

EXPORTING ALBERTA'S MACHINERY

How manufacturers have capitalized on soaring US oil and gas production

Introduction

Machinery has been one of Alberta's stand out manufacturing industries, with exports jumping 170.4% over the last decade (see [Economic InFocus September 2012](#)). Strong growth has been observed in many markets, including Australia, China, Indonesia and Columbia. The US, however, remains the largest market, capturing over half of Alberta's machinery exports. It has also been one of Alberta's fastest growing markets for machinery, with export sales growing 11.3% per year since 2003. This is more than triple the growth rate in Alberta's overall non-oil and gas exports to the US.

This Spotlight explores how Alberta manufacturers have capitalized on the recent renaissance in US oil and gas production, leveraging local knowledge and technology into global opportunities. US crude oil and gas production has expanded considerably since 2008, with crude oil increasing 29.9% and reversing a

23 year downturn in national oil production. Likewise, total US natural gas production has increased 16.2% since 2008. Over the last decade, Alberta's machinery exports to the US have spiked 192.4% and steel products exports have jumped 115.3%, with most growth occurring in top oil and gas producing states.

Exports head south

Machinery leads the way

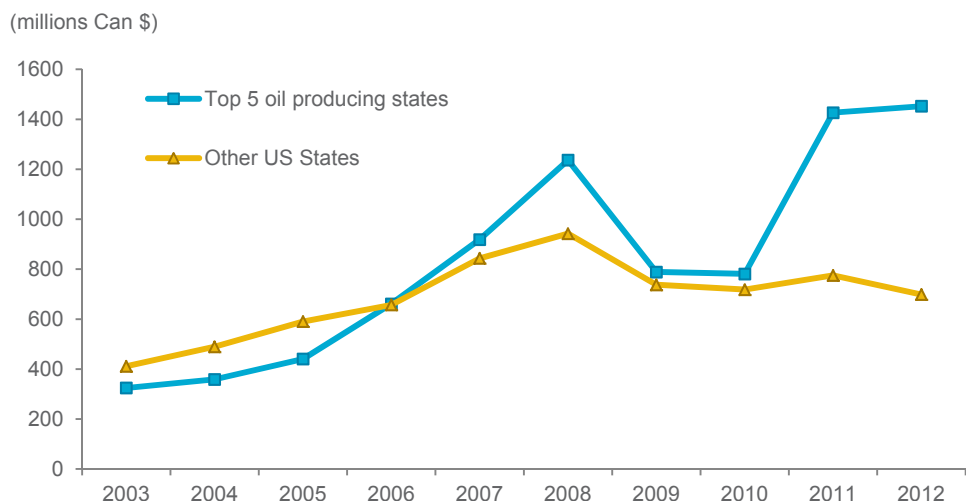
Machinery exports represent 11.8% of Alberta's non-oil and gas exports to the United States. These exports have increased from \$735 million in 2003 to \$2.2 billion in 2012 and mainly consist of products tied to oil and gas production, such as pumps for liquids, and drilling machinery parts. The largest recipients of Alberta's machinery exports are oil producing states (chart 1). The top 3 destinations for machinery exports (62% of total machinery exports to

US oil and gas production

Oil and gas production in the United States has exploded over the last ten years, following technological improvements in horizontal drilling and hydraulic fracturing, which makes it possible to access oil and gas stored in previously inaccessible plays. Hydraulic fracturing, or "fracking," uses pressurized liquids to fracture rocks deep underground thereby releasing oil and gas. This new technology has brought about a tight oil revolution, with total US oil and gas production increasing by 15.1% over the last 10 years.

The location of production of oil and gas is changing as well. While Texas still represents a disproportionate share of total oil and gas production at 29.6% of total US production (which totals more than the next five largest producers combined) substantial growth has been seen in states with no or limited history of oil and gas development. The largest increase has been in North Dakota where total oil and gas production has seen a near 7 fold increase since 2003. Producers like Louisiana (+79.8%) and Colorado (+78.0%) have also experienced substantial growth.

Chart 1: Alberta Machinery Industry Exports to US



Source: Statistics Canada and Industry Canada



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the US) are among the top 5 oil & gas producing states; Texas, North Dakota, and Wyoming. As oil production has increased in the United States, so too has machinery exports.

The relationship is fairly intuitive. As oil production increases, so does demand for machinery used in the new production processes. Alberta machinery manufacturers have the knowledge and skill to fill the increasing demand. Chart 2 investigates the relationship between US crude oil production and Alberta machinery exports across all US oil producing states. The relationship is fairly evident between extremes, where low production states purchase more modest amounts of Alberta's machinery, while higher production states - Texas, California, North Dakota, etc - account for much larger amounts.

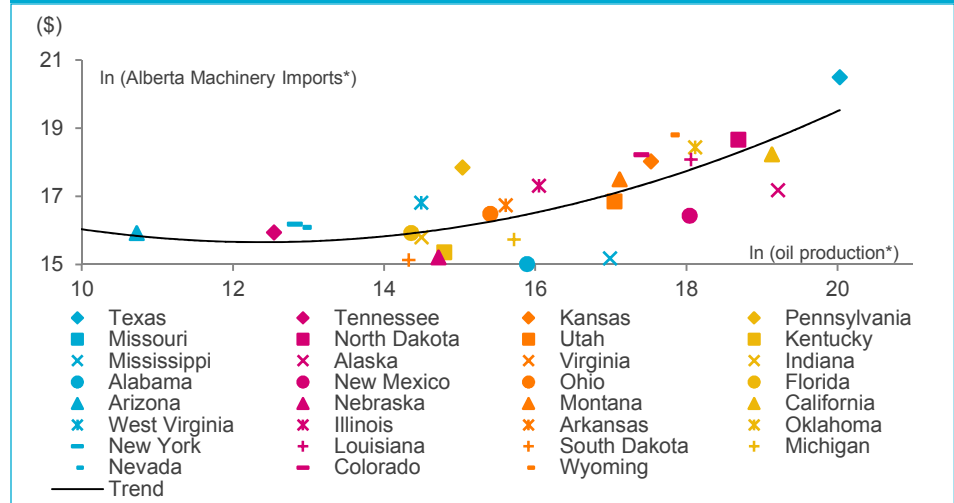
The exponential nature of the relationship is best observed when comparing select states over time. Examining the larger producers reveals machinery imports increasing faster than production (chart 3). For example, North Dakota experienced an 8.2 fold increase in oil production since 2003, Texas experienced an 82.7% increase, and faster growing crude producers* noted 50.2% growth. During the same period North Dakota saw machinery imports from Alberta increase by a factor of 14.1, Texas a factor of 4.6, and the last group a 171.2% jump. The amount of machinery imported in a given year from Alberta is denoted by the diameter of each bubble. Note that for these groups, the total amount of Alberta machinery exports increases at a faster rate than oil production. This likely reflects the large amounts of capital required for production to ramp up.

Where machinery leads, steel products follow

Though steel products make up a smaller dollar value of sales compared with machinery, they are increasing in importance. Steel products now represents 1.7% of non oil & gas exports, more than double what they did ten years ago. Alberta's steel manufactured products also find their top three destinations in the largest oil

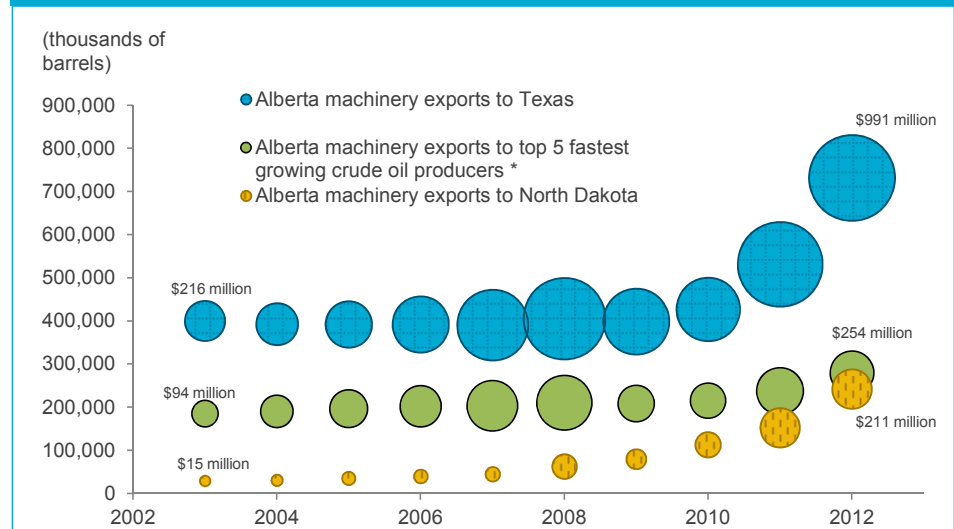
and gas producing states. Texas is by far the top oil and gas producing state and is the top destination for Alberta's steel exports, making up more than the next two destinations combined: North Dakota and Colorado. These are two of the fastest growing fossil fuel producing states. North Dakota has been the fastest growing US market, seeing a near 44 fold increase in steel products being imported from Alberta in the last ten years (see chart 4). The largest subcategory of steel product exports to the US are steel casings and tubes used primarily for oil and gas drilling, transport and storage.

Chart 2: US Oil Production versus Alberta's Machine Exports



Source: Statistics Canada, Industry Canada and US Energy Information Administration
* 5-year average

Chart 3: US Oil Production and Alberta's Machinery Exports



Source: Statistics Canada, Industry Canada and US Energy Information Administration
* Excludes North Dakota and Texas
* Includes Oklahoma, Colorado, Kansas, Utah, and Montana

A more detailed look

Pumps, specialty machinery, and parts linked to energy production

A closer look at the machinery products sent to the US reveals a strong link to oil and gas industries (see charts 5 & 6). For example, pumps for liquids was the primary machinery export in 2012, followed by individual function machines, and parts for machinery headings. What is revealing though is when sub-product information is drilled into. Pumps, for example, focus on reciprocating positive displacement pumps, notably used within the oil and gas industries when high pressures are being dealt with. Similarly, parts for machinery headings sees the majority of exports for parts of boring or sinking machinery, which is directly linked to oil and gas extraction.

Current Year Developments

Machinery recovers from dip in 2012

After a large run-up following the recession, Alberta's machinery exports to the US retreated in the second half of 2012. These exports have since leveled off, remaining roughly at late 2012 levels in the first half of 2013. Most of the export slowdown since mid-2012 was due to a drop in Texas, where overall rig activity has slowed over the same period. Production life cycle effects may also be playing a role, as large up-front investments (which may require imports of Alberta machinery) are often to generate future production. Outside of Texas, exports of Alberta machinery have been trending higher since early 2013 in most States, particularly in Kansas, New Mexico, and California.

Conclusion

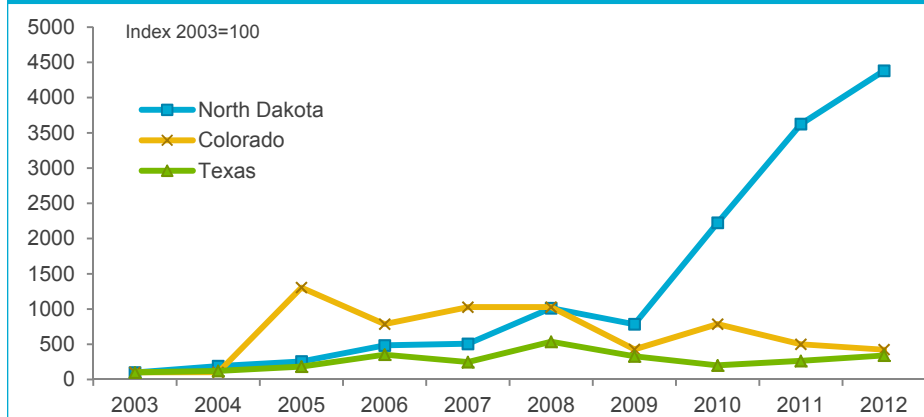
Building on their local strength and expertise, Alberta machinery and steel product manufacturers have visibly benefited from the expansion of oil and gas extraction in the United States. With further increases in oil and gas investment and production expected, it is likely that Alberta manufacturers will continue to benefit from this growing source of demand.

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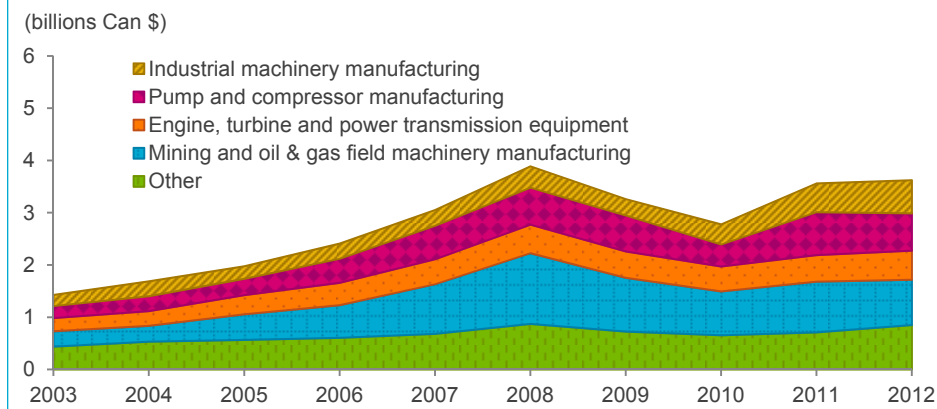
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Chart 4: Alberta Steel Product Exports to Select US States*



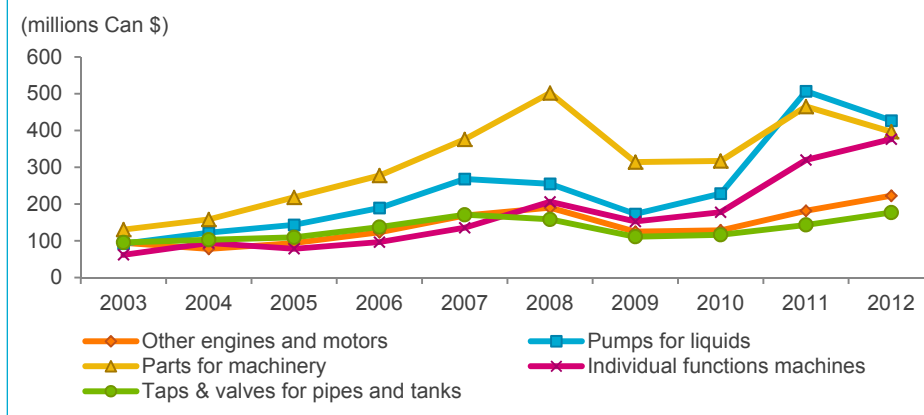
Source: Statistics Canada and Industry Canada
* Three largest state importers of Alberta steel products

Chart 5: Machinery Exports to the United States by Industry



Source: Statistics Canada and Industry Canada

Chart 6: Machinery Exports to the United States by Type



Source: Statistics Canada and Industry Canada