



# Unlocking the Prize: Metal Fabrication Procurement for Development and Operation of Alberta's Oil Sands

Alberta Oil Sands Supply Chain Opportunity Analysis

Final Report

Prepared for Alberta Finance and Enterprise

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This analysis was guided by a project Steering Team that comprised members of industry – both from an owner's perspective and a supplier's perspective, Edmonton Economic Development Corporation, Alberta Innovates-Technology Futures, Western Economic Diversification Canada and the Industry Development Branch (Alberta Finance and Enterprise).

Sierra Systems wishes to thank all of the organizations and Steering Team members that provided information and direction throughout the course of the project.

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## EXECUTIVE SUMMARY

Alberta's expanding oil sands industry provides excellent opportunities for the province's Metal Fabrication and Machinery Manufacturing (MFMM) companies to supply services and products. Announced oil sands projects have an estimated value of \$150 billion over the next 10 years, with nearly \$14 billion in capital spending projected in 2011. In addition, there is ongoing maintenance and operations spending that will continue to increase every year. This offers tremendous prospects for Alberta MFMM companies to supply fabricated metal products, machinery, and equipment manufacturing, and to obtain maintenance, repair, and operations (MRO) contracts.

While opportunities abound, several challenges threaten the competitiveness of Alberta's MFMM sector. They include:

- **Shortage of skilled labour and high wages.** The MFMM sector requires a strong supply of skilled labour to maintain production levels and high-quality products. Wage escalation in Alberta for skilled workers continues to be a challenge, driving up production costs for the MFMM sector.
- **Global competition.** The enormous size of this market and tremendous growth potential has attracted the attention of international competition with lower costs than Alberta. A significant portion of off-shore sourcing is from Asian countries such as South Korea.
- **Cyclical nature of oil and gas development.** A significant portion of the MFMM sector in Alberta is focused on supplying the oil and gas industry, which is cyclical and subject to market volatility.

The MFMM sector in Alberta is diverse, offering world-class technology, machining, design and engineering capabilities. Strengths of Alberta's MFMM sector include vast experience, high quality of products and services, and top-notch health and safety management. Alberta MFMM companies contribute considerably to petroleum development and infrastructure growth in the province. Given the importance of this, Alberta Finance and Enterprise sought to work with both the oil sands industry and MFMM sector to help identify and propose solutions to competitive challenges within the sector. Input was gathered through interviews and surveys with oil sands project owners and Engineering Procurement and Construction (EPC) firms who procure products and services from MFMM suppliers.

The ultimate goal of this study is to maximize the oil sands opportunities available to the Alberta MFMM sector by better meeting the needs of oil sands project owners and buyers.

### Key Findings

Alberta's oil sands project owners and EPC firms are focused on minimizing cost and risk when making procurement decisions. They desire to develop long-term, collaborative relationships with suppliers to maintain quality and have greater control over their supply chain.

It is important for MFMM suppliers to understand how oil sands project owners and EPC firms approach their supply chain decisions if they are to objectively assess their product or service, and ultimately adapt their strategic sales approach. Capitalizing on opportunities in Alberta's oil sands requires a dedicated effort by suppliers to build relationships with oil sands project owners and EPC firms in order to meet their needs.

### Emerging Procurement Trends

The growing importance of pre-qualification processes and the use of category management are two major trends significant to oil sands suppliers.

- Pre-qualification is an essential step in the procurement process. It is used by most buyers to minimize supply chain risks and narrow the field of prospective vendors. Health, safety and environmental (HSE) performance or ability to meet schedule, are criteria that must be met or exceeded to be on the preferred vendor list. These criteria are reviewed at least annually to ensure compliance. A growing number of buyers are using third-party pre-qualification firms to assist in this process.
- Category management is a procurement approach in which products or services that have similar characteristics, and are bought from similar supply markets, are grouped together and treated as a discrete group or category. These categories are then more manageable from a procurement perspective because the items in a category require the same supplier market intelligence, the same sourcing strategies and similar supplier relationship management programs. In the last 10 years, the majority of oil sands project owners and EPC firms have adopted category management in some capacity. Some are sophisticated users and have adopted certain aspects of it. Others are starting to implement it.

### Opportunities for Alberta MFMM Suppliers

Alberta's suppliers can compete with global suppliers by leveraging their strengths and mitigating their weaknesses to improve their relationships with buyers. To compete globally, Alberta's suppliers should focus on:

- Building strategic buyer-supplier relationships by understanding procurement processes.
- Reducing costs to become more competitive with offshore suppliers.

#### BUILDING STRATEGIC BUYER-SUPPLIER RELATIONSHIPS

##### *Pre-qualification*

Alberta's MFMM firms need to understand the key evaluation criteria and be prepared to respond to requests. To better manage the pre-qualification process, suppliers should consider maintaining a database for pre-qualification information, such as quality programs, HSE performance, financial stability, historical performance, and references. This will improve access to information and make responding to pre-qualification requests more efficient.

### *Maximizing Value using Category Management*

There must be tangible value in what is being offered by Alberta suppliers. The majority of respondents recognized that, compared to other jurisdictions, Alberta MFMM firms offer high product quality, good HSE performance, industry expertise and a greater breadth of services. However, Alberta suppliers do not always have the opportunity to clearly demonstrate the added value they provide, such as lower total cost of ownership, value-added services, or excellence in HSE performance. Demonstrating this value, from a financial perspective, is important.

There is a great opportunity to use the category management concept as an opportunity to expand into new markets by partnering with existing oil sands customers. Alberta MFMM suppliers can respond to the increased use of category management by understanding:

- Where their product or service fits into a buyer's category definition, as well as the portfolio analysis matrix.
- The internal dynamics at play for procurement decision-making within target customers.
- Their own cost drivers because buyers will often know and understand how much a product or service should cost.
- Market trends and the impacts this can have on the supply chain and strategic procurement decisions.
- How to leverage supplier proximity to the oil sands and deep industry expertise to build long-term, "sticky" relationships with buyers.

### *Developing Supply Chain Agility and Capacity*

Supply chain agility can potentially be enhanced by MFMM firms in a few key ways:

- Offering greater breadth of service offerings, depending on the procurement strategy for the product or service.
- Providing early-stage, value-added services such as design, engineering and project planning support.
- Creating consortiums (formal or ad-hoc) and joint ventures in order to provide greater manufacturing capacity or additional service offerings.

### *Providing Specialized MRO Services*

Maintenance and turnaround expenditures have longer-term stability and there is less global competition for Alberta MFMM firms. While some project owners conduct maintenance using in-house resources, the majority contract out turnaround work and are shifting towards contracting out maintenance. Alberta firms should take advantage of proximity to the oil sands by focusing on providing specialized products and services that meet the needs of MRO activities.

## REDUCING COSTS

Lowering costs will help Alberta MFMM companies compete against global competition. There are several ways to accomplish this:

- Improving productivity by employing innovative technology and enhancing manufacturing processes. Many support services from industry associations and government are available.
- Promoting the industry and employment opportunities within vocational and technical institutes. This will help to develop a strong future labour pool in Alberta.
- Strategically managing costs with their own suppliers by using a collaborative approach to each step in the value chain.
- Clearly demonstrating the added value they offer, such as a lower total cost of ownership.



## INTRODUCTION

The development of Alberta's oil sands is a multi-faceted undertaking with thousands of companies from around the world involved in the supply chains. The oil sands industry is attracting diverse players, from junior and mid-size companies to the world's largest energy corporations. Lifecycles of oil sands projects vary as well. Some of the oil sands projects have been producing for decades, while others are in the initial stages of production, still being constructed, or in the planning and design phase.

There are three major deposits of oil sands in Alberta<sup>1</sup>. The largest and most shallow deposit is found in the Athabasca oil sands area, surrounding the Fort McMurray region. The Athabasca deposit is the site where all current mining projects are located. The Cold Lake deposit is the second largest and must be developed using in-situ processes. The Peace River deposit is in earlier stages of development due to the advanced technology required to access the resource.

In 2010 oil sands production increased by 12.6%, with 1.5 million barrels per day (bpd) of crude bitumen extracted in Alberta's oil sands<sup>2</sup>. Approximately 45% (675,000 bpd) of oil sands production is through the in-situ process, while the remaining 55% (825,000 bpd) is recovered by conventional mining techniques<sup>3</sup>. Approximately two-thirds of the total crude bitumen extracted is upgraded to synthetic crude oil (SCO) in Alberta, while the remaining amount is diluted and sent to upgraders in the United States. All upgraded bitumen is then distributed across North America for further refining.

The facilities that are required to extract and upgrade bitumen involve complex engineering and intense capital investment. Typically, engineering, procurement and construction (EPC) firms are contracted by oil sands project owners to assist with designing and building these extremely large and complex projects. As a result, both oil sands project owners and EPC firms are responsible for procuring materials and services from Metal Fabrication and Machinery Manufacturing (MFMM) suppliers.

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<sup>1</sup> Source: <http://www.oilsandsdevelopers.ca/>

<sup>2</sup> Source: Alberta Oil and Gas Production (2004-2010). Alberta Energy Resources Conservation Board.

<sup>3</sup> Source: <http://www.heavyoilinfo.com>

*Success from this study would be information that helps create viable, profitable local suppliers. It would also result in Alberta suppliers recognizing rising global competition and the need to keep on schedule and lower costs.*

*-Oil Sands Project Owner*

## Purpose of this Study

The Oil Sands Supply Chain Opportunity Analysis study explores the competitiveness factors and growing industry trends related to procurement decisions made when oil sands buyers award contracts to MFMM suppliers during the development, construction and operation of mining, in-situ and upgrader projects. Views from a range of oil sands project owners and EPC firms were sought through surveys and interviews on this topic<sup>4</sup>.

This study helps to provide market intelligence for the development and execution of growth strategies in areas where Alberta's MFMM sector has a competitive advantage. It also provides a better understanding of the needs of Alberta's oil sands industry, describes how to strengthen relationships between Alberta's MFMM sector and oil sand project owners, and support continued economic growth in the province.

## Alberta's Metal Fabrication and Machinery Manufacturing (MFMM) Sector

Alberta's diverse MFMM sector offers world-class technology, machining, design, and engineering capabilities. It plays a critical role in the development of the oil sands through the supply of fabricated structural products, modules, boilers, pressure vessels, tanks, heat exchangers, and steel pipes and tubes. Services such as field installation of equipment and maintenance are also provided by this sector.

The MFMM sector in Alberta is substantial, directly and indirectly, contributing to provincial gross domestic product, income, employment, and government revenues. With nearly 2,000 companies operating in the MFMM sector, the sector employs over 35,000 Albertans<sup>5</sup>. Currently, Alberta companies provide approximately 50% of all fabricated metal products and 75% of all machinery used domestically<sup>6</sup>. The sector is expected to continue to generate revenues of \$10 to \$12 billion annually in the future.

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<sup>4</sup> Interview and survey respondents included small, mid-size and large oil project owners, as well as EPC firms. Relevant differences in responses are indicated in this report. For more details on the interview and survey methodology, see Appendix B.

<sup>5</sup> Source: Alberta: North America's Energy Future. Government of Alberta.

<sup>6</sup> Source: [http://albertacanada.com/documents/Alberta\\_Industrial\\_Sector\\_Market\\_Opportunities\\_Report--June\\_2010.pdf](http://albertacanada.com/documents/Alberta_Industrial_Sector_Market_Opportunities_Report--June_2010.pdf)

## Growth in Alberta's Oil Sands

As an economic recovery unfolds, Alberta's robust oil sands industry provides excellent opportunities for the province's MFMM companies to supply services and products. The industry is capital intensive and characterized by long-term investments, lengthy production cycles and highly specialized technology. Capital spending is, however, cyclical and it is important for MFMM suppliers to consider how to establish long-term stability and opportunities in this volatile market. This may include providing maintenance services to oil sands project owners because MRO expenditures are more stable.

### Alberta's Oil Sands Capital Expenditures

Alberta's oil sands sector is a significant contributor to economic growth across the country and has the potential to continue to do so over the next number of decades<sup>7</sup>. Using currently available technology and under the current economic conditions, there are 170 billion barrels of recoverable oil in the oil sands deposits of Northern Alberta. As of December 2010, in addition to the 27 oil sands projects currently in operation, there were 55 projects totaling greater than \$100 billion in value that were planned, underway, or recently completed<sup>8</sup>.

One of the primary factors impacting investment in the oil sands is the price of oil, which historically has seen a high degree of variability.<sup>9</sup> While capital expenditures in the oil sands are expected to fluctuate over the next ten years they are also expected to trend upwards to 2020 and beyond. The following chart, *Oil Sands Capital Expenditures*, describes the historical breakdown of capital expenditures for mining, in-situ, and upgrader projects. Total capital expenditures for mining, in-situ, and upgrader projects are forecast to exceed \$150 billion over the next 10 years.

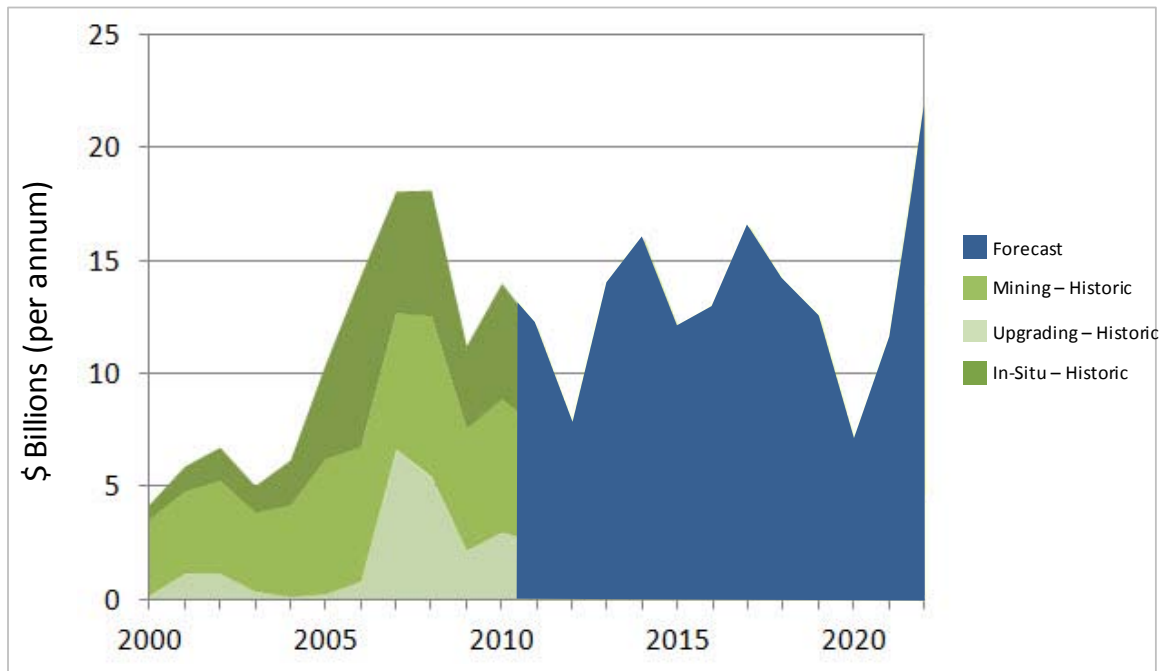
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<sup>7</sup> Source: Canadian Energy Research Institute. *Economic Impacts of Alberta's Oil Sands*. 2005.

<sup>8</sup> Source: Alberta Finance and Enterprise. *Inventory of Major Alberta Projects*. Dec 2010.

<sup>9</sup> Source: Mansell, Robert and Schlenker, Ron. *Energy and the Alberta Economy: Past and Future Impacts and Implications*. Institute for Sustainable Energy, Environment and Economy. 2006.

### Oil Sands Capital Expenditures (Historic and Forecast) <sup>10</sup>



### Alberta's Oil Sands Maintenance, Repair, Operations (MRO) Expenditures

Capital spending on new or expanded projects is not the only area of opportunity for Alberta's MFMM suppliers. All of the oil sands project owners operating now and in the future will spend millions of dollars annually on maintenance, repair and operations (MRO). These are expenses that are incurred by oil sands project owners to maintain production and operations of oil sands facilities, and they have greater long-term stability than capital spending<sup>11</sup>. MRO expenditures include ongoing maintenance of equipment such as boilers, tanks and pumps, and services for repairs and scheduled turnarounds. Oil sands turnarounds, large maintenance projects that clean equipment, conduct repairs and address mechanical issues, are required because oil sands are an abrasive and chemically reactive setting<sup>12</sup>. They also provide an opportunity for facility upgrading. Major turnarounds are labour intensive, last several weeks, and require equipment and components that are typically sourced from Alberta suppliers.

Estimates for MRO expenditures from 2011 to 2022 vary throughout the industry. The chart below, *Alberta's Oil Sands Maintenance, Repair, Operations (MRO) Expenditures*, illustrates estimated boundaries for MRO expenditures ranging from \$227 billion to \$330 billion between 2011 and 2022.

<sup>10</sup> Source: Canadian Energy Research Institute (CERI). Capital Expenditure Forecast. 2009.

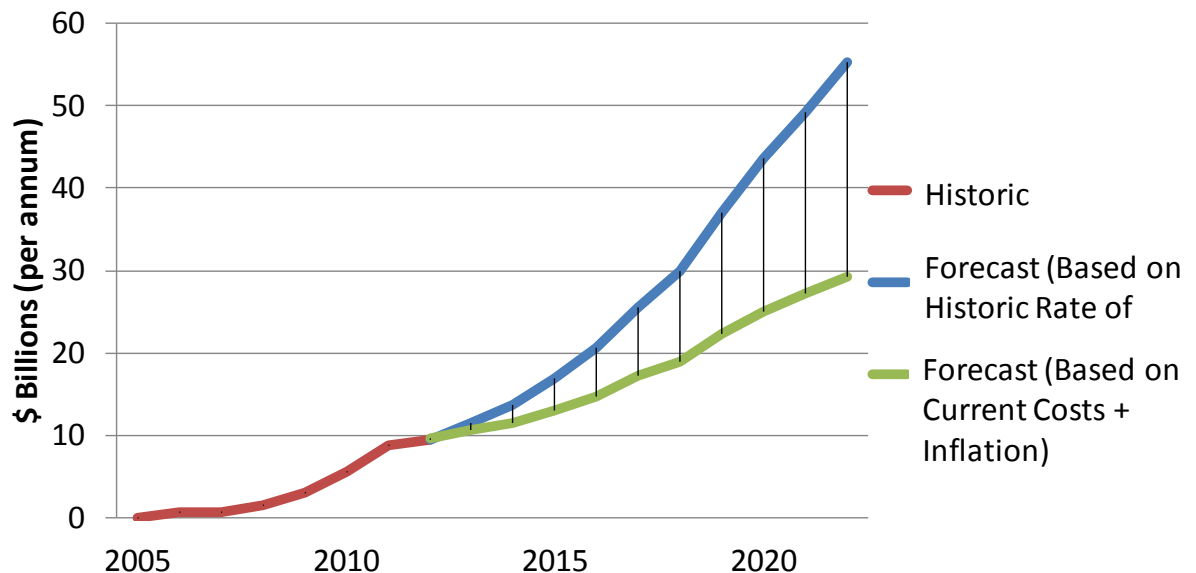
<sup>11</sup> Source: Getting Off the Construction Roller Coaster. Oil Sands Review. April 2011.

<sup>12</sup> Source: <http://www.nickles.com/feature.aspx?id=8767>

*There are opportunities for Alberta MFMM firms to supply MRO services during peak periods, such as turnarounds.*

*-Oil Sands Buyer*

### Alberta's Oil Sands Maintenance, Repair, Operations (MRO) Expenditures



The forecasted scenarios are based on MRO costs per barrel and expected production. The cost of MRO has risen from approximately \$3 per barrel in 2005 to \$9 per barrel in 2009. In addition, the cost of MRO is expected to continue to rise through 2010 and 2011, reaching a range of \$13-\$17 per barrel<sup>13</sup>. Using estimated costs of \$17 per barrel and 2011 production estimates of 1.8 million bpd, MRO expenditures in 2011 are expected to exceed \$10 billion.

The forecast based on historic costs illustrates a scenario where per barrel costs continue to rise at the average rate observed from 2005 to 2011. In this scenario, by 2022 MRO projections would be expected to be approximately \$50 billion per year. The forecast based on current costs uses the highest per barrel estimate of \$17. Adjusting for inflation, the projection for this scenario is just below \$30 billion per year by 2022.

<sup>13</sup> Source: Peters and Company. 2011.

## STRATEGIC SUPPLIER RELATIONSHIPS IN ALBERTA'S OIL SANDS

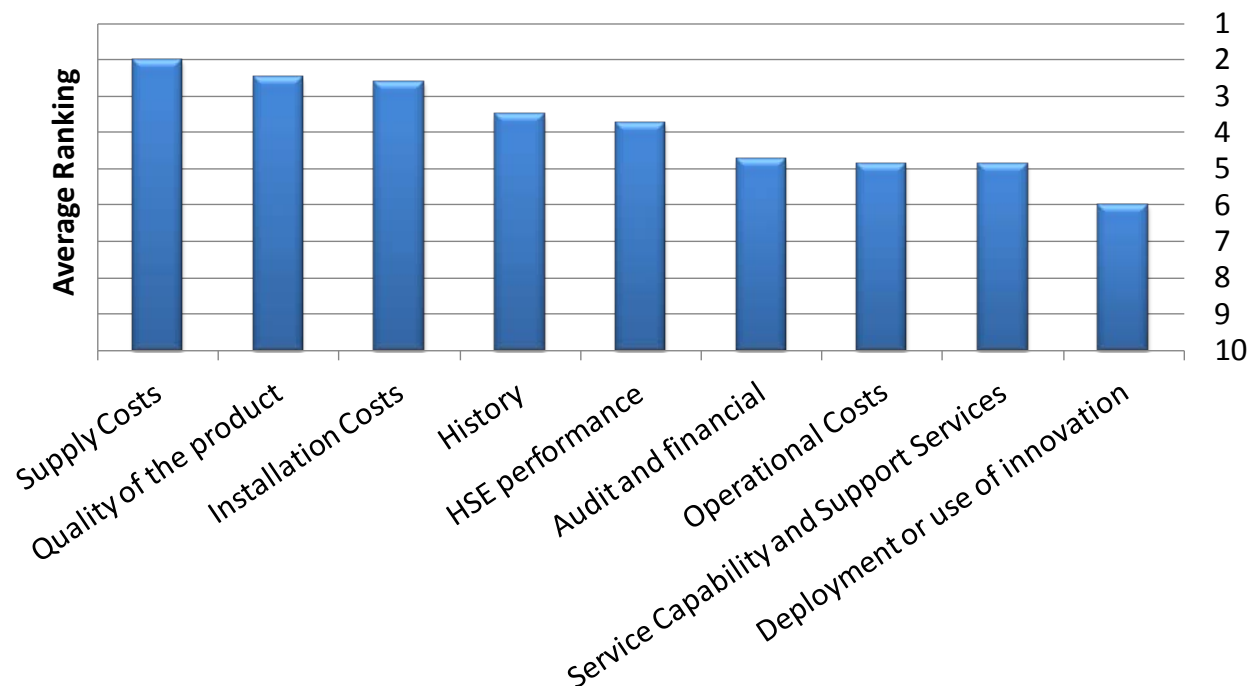
### Making Procurement Decisions: What Matters?

When awarding contracts to MFMM suppliers, cost, quality, supplier history, and supplier health, safety, and environmental (HSE) performance are clearly top decision-making criteria for both oil sands project owners and EPC firms.

Bid evaluation processes varied among respondents, depending on the project and criteria. Some companies rate supplier bids using a grading system such as “unacceptable”, “use with caution or with approved mitigation plan” and “acceptable” for each criteria. Others use a “pass/ fail” for each criteria based on specifications and requirements. In other circumstances, certain criteria are given a relative score, comparing one bidder to another.

When asked about decision-making criteria for MRO contracts, respondents indicated that the criteria and weighting are similar to those used for capital expenditure decisions. However, a greater emphasis is placed on supplier location, service capability, support services, history, past performance, and references.

**Relative Importance of Procurement Decision Criteria**





*A supplier's ability to provide maintenance and repair services is sometimes considered when procuring for capital expenditures, but not consistently. The more sophisticated the equipment the more likely we need the supplier's expertise after procurement.*

*-Oil Sands Buyer*

## Supply Costs

Supply costs were identified as one of the most important criterion during the bid process. Buyers typically measure this by the quoted first cost. One of the reasons the relative importance of supply cost is higher compared to other criteria is because of the wide-spread use of pre-qualification processes, which establish approved supplier lists. Prospective vendors on these lists have already been identified as meeting other key requirements.

## Quality of Products and Services

A supplier's quality of products (including materials, design, and workmanship) and services are rated highly in procurement decisions; however, this is dependent upon equipment and service criticality.

Suppliers to Alberta's oil sands are required to comply with standards, codes, and certifications established under applicable regulation by governing bodies, such as Alberta Boilers Safety Association (ABSA), Canadian Standards Association (CSA), and American Society of Mechanical Engineers (ASME).

Materials, fabrication, and quality management standards and specifications are typically detailed in requests for proposals (RFPs). Bids must meet these specification requirements, no matter where the supplier is based. Some buyers indicated that on rare occasions, bids with deviations from customer specifications are accepted if they provide additional value, such as expedited delivery time, reduced capital cost, standardized or simplified design to reduce life-cycle costs. These bids are generally regarded as "alternative bids" and are judged on a case-by-case basis.

When it comes to evaluating quality, most oil sands project owners and EPC firms use a pass/fail decision based on specifications provided.

## Installation Costs

Capital expenditures, including supply costs and installation costs, were rated almost equally important. Several respondents indicated that depending on the product, supply and installation costs are not considered separately; rather, they are considered a part of the complete cost of procuring the product or service.

## Supplier History

A supplier's history of delivering on time, to specifications and on budget was viewed as an indicator for several criteria, including quality, service capability, and support services. This is typically verified through references on past performance and assessed through pre-qualification.

## Health, Safety, and Environmental (HSE) Performance

There are numerous standards and regulations related to HSE performance of suppliers that apply to oil sands procurement. The majority of buyers use "pass/ fail" decisions for HSE criteria. The codes, standards, and regulations that must be met are typically referenced or provided in the RFP.

Often oil sands project owners impose internal standards and regulations on suppliers, especially around health and safety. There are also stringent standards when services are provided on site, such as field installation or maintenance.

In Alberta, safety is often measured by Total Recordable Injury Rate (TRIR) or equivalent (injuries per 200,000 man-hours worked). Safety certification and recorded on-site incidences with the Worker's Compensation Board (WCB) in Alberta were also important. Environmental performance metrics include whether proactive environmental programs are in place and the supplier's number of environmental fines or incidences.

For several oil sands project owners, HSE performance is so important that it is enforced all the way through the supply chain, to sub-contractors and suppliers of MFMM firms. How these standards were applied, monitored, or measured for suppliers located outside of Alberta varied.

## Audit and Financial Stability

A supplier's financial stability was noted as being important, but this is typically assessed through pre-qualification. A supplier's willingness to be audited, both financially and operationally, is viewed positively.

## Operational Costs

Interestingly, when making procurement decisions not all buyers considered the total lifecycle cost of materials that are procured. If operational costs are evaluated, buyers typically measure this by quoted annualized support costs from the supplier.

## Service Capability and Support Services

A supplier's service capability and capacity, such as turnaround times, scheduling and warranties, is important. Oil sands project owners and EPC firms want to be assured that a supplier can meet schedule demands. For highly critical components and machinery, MFMM firms with multiple shops are often preferred. Several respondents also indicated that supplier



capability and support services are often captured when evaluating supplier reliability and history. A supplier's ability to provide maintenance and repair services is not a primary consideration when companies procure for capital expenditures, but several respondents indicated that it is desirable. It was noted that evaluating a supplier's support services when making capital purchases is dependent upon the type and criticality of the equipment purchased. For example, the more critical and sophisticated the equipment is, the more likely a supplier's expertise will be required after installation. In contrast, some large oil sands project owners indicated a preference to not contract out MRO services, but rather to handle maintenance and repair internally.

### **Innovation**

Technological innovation related to improving production processes is highly valued by oil sands project owners and EPC firms, especially if these improved processes are proven to maintain performance and prevent health and safety risks without reducing quality or increasing cost.

An example related to metal products was provided by an oil sands company, where a supplier added value by using an innovative approach in which pre-bent metal pipe was provided. This reduced the need to purchase and install pipe elbows, which led to greater efficiencies in fabrication and in the number of products that had to be sourced.

### **Location**

A supplier's geographic location may be a consideration, especially for certain services or products. For example, location becomes very important when purchasing certain vessels/equipment packages that are over-dimensional and cannot be imported into Alberta. Proximity to the oil sands can impact relationship development, turnaround times, and availability of support services.

### **Resources and Employment Programs**

While not rated as relatively high as the other criteria, buyers indicated that it is important for suppliers to have training programs that ensure their workforce has the necessary qualifications and certifications. In addition, several oil sands project owners strive to promote local employment in Northern Alberta. Alberta suppliers who have Aboriginal and community employment programs are viewed favourably in these cases.

## Debriefs for Lost Bids

When it comes to debriefs or follow-up with firms who submit unsuccessful bids, most oil sands owners and EPC firms say they offer debriefs upon request. However, a few of the companies do not provide this feedback.

The majority of the post-bid debriefs are general and are based on the relative strengths and weaknesses of the bid to competitors. Technical deficiencies are also shared. Companies only share information about that particular vendor and do not disclose information about the successful bid or vendor.

There was conflicting responses on whether MFMM firms effectively take advantage of debriefs. Some companies indicated that it was rare for vendors to request debriefs, while others stated that it was a frequent occurrence.

## EPC Firms: Procurement Processes

EPC firms are contracted by oil sands companies to assist with designing and building oil sands projects. When making buying decisions for the oil sands, the major drivers for vendor selection are related to cost, project schedule, and quality. Oil sands companies also expect EPC firms to procure from suppliers who meet their minimal requirements for the other decision-making criteria, such as HSE performance.

While most EPC firms will work off the preferred vendor list of the oil sands company that contracted them, several EPC firms indicated they keep a preferred vendor list of their own. This allows EPC firms to provide further analysis and expert comparisons.

## Key Performance Indicators

Key performance indicators (KPIs) for procurement groups are quantifiable measurements that reflect the critical success factors of the group and what the organization values internally from procurement activities. They drive procurement activities and influence procurement decisions.

The key performance indicators for the procurement groups of oil sands project owners and EPC firms are relatively well aligned with the criteria that are used to select suppliers, with costs savings or price, and schedule, ranking highly among respondents. Other KPIs included metrics related to supplier management, HSE performance of suppliers, and quality.



*There is greater use of performance-based contracts during busy periods, with rewards for providing services and materials on budget and schedule, and penalties for not.*

*-Oil Sands Supplier*

## Minimizing Risk: How is Risk Managed through Procurement Practices?

The major risks that oil sands project owners and EPC firms manage are related to cost and schedule. To mitigate these risks, a range of risk-management practices are used, including:

- Category management to manage procurement categories and suppliers, leverage buying power, and build long-term strategic relationships with suppliers.
- Pre-qualification processes to verify supplier regulatory, health and safety performance, quality standards and history.
- Financial and/or contractual instruments such as performance bonds, payment holdback, or retention for non-performance, irrevocable letters of credit, etc. Using some of these instruments, performance-based contracts shift cost and schedule risks to the supplier in exchange for reward incentives. They are used more frequently during periods of high industry activity when issues such as cost and labour scarcity become more prevalent.
- Internal risk sessions to discuss lessons learned, procurement strategies, and criticality ratings.
- Competitive bidding processes to ensure that the vendor who offers the highest value for the contract is selected. Use of highly detailed terms and conditions in contracts with vendors are also seen as critical to minimizing risk.

### Pre-qualification: It Matters

In the face of increasingly complex and changing regulatory, health and safety, and quality control standards, oil sands project owners and EPC firms indicated that pre-qualification processes are critical to their procurement practices. The benefits to of pre-qualifying suppliers include:

- **Reduced risk.** Companies are working with suppliers who meet and/or exceed minimum qualifying requirements. If pre-qualification is used, less weight is given to certain procurement decision-making criteria during the actual bid process.
- **Reduced costs and effort.** Procurement is made more efficient because the field is narrowed down to prospective vendors who already meet several procurement criteria requirements. Reviewing complex bids with due diligence is time consuming, and can be minimized by using pre-qualification processes.

*The pre-qualification process is used to ensure suppliers meet or exceed minimum qualifications, including health, safety and environmental performance. As such, the tender process then focuses more heavily on cost competitiveness.*

*-Oil Sands Buyer*

A growing trend among oil sands project owners and EPC firms is the use of third-party pre-qualification firms that collect supplier information, verify that minimum qualifications and requirements are met, and then report the results. EPC firms are often required to use suppliers that have been pre-qualified by their oil sands client.

Alberta's MFMM suppliers recognize pre-qualification as being important. Current practices, however, are perceived as repetitive and disorganized among third-party pre-qualification firms, EPC firms, and oil sands procurement groups and project teams. Better organization, interpretation, and dissemination of the information gathered would improve processes.

### Category Management: Why is it Gaining Ground?

In category management, products or services that have similar characteristics and are bought from similar supply markets are grouped together and treated as a discrete group or category. These categories are then more manageable from a procurement perspective because the items in a specific category require the same supplier market intelligence, the same sourcing strategies and similar supplier relationship management programs.

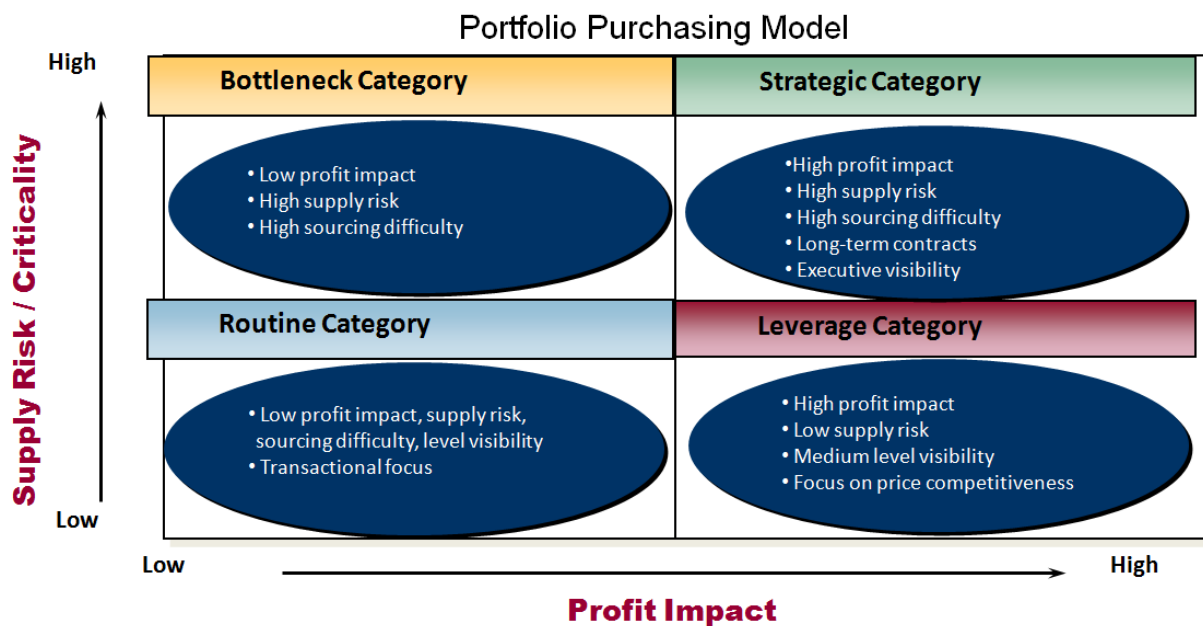
In today's cost-sensitive business environment, category management has quickly engrained itself in the procurement process for both the public and private sectors. All oil sands project owners and EPC firms indicated that category management is becoming increasingly pervasive in their procurement practices, but the extent of its application varies amongst buyers, with some companies being mature users of the approach, while others are considering or starting to implement it:

- There is a growing focus on post-award category management and ongoing measurement of suppliers. Depending on the criticality of a product or service, long-term, deep, strategic supplier relationships are becoming increasingly important. In these cases, buyers are using global agreements with key suppliers. Large oil sands project owners are leveraging their procurement spend across their global operations where possible to gain greater discounts and reduce supplier management costs.
- In current market conditions, products such as specialized pressure vessels are considered "strategic" and are subject to careful supplier selection. Products such as steel pipe are considered "routine".

## What is Category Management?

Category management is based on the Portfolio Purchasing Model<sup>14</sup>. This model describes a well-established approach for classifying categories according to strategic importance. The strategic importance or criticality of a product or service determined by evaluating two sets of variables:

- Profit impact is related to the volume or value of the product or service purchased, and the impact the product or service has on business operations and growth.
- Supply risk is related to the complexity of the product or service, product or service availability, number of suppliers, ease or cost of switching supplier or the availability of substitute products or services.



This approach allows buyers to position each contract systematically. Products or services falling in the “bottleneck” and “strategic” categories are higher risk so should be more stringently appraised and checked. Those falling in the “routine” and “leverage” categories may not pose such a risk so may not require the same approach. The strategy also directs how existing suppliers should be developed and what performance targets have been set at a category and supplier level, and how these will be achieved and monitored. Below is a table describing the strategic objectives and actions of buyers for each quadrant of the Portfolio Analysis Model.

<sup>14</sup> Source: Harvard Business Review, 1983.

**Procurement Strategic Objectives and Actions of Buyers**

<b>Bottleneck Category</b>	<b>Strategic Category</b>
<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>• Ensure continuity of supply</li> <li>• Reduce risk related to supply</li> </ul> <p><b>Actions</b></p> <ul style="list-style-type: none"> <li>• Decrease dependency on suppliers</li> <li>• Remove entry barriers and develop new suppliers</li> <li>• Aggregate purchasing across the organization to increase buying power in the market</li> <li>• Consider in-sourcing/make in-house</li> <li>• Consortium buying</li> </ul> <p><b>Approach</b></p> <ul style="list-style-type: none"> <li>• Long-term contracts to cover risk</li> <li>• Significant market, technical and supplier analysis</li> <li>• Risk analysis</li> <li>• Contingency planning</li> <li>• Analytical, innovative, multi-functional team purchasing</li> </ul>	<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>• Optimize contribution of existing suppliers</li> <li>• Minimize risk related to supply</li> </ul> <p><b>Actions</b></p> <ul style="list-style-type: none"> <li>• Maximize aggregation of purchasing to increase buying power in the market</li> </ul> <p><i>Stay Strategic</i></p> <ul style="list-style-type: none"> <li>• Partnerships/long term relationships</li> <li>• Joint ventures</li> </ul> <p><i>Or Move to Leverage</i></p> <ul style="list-style-type: none"> <li>• Remove entry barriers and develop new suppliers</li> <li>• Standardize demand/alternative specifications</li> </ul> <p><b>Approach</b></p> <ul style="list-style-type: none"> <li>• Market, technical and supplier analysis</li> <li>• Strategic and direct negotiations with selected suppliers</li> <li>• Supplier performance and relationship management</li> <li>• Risk analysis and contingency planning</li> <li>• Competitor analysis</li> <li>• Creative/options generation and multi-functional team purchasing</li> </ul>

Routine Category	Leverage Category
<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>• Maximize procurement efficiency</li> <li>• Minimize transactions and control costs</li> </ul> <p><b>Actions</b></p> <ul style="list-style-type: none"> <li>• Simplify processes and standardize purchasing</li> <li>• Rationalize suppliers</li> <li>• Aggregate purchasing across the organization to increase buying power in the market</li> <li>• Move to Leverage</li> </ul> <p><b>Approach</b></p> <ul style="list-style-type: none"> <li>• Re-engineer transactional processes with vendors to be more efficient</li> <li>• Prescriptive procedures and controls when dealing with vendors</li> <li>• Highly systematized</li> <li>• Stockless buying</li> <li>• Well organized</li> <li>• Focus on process and attention to detail</li> </ul>	<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>• Optimize contribution of existing suppliers</li> </ul> <p><b>Actions</b></p> <ul style="list-style-type: none"> <li>• Use market competition</li> <li>• Shorter-term relationships</li> <li>• Aggregate purchasing across the organization to increase buying power in the market</li> <li>• Relationship development in return for continuous improvement</li> </ul> <p><b>Approach</b></p> <ul style="list-style-type: none"> <li>• Market analysis</li> <li>• Market price testing</li> <li>• Competitive tendering</li> <li>• Hard price negotiation</li> <li>• Supplier development for continuous improvement</li> <li>• Low/zero inventory</li> </ul>

*Category management and global supply agreements allows buyers to leverage buying power across the company.*

*-Oil Sands Project Owner*

## Benefits of Category Management

There are several benefits of category management<sup>15</sup>.

1. Closely links buyer requirements with supply-market capabilities. By understanding what core supplier capabilities are, buyers can identify and work with those suppliers that are "best of breed" in that capability.
2. Enables the business requirements definition or specification to be clearly developed so that suppliers can deliver the best value.
3. Ensures that the right skills and experience are applied to the right activity within the category management process by creating the critical mass required.
4. Makes certain that all relevant spending is included in the category so that buyer leverage is maximized.
5. Allows buyers to anticipate and plan for changes in technology by knowing how requirements might change (and what that means for technology) and what major suppliers are planning.
6. Reduces risk. Creating categories and putting them under the proper management of experts enables companies to spot any trends or developments that might create a commercial risk and do something to prevent or mitigate it.
7. Develops the right supply capability both for today and tomorrow. It allows companies to understand what capabilities are going to change over the next few years and what suppliers are planning.
8. Helps to build good communications across the entire value chain. Category management gives buyers the visibility and opportunity to communicate clearly, especially with EPC firms and suppliers.
9. Builds trust and co-working across all of the value chain. Understanding the categories means that buyers can set goals for everyone in the value chain that meets their needs.
10. Ensures that many supply options are considered rather than just the obvious one. The category management process ensures that options are considered.

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<sup>15</sup> Source: Stephen C Carter, Crest BSL.



*There is an opportunity for Alberta MFMM firms to provide integrated services that includes detailed engineering with fabrication and installation. This allows the buyer to know who to hold accountable and minimizes the number of relationships that need to be managed.*

*-Oil Sands Project Owner*

## Supply Chain Agility: Procurement Needs of the Oil Sands Project Owners

Supply chain agility refers to speed, flexibility, and capability of a supplier to meet the supply chain needs of their customers. Agility plays an important role in Alberta's oil sands, where cost, schedule, and quality are crucial procurement needs. According to oil sands project owners and EPC firms, supply chain agility can be enhanced by MFMM firms in two key ways:

1. Providing a greater breadth of service offerings in more than one product or service category. Buyers indicated that value is found in integrated suppliers who can offer engineering/design, manufacturing/fabrication, module assembly/installation, and field services, as long as competitive pricing is not compromised. It was recognized that it does not always make sense for suppliers to offer more. This need is dependent upon the criticality of the product or service and the related procurement strategy. The core competencies of the supplier also need to be considered, as some suppliers should/need to remain specialized.
2. Providing early-stage, value-added services during the planning stages of a project, primarily budgeting, design and engineering support. Buyers indicated that this can possibly help to reduce schedule times and overall cost.

## Global Procurement: What is the Value?

Oil sands project owners and EPC firms employ various approaches to determining sourcing locations. Currently, buyers indicate that they source for capital expenditures primarily from Alberta vendors (60 to 75 percent), followed by locations in Canada and the U.S., and then locations in Asia and Europe. In contrast, installation and field services, along with MRO expenditures are almost entirely provided by Alberta-based companies.

The majority of oil sands project owners and EPC firms stated that they want to have strong, viable MFMM suppliers in Alberta and prefer to source locally, especially for fabricated components or equipment. It is easier to monitor performance and develop a relationship with local suppliers. In addition, some products are only obtained locally, with experience and quality also being major factors.

*We go off-shore because of cost, schedule and capacity concerns with Alberta suppliers. Alberta MFMM firms that supply exchangers and pressures vessels were more expensive even with transportation considerations.*

*-Oil Sands Buyer*

In contrast, however, a trend towards global sourcing was also described. When asked about why they source from other markets in North America, Asia, and Europe, oil sands project owners and EPC firms indicated that it is typically because of cost benefits or procurement of specialized products. A major focus of buyers in the future is on lower-cost suppliers from international jurisdictions.

### Challenges with Global Sourcing

There are several risks and challenges that companies consider when making the decision to source globally, particularly from lower-cost jurisdictions:

- **Transportation risks.** There are transportation risks, such as delays, importation restrictions, and damage that companies incur when procuring from offshore markets.
- **Cultural differences and language barriers.** Communication, ensuring proper understanding of design specifications and cultural differences in conducting business were highlighted as challenges.
- **Health, safety, and environmental compliance.** It was noted that HSE standards and compliance are not as stringent in many offshore markets, particularly in lower-cost Asian jurisdictions. Inspection and supervision add expense to the total cost of the procured materials.
- **Quality.** Poor workmanship or non-conformance is perceived to be a slightly higher risk in lower-cost jurisdictions.

Interestingly, the benefits of lower-cost jurisdictions for certain products, such as heat exchangers and pressure vessels, seem to outweigh the risks for many oil sands project owners and EPC firms.

*Alberta MFMM firms tend to be more fabrication centric, whereas global suppliers have a greater breadth.*

*-Oil Sands Project Owner*

## Rework

Rework refers to the total direct cost of modifications and repairs regardless of initiating cause or source.

According to oil sands project owners and EPC firms, estimated rework in the past 5 years has been an average of 2 to 5 percent of expenditures. There are many factors that contribute to the causes of rework, such as compressed project timelines and project management resulting in insufficient engineering in the early stages of projects or changes in late stages of projects. Other causes include poor workmanship or non-conformance by suppliers, as well as flawed materials.

Rework related to supplier workmanship and/or flawed material was recognized as being more common from suppliers outside of Alberta, in particular those from lower-cost jurisdictions. It was noted, however, that quality from global suppliers is improving. In addition, oil sands project owners and EPC firms are using pre-qualification processes and source inspection to help mitigate quality risks from international suppliers.

## Alberta MFMM Supplier's Competitiveness: Strengths and Weaknesses

*Quality, safety and technical expertise is excellent in Alberta. Other jurisdictions do not understand the business as well.*

*-Oil Sands Project Owner*

### Alberta MFMM Supplier's Strengths

Alberta's metal fabrication and machinery manufacturing sector is seen as highly competent. Oil sands project owners and EPC firms indicated that Alberta firms excel in the following areas:

- **Technical Expertise and Capability.** Buyers clearly indicated that Alberta MFMM firms have substantial technical knowledge and expertise. It is only in select circumstances that Alberta firms are as seen as not having the expertise to meet technical specifications for the product or service.
- **Quality.** The quality of Alberta's MFMM products and services were highly regarded by most respondents. There are typically fewer quality and reliability issues with Alberta products. There are also few issues with Alberta products meeting required technical specifications, standards, or codes.
- **MRO.** Alberta MFMM firms provide excellent maintenance, repair, and operations services. When required, these services are typically sourced locally by oil sands project owners.
- **Health, Safety, and Environmental (HSE) Performance.** Alberta's MFMM firms adhere to higher standards than most suppliers from other jurisdictions.

- **Planning Services.** Providing engineering and design expertise during project planning and construction were seen as value-added services that are predominantly offered only by Alberta MFMM suppliers.
- **Industry Expertise, Knowledge, and Relationships.** Given Alberta MFMM firms' proximity to the oil sands and history working with Alberta's oil and gas industry, respondents indicated that these firms have unparalleled knowledge of the products required for Alberta's cold-weather climate, regulatory requirements, and HSE standards. The value of local relationships and partnerships was also highlighted, as companies strive to develop long-term strategic relationships for certain product and service categories.

*There is a need for everyone, including oil sands companies, EPC firms and suppliers to become more cost competitive collectively. Labour challenges and keeping local talent is a shared responsibility.*

*-Oil Sands Project Owner*

### Alberta MFMM Supplier's Weaknesses and Challenges

The most commonly identified weaknesses in Alberta's MFMM sector are high costs, meeting schedules, and having insufficient capacity to meet Alberta's oil sands needs.

A major challenge is that several of the strengths, such as strong HSE performance and quality, described by oil sands project owners and EPC firms are also contributing to the high cost structure in Alberta.

- **Cost.** Alberta MFMM firms are typically not seen as being cost competitive in the global market. The higher costs of doing business in Alberta, primarily due to labour costs and scarcity, materials sourcing, and a complex regulatory environment, are impacting Alberta supplier competitiveness with other jurisdictions. Most respondents recognized cost control as being an area that the oil and gas industry and manufacturing industry need to address together.
- **Schedule.** A major issue highlighted by buyers is the ability for Alberta MFMM firms to provide products on time. Two factors seen as contributing to delays are capacity and productivity in Alberta's shops.
- **Capacity.** Capacity in Alberta MFMM shops was raised as a concern because there is a labour shortage for qualified engineers and trades, such as B-pressure welders and pipefitters. This concern is amplified when the economy is strong and demand for MFMM products and services is high. A major challenge is that suppliers are typically competing with oil sands project owners for the same labour pool, which drives up wages and reduces availability of labour.
- **Productivity.** The productivity of Alberta MFMM firms is perceived to be an area for improvement. Respondents generally indicated that productivity is linked to labour issues

that exist in Alberta. Respondents also indicated that MFMM firms have lower production levels than prior to the economic downturn, regardless of jurisdiction.

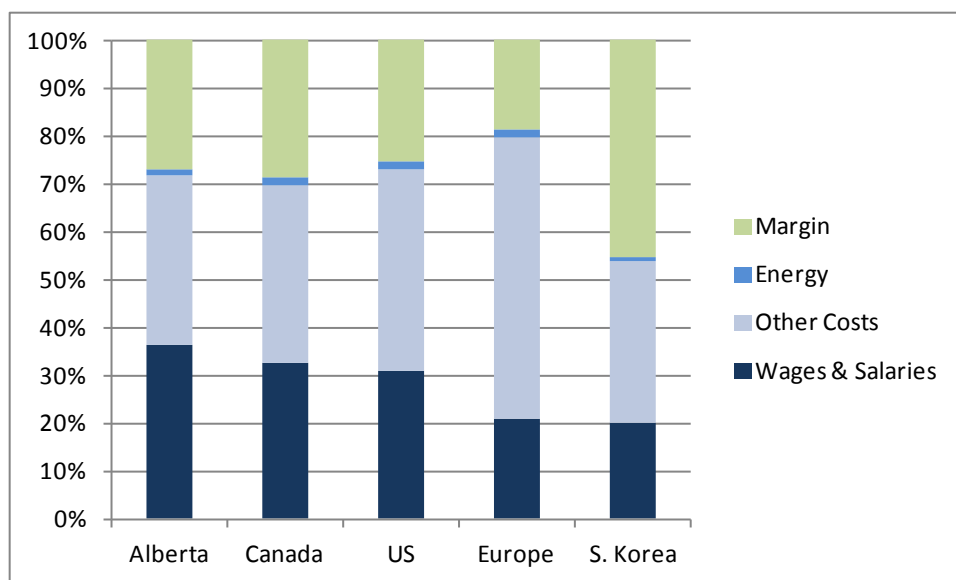
- **Quality.** While quality has generally been perceived as a strength, a few respondents indicated that Alberta MFMM firms are not immune to quality issues. Similar to productivity, those respondents who indicated that quality was a concern for Alberta firms also indicated that quality was an issue for all firms regardless of jurisdiction.

### Jurisdictional Analysis

Cost is routinely identified as a weakness in global competitiveness by Alberta MFMM firms. When examined as a percentage of revenue, labor costs in Canada, and specifically Alberta, are some of the highest in the world. As shown in the following chart, other competing jurisdictions, such as South Korea had much lower labor costs<sup>17</sup>.

Typically, strategic or custom products are sourced from Europe or North America; as such, price is not as great of a concern. South Korea's total costs are relatively low at approximately 54%, which allows them to compete globally at a level which other jurisdictions cannot match by price alone.

**Jurisdictional Cost Comparison**



*Data for other jurisdictions such as Japan, Malaysia and India were not available. Other costs include total costs, but exclude capital, interest, depreciation expense, salary and wage costs, and energy costs.*

<sup>17</sup> Source: Alberta Finance & Enterprise: Alberta Machining Sector Benchmarking Report 2009

## UNLOCKING THE PRIZE: WHAT CAN ALBERTA SUPPLIERS DO?

There is a tremendous opportunity for Alberta's MFMM suppliers to service a growing oil sands industry that is entering a period of high activity. Alberta's oil sands project owners and EPC firms are focused on minimizing cost and risk when making procurement decisions. They are also concerned with developing long-term, collaborative relationships with suppliers to maintain quality and have greater control over the procurement processes. The drive to source at a lower cost is resulting in buyers procuring certain products from emerging markets that have lower supply costs than if the products were to be sourced locally in Alberta.

Alberta's suppliers can compete with global suppliers in the long-term, and create stability during periods of high and low economic activity. There is an opportunity for Alberta firms to leverage their strengths and improve their weaknesses to strengthen their relationship with buyers. To do this, there are two areas Alberta's suppliers should focus on:

- Building strategic buyer-supplier relationships by understanding procurement processes and demonstrating value to become more attractive when compared to suppliers from other jurisdictions.
- Reducing costs.

### Building Strategic Buyer-Supplier Relationships

Understanding how buyers approach their supply chain decisions allows potential suppliers to objectively assess their product or service and adapt their strategic sales approach accordingly.

### Meeting Pre-qualification Requirements

Pre-qualification processes are used by most buyers to minimize supply chain risks and narrow down the field of prospective vendors. Criteria, such as health, safety and environmental (HSE) performance or the ability to meet schedule, must be met or exceeded in order to be on the preferred vendor list. There is also a growing trend towards oil sands project owners and EPC firms using third-party pre-qualification firms to assist in this process. Additionally, many buyers will review year-to-year performance trends of suppliers on issues like HSE performance and quality programs.

While the pre-qualification processes may not be ideal, with repetitive information requests from multiple groups, Alberta's MFMM firms need to understand the key evaluation criteria and be prepared to respond to requests. To better manage the pre-qualification process, suppliers should consider maintaining a database for pre-qualification information, such as quality programs, HSE performance, financial stability, historical performance, and references. This will improve accessibility to information and make responding to pre-qualification requests more efficient.

*Local relationships and partnerships are valuable because you understand each other's goals and objectives. There is value in Alberta MFMM suppliers providing insights into the market situation.*

*--Oil Sands Buyer*

### Maximizing Value using Category Management

There must be tangible value to buyers in what is being offered by Alberta suppliers. The majority of respondents recognized that Alberta MFMM firms offer high quality, strong HSE performance, industry expertise and a greater breadth of services. Alberta suppliers need to clearly demonstrate the added value they offer, such as a lower total cost of ownership.

In the past 10 years, the majority of oil sands project owners and EPC firms have begun using category management in some capacity; either as sophisticated users, by using certain aspects of it, or by starting to implement it. Alberta MFMM suppliers can respond to this shift in the market by:

- Understanding where their product or service fits into a buyer's category definition, as well as the portfolio analysis matrix. The procurement strategy that is used by buyers for a category is based on where it fits in their portfolio matrix. If a product or service offering crosses several categories, suppliers need to be prepared to develop relationships with the necessary procurement or category managers.
- Understanding the internal dynamics at play for procurement decision-making within target customers. Category management is a team decision-making process and there are several groups involved in procurement decisions, including finance and HSE groups. It is important to build relationships within each of these groups and the individuals who are evaluating the bids.
- Understanding their cost drivers. Buyers will often know and understand how much a product or service should cost, which becomes an issue if suppliers are not deemed to be cost competitive. If cost remains an issue, the suppliers must be able to clarify how the extra cost adds value for oil sands project owners.
- Understanding market trends and the impacts these can have on the supply chain and strategic procurement decisions. For example, a "routine" product such as steel could become "strategic" if there is a disturbance in the market that drives up demand or negatively impacts supply.
- Leveraging supplier proximity to the oil sands and deep industry expertise to build long-term, "sticky" relationships with buyers. This is done by proactively understanding the supply market for a product and addressing potential issues together. For example, agreements or contracts for longer production runs can be used to level-out cost differentials caused by market fluctuations.

*Engaging with suppliers on drawings or datasheets during the planning stage of a project tends to lock you into their design.*

*-Oil Sands Buyer*

- In addition, developing a shared scorecard with joint Key Performance Indicators (KPIs) adds value and trust in the relationship by helping to maintain quality, and providing buyers greater influence on processes.

Finally, there is a great opportunity to use the category management concept as a means to expand into new markets by partnering with existing oil sands customers. Being able to competently operate in a category management environment can also help suppliers open doors to new customers who use this same procurement strategy.

### **Developing Supply Chain Agility and Capacity**

Supply chain agility can potentially be enhanced by MFMM firms in a few key ways:

- Providing a greater breadth of service offerings, depending on the procurement strategy for the product or service required.
- Creating consortiums (formal or ad-hoc) and joint ventures in order to increase capacity and/or product and service offerings.
- Providing early-stage, value-added services that can include design, engineering, logistics and budgeting.

### **Providing Specialized MRO Services**

MRO expenditures are forecasted to range from \$227 billion to \$330 billion between 2011 and 2022. Maintenance and turnaround expenditures have longer-term stability and there is less global competition for Alberta MFMM firms. While some project owners conduct maintenance using in-house resources, the majority contract out turnaround work and are shifting towards contracting out maintenance. Alberta firms should take advantage of proximity to the oil sands by focusing on providing specialized products and services that meet the needs of MRO activities.

### **Minimizing Costs**

Global competition is rising and cost drivers are impacting Alberta's performance. One of the ways to overcome this challenge is for Alberta suppliers to lower costs by improving productivity. There are a number of methods that Alberta suppliers can use, including:

- Adopting innovative technology and improving manufacturing processes. There are many support services from industry associations and Productivity Alberta that can be utilized.



*There is an opportunity to use more innovative production processes and technology in Alberta to off-set high costs.*

*-Oil Sands Supplier*

- Promoting the industry and employment opportunities within vocational and technical institutes. This will contribute to developing a stronger labour pool in Alberta.
- Strategically managing costs with their own suppliers by using a collaborative approach to each step in the value chain.

## APPENDIX A. GLOSSARY

### **Capital Expenditures**

Initial expenses incurred in the development and construction of oil sands facilities.

### **Category Management**

Placing supplies/products within defined categories, and managing suppliers within each category.

### **In Situ Mining**

A recovery technique which applies heat or solvents to heavy oil or bitumen deposits beneath the earth's surface. The most common type of In Situ mining used in the Alberta oils sands is SAGD (Steam Assisted Gravity Drainage).

### **Key Performance Indicators**

By determining what an organization values internally, critical criteria are created to help an organization quantitatively compare and contrast the value of a certain product or service of a particular company compared to that of other companies.

### **Maintenance, Repair, and Operations (MRO) Expenditures**

On-going expenses related to maintenance, repair and operations incurred by oil sands producers to keep production at current levels.

### **Oil Sands**

A type of unconventional petroleum deposit, which contain and extremely viscous form of petroleum known as bitumen. In Alberta, the oil sands are located in the north-eastern area of the province.

### **Pre-Qualification Process**

Creating a list of suppliers based on their acceptance of a certain level of minimum qualification standards. This list can then be used as a more narrow focus when a new product or service is required by an oil producer or EPC firm.

### **Pressure Vessels**

A storage tank or vessel that has been designed to operate at extreme pressures.

### **Surface Mining**

A recovery technique which uses shovel-and-truck operations to dig the bitumen out of the oil sands.

**Rework**

The total direct cost of redoing work in the field or manufacturing shop regardless of initiating cause or source.

**Turnarounds**

Large maintenance projects that are required to clean equipment, in particular a coker, conduct repairs and address mechanical issues. They are also called shut-downs.

**Upgrading**

The technical process that converts bitumen into a product similar to conventional light crude oil.

## APPENDIX B. RESEARCH METHODOLOGY

Surveys and interviews were conducted with 25 participants, primarily procurement executives, from oil sands project owners and EPC firms operating in Alberta's oil sands.

The purpose of the surveys was to gather preliminary feedback on procurement criteria, MRO expenditures, and rework costs. Identified participants were contacted by phone, informed about the project objectives, and asked to fill out the survey within two weeks.

Follow-up interviews to the surveys were scheduled with each participant to gather additional detail and information about procurement processes, procurement needs, challenges and opportunities for Alberta's MFMM sector in the oil sands, how to ensure ongoing success and sustainability of Alberta's MFMM sector, and strategic relationships with Alberta's MFMM sector.

All survey and interview responses were aggregated and anonymized for analysis and summary in the report to ensure individual responses and companies cannot be identified. The survey and interview questions used are below.

### SURVEY QUESTIONS

#### MFMM Products and Services

When making procurement decisions and evaluating MFMM suppliers for capital expenditures, please rate the following criteria (on a scale of 1 to 10, with 1 being the highest) according to their relative importance. If a criterion is not used, please indicate NA.

Procurement Criteria for MFMM Products and Services	Rating
Capital (up front) costs: <ul style="list-style-type: none"> <li>• Supply costs.</li> </ul>	
Capital (up front) costs: <ul style="list-style-type: none"> <li>• Installation costs (can include freight and logistics).</li> </ul>	
Operational costs (e.g. annualized support costs) and transactional costs (e.g. ease of the P2P process and the technology available to make this happen).	
Health, safety and environmental performance.	

Supplier’s history, past performance and references for similar work.	
Supplier’s geographic location.	
Supplier’s resources and employment programs (e.g. training programs, qualifications, active aboriginal employment programs or employment of disadvantaged, minority and female staff).	
Service capability and support services (e.g. turnaround times, scheduling, warranties).	
Quality of the product (materials, design, and workmanship).	
Audit and financial (whether the supplier has sound financial statements and is open to financial and operational audits).	
Deployment or use of innovation / leading edge technology by the supplier.	
Other (please specify).	

For each criterion, is there an “acceptable” standard or is it a “pass/fail”? Please explain.

How is the quality of the product (materials, design, and workmanship) evaluated in procurement decisions? Is it pass/fail based on specifications? How is it incorporated into the overall decision?

Are there identified standards/regulations, relevant to MFMM products, which suppliers are asked to meet (e.g. health, safety, environmental, materials and fabrication)?

Is a supplier's ability to provide maintenance and repair services considered when procuring for capital expenditures?

Please list the three primary markets you source MFMM products and services from. Please describe why you source from these markets.

1.

2.

3.

### **Maintenance, Repair and Operations (MRO) Services**

How does your organization define maintenance, repair and operations (MRO) expenditure for oil sands installations, including bitumen up-graders, bitumen pipelines and infrastructure?

When making procurement decisions and evaluating MFMM suppliers for MRO services, what purchasing criteria does your organization use?

Based on the above, what was your annual MRO expenditure over the past 5 years?

2006:

2007:

2008:

2009:

2010:

What do you expect your annual MRO expenditure to be over the next 5 years? In total, over the next 5 years?

2011:

2012:

2013:

2014:

2015:

2011-2015:

Please list the three primary markets you source MRO services from. Please describe why you source from these markets.

1.

2.

3.

### **Rework Costs**

Can you categorize or quantify the most common causes of rework? (i.e. faulty materials, poor workmanship, flawed design, late stage scope changes, insufficient early stage engineering)

Does your firm measure (directly or indirectly\*) the amount of rework conducted on fabricated steel and manufactured metal equipment supplied to your oil sands operations?

*\*Indirect measures may include lost production caused by delays, contract values for rework, etc.*

If so, what do you estimate the cost of rework is annually (based on the previous 5 years)?

### **INTERVIEW QUESTIONS**

#### **Procurement Processes**

Please describe the pre-qualification process used by your organization. Is the process effective at meeting your needs? Why or why not?

Do you use the concept of category management? If so, please describe how you use category management in decision making?

What are the key performance metrics for your procurement group?



What strategies do you use to mitigate risk when making procurement decisions?

Do you allow for follow-up with firms who submit unsuccessful bids? What benefits, if any, would there be in providing feedback to these firms?

### **Procurement Needs**

Do you prefer building strategic relationships across many categories? Or do you keep them separate? Is there preference for MFMM suppliers who can provide multiple service offerings? Please describe how this would benefit your organization?

Do you have procurement needs that are not currently being met by your MFMM suppliers? If so, what are they? Do you have any comments relating to Alberta based MFMM suppliers and how they are exceeding, meeting or not meeting your expectations?

### **Procurement Decision Criteria**

Please describe the decision criteria you use to select MFMM suppliers\*.

*\*Follow-up on survey responses for both capital expenditures and MRO contracts.*

Where do you see Alberta MFMM firms meeting or exceeding your criteria?

Where do you see Alberta MFMM firms falling short in your criteria? How can Alberta MFMM firms better address your needs?

What early stage value-added services are offered by firms in different jurisdictions? (i.e. project scoping, design and materials advice and support, budgeting assistance)

### **Rework Costs**

What do you estimate the cost of rework is annually (based on the previous 5 years)?\*

*\*Follow-up on survey response.*

Have you identified any trends or information related to rework costs that might provide a specific preference for selecting vendors from particular jurisdictions? What are they?