into the labour force are expected to meet replacement demand requirements, but workers from outside the local market will be required at various times across the scenario period to meet peak demand requirements.											
Heavy-duty equipment mechanics	4	5	4	4	4	3	4	4	3	3	4
Employment requirements related to oil sands projects continue to build across the scenario period, with tight labour market conditions across most of the period. This trade is often in short supply for maintenance work on equipment. The age profile for this trade is about average. New entrants into the labour force are expected to meet replacement demand requirements, but consecutive years of high rankings for this trade signal a potential role for non-resident workers from out of the province to help meet local construction requirements.											
Industrial instrument technicians	4	4	4	4	3	3	4	3	3	3	3
Demand requirements related to oil sands projects continue to rise across the scenario period, tightening labour market conditions to 2016 and then again in 2019 as new projects start. The age profile for this trade is younger than average. New entrants into the labour force are expected to meet replacement demand requirements, but workers from outside the local market may be required across the scenario to meet demand requirements.											
Insulators	4	4	4	4	4	3	4	4	3	3	3
Demand requirements related to oil sands projects continue to rise from already tight levels, tightening labour market conditions across most of the scenario period. Markets return to balanced conditions later in the period as major project activity peaks, followed by more moderate growth. The age profile for this trade is younger than average. New entrants into the labour force are expected to meet replacement demand requirements, but consecutive years of high rankings for this trade signal a potential role for non-resident workers from out of the province to help meet local construction requirements.											
Ironworkers (structural and reinforcing)	4	4	4	4	4	4	4	3	3	3	3
Labour requirements related to oil sands projects continue to rise from already tight levels through 2021 and maintain tight labour market conditions throughout most of the scenario period. The age profile for this trade is younger than average. New entrants into the labour force are expected to meet replacement demand requirements, but consecutive years of high rankings for this trade signal a potential role for non-resident workers from out of the province to help meet local construction requirements.											
Painters (industrial)	4	4	4	4	3	3	4	3	3	3	3
Labour requirements related to oil sands projects rise steadily from current levels, tightening labour market conditions to 2016 and then again in 2019 as projects start and wind down. There is limited potential for mobility from other construction sectors, as this trade is specialized in industrial coating work in the oil sands. The age profile for this trade is about average. New entrants into the labour force are expected to meet replacement demand requirements, but workers from outside the local market will be required across the scenario period to meet peak demand requirements.											
Sheet metal workers	4	4	4	4	4	3	4	3	3	3	3
Labour requirements related to oil sands projects continue to rise from already tight levels through to 2019 and maintain tight labour market conditions throughout most of the scenario period. The age profile for this trade is younger than average. New entrants into the labour force are expected to meet replacement demand requirements, but workers from outside the local market will be required to meet peak demands across the scenario.											

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TRADES AND OCCUPATIONS	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Steamfitters and pipefitters	4	5	5	4	4	4	4	4	3	3	3

Labour requirements related to ongoing maintenance, sustaining capital and new oil sands projects continue to rise from already tight levels through 2020 and maintain tight labour market conditions across most of the scenario period. A high percentage of pipefitters in Canada work in the oil sands and mobility is key to meeting demand requirements. The age profile for this trade is younger than average. New entrants into the labour force are expected to meet replacement demand requirements, but consecutive years of high rankings for this trade signal a potential role for non-resident workers from out of the province to help meet local construction requirements.

Trades helpers and labourers	4	4	4	4	3	3	4	3	3	3	3
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Demand requirements related to oil sands projects continue to rise, with already tight labour market conditions continuing through to 2016 and then again in 2019 as new projects start. The age profile for this group is younger than average. New entrants into the labour force are expected to meet replacement demand requirements, but workers from outside the local market will be required to meet peak demands early in the scenario period.

Truck drivers	4	4	4	4	3	3	4	3	3	3	3
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Demand requirements related to oil sands projects continue to rise from already tight labour market conditions to 2016 and then again in 2019 as new projects start. The age profile for this trade is about average. New entrants into the labour force are expected to meet replacement demand requirements, but workers from outside the local market will be required to meet peak demands across the scenario period.

Welders	4	4	4	4	4	4	4	3	3	3	3
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Demand requirements related to oil sands projects continue to rise, with tight labour market conditions continuing to 2019. Conditions return to balance as activity peaks and then return to more moderate growth and balanced conditions to the end of the scenario period. The age profile for this trade is younger than average. New entrants into the labour force are expected to meet replacement demand requirements, but consecutive years of high rankings and the demand for specialized skills for this trade signal a potential role for non-resident workers from out of the province to help meet local construction requirements.

Note: Replacement demand refers to the loss of workers due to retirement and mortality.

Source: BuildForce Canada

Timely construction forecast data is available online at www.constructionforecasts.ca. Create customized reports on a broad range of selected categories within sector, trade or province covering up to 10 years.

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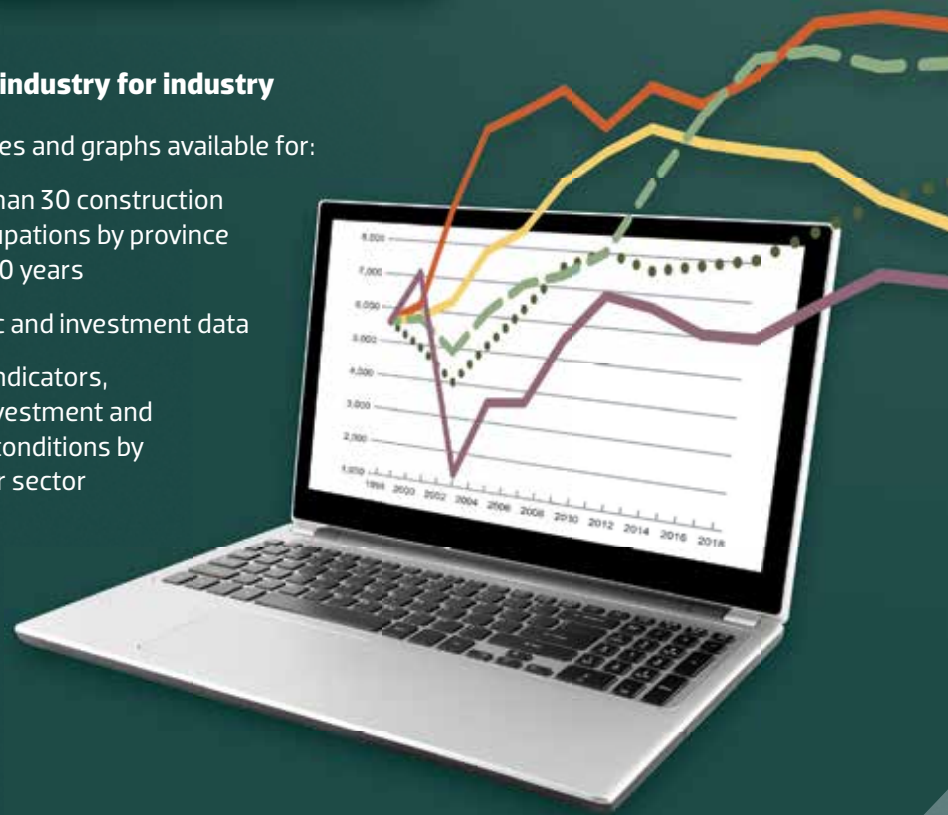
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