SUMMARY:
The decade-long Commodities Super-Cycle that propelled mining markets to unprecedented levels was accompanied by a comparably-long and -strong growth in the markets for the largest excavators/loaders and haul trucks that helped produce those minerals. The reversal has been dramatic and severe. Although production of many minerals has not contracted or has declined only modestly, continued growth on the mine-production side produced a significant supply-imbalance with resultant sharp declines in mineral pricing and an equally sharp curtailment of capital expenditures for the equipment covered by this analysis. As measured by shipments of excavators/loaders and trucks, the market has declined by roughly two-thirds over the past 30 months and a sustained turnaround is not in evidence at year-end 2015.

In the context of this severely contracted market for the largest excavators and haulers, Parker Bay projects continued weakness worldwide for another year, followed initially by slow growth in shipments of new machines as recovering mines restart parked equipment and, in many instances, purchase and redeploy large numbers of machines currently available. A resumption of solid growth in equipment markets is projected for 2017-2020 driven initially by the necessity to begin replacing the equipment installed during 2004-2012. But it may be a decade before the equipment industry returns to the levels achieved in 2012.

This report summarizes the results of research conducted by the Parker Bay Company into the global market for two primary sets of mining tools essential to surface mining materials handling: the large mining trucks that transport ore and waste rock/overburden from the mine workface to the next stage in processing, and the three distinct types of excavating/loading equipment use to load these trucks – electric shovels, hydraulic excavators, and wheel loaders.

PARAMETERS:

<table>
<thead>
<tr>
<th>Product</th>
<th>Payload</th>
<th>Manufacturers Covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining Trucks</td>
<td>90 mt+</td>
<td>BelAZ, Caterpillar, Hitachi,</td>
</tr>
<tr>
<td>Electric Shovels</td>
<td>20 mt+</td>
<td>Joy Global/P&amp;H, Komatsu, Liebherr, Terex.</td>
</tr>
<tr>
<td>Hydraulic Excavators</td>
<td>20 mt+</td>
<td>Regional suppliers in China, India, Russia</td>
</tr>
<tr>
<td>Wheel Loaders</td>
<td>20 mt+</td>
<td>addressed in text only.</td>
</tr>
</tbody>
</table>

PRICING:

<table>
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<tr>
<th>Product Description</th>
<th>Standard price</th>
<th>Database Subscribers*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full report, Loading &amp; Haulage Equipment + data file</td>
<td>$5,000</td>
<td>$2,500</td>
</tr>
<tr>
<td>Haulage Equipment only, report + data file</td>
<td>$3,500</td>
<td>$1,750</td>
</tr>
<tr>
<td>Loading Equipment only, report + data file</td>
<td>$3,500</td>
<td>$1,750</td>
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</tbody>
</table>

Non-database subscribers required to sign a non-disclosure agreement

*Subscribers w/o full service may require add’l fee.

INCLUDES:

- 130 page report and analysis (sections removed for reports on trucks or loading equipment only)
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commanding share of the 20-25 mt class, they have secured a majority of all units in the increasingly popular 30-35 mt class. Kenmore has achieved more limited success with its wheel loader line accounting just under one-fourth of the active population and a somewhat improved 2% of the past 10 years' shipments. Joy/LeTourneau is a virtual non-factor in the 20-25 mt class, thus limiting its overall market share to 2%. But the Company holds a 20% share operating at 20-25 mt and has a monopoly at 40 mt and above. As noted, the volume at 40-50 mt and 63-66 mt is small but provides a viable niche for LeTourneau and is a segment that has grown at above average rates.

Forecast: All of the mineral and equipment market assumptions and defining factors outlined above and in the balance of this report will impact wheel loader market share in like manner with a few notable exceptions. Wheel loaders are projected to decline slightly as a share of the installed base of excavators/loaders (23.8% at Dec. 31, 2010 vs. 23.9% at Dec. 31, 2014). In total the number of units running at the end of the decade will have increased by just 300 units to nearly 4,000. Given the projected 4% increase in average payload, the installed capacity of wheel loaders will grow by 13%, below that of the two competitive products and reflecting, to a degree, adverse conditions in two key mineral applications: coal and iron.

Although large wheel loaders are built for heavy-duty mining duties, their average service life (approx. 70,000 operating hours) is considerably shorter than that of electric or hydraulic shovels. As a result, replacement requirements through 2020 are projected to include nearly one third of the machines in the Dec. 31, 2014 population. The resulting average of nearly 200 replacements per year is greater than the number of new loaders being shipped during 2015-2017. In part this will be due to the substitution of new shipments by surplus equipment being redeployed during that time.

In addition to these replacements, shipments will be required to grow the active population. While growth is forecast by historical standards, it will still require an additional 300 machines with aggregate payload of 11,000 mt. Unit shipments will increase at a lower rate because of continuing shift toward bigger loaders. Units in the 30-45 mt class will remain the mainstays for most mines, but units in the 10-mt and larger range will account for half of the capacity delivered during 2015-2020 as compared to 40% over the past ten years.

Table 2-2

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Coal</td>
<td>20,772</td>
<td>23,352</td>
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<tr>
<td>Copper</td>
<td>9,418</td>
<td>14,265</td>
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<tr>
<td>Gold</td>
<td>1,141</td>
<td>6,108</td>
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<tr>
<td>Iron</td>
<td>1,141</td>
<td>6,108</td>
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<tr>
<td>Oil Sands</td>
<td>5,141</td>
<td>7,907</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>50,715</strong></td>
<td><strong>20,286</strong></td>
</tr>
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</table>

Projected Growth in Mineral Production

Global mine production of the five key minerals increased by 1.7% to 4.2% annually over the decade ending 2014. But that growth was appreciably stronger through 2012 for coal and iron and it slowed dramatically between 2012 and 2014 for both. At the same time, copper, gold and oil sands continued to grow despite sharp declines in prices obtained for these minerals.

Parker Bay's assessment of these markets, based in large part on forecasts developed by industry trade organizations and mining/minerals is summarized in Table 2-2 and reflects a general consensus that the slowdown in the Chinese economy will persist and may even accelerate for the next few years with
<table>
<thead>
<tr>
<th>Size Class</th>
<th>2005</th>
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<th>2007</th>
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</table>

% Share of Shipments by Size Class 2005-2014

![Chart showing % share of shipments by size class from 2005 to 2014.]

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December 2015
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<tr>
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<td>Surplus Electric Shovels: Inactive and Estimated Redeployment</td>
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<tr>
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<td>CAGR in Electric Shovel Population &amp; Mineral Production by Region and Mineral: 04-14, 15-20</td>
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<td>Electric Shovels: Growth in Cumulative Payload by Region and Mineral</td>
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<td>Electric Shovels: 2015-2020 Shipments by Region and Mineral</td>
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<td>Electric Shovels: Annual Shipments by Size Class 2014-2020</td>
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<td>Surplus Hydraulic Excavators: Inactive and Estimated Redeployment</td>
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<td>Hydraulic Excavators: 2015-2020 Shipments by Region and Mineral</td>
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<td>Hydraulic Excavators: % Share of Shipments by Size Class</td>
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<td>Wheel Loaders: Estimate of Removals/Replacement by Region and by Mineral 2015-2020</td>
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<td>Surplus Wheel Loaders: Inactive and Estimated Redeployment</td>
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<td>CAGR in Wheel Loader Population &amp; Mineral Production by Region and Mineral: 04-14, 15-20</td>
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<td>Wheel Loaders: Growth in Cumulative Payload by Region and Mineral</td>
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</tbody>
</table>
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