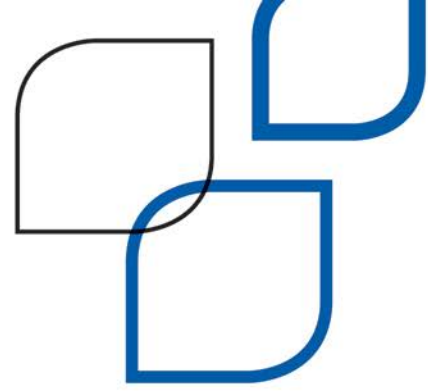




MUNICIPAL
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Analysis of Economic Obsolescence
Lubricant Oil, Chemical & Other Plastic Products
Manufacturing Industries in Ontario

2016 BASE YEAR

June 29, 2015

**ANALYSIS OF ECONOMIC OBSOLESCENCE IN
THE LUBRICANT OIL, CHEMICAL AND OTHER PLASTIC PRODUCTS
MANUFACTURING INDUSTRIES IN ONTARIO
AS AT JANUARY 1, 2016**

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June 29, 2015

Mr. Malcolm Stadig
Manager, Centralized Properties
Municipal Property Assessment Corporation
1340 Pickering Parkway, Suite 101
Pickering ON L1V 0C4

Re: Analysis of Economic Obsolescence as at January 1, 2016

Dear Mr. Stadig:

EXECUTIVE SUMMARY

1. This report details the results of an analysis undertaken to determine the extent of economic obsolescence (“EO”) present within the following Ontario manufacturing sectors, or lack thereof, as at January 1, 2016 (the “Effective Date”):
 - lubricant oil manufacturing;
 - chemical manufacturing; and,
 - other plastic products manufacturing.
2. The analysis to determine the extent of EO present within the chemical manufacturing sector has been broken down into three major subsectors as detailed further below. The lubricant oil manufacturing sector, chemical manufacturing sector and plastic products manufacturing sector are collectively referred to hereafter as the “Industries”.
3. This report should be read in conjunction with the attached schedules, which are integral to the analysis and report commentary.
4. It is important to note that this estimate of EO as at the Effective Date reflects analysis and assumptions based on the most recently publicly disclosed financial results of guideline

public companies, current economic data, and expectations regarding future economic events and financial trends that are anticipated to impact the Industries as at the date of this report (the "Report Date). Further, no guarantee is made or implied as to the accuracy of forecasts, projections or predictive statements referenced herein.

Summary of Conclusion on Economic Obsolescence

- Based on the scope of review, research, and analysis carried out, and subject to the restrictions as set out herein, the estimated rate of EO present within the Industries as at January 1, 2016 is summarized below for each of the sectors and subsectors reviewed (see Schedule 1):

<u>Ontario Manufacturing Industries</u>		<u>Estimated Rate of EO</u>
Lubricant Oil Manufacturing	Schedule 2	4.0%
Chemical Manufacturing:		
Basic chemical manufacturing	Schedule 3	0.0%
Resin, synthetic rubber & synthetic fibres	Schedule 4	3.0%
Pesticide, fertilizer & other agricultural chemical	Schedule 5	0.0%
Other Plastic Products Manufacturing	Schedule 6	0.0%

INTRODUCTION & PURPOSE

- It is understood that you have requested this report in order to confirm the existence of EO within the Industries (or lack thereof), on a broad level, as at the Effective Date. It is further understood that you will be incorporating this analysis into a mass appraisal of special purpose plants operating within the Industries in Ontario using the Cost Approach method of valuation.

STATEMENT OF INDEPENDENCE AND IMPARTIALITY

- The writer of this report has no stake, directly or indirectly, in the results of this analysis. The fee for this assignment is based solely on an hourly rate, and is in no way dependent upon the conclusion(s) expressed herein.

ECONOMIC OBSOLESCENCE

8. EO can be described as a form of depreciation or an incurable loss in value that occurs when influences external to an asset itself reduce the value of the asset.
9. In industry, EO exists when external influences occurring in an industry have an adverse impact on profits, thereby preventing industry participants from earning an optimal return on their asset investment. Consequently, the current value of the industry's assets is less than what it would be if the profits derived from the operation of those assets were optimal.
10. EO is most often present when external influences prompt a change in the supply and/or demand of an industry's products and/or cause a change in competition, leading to a decline in operating profits. Some examples of external influences that adversely impact operating profits, giving rise to EO, include (but are not limited to):
 - changes in industry economics, such as reduced demand or excess supply, which can put downward pressure on prices, thereby negatively impacting sales revenue and weakening profitability;
 - an increase in direct costs such as raw materials and labour without a corresponding increase in sales price due to adverse market conditions, thereby weakening profitability. Such a scenario results from declining demand for an industry's products and/or increased competition leading to excess supply and price pressure;
 - increased domestic and/or foreign competition, which puts downward pressure on prices and negatively impacts sales revenue and profits;
 - government legislation and/or changes in regulations, which can negatively impact sales revenue and weaken profitability;
 - economic factors over which an industry has no control, including changes in inflation, interest rates, foreign currency rates, all of which can negatively impact sales revenue and profitability; and,
 - adverse global economic conditions.

SCOPE OF REVIEW

11. In preparing these comments and calculations, the following has been reviewed, considered and relied upon, inter alia:

- information contained in a report published by IBISWorld entitled “Lubricant Oil Manufacturing in Canada – February 2015”;
- information contained in a report published by IBISWorld entitled “Inorganic Chemical Manufacturing in Canada – May 2014”;
- information contained in a report published by IBISWorld entitled “Organic Chemical Manufacturing in Canada – November 2014”;
- information contained in a report published by IBISWorld entitled “Plastic & Resin Manufacturing in Canada – November 2014”;
- information contained in a report published by IBISWorld entitled “Synthetic Fibre Manufacturing in Canada – March 2015”;
- information contained in a report published by IBISWorld entitled “Fertilizer Manufacturing in Canada – April 2015”;
- information contained in a report published by IBISWorld entitled “Pesticide Manufacturing in Canada – November 2014”;
- information contained in a report published by IBISWorld entitled “Plastic Products Miscellaneous Manufacturing in Canada – March 2015”;
- excerpts from an economic report for Ontario as published by TD Economics entitled “Provincial Economic Forecast” and dated April 10, 2015;
- excerpts from an economic report for the U.S. entitled “Quarterly Economic Forecast” as published by TD Economics and dated March 24, 2015;
- excerpts from a report as published by the Bank of Canada entitled “Monetary Policy Report - April 2015” and “Monetary Policy Report Summary - April 2015”;
- various financial and statistical data as published by Statistics Canada;

- various information as published on the Industry Canada website (<http://www.ic.gc.ca>);
- various financial and market data of publicly traded food and beverage manufacturing companies as retrieved from the Thomson Reuters Eikon database.

CURRENT AND FUTURE OUTLOOK OF CANADIAN AND GLOBAL ECONOMY

12. Canadian manufacturers operating within the Industries are strongly impacted by the state of the domestic and global economy. Consequently, in order to validate and support a conclusion on EO, this review incorporates an assessment of the domestic and global economic conditions existing around the Report Date.
13. Major economic indicators which are used to assess the overall state of the economy include changes in manufacturing activity, retail sales, gross domestic product, unemployment rates, the consumer price index and inflationary pressures, currency strength and interest rates, among others.
14. Below is commentary on the economic conditions and future outlook for the global economy extracted from a report entitled “Monetary Policy Report – April 2015” as published by the Bank of Canada.

Global Economy

Global financial conditions have eased further in recent months, as many central banks have added to monetary policy stimulus in response to persistent economic slack and below-target inflation. The effects of lower prices for oil and other commodities are working their way through the world economy, boosting overall global growth, but weakening growth prospects in some countries. All things considered, the Bank expects global economic growth to strengthen and average about 3 1/2 per cent over the 2015-17 period.

In this global context, the economic prospects of major economies continue to diverge. As the U.S. economy strengthens, the Federal Reserve is widely expected to start normalizing monetary policy later this year – in contrast to the ongoing easing in other advanced economies. The substantial strengthening of the U.S. dollar against most other currencies, notably the euro, the yen and the Canadian dollar, largely reflects such differences and, over time, will contribute to mitigating them by boosting net exports in the weaker economies.

The sharp drop in oil prices as well as lower commodity food prices have been key common factors behind weak total CPI inflation globally. Although the disinflationary effects of lower oil and food prices are generally expected to be transitory, core inflation in many countries has been well below inflation targets for an extended period. Persistent excess global supply has been a steady source of downward pressure on underlying inflation in the advanced economies. Labour gaps also remain large. While some countries have achieved significant reductions in headline unemployment rates, in many advanced economies, high rates of long-term unemployment and modest wage growth suggest that labour market slack remains.

15. Below is commentary on the economic conditions and outlook for the US economy extracted from a report entitled "Monetary Policy Report Summary - April 2015" as published by the Bank of Canada and a report entitled "Quarterly Economic Forecast" as published by TD Economics and dated March 24, 2015.

US Economy

In the United States, despite a weak start to 2015, real GDP growth is expected to strengthen and to become increasingly self-sustaining, led by strong private domestic demand. Economic activity in the first quarter of 2015 was negatively affected by several transitory factors, including severe winter weather and disruptions caused by the West Coast port strike. Much of this activity is expected to be recovered over the coming months, however, as suggested by other indicators, such as employment growth and confidence. Together with low oil prices, an improving labour market should contribute to solid growth in real disposable income and household spending.

A sustained expansion in U.S. residential investment - a key market for Canada's exports - has been slow to materialize. However, with robust growth in labour income, low mortgage rates and signs that household formation is improving, new housing construction is still expected to post strong growth later this year. A pickup in household demand and ongoing improvements in confidence, combined with healthy firm balance sheets, should further stimulate business investment. The appreciation of the U.S. dollar, which reflects this relatively positive economic outlook, is nevertheless expected to be a drag on U.S. growth.

. . . . we expect the economy to grow by 3.0% in 2015, up from 2.4% in 2014. With the Federal Reserve slowly beginning to normalize monetary policy and with the unemployment rate falling to 5.0% in 2016, economic

growth is expected to edge down to 2.8%.

16. Below is commentary on the economic conditions and outlook for the Canadian economy extracted from a report entitled “Monetary Policy Report Summary - April 2015” as published by the Bank of Canada.

Canadian Economy

GDP

The Canadian economy is estimated to have stalled in the first quarter of 2015. The Bank’s assessment is that the impact of the oil price shock on growth will be more front-loaded – but not larger – than predicted in January. The ultimate size of this impact will need to be monitored closely. Underneath the effects of the oil price shock, the natural sequence of stronger non-energy exports, increasing investment, and improving labour markets is progressing. This sequence will be bolstered by the considerable easing in financial conditions that has occurred and by improving U.S. demand.

As the impact of the oil shock on growth dissipates, this natural sequence is expected to re-emerge as the dominant trend around mid-year. Real GDP growth is projected to rebound in the second quarter and subsequently strengthen to average about 2 1/2 per cent on a quarterly basis until the middle of 2016. The Bank expects real GDP growth of 1.9 per cent in 2015, 2.5 per cent in 2016, and 2.0 per cent in 2017.

After picking up in the middle of last year, business investment declined in the fourth quarter. The drop in oil prices is expected to lead to a rapid contraction in investment in the oil and gas sector. Steep cuts to capital expenditures in the oil industry have been announced, and rigging activity has decreased precipitously since the beginning of the year.

The Bank’s estimate of real GDP in the first quarter of 2015 has been revised down since the January Report, to essentially no growth, primarily reflecting the pulling forward of the impact of the oil price shock. Other factors at play included harsh winter weather and temporary weakness in U.S. economic activity.

On an average annual basis, real GDP is expected to grow by 1.9 per cent in 2015 and 2.5 per cent in 2016, roughly the same as anticipated in January. However, the composition of growth will be somewhat different, with

stronger exports and a smaller pickup in investment. In 2017, real GDP is expected to grow by 2.0 per cent.

Oil Prices

Three main oil price benchmarks are relevant for the Canadian economy: Brent, a global benchmark; West Texas Intermediate (WTI), the benchmark for light oil in North America; and Western Canada Select (WCS), a benchmark for heavy oil in Western Canada.

Following their sharp slide in the second half of 2014, the benchmark oil prices that are relevant for the Canadian economy have been quite volatile, fluctuating at or below levels assumed in the January Report. Prices for West Texas Intermediate (WTI) and Western Canada Select (WCS) - the main pricing benchmarks for Western Canadian producers - continue to be influenced by rising U.S. oil production, even as refinery maintenance and strikes have curbed demand.

By convention, the Bank assumes that energy prices will remain near their recent levels over the projection horizon. The U.S.-dollar prices for Brent, WTI and WCS have averaged roughly \$55, \$50 and \$35 per barrel, respectively, since early March. Relative to assumptions in the January *Report*, these prices are \$5 weaker for all three benchmarks.

Inflation

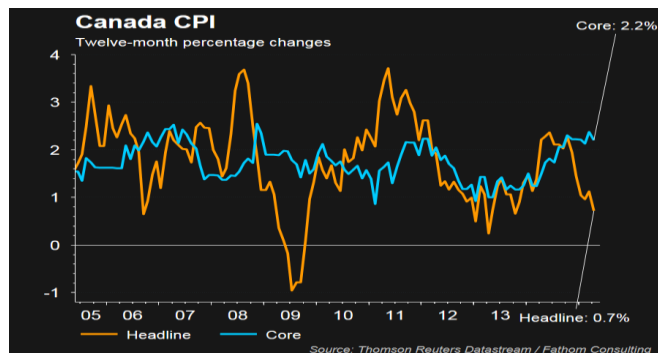
Core inflation is expected to remain near 2 per cent throughout the projection period. In the near term, the widening of the output gap is expected to exert additional downward pressure on inflation. Based on the assumption that the Canadian dollar stays around 79 cents, the pass-through effects are expected to peak in the second half of 2015 and to dissipate by the end of 2016. Meanwhile, as economic growth picks up and the output gap narrows, the disinflationary pressures from excess supply are expected to gradually diminish. The effects on core inflation of the lower dollar and the narrowing output gap roughly offset each other over the projection horizon.

As the economy reaches and remains at full capacity around the end of 2016 and with well-anchored inflation expectations, both total and core inflation are projected to be close to 2 per cent on a sustained basis.

While short-term expectations for total CPI inflation remain near the

lower end of the control range, medium-term inflation expectations continue to be well anchored at 2 per cent. The March Consensus Economics forecast for total CPI inflation for 2015 is 0.9 per cent, down slightly from January, while the forecast for 2016 has remained unchanged, at 2.1 per cent. Results from the Bank's spring *Business Outlook Survey* show that the majority of firms anticipate that, over the next two years, total CPI inflation will be in the bottom half of the Bank's 1 to 3 per cent inflation-control range. This is consistent with low total CPI inflation in 2015, reflecting the downward pressures coming from gasoline prices.

Based on the assumption that Brent will be priced at US\$55 per barrel, total CPI inflation is expected to ease to slightly below 1 per cent in the coming months before rising to the 2 per cent target early in 2016. Core inflation is anticipated to remain near 2 per cent over the projection horizon, as the upward pressure from past exchange rate depreciation offsets the ongoing downward pressure from excess supply, which will gradually diminish as the output gap closes. The Bank continues to expect that core and total CPI inflation will be at 2 per cent on a sustainable basis around the end of 2016 as the economy reaches full capacity.



Thomson Reuters

Key Interest Rate

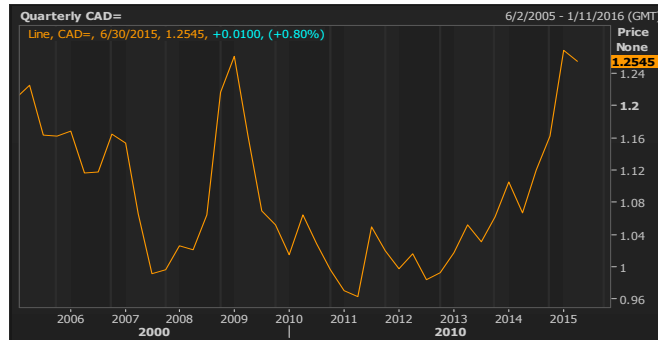
Risks to the outlook for inflation are now roughly balanced and risks to financial stability appear to be evolving as expected. The Bank judges that the current degree of monetary policy stimulus remains appropriate and therefore is maintaining the target for the overnight rate at 3/4 per cent.

Exchange Rates

Since January, the Canadian dollar has depreciated against the U.S. dollar largely reflecting the broad strength of the U.S. dollar and the expected divergence in the paths for monetary policy in the two countries. The

current level of the Canadian dollar is also consistent with the dollar's historical relationship with oil prices. By convention, the Canadian dollar is assumed to be close to its recent average level of 79 cents over the projection horizon. . . .

USD/CAD Exchange Rate



Thomson Reuters

Labour Markets

. . . . labour market conditions appear to have improved modestly, on balance, over the past six months. For example, the unemployment, underutilization and long-term unemployment rates have all eased, while prime-age labour force participation has begun to recover in recent months following weakness in the middle of 2014. Despite these encouraging developments, a material degree of slack persists in the labour market, as illustrated by the Bank's labour market indicator. Moreover, the full impact of the decline in oil prices has yet to show up in employment statistics. The balance of opinion on hiring intentions in the Business Outlook Survey fell to its lowest level since 2009, and firms reported that labour shortages remain low and are less intense than 12 months ago.

Capacity Utilization

Measures of the utilization of existing capital stock continue to indicate less excess capacity than do measures of labour market slack, consistent with the pattern expected following a destructive recession. Total industrial capacity utilization has risen above its historical average, to 83.6 per cent. Capacity utilization in many non-energy industries has also increased in recent quarters, a precursor to greater investment spending. The most recent Business Outlook Survey indicates that capacity pressures were more prevalent among export-oriented firms, which frequently cited physical capacity constraints as a key obstacle to meeting a sudden rise in demand.

Taking into account the various indicators of capacity pressures, the Bank judges that there is material slack in the Canadian economy. The amount of excess capacity in the first quarter is estimated to be between 1/2 and 1 1/2 per cent, suggesting more slack and disinflationary pressures than estimated in January.

17. The key Canadian financial market indicators around the date of this report are summarized below.

Government of Canada marketable bond average yield:	
1 to 3 years	0.65%
3 to 5 years	0.81%
5 to 10 years	1.33%
More than 10 years	2.15%
Canadian chartered bank prime lending rate	2.85%
Conventional mortgage lending rates:	
3 years	3.39%
5 years	4.64%
Chartered bank guaranteed investment certificate rates:	
3 years	1.03%
5 years	1.50%

18. Below is commentary on the economic conditions and outlook for the Ontario economy extracted from a report entitled “Provincial Economic Forecast” as published by TD Economics and dated April 10, 2015.

Ontario Economy

Ontario is projected to be the fastest growing economy over the 2015-16 period, with real GDP growth estimated at 2.7% on average.

U.S. real GDP growth is forecast to run at around 3% annually over the next two years which will translate into solid demand for Ontario’s manufacturing sector. A lower Canadian dollar will also benefit Ontario producers. Already there is evidence of rising momentum in factory production, with manufacturing real GDP in Ontario up almost 5% Y/Y in 2014Q3. Somewhat mitigating the positive outlook for manufacturing is an expected contraction in auto production on account of the planned 14-week

shutdown for retooling at the Chrysler plant in Windsor and the gradual shutdown of GM's Oshawa 2 plant.

A low interest rate environment has continued to fuel the housing market over the first few months of 2015 with both resales and average prices tracking higher. While our housing demand outlook has been nudged up since our January update, we still expect to see a gradual moderation in the resale market on account of an expected deterioration in affordability and elevated household debt. New construction activity is projected to decline over the next few years after a period of overbuilding.

The Ontario government's fiscal outlook remains challenging, with a deficit elimination timetable still set for fiscal 2017-18. The upcoming spring budget should provide some additional details on how the government plans to keep program spending essentially flat through fiscal 2017-18.

Employment growth in Ontario has been slow out of the gate in 2015, up only 0.6% on a trend basis. Surprisingly, manufacturing employment is still tracking lower through February despite the uptick in activity. Our forecast pegs employment growth at 1% over the 2015-16 period. Steady gains in export-based manufacturing and tourism industries are expected to translate into increased hiring as 2015 progresses.

19. Economic conditions for the province of Ontario as at April 2015 are summarized in the chart below.

SELECTED ECONOMIC STATISTICS - ONTARIO (Annual average % change, unless otherwise noted)						
	Actual	Actual	Actual	Forecast (as at April 2015)		
	2012	2013	2014	2014E	2015F	2016F
Real GDP	1.7	1.3	-	2.4	2.8	2.5
Nominal GDP	3.2	2.4	-	4.0	3.8	4.7
Employment	0.7	1.8	0.8	-	1.0	1.0
Unemployment Rate (annual, %)	7.9	7.6	7.3	-	6.9	6.7
Retail Trade	1.6	2.3	4.8	-	3.6	4.0
Housing Starts (000's units)	77.4	60.9	58.4	-	57.4	57.3
Housing Starts	14.2	-21.4	-4.0	-	-1.8	-0.2
Existing Home Sales (000's units)	197.6	198.5	206.0	-	211.1	212.6
Existing Home Sales	-1.9	0.5	3.7	-	2.5	0.7
Average Home Price (000's C\$)	381.3	400.7	428.6	-	446.7	455.5
Average Home Price	5.0	5.1	7.0	-	4.2	2.0
Consumer Price Index	1.4	1.0	2.3	-	0.7	2.2

SOURCE: TD Economics – April 2015 (www.td.com/economics)

GENERAL DISCUSSION OF THE QUALITATIVE ANALYSIS OF ECONOMIC OBSOLESCENCE

20. As discussed previously, EO exists when external influences adversely impact the economic returns an industry earns from the operation of its assets, thereby diminishing the value of those assets. The first step in determining if EO exists in an industry is to perform a qualitative analysis assessing the current economic conditions within the industry and the impact of external influences on that industry.
21. A discussion of the current economic conditions as well as the external influences impacting the Industries is presented further below for each of the Industries.

GENERAL DISCUSSION OF THE APPROACH TO QUANTIFYING ECONOMIC OBSOLESCENCE

22. In addition to a review of the qualitative factors associated with EO as discussed above, a quantitative analysis of key profitability and efficiency ratios of guideline public companies operating within the Industries was completed as a method of quantifying the level of EO present, or lack thereof, on a broad level.

23. The guideline public companies considered most appropriate for this analysis were selected based on the leading publicly owned manufacturing companies that currently operate within the Industries in Ontario and/or Canada.
24. The specific profitability and efficiency ratios analyzed (and explained in greater detail further below) are as follows:
- return on invested capital;
 - gross margin percentage;
 - inventory turnover ratio;
 - fixed asset turnover ratio;
 - price to book ratio; and,
 - industrial capacity utilization rates.
25. The key profitability and efficiency ratios reviewed were analyzed over a ten year period from 2004 to 2013 in order to derive historical industry performance benchmarks. The current profitability and efficiency ratios of the guideline public companies based on 2014 were then compared against the historical benchmarks.
26. If the current performance ratios of the guideline public companies are trending below their historical performance benchmarks by a material amount, on a collective basis, this can signal that EO is present in the Industry.
27. The percentage decline in the current ratios from their historical performance benchmarks, as measured on a collective basis based on the results of the guideline companies, can be used as an overall benchmark for the rate of EO present in each major subsector, on a broad level.
28. A description of the key profitability and efficiency ratios reviewed follows below.

Return on Invested Capital Analysis

29. Return on invested capital (“ROIC”) is a profitability ratio that measures how efficiently a company generates income from capital invested by comparing net operating profit to capital invested. The ROIC is a better measurement than return on equity as it measures

how well a company is using both its equity and debt to generate profits. A low ROIC indicates that a company is making poor use of its capital resources.

30. The return on invested capital is calculated as follows:

Return = (Net Operating Profit after Taxes)

divided by

Invested Capital = (Interest-bearing Debt + Equity)

31. The ROIC is informative when tracked on a trend line annually as it will indicate long-term changes in the operating performance of a company. A decline in operating profits while invested capital remains constant or increases will cause the ROIC to decline.

32. A decline in the ROIC can signal that external influences occurring in the marketplace are negatively impacting profitability, giving rise to EO.

33. Any or all of the following external influences can negatively impact operating profits and the ROIC, giving rise to EO: a declining demand for an industry's products; increased competition creating excess supply and price pressure; and, government regulations requiring increased investment and/or price caps. All of these factors can impede the ability of an industry to earn an economic rate of return on its assets.

Gross Profit Margin (%) Analysis

34. Gross profit margin percentage is a profitability ratio that measures the percentage by which sales revenue exceeds the expenses required to manufacture a product, known as the cost of goods sold (the "COGS").

35. The COGS includes the cost of the raw materials, direct labour and production overheads that go into producing the goods sold and is included on a company's income statement where it is deducted from revenue in order to calculate the company's gross margin dollars. The gross margin dollars reflect the amount of dollars earned from the sale of products and services before consideration of non-production costs such as selling and administrative costs.

36. Gross profit margin percentage is calculated as follows:

Gross Profit Margin (%) = (Sales Revenue – COGS / Sales Revenue) x 100

37. The gross profit margin percentage when tracked on a trend line indicates if any significant changes in sales and/or the COGS have occurred over a period of time. The gross profit margin percentage declines when sales revenue decreases however, the COGS remains constant or increases, as less gross margin dollars are being generated per unit sold.
38. A decline in the gross profit margin percentage can be an indication that external influences occurring in the marketplace are negatively impacting sales and/or the COGS, thereby giving rise to EO.
39. Similar to the ROIC, external influences that cause declining demand for an industry's products and/or increased competition leading to excess supply put downward pressure on prices and can negatively impact an industry's gross profit, thereby impeding the ability of an industry to earn an economic return on its assets.
40. In addition, when the COGS increases however, the increase cannot be passed on to the consumer through a price increase due to adverse market conditions such as government price caps and/or price pressure due to increased competition, the additional costs must be absorbed by the manufacturer and gross profits decline, negatively impacting industry returns.

Inventory Turnover Ratio Analysis

41. The inventory turnover ratio ("ITR") is an efficiency ratio that reflects how frequently a company flushes inventory from its system by comparing cost of goods sold with average inventory for a period. In other words, it measures how many times a company sells its total average inventory dollar amount during the year.
42. The ITR is calculated as follows:

$$\text{Inventory Turnover Ratio} = \text{COGS} / \text{Average Dollar Value of Inventory On-Hand}$$

43. Generally, a higher ITR implies a stronger demand for an industry's products given a certain amount of inventory. In contrast, a low ITR is generally indicative of excess production capacity and/or excess supply and can signal that external influences occurring in the marketplace are causing a decline in demand for an industry's products.

Fixed asset turnover Ratio Analysis

44. The fixed asset turnover ratio ("FATR") measures a company's ability to generate net sales from fixed-asset investments; specifically property, plant and equipment, net of depreciation. This ratio is often used as a measure in manufacturing industries, where

major purchases are made for property, plant and equipment to help increase output.

45. The FATR is calculated as follows:

$$\text{Fixed Asset Turnover Ratio} = \text{Sales Revenue} / \text{Net Property, Plant and Equipment}$$

46. Generally, a high FATR indicates that a company has been more effective in using its investment in fixed assets to generate revenues and/or a stronger demand for an industry's products given a certain amount of fixed-asset investment.

47. In contrast, a low FATR is generally indicative of over-investment in fixed assets and can signal that external factors occurring in the marketplace are causing a decline in demand for an industry's products and negatively impacting an industry's economic return on its fixed-asset investment, giving rise to EO.

Price to Book Ratio Analysis

48. The price-to-book ratio ("PBR") measures the market price of a company's net assets in relation to their book value. The ratio denotes how much equity investors are paying for each dollar in net assets.

49. A company's market price is the market value of a company's outstanding shares, also known as its market capitalization. Book value is the value of a company's net assets according to its balance sheet. Traditionally, a company's book value is its total assets based on original cost less any depreciation, amortization or impairment costs minus liabilities.

50. A company's PBR is impacted by external factors related to investor sentiment regarding the current economic state of the industry that the company operates in; i.e., demand for industry products, competitive landscape, etc. If the market price of the company declines significantly or drops below its book value, this may be an indication that investors are becoming wary of the company and/or the industry that the company operates in and can signal that EO may be present.

51. The PBR of the S&P/TSX Industrials Sector Index can be used as a benchmark to gauge investor-perception of the value of the net assets of a particular industry in comparison to the weighted average value of the net assets of all other industries included in the index.

52. It is important to note that the PBR measure is not considered a reliable indicator of EO given that the PBR can be impacted by other variables not related to EO such as a company's capital structure, the extent of analyst coverage and dividend policy, among

other things.

Industrial Capacity Utilization Rate Analysis

53. The capacity utilization rate indicates the rate of production capacity which is actually being utilized in comparison to the maximum production capacity available.
54. A decline in the utilization rate when compared to historical industry norms indicates that current production is below the supply capacity available and may be a signal that external factors occurring in the marketplace are causing a decline in demand for an industry's products, which can negatively impact an industry's economic return, giving rise to EO.
55. The capacity utilization rate can be calculated as follows:

Capacity Utilization Rate =

$$[(Actual\ Output - Potential\ Output) / Potential\ Output]^{\text{scale factor}}$$

56. It is important to note that EO can exist even when an asset's capacity utilization rate is at maximum and/or at the industry norm because, although the asset may be operating at its normal/maximum capacity utilization rate, the return being generated by the asset(s) may still be below an economic level.
57. Details of the quantitative analysis of the financial and efficiency ratios of guideline public companies operating in the Industries is presented further below for each of the Industries.

LUBRICANT OIL MANUFACTURING INDUSTRY IN CANADA AND ONTARIO

Background

58. The lubricant oil manufacturing segment produces industrial and automotive lubricants including blended motor oils, brake fluids, lubricating greases and other oil-based additives. Key buyers include downstream automobile manufacturers, wholesalers and automotive retail chains.
59. This sector relies heavily on demand from both consumer and downstream industrial manufacturers, who use the industry's products to lubricate the moving parts of manufacturing equipment and other machinery. As a result, the industry is highly vulnerable to downstream market fluctuations.
60. Export demand has a significant impact on industry operations, particularly from the US

market, which accounts for more than 15.0% of total industry revenue.

Key External Market Influences Impacting the Subsector

61. The key external influences impacting the revenue growth and profitability of the sector are identified and discussed below.

World Price of Crude Oil

62. Crude oil represents a significant input cost for industry manufacturers, so higher crude oil prices will result in higher costs for the industry. During periods of strong demand, industry manufacturers will pass on most of the additional input costs to consumers, providing a boost to revenue. However, during periods of weak demand, industry manufacturers will absorb more of the additional costs, adversely affecting profit.

63. The world price of crude oil is expected to decrease in 2015, but the persistent volatility of oil prices poses a constant threat to industry stability.

Per capita disposable income

64. Consumers purchase lubricant oils directly from retailers for use in cars and other vehicles. Moreover, the industry produces some other personal use products, such as skin moisturizers. As such, the level of disposable income influences buying activity. Decreases in disposable income typically result in a decrease in lubricant oil sales. Per capita disposable income in Canada is expected to grow during 2015.

Canadian-dollar Effective Exchange Rate Index

65. The Canadian-dollar effective exchange rate index (CERI) compares the Canadian dollar against the currencies of Canada's major trading partners. The six foreign currencies in the CERI include the U.S. dollar, the European Union euro, the Japanese yen, the Chinese yuan and the Mexican peso.

66. When the CERI decreases, the Canadian dollar depreciates and domestically produced products become relatively less expensive for foreign buyers typically increasing demand for Canadian exports of domestically produced products. Alternatively, when the CERI rises, this trend causes domestically produced products to be relatively more expensive for global consumers, thereby cutting into global demand for Canadian exports.

67. As the Canadian dollar strengthens against the currencies of its major trading partners, imported products become more affordable in the domestic market, increasing competition

for producers. Alternatively, when the Canadian dollar depreciates, domestic goods become more price-competitive in the domestic market.

68. The Canadian-dollar effective exchange rate index is expected to decrease in 2015.

Industrial Capacity Utilization

69. Industrial capacity utilization, which measures the ratio of actual industrial output to potential full capacity output, is a measure of overall industrial activity in Canada. A wide variety of manufacturing industries use oil lubricants to maintain and strengthen the lifespan of existing machines in production. As such, a higher level of industrial production translates to higher demand for industry products that help maintain manufacturing machinery.

70. Industry capacity utilization in Canada is expected to increase in 2015.

New Vehicle Sales

71. This industry produces a number of products used in motor vehicles, such as brake fluids, lubricating greases, motor oils, transmission fluids, oil-based additives, petroleum jellies and waxes. An increase in the number of motor vehicles sold will translate to a higher number of motor vehicles manufactured, higher number of miles driven and an increase in vehicle repair and maintenance activity. All of these factors positively affect demand for industry products.

72. New vehicle sales are expected to increase in 2015.

Current Performance and Market Trends

73. Export demand from the United States for this industry's products fell sharply in 2013 by 31.3% as US manufacturers turned to imports from less expensive sources. As a result, industry revenue is expected to fall at an annualized rate of 1.5% in the five years to 2015, to less than \$2.3 billion. Overall, the total value of industry exports has grown just 0.3% per year on average during the five years to 2015, to total \$529.4 million, or 23.3% of industry revenue.¹

74. Despite decreased export demand, volatile input prices and an expected revenue loss of 1.7% in 2015, average industry profit margins are expected to increase to 5.8% of revenue in 2015, up from 4.6% in 2010.¹ Growing demand for eco-friendly products, such as

¹ Report published by IBISWorld entitled "Lubricant Oil Manufacturing in Canada – February 2015".

recycled and synthetic oil and the falling price of crude oil, the industry's primary input material, has helped boost profit.

Future Outlook for the Industry

75. Revenue for the industry is projected to continue to decline over the five years to 2020, at an annualized rate of 0.4% to \$2.2 billion. Demand from downstream domestic manufacturing industries is expected to remain sluggish. The value of industry exports is expected to increase at an annualized rate of 3.6% to \$632.2 million, or 28.4% of revenue.²
76. Although revenue is expected to fall, industry profit margins are projected to increase over the next five years as the industry will benefit from steadily low oil prices. After falling more than 40.0% in 2015, IBISWorld expects growth in oil prices to be much more stable in the five years to 2020. As a result, industry operators will have more control over the prices of their products and will likely be more able to improve profit margins. Consequently, average industry profit margins are expected to grow from 2015 to 2020.²

Analysis of Existence of Economic Obsolescence

77. Total revenue for the industry declined over the past five year and exports grew only marginally however, profit margins increased in 2015, boosted by lower input costs as a result of falling oil prices.
78. Revenue is expected to continue to decline over the next five years to 2020 at an annualized rate of 0.4% due to sluggish demand. Despite this, profit margins are expected to increase as the industry will continue to benefit from lower input costs resulting from steadily low oil prices. Over the same period, exports are expected to increase at an annualized rate of 3.6% to \$632.2 million, or 28.4% of revenue.² The United States will likely remain the largest consumer of industry exports due to its large consumer base and revitalized automotive industry.
79. Based on the above, although profits are expected to be boosted by lower oil prices, sluggish demand and declining revenue provides some evidence that EO may be present in this sector at the Report Date.

Approach to Quantifying Economic Obsolescence

80. The guideline public companies considered most appropriate for this analysis were selected based on the larger manufacturing companies that currently operate in this sector in

² Report published by IBISWorld entitled "Lubricant Oil Manufacturing in Canada – February 2015".

Ontario and/or Canada; generate at least 10% of their revenue from production in this sector; and, have publicly available financial results.

81. The companies selected were as follows: Suncor Energy Inc.; Royal Dutch Shell PLC; Ashland Inc.; and Exxon Mobil Corporation. The selected guideline public companies are collectively referred to hereafter as the “Guideline Companies”.

Quantifying Economic Obsolescence

82. A discussion of the analysis undertaken to quantify EO follows below.

Return on Invested Capital Analysis

83. The historical rates of ROIC of the Guideline Companies from 2004 to 2013 were analyzed to derive historical benchmarks. The historical benchmarks were based on the median ROIC realized over this period under the assumption that this benchmark is the best measure of an economic rate of return for this subsector.
84. The historical benchmarks were then compared against the current rates of ROIC based on 2014 to gauge if current rates of ROIC are consistent with historical benchmarks.
85. All of the Guideline Companies realized a material decline in their rate of ROIC in 2014 when compared to their historical benchmark. Consequently, there is a strong indication that, on an industry wide level, manufacturers in this sector have experienced a material decline in their ROIC based on the analysis of the ROIC’s of the Guideline Companies.
86. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the ROIC analysis is presented on **Schedule 2.1**.

Gross Profit Margin (%) Analysis

87. The historical gross profit margin percentages of the Guideline Companies from 2004 to 2013 were analyzed to derive historical benchmarks. The historical benchmarks were based on the median gross profit margin percentage realized over this period under the assumption that this benchmark is the best measurement of an economic rate for this subsector.
88. The historical benchmarks were then compared against current gross profit margin percentages based on 2014 to gauge if the current gross margin percentages are consistent with historical benchmarks.

89. Two out of four of the Guideline Companies realized some decline in their gross profit margin percentage in 2014 when compared to their historical benchmark. The decline ranged from nominal to significant. The remainder of the Guideline Companies realized an increase in their gross profit margin percentage. Consequently, there is a wide divergence in the rates of indicated EO based on the gross profit margin percentage analysis of the Guideline Companies.
90. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the gross profit margin percentage analysis is presented on **Schedule 2.2**.

Inventory Turnover Ratio Analysis

91. The historical ITR's of the Guideline Companies were analyzed from 2004 to 2013 to derive historical benchmarks. The historical benchmarks were based on the median ITR over this period under the assumption that this benchmark is the best measurement of an economic rate for this subsector.
92. The historical benchmarks were then compared against the current ITR's based on 2014 to gauge if the current ITR's are consistent with historical benchmarks.
93. Three out of four of the Guideline Companies realized a material decline in their ITR in 2014 when compared to their historical benchmark. The remaining company realized an increase in its ITR in 2014 when compared to its historical benchmark. Consequently, there is a wide divergence in the rates of indicated EO based on the ITR analysis of the Guideline Companies.
94. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the ITR analysis is presented on **Schedule 2.3**.

Fixed asset turnover Ratio Analysis

95. The historical FATR's of the Guideline Companies were analyzed from 2004 to 2013 to derive historical benchmarks. The historical benchmarks were based on the median FATR over this period under the assumption that this benchmark is the best measurement of an economic rate for this subsector.
96. The historical benchmarks were then compared against the current FATR's based on 2014 to gauge if the current FATR's are consistent with historical benchmarks.

97. Three out of four of the Guideline Companies realized a material decline in their FATR in 2014 when compared to their historical benchmark. The remaining company realized an increase in its FATR in 2014 when compared to its historical benchmark. Consequently, there is a wide divergence in the rates of indicated EO based on the analysis of the FATR's of the Guideline Companies.
98. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the FATR analysis is presented on **Schedule 2.4**.

Price to Book Ratio Analysis

99. The PBR of the S&P/TSX Industrials Sector Index around the Report Date was compared against the median PBR of the Guideline Companies approximate to the Report Date. The median PBR of the Guideline Companies of 1.6 falls well below the PBR of the S&P TSX Industrials Sector Index of 3.6. Consequently, the market values the net assets of the Guideline Companies operating in this sector to be worth approximately 55% less than the weighted average value of the net assets of all industries combined based on the composition of companies listed on the S&P TSX Industrials Sector Index.
100. It is important to note that the PBR measure is not considered a reliable indicator of EO given that the PBR can be impacted by other variables not related to EO such as a company's capital structure, the extent of analyst coverage and dividend policy, among other things. Notwithstanding this, the results of the analysis are presented on **Schedule 2.5** for information purposes.

Industrial Capacity Utilization Rate Analysis

101. Data on the industrial capacity utilization rates of manufacturing plants operating in this subsector in Ontario and/or Canada was not available. As a substitute, the industrial capacity utilization rates of the Petroleum and Coal Products manufacturing sector (NAICS 324), as a whole, were analyzed from 2004 to 2014 to gauge whether current production levels are consistent with historical levels.
102. The current capacity utilization rate for the Petroleum and Coal Products manufacturing sector (NAICS 324) based on the average capacity utilization rate for 2014 falls just slightly below the median rate for the past ten years. Accordingly, it appears that the current productivity rate of the Petroleum and Coal Products manufacturing sector is consistent with its historical level.
103. As noted previously, EO can exist even when an asset's capacity utilization rate is at

maximum and/or at the industry norm because, although the asset may be operating at its normal/maximum capacity utilization rate, the return being generated by the asset(s) may still be below an economic level.

104. The results of the analysis of industrial capacity utilization rates for the Petroleum and Coal Products manufacturing sector have not been factored into the conclusion on the rate of EO present in this sector given that sector specific data was not available and because of the limitations regarding the analysis as discussed above, however, the calculations are presented on **Schedule 2.6** for information purposes.

Conclusion on Rate of Economic Obsolescence

105. Based on the scope of review, research, and analysis carried out, and subject to the restrictions as set out herein, **the rate of EO present in the lubricant oil manufacturing industry in Ontario is estimated to be 4.0% as at January 1, 2016.** The calculation of the estimated rate of EO is detailed below (see Schedule 2):

LUBRICANT OIL MANUFACTURING			
Guideline Company Ratio Analysis	Indicated EO	Assigned Weight	Weighted Average
Return on Invested Capital	55.4%	0	0.0%
Gross Profit Margin (%)	3.7%	1	3.7%
Inventory Turnover Ratio	29.7%	0	0.0%
Fixed Asset Turnover Ratio	32.7%	0	0.0%
Price to Book Ratio	55.6%	0	0.0%
Industrial Capacity Utilization	0.9%	0	0.0%
		1	3.7%
		divide by total assigned weight	<u>1</u>
Estimated Rate of EO as at January 1, 2016			<u>4.0%</u>

106. In concluding on the rate of EO, the only weight assigned was to the EO indicated by the gross profit margin (%) analysis as it better reflects the current economic state and future outlook of this sector given the nature of the industry. No weight was assigned to the ROIC, ITR and FATR analyses as the EO indicated by these analyses is not considered to accurately reflect the current economic state and future outlook of this sector based on the qualitative evidence reviewed and given that there were a limited number of guideline

public company comparables identified to be operating within this sector in Ontario and/or Canada available for the quantitative analysis portion of this review. As well, all of the Guideline Companies derive a significant portion of their revenue from other sectors, some of which have experienced extreme volatility over the past five years, thereby possibly skewing the results of the analyses.

107.A weighting of zero was assigned to the PBR analysis given that it is not a reliable measure of EO as it can be impacted by other variables unrelated to a change in the economic return on an investment. Accordingly, this analysis is presented for information purposes only.

108.A weighting of zero was also assigned to the industrial capacity utilization analysis as sector specific rates were not available and because of the limitations regarding the analysis as described in the narrative portion of this report.

CHEMICAL MANUFACTURING INDUSTRY IN CANADA AND ONTARIO

General Background

109.The chemical manufacturing sector is comprised of manufacturers primarily engaged in basic processes such as thermal cracking and distillation. Chemicals produced in this industry group are usually separate chemical elements or separate chemically-defined compounds.

110.The following three broad subsectors within the chemical manufacturing sector were analyzed to determine the extent of EO present within each subsector:

- basic chemical manufacturing (NAICS 3251)
- resin, synthetic rubber and synthetic fibres manufacturing (NAICS 3252);
- pesticide, fertilizer and other agricultural chemical manufacturing (NAICS 3253); and,

111.Details of the review and analysis of each of the subsectors outlined above are presented below.

Basic Chemical Manufacturing

Background

112. This subsector is comprised of manufacturers that are primarily engaged in manufacturing chemicals, using basic processes such as thermal cracking and distillation. Chemicals produced in this sector group are usually separate chemical elements or separate chemically-defined compounds.

113. Inorganic chemical products include a range of products that serve as intermediates for downstream consumers, including automotive manufacturers, contractors and paper manufacturers. The industry operates in several segments, producing chlor-alkalis (e.g. chlorine, caustic soda), chemical catalysts, carbon black and other inorganic chemicals, such as potassium, sodium and sulfur. As a result, a myriad of downstream manufacturers turn to inorganic chemical manufacturers for inputs.

114. Organic chemical manufacturers specialize in different types of chemical products. Organic chemicals constitute a variety of products with different properties, and the manufacturing process can require specialized technology. Industry operators manufacture acetates, acids, alcohols, hydrocarbons, oils, fatty acids, gum and wood chemicals, naphtha and other chemical products.

Key External Market Influences Impacting the Subsector

115. The key external influences impacting the revenue growth and profitability of some or all of the segments within this sector are identified and discussed below.

Demand from Manufacturing

116. Inorganic and organic chemicals are largely intermediate goods that are used by an array of manufacturing industries. Therefore, demand depends on activity levels in such downstream industries. For instance, when the construction sector demands more paint, paint manufacturers will increase their production and purchase more inorganic chemicals like titanium dioxide. Consequently, IBISWorld expects industry revenue to increase as the manufacturing sector grows.

Industrial Capacity Utilization

117. As a supplier of a number of key chemical inputs used in various manufacturing processes, the basic chemical manufacturing sector relies on industrial activity. The industrial capacity utilization represents the percentage of total industrial capacity currently used, and by

proxy measures industrial production in Canada. As the industrial capacity utilization rate rises, downstream industry customers will likely become more active and demand more industry products, thereby raising industry revenue.

118. Industrial capacity utilization is expected to increase slowly in 2015.

World Price of Natural Gas

119. Energy is one of this sector's primary production costs. When the cost of natural gas increases, chemical producers must either suffer from lower profit margins, or pass the cost on to downstream buyers, thereby potentially alienating price-sensitive customers.

World Price of Crude Oil

120. Since raw materials are a primary component of the industry's cost structure, the prices of raw hydrocarbon materials, such as crude oil, have a key bearing on the industry's performance. When the cost of oil increases, the price of chemicals is expected to rise, potentially deterring customers from purchasing the product and decreasing revenue.

121. The world price of crude oil is expected to decrease in 2015; however, the recent volatility in crude oil prices poses a threat to industry margins and revenue.

Consumer Spending

122. Although consumers rarely directly purchase chemicals, these substances are used to manufacture a variety of consumer products, such as soap, detergent and plastics. As a result, higher levels of consumer spending typically indicate greater demand for consumer staples. This increase will also grow demand for organic chemical inputs, boosting industry revenue.

123. In 2015, consumer spending is expected to increase.

Canadian-dollar effective exchange rate index

124. The Canadian-dollar effective exchange rate index (CERI) compares the Canadian dollar against the currencies of Canada's major trading partners. The six foreign currencies in the CERI include the U.S. dollar, the European Union euro, the Japanese yen, the Chinese yuan and the Mexican peso.

125. When the CERI decreases, the Canadian dollar depreciates and domestically produced products become relatively less expensive for foreign buyers typically increasing demand

for Canadian exports of domestically produced products. Alternatively, when the CERI rises, this trend causes domestically produced products to be relatively more expensive for global consumers, thereby cutting into global demand for Canadian exports.

126.The Canadian-dollar effective exchange rate index is expected to decrease in 2015.

Current Performance and Market Trends

127.During the past five years, demand for detergents and plastic resins increased in line with Canadian industrial production, which further benefited organic chemical manufacturers. Due to these favourable conditions, industry revenue was estimated to increase at an average annual rate of 5.5% to \$5.0 billion over the five years to 2014.³

128.From 2009 to 2014, improvements in downstream US consumer and manufacturing markets bolstered Canadian exports for the organic chemical sector. Lower input prices also had a positive effect on industry profit, which was estimated to increase from recessionary lows of 3.4% of revenue in 2009 to 7.9% in 2014.⁴

129.As the construction and manufacturing sectors have recovered over the past five years, demand for inorganic chemicals has rebounded. As a result, IBISWorld estimates that industry revenue grew 2.0% per year on average for the five years to 2014, to total \$4.2 billion and the total value of exported Canadian inorganic chemicals grew 0.8% in the five years to 2014, to \$380.1 million.⁵

130.The industry has also endured fluctuating raw-material costs and strict government regulation. Chemical manufacturing is energy-intensive, so rising electricity prices have a significant impact on profit growth. Industry operators have been, to an extent, able to pass on higher energy costs onto consumers as demand has picked up since the economic recovery has begun. As a result, profit was estimated to improve in 2014, accounting for 7.4% of industry revenue.⁵

Future Outlook for the Subsector

131.IBISWorld projects that industry revenue for the organic chemical sector will increase at an average annual rate of 2.6% to \$5.6 billion in the five years to 2019. In addition, growth in the United States and emerging economies will translate into greater demand for industry exports.⁴

3 Report published by IBISWorld entitled "Organic Chemical Manufacturing in Canada – November 2014".

4 Report published by IBISWorld entitled "Organic Chemical Manufacturing in Canada – November 2014".

5 Report published by IBISWorld entitled "Inorganic Chemical Manufacturing in Canada – May 2014".

132. While revenue is projected to grow over the next five years, industry profit for the organic chemical sector will likely be pressured by increasing competition and raw material costs. Rising crude oil prices a major input in chemical manufacturing, will likely cut into profit margins, which are expected to stay flat, reaching 7.8% of revenue in 2019.⁴

133. During the five years to 2019, recovery growth for inorganic chemicals is expected to slow down and industry revenue will likely increase at an annualized rate of just 0.8% to \$4.3 billion.⁵ A weak Canadian dollar will support increased demand for Canadian products in export markets.

134. IBISWorld expects the total value of industry exports to grow at an average annual rate of 10.3% to \$620.5 million in the next four years, accounting for 14.3% of total industry revenue in 2019.⁵ Notwithstanding this, expected increases in government regulation will likely hinder industry profit growth somewhat in coming years.⁵

Analysis of Existence of Economic Obsolescence

135. Based on the above, overall revenue for this sector is projected to continue to grow at a consistent rate and a weak Canadian dollar is expected to support increased demand for Canadian exports in this sector. Profits are expected to remain flat but stable. Consequently, there are no significant factors indicating that EO is present within the subsector at the Report Date.

Approach to Quantifying Economic Obsolescence

136. The guideline public companies considered most appropriate for this analysis were selected based on the larger manufacturing companies that currently operate in this sector in Ontario and/or Canada; generate at least 30% of their revenue from production in this sector; and, have publicly available financial results.

137. The companies selected were as follows: Dow Chemical Company; Cabot Corporation; Cytec Industries Inc.; and Methanex Corporation. The selected guideline public companies are collectively referred to hereafter as the “Guideline Companies”.

Quantifying Economic Obsolescence

138. A discussion of the analysis undertaken to quantify EO follows below.

Return on Invested Capital Analysis

139. The historical rates of ROIC of the Guideline Companies from 2004 to 2013 were analyzed

to derive historical benchmarks. The historical benchmarks were based on the median ROIC realized over this period under the assumption that this benchmark is the best measure of an economic rate of return for this subsector.

140. The historical benchmarks were then compared against the current rates of ROIC based on 2014 to gauge if current rates of ROIC are consistent with historical benchmarks.

141. Three out of four of the Guideline Companies realized an increase in their rate of ROIC in 2014 when compared to their historical benchmark. The ROIC of the remaining company was unchanged in 2014 when compared to its historical benchmark. Consequently, there is no indication that, on an industry wide level, manufacturers in this sector have experienced any decline in their ROIC based on the analysis of the rates of ROIC of the Guideline Companies.

142. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the ROIC analysis is presented on **Schedule 3.1**.

Gross Profit Margin (%) Analysis

143. The historical gross profit margin percentages of the Guideline Companies from 2004 to 2013 were analyzed to derive historical benchmarks. The historical benchmarks were based on the median gross profit margin percentage realized over this period under the assumption that this benchmark is the best measurement of an economic rate for this subsector.

144. The historical benchmarks were then compared against current gross profit margin percentages based on 2014 to gauge if the current gross margin percentages are consistent with historical benchmarks.

145. All of the Guideline Companies realized an increase in their gross profit margin percentage in 2014 when compared to their historical benchmark. Consequently, there is no indication that, on an industry wide level, manufacturers in this sector have experienced any decline in their gross profit margin percentage based on the gross profit margin percentage analysis of the Guideline Companies.

146. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the gross profit margin percentage analysis is presented on **Schedule 3.2**.

Inventory Turnover Ratio Analysis

147. The historical ITR's of the Guideline Companies were analyzed from 2004 to 2013 to derive historical benchmarks. The historical benchmarks were based on the median ITR over this period under the assumption that this benchmark is the best measurement of an economic rate for this subsector.
148. The historical benchmarks were then compared against the current ITR's based on 2014 to gauge if the current ITR's are consistent with historical benchmarks.
149. The majority of the Guideline Companies realized some decline in their ITR in 2014 when compared to their historical benchmark. The rate of the decline ranged from nominal to significant. Consequently, there was a wide divergence in the rates of indicated EO based on the ITR analysis of the Guideline Companies.
150. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the ITR analysis is presented on **Schedule 3.3**.

Fixed asset turnover Ratio Analysis

151. The historical FATR's of the Guideline Companies were analyzed from 2004 to 2013 to derive historical benchmarks. The historical benchmarks were based on the median FATR over this period under the assumption that this benchmark is the best measurement of an economic rate for this subsector.
152. The historical benchmarks were then compared against the current FATR's based on 2014 to gauge if the current FATR's are consistent with historical benchmarks.
153. Two out of four of the Guideline Companies realized some decline in their FATR in 2014 when compared to their historical benchmark. The rate of the decline ranged from nominal to significant. The remainder of the Guideline Companies realized an increase in their FATR when compared to their historical benchmark. Consequently, there was a wide divergence in the rates of indicated EO based on the FATR analysis of the Guideline Companies.
154. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the FATR analysis is presented on **Schedule 3.4**.

Price to Book Ratio Analysis

155. The PBR of the S&P/TSX Industrials Sector Index around the Report Date was compared against the median PBR of the Guideline Companies approximate to the Report Date. The median PBR of the Guideline Companies of 2.8 falls well below the PBR of the S&P TSX Industrials Sector Index of 3.6. Consequently, the market values the net assets of the Guideline Companies operating in this sector to be worth approximately 22% less than the weighted average value of the net assets of all industries combined based on the composition of companies listed on the S&P TSX Industrials Sector Index.

156. It is important to note that the PBR measure is not considered a reliable indicator of EO given that the PBR can be impacted by other variables not related to EO such as a company's capital structure, the extent of analyst coverage and dividend policy, among other things. Notwithstanding this, the results of the analysis are presented on **Schedule 3.5** for information purposes.

Industrial Capacity Utilization Rate Analysis

157. Data on the industrial capacity utilization rates of manufacturing plants operating in this subsector in Ontario and/or Canada was not available. As a substitute, the industrial capacity utilization rates of the Chemical Manufacturing sector, as a whole, were analyzed from 2004 to 2014 to gauge whether current production levels are consistent with historical levels.

158. The current capacity utilization rate for the Chemical Manufacturing sector (NAICS 325) based on the average capacity utilization rate for 2014 falls slightly above the median rate for the past ten years.

159. Accordingly, it appears that the current productivity rate of the Chemical Manufacturing sector is consistent with its historical level.

160. As noted previously, EO can exist even when an asset's capacity utilization rate is at maximum and/or at the industry norm because, although the asset may be operating at its normal/maximum capacity utilization rate, the return being generated by the asset(s) may still be below an economic level.

161. The results of the analysis of industrial capacity utilization rates for the Chemical Manufacturing sector have not been factored into the conclusion on the rate of EO present in this sector given that sector specific data was not available and because of the limitations regarding the analysis as discussed above, however, the calculations are presented on **Schedule 3.6** for information purposes.

Conclusion

162. Based on the scope of review, research, and analysis carried out, and subject to the restrictions as set out herein, **the rate of EO present in the basic chemical manufacturing industry in Ontario is estimated to be 0.0% as at January 1, 2016.** The calculation of the estimated rate of EO is detailed below (see Schedule 3):

BASIC CHEMICAL MANUFACTURING			
Guideline Company Ratio Analysis	Indicated EO	Assigned Weight	Weighted Average
Return on Invested Capital	0.0%	2	0.0%
Gross Profit Margin (%)	0.0%	2	0.0%
Inventory Turnover Ratio	4.5%	1	4.5%
Fixed Asset Turnover Ratio	5.8%	1	5.8%
Price to Book Ratio	22.2%	0	0.0%
Industrial Capacity Utilization	0.0%	0	0.0%
		6	10.3%
		divide by total assigned weight	6
Calculated Rate of EO (rounded)			2.0%
			0.0%
			Estimated Rate of EO as at January 1, 2016

163. In concluding on the rate of EO, the greatest weight was assigned to the EO indicated by the ROIC and gross profit margin (%) analyses given that these analyses best reflect financial/economic performance as they directly measure changes in profitability and overall return on total assets.

164. The EO indicated by the ITR and FATR analyses were assigned a lower weight given that although these analyses reflect changes in the magnitude of sales revenue generated in relation to inventory and fixed asset investments, they do not directly measure changes in profitability and/or overall return on investment.

165. A weighting of zero was assigned to the PBR analysis given that it is not a reliable measure of EO as it can be impacted by other variables unrelated to a change in the economic return on an investment. Accordingly, this analysis is presented for information purposes only.

166. A weighting of zero was also assigned to the industrial capacity utilization analysis as sector specific rates were not available and because of the limitations regarding the analysis as described previously. Accordingly, this analysis is presented for information purposes only.

167. The calculated rate of EO was considered nominal. Accordingly, the overall rate of EO was estimated to be 0.0%.

Resin, Synthetic Rubber & Synthetic Fibres Manufacturing

Background

168. This sector is engaged in the production of resins, plastic materials (i.e. polymers) and synthetic rubber, cellulosic and non-cellulosic fibers and filaments in the form of monofilament, filament yarn, staple or tow.

169. The main product groups include thermosetting resins, thermoplastic resins and synthetic rubber, cellulosic organic fibers and filaments include rayon and acetate, and non-cellulosic fibers and filaments include acrylic, nylon, polyester and spandex.

170. Approximately 75% of the plastic and resin industry's revenue is generated from exported products, Canadian manufacturers in this sector are significantly impacted by events impacting the global economy, and more specifically, the US market given that approximately 81.3% of total exports are to the United States.⁶

Key External Market Influences Impacting the Sector

171. The key external influences impacting the revenue growth and profitability of some or all of the segments within this sector are identified and discussed below.

Demand from Manufacturing

172. This sector's products are used as inputs for a wide variety of manufacturing industries, including automobile manufacturers, electronics producers and packaging manufacturers. Therefore, increased demand for finished products boosts demand for synthetic resins and plastic materials.

173. Demand from manufacturing is expected to increase over 2015, creating a potential opportunity for the industry.

⁶ Report published by IBISWorld entitled "Plastic & Resin Manufacturing in Canada – November 2014".

Industrial Capacity Utilization

174. Industrial capacity utilization is closely tied to demand for industry products because synthetic fibres are used throughout the manufacturing sector. Thus, increasing efficiency in this sector drives demand for industry products.

175. Industrial capacity utilization is expected to increase slowly in 2015.

Demand from Construction

176. This sector's products are used in a wide variety of construction industries, most notably in home building. Consequently, demand for synthetic resins and plastic materials is influenced by levels of construction activity.

177. Demand from construction is expected to increase in 2015.

Demand from Textile Mills

178. Textile mills use synthetic fibres to spin yarn and manufacture a range of fabrics for apparel, home furnishing textiles and technical textiles such as seat belts, air bags, upholstery and interior panelling in cars. While apparel manufacturing has almost entirely moved offshore, highly automated advanced production of technical textiles and home furnishing textiles has presented as a potential opportunity for growth for the industry. However, growth in global production of these products has contributed to the decline of domestic textile mills.

179. In line with this trend, the textile mills industry is expected to contract in 2015, representing a potential threat to the industry.

World Price of Crude Oil

180. Hydrocarbons, which are derived from crude oil, are a main input for resin and synthetic rubber manufacturing. When the price of crude oil increases, the cost of manufacturing also rises, negatively affecting profit margins. Some manufacturers will pass the higher input costs on to consumers in the form of higher prices. However, higher prices often deter customers from making purchases, decreasing industry revenue.

181. The world price of crude oil is expected to decrease in 2015; however, the recent volatility in crude oil prices poses a threat to industry margins and revenue.

Canadian-dollar effective exchange rate index

182.The Canadian-dollar effective exchange rate index (CERI) compares the Canadian dollar against the currencies of Canada’s major trading partners. The six foreign currencies in the CERI include the U.S. dollar, the European Union euro, the Japanese yen, the Chinese yuan and the Mexican peso.

183.When the CERI decreases, the Canadian dollar depreciates and domestically produced products become relatively less expensive for foreign buyers typically increasing demand for Canadian exports of domestically produced products. Alternatively, when the CERI rises, this trend causes domestically produced products to be relatively more expensive for global consumers, thereby cutting into global demand for Canadian exports. This has a significant impact on this industry because imports displace a large portion of domestic demand and exports generate a large share of revenue.

184.The Canadian-dollar effective exchange rate index is expected to decrease in 2015.

Current Performance and Market Trends

185.As a result of improving economic conditions both domestically and globally, IBISWorld estimates that industry revenue for the resin manufacturing sector increased at an annualized rate of 5.9% to \$9.7 billion in the five years to 2014, including growth of 1.7% in 2014 alone.⁷ During the same time period, exports have increased at annualized rate of 6.5% to \$7.3 billion.⁷ Industry profitability has also increased to 14.0% of total revenue in 2014, up from 8.6% in 2009.⁷

186.Revenue for the synthetic fibres segment has continued to decline since 2010, mainly attributed to falling export sales. Exports for this segment are expected to generate 58.5% of industry revenue in 2015, compared to 71.2% in 2010.⁸ As unprofitable operators exited the industry and remaining participants cut operating costs, the average industry profit margin is estimated to recover to 3.1% of revenue in 2015.⁸

Future Outlook for the Subsector

187.IBISWorld expects the resin segment to continue growing at a slower pace than the previous five-years due to domestic and global economies returning to a more normalized growth path. During the four years to 2019, IBISWorld projects industry revenue to increase at an annualized rate of 1.6% to \$10.5 billion.⁷ Despite solid revenue growth,

7 Report published by IBISWorld entitled “Plastic & Resin Manufacturing in Canada – November 2014”.

8 Report published by IBISWorld entitled “Synthetic Fibre Manufacturing in Canada – March 2015”.

profit margins are expected to remain flat as rising raw material costs and strong competition weigh on industry participants.

188. Industry revenue for the synthetic fibres segment is projected to decline at an annualized rate of 1.0% to \$557.9 million over the five years to 2020.⁸ While the Canadian dollar is anticipated to stabilize; export sales will modestly decrease due to increased production of lower-priced synthetic fibres abroad. Volatile oil prices are expected to put downward pressure on earnings, causing the average industry profit margin to slightly decline to 1.9% of revenue.⁸

Analysis of Existence of Economic Obsolescence

189. Based on the above, total revenue and exports for the resin segment are expected to grow at a modest rate over the next five years and profits are expected to remain flat due to rising input costs and increased competition. Revenues, export sales and profits for the synthetic fibres segment are expected to decline slightly over the next five years due to increased global competition and rising input costs. Consequently, there is some evidence indicating that EO is present within the subsector at the Report Date.

Approach to Quantifying Economic Obsolescence

190. The guideline public companies considered most appropriate for this analysis were selected based on the larger manufacturing companies that currently operate in this sector in Ontario and/or Canada; generate at least 30% of their revenue from production in this sector; and, have publicly available financial results.

191. The companies selected were Lanxess AG; Sumitomo Bakelite Co Limited; Airboss of America Corporation; and Dow Chemical Company. The selected guideline public companies are collectively referred to hereafter as the "Guideline Companies".

Quantifying Economic Obsolescence

192. A discussion of the analysis undertaken to quantify EO follows below.

Return on Invested Capital Analysis

193. The historical rates of ROIC of the Guideline Companies from 2004 to 2013 were analyzed to derive historical benchmarks. The historical benchmarks were based on the median ROIC realized over this period under the assumption that this benchmark is the best measure of an economic rate of return for this subsector.

194. The historical benchmarks were then compared against the current rates of ROIC based on 2014 to gauge if current rates of ROIC are consistent with historical benchmarks.

195. One out of four of the Guideline Companies realized a decline in its rate of ROIC in 2014 when compared to its historical benchmark. The rate of the decline was significant. However, the remaining companies realized either an increase in their rate of ROIC in 2014 when compared to their historical benchmark or were unchanged. Consequently, there was a wide divergence in the rates of indicated EO based on the ROIC analysis of the Guideline Companies.

196. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the ROIC analysis is presented on **Schedule 4.1**.

Gross Profit Margin (%) Analysis

197. The historical gross profit margin percentages of the Guideline Companies from 2004 to 2013 were analyzed to derive historical benchmarks. The historical benchmarks were based on the median gross profit margin percentage realized over this period under the assumption that this benchmark is the best measurement of an economic rate for this subsector.

198. The historical benchmarks were then compared against current gross profit margin percentages based on 2014 to gauge if the current gross margin percentages are consistent with historical benchmarks.

199. One out of four of the Guideline Companies realized a material decline in its gross profit margin percentage in 2014 when compared to its historical benchmark. However, the remainder of the Guideline Companies realized an increase in their gross profit margin percentage in 2014 when compared to their historical benchmark. Consequently, there was a wide divergence in the rates of indicated EO based on the analysis of the gross profit margin percentages of the Guideline Companies.

200. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the gross profit margin percentage analysis is presented on **Schedule 4.2**.

Inventory Turnover Ratio Analysis

201. The historical ITR's of the Guideline Companies were analyzed from 2004 to 2013 to derive historical benchmarks. The historical benchmarks were based on the median ITR over this

period under the assumption that this benchmark is the best measurement of an economic rate for this subsector.

202. The historical benchmarks were then compared against the current ITR's based on 2014 to gauge if the current ITR's are consistent with historical benchmarks.

203. Three out of four of the Guideline Companies realized some decline in their ITR in 2014 when compared to their historical benchmark. The rate of the decline ranged from nominal to significant. Consequently, there was a wide divergence in the rates of indicated EO based on the ITR analysis of the Guideline Companies.

204. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the ITR analysis is presented on **Schedule 4.3**.

Fixed asset turnover Ratio Analysis

205. The historical FATR's of the Guideline Companies were analyzed from 2004 to 2013 to derive historical benchmarks. The historical benchmarks were based on the median FATR over this period under the assumption that this benchmark is the best measurement of an economic rate for this subsector.

206. The historical benchmarks were then compared against the current FATR's based on 2014 to gauge if the current FATR's are consistent with historical benchmarks.

207. Two out of four of the Guideline Companies realized a decline in their FATR in 2014 when compared to their historical benchmark. The rate of the decline ranged from nominal to significant. The remaining companies realized either an increase in their FATR in 2014 when compared to their historical benchmark or were unchanged. Consequently, there was a wide divergence in the rates of indicated EO based on the FATR of analysis of the Guideline Companies.

208. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the FATR analysis is presented on **Schedule 4.4**.

Price to Book Ratio Analysis

209. The PBR of the S&P/TSX Industrials Sector Index around the Report Date was compared against the median PBR of the Guideline Companies approximate to the Report Date. The median PBR of the Guideline Companies of 2.6 falls well below the PBR of the S&P TSX

Industrials Sector Index of 3.6. Consequently, the market values the net assets of the Guideline Companies operating in this sector to be worth approximately 29% less than the weighted average value of the net assets of all industries combined based on the composition of companies listed on the S&P TSX Industrials Sector Index.

210. It is important to note that the PBR measure is not considered a reliable indicator of EO given that the PBR can be impacted by other variables not related to EO such as a company's capital structure, the extent of analyst coverage and dividend policy, among other things. Notwithstanding this, the results of the analysis are presented on **Schedule 4.5** for information purposes.

Industrial Capacity Utilization Rate Analysis

211. As noted previously, data on the industrial capacity utilization rates of manufacturing plants operating in this subsector in Ontario and/or Canada was not available. As a substitute, the industrial capacity utilization rates of the Chemical Manufacturing sector, as a whole, were analyzed from 2004 to 2014 to gauge whether current production levels are consistent with historical levels.

212. The current capacity utilization rate for the Chemical Manufacturing sector (NAICS 325) based on the average capacity utilization rate for 2014 falls slightly above the median rate for the past ten years.

213. Accordingly, it appears that the current productivity rate of the Chemical Manufacturing sector is consistent with its historical level.

214. As noted previously, EO can exist even when an asset's capacity utilization rate is at maximum and/or at the industry norm because, although the asset may be operating at its normal/maximum capacity utilization rate, the return being generated by the asset(s) may still be below an economic level.

215. The results of the analysis of industrial capacity utilization rates for the Chemical Manufacturing sector have not been factored into the conclusion on the rate of EO present in this sector given that sector specific data was not available and because of the limitations regarding the analysis as discussed above, however, the calculations are presented on **Schedule 3.6** for information purposes.

Conclusion

216. Based on the scope of review, research, and analysis carried out, and subject to the restrictions as set out herein, **the rate of EO present in the resin, synthetic rubber and synthetic fibres manufacturing industry in Ontario is estimated to be 3.0% as at January 1, 2016.** The calculation of the estimated rate of EO is detailed below (see Schedule 4):

RESIN, SYNTHETIC RUBBER & SYNTHETIC FIBRES MANUFACTURING			
<u>Guideline Company Ratio Analysis</u>	<u>Indicated EO</u>	<u>Assigned Weight</u>	<u>Weighted Average</u>
Return on Invested Capital	0.0%	2	0.0%
Gross Profit Margin (%)	0.0%	2	0.0%
Inventory Turnover Ratio	11.0%	1	11.0%
Fixed Asset Turnover Ratio	4.0%	1	4.0%
Price to Book Ratio	29.2%	0	0.0%
Industrial Capacity Utilization	0.0%	0	0.0%
		6	15.0%
	divide by total assigned weight		6
Estimated Rate of EO as at January 1, 2016			3.0%

217. In concluding on the rate of EO, the greatest weight was assigned to the EO indicated by the ROIC and gross profit margin (%) analyses given that these analyses best reflect financial/economic performance as they directly measure changes in profitability and overall return on total assets.

218. The EO indicated by the ITR and FATR analyses were assigned a lower weight given that although these analyses reflect changes in the magnitude of sales revenue generated in relation to inventory and fixed asset investments, they do not directly measure changes in profitability and/or overall return on investment.

219. A weighting of zero was assigned to the PBR analysis given that it is not a reliable measure of EO as it can be impacted by other variables unrelated to a change in the economic return on an investment. Accordingly, this analysis is presented for information purposes only.

220. A weighting of zero was also assigned to the industrial capacity utilization analysis as sector specific rates were not available and because of the limitations regarding the analysis as described previously. Accordingly, this analysis is presented for information purposes only.

Pesticide, Fertilizer & Other Agricultural Chemical Manufacturing

Background

221. This fertilizer industry primarily manufactures fertilizer products, which are distributed via wholesale arrangements with third parties or, in the case of vertically integrated operations, by the manufacturer.

222. Pesticide manufacturers produce household and agricultural pest control chemicals. Industry products include pesticides and agricultural chemical products such as herbicides, insecticides, fungicides, insect repellents, sheep dips, fly sprays and flea powders.

223. According to the Canadian Fertilizer Institute, Canada is one of the largest potash and nitrogen fertilizer producers in the world with almost 59.0% of total Canadian potash production exported abroad, principally to the United States.

Key External Market Influences Impacting the Sector

224. The key external influences impacting the revenue growth and profitability of some or all of the segments within this sector are identified and discussed below.

Demand from Crop Production

225. Crop production patterns play a significant role in influencing demand for various fertilizer and pesticide products, which are influenced by crop prices. An increase in crop production will raise demand for fertilizer.

226. Demand from crop production is expected to decline in 2015, posing a potential threat to this industry.

Price of Fertilizer

227. As the principal activity for industry operators is the manufacturing and selling of fertilizers to their clients, the market price for fertilizers is a vital indicator for the industry. When the price of fertilizer increases, industry operators are able to charge more for their products thereby generating higher revenue and potentially higher profitability for themselves.

228.The price of fertilizer index is expected to increase, presenting a potential opportunity for the industry in 2015.

US Gross Domestic Product (GDP)

229.The United States is the largest export market for Canada's fertilizer manufacturing industry. Over the past decade, shipments to the United States have consistently represented more than 35.0% of total industry revenue. As a consequence, the health of the US economy, especially its agricultural sector, is important for firms operating in Canada's fertilizer manufacturing industry.

230.The US economy is expected to increase throughout 2015.

World Price of Crude Oil

231.Significant energy is required to produce fertilizer and pesticide chemicals. Since most energy is derived from oil, the price of this input has a significant effect on the industry's costs. An increase in oil costs can reduce profit margins and lead some companies to raise pesticide prices, which can deter consumption.

232.The world price of crude oil is expected to decrease in 2015.

World Price of Natural Gas

233.Natural gas is used to product fertilizer and pesticide products. As the price of natural gas rises, the cost of manufacturing these products also rises.

234.The world price of natural gas is expected to decline during 2015.

Canadian-dollar Effective Exchange Rate Index

235.The Canadian-dollar effective exchange rate index (CERI) compares the Canadian dollar against the currencies of Canada's major trading partners. The six foreign currencies in the CERI include the U.S. dollar, the European Union euro, the Japanese yen, the Chinese yuan and the Mexican peso.

236.As the Canadian dollar strengthens against the currencies of its major trading partners, imported products become more affordable in the domestic market, increasing competition for producers. Alternatively, when the Canadian dollar depreciates, domestic goods become more price-competitive in the global market, boosting demand for industry exports.

237.The Canadian-dollar effective exchange rate index is expected to decrease in 2015.

Consumer Price Index for Food

238.The consumer price index for food reflects the general price level of food in the economy. A stable and foreseeable increase in this index increases revenue for downstream food service industries and consequently, they raise their food purchases from farmers and other intermediaries. Accordingly, a stable increase in this index raises revenue for farmers, which enables and incentivizes them to produce more crops and, in turn, purchase more fertilizers and pesticides.

239.The consumer price index for food is expected to increase over 2015.

Current Performance and Market Trends

240.The price of fertilizers began to recover in late 2014 and is expected to increase by 4.3% in 2015, reaching \$5.8 billion. In the five years to 2015, fertilizer exports were estimated to increase at an average annual rate of 3.9% to \$2.0 billion, boosted by improving global economic conditions. Profit margins are expected to account for 14.3% of revenue in 2015 up from its 13.9% level in 2010.⁹

241.The pesticide manufacturing industry has experienced a marginal revenue decline over the past five years. Despite a marginal decrease in revenue, profit margins have increased considerably. IBISWorld estimated industry revenue declined at an annualized rate of 0.3% to \$1.1 billion over the five years to 2014 and the average industry profit margin was 18.4% in 2014, up from 15.4% in 2009.¹⁰

Future Outlook for the Subsector

242.In the five years to 2020, revenue for the fertilizer industry is expected to increase at an average annual rate of 3.3% to \$6.8 billion. Farmers will increasingly demand fertilizer as crop production increases. Additionally, total fertilizer exports are expected to grow at an annualized rate of 3.6% to \$2.3 billion over the same time period. Profits for the fertilizer segment are projected to increase slightly from 14.3% in 2015 to 14.9% in 2020.⁹

243.The next four years are expected to be more prosperous for pesticide manufacturers in this segment. Overall, IBISWorld expects industry revenue to grow at an annualized rate of 5.9% to \$1.5 billion during the four years to 2019. Exports are expected to increase at an

⁹ Report published by IBISWorld entitled "Fertilizer Manufacturing in Canada – April 2015".

¹⁰ report published by IBISWorld entitled "Pesticide Manufacturing in Canada – November 2014".

annualized rate of 0.5% to \$94.3 million and profit margins are projected to fall slightly to 18.1% of revenue by the end of 2019 as the cost of imported raw materials will increase with the falling exchange rate.¹⁰

Analysis of Existence of Economic Obsolescence

244. Based on the above, total revenue and exports for the fertilizer segment are expected to grow at a modest rate over the next five years and profits are expected to increase slightly. The pesticide segment is expected to realize continued growth in revenues and export sales over the next five years and profit margins are projected to dip just slightly due to a rise in the cost of imported raw materials. Consequently, there are no significant factors to indicate that EO may be present within the subsector at the Report Date.

Approach to Quantifying Economic Obsolescence

245. The guideline public companies considered most appropriate for this analysis were selected based on the larger manufacturing companies that currently operate in the various segments of this sector in Ontario and/or Canada; generate at least 30% of their revenue from production in this sector; and, have publicly available financial results.

246. The companies selected were as follows: CF Industries Holdings Inc.; Chemtura Corporation; Agrium Inc.; and Monsanto Company. The selected guideline public companies are collectively referred to hereafter as the “Guideline Companies”.

Quantifying Economic Obsolescence

247. A discussion of the analysis undertaken to quantify EO follows below.

Return on Invested Capital Analysis

248. The historical rates of ROIC of the Guideline Companies from 2004 to 2013 were analyzed to derive historical benchmarks. The historical benchmarks were based on the median ROIC realized over this period under the assumption that this benchmark is the best measure of an economic rate of return for this subsector.

249. The historical benchmarks were then compared against the current rates of ROIC based on 2014 to gauge if current rates of ROIC are consistent with historical benchmarks.

250. Two out of four of the Guideline Companies realized a material decline in their rate of ROIC in 2014 when compared to their historical benchmark. The remainder of the Guideline Companies realized an increase in their rate of ROIC in 2014 when compared to

their historical benchmark. Consequently, there is a wide divergence in the rate of indicated EO based on the analysis of the ROIC of the Guideline Companies.

251. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the ROIC analysis is presented on **Schedule 5.1**.

Gross Profit Margin (%) Analysis

252. The historical gross profit margin percentages of the Guideline Companies from 2004 to 2013 were analyzed to derive historical benchmarks. The historical benchmarks were based on the median gross profit margin percentage realized over this period under the assumption that this benchmark is the best measurement of an economic rate for this subsector.

253. The historical benchmarks were then compared against current gross profit margin percentages based on 2014 to gauge if the current gross margin percentages are consistent with historical benchmarks.

254. Two out of four of the Guideline Companies realized a decline in their gross profit margin percentage in 2014 when compared to their historical benchmark. The amount of the decline ranged from nominal to significant. The remainder of the Guideline Companies realized an increase in their gross profit margin percentage when compared to their historical benchmark. Consequently, there is a wide divergence in the rate of indicated EO based on the analysis of the gross profit margin percentages of the Guideline Companies.

255. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the gross profit margin percentage analysis is presented on **Schedule 5.2**.

Inventory Turnover Ratio Analysis

256. The historical ITR's of the Guideline Companies were analyzed from 2004 to 2013 to derive historical benchmarks. The historical benchmarks were based on the median ITR over this period under the assumption that this benchmark is the best measurement of an economic rate for the Industry.

257. The historical benchmarks were then compared against the current ITR's based on 2014 to gauge if the current ITR's are consistent with historical benchmarks.

258. Two out of four of the Guideline Companies realized a modest decline in their ITR in 2014

when compared to their historical benchmark. The remainder of the Guideline Companies realized an increase in their ITR in 2014 when compared to their historical benchmark. Consequently, there is a wide divergence in the indicated rate of EO based on the analysis of the ITR's of the Guideline Companies.

259. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the ITR analysis is presented on **Schedule 5.3**

Fixed asset turnover Ratio Analysis

260. The historical FATR's of the Guideline Companies were analyzed from 2004 to 2013 to derive historical benchmarks. The historical benchmarks were based on the median FATR over this period under the assumption that this benchmark is the best measurement of an economic rate for the Industry.

261. The historical benchmarks were then compared against the current FATR's based on 2014 to gauge if the current FATR's are consistent with historical benchmarks.

262. Three out of four of the Guideline Companies realized a decline in their FATR in 2014 when compared to their historical benchmark. The amount of the decline ranged from nominal to significant. The remaining company realized an increase in its FATR in 2014 when compared to its historical benchmark. Consequently, there is a wide divergence in the rates of indicated EO based on the analysis of the FATR's of the Guideline Companies.

263. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the FATR analysis is presented on **Schedule 5.4**.

Price to Book Ratio Analysis

264. The PBR of the S&P/TSX Industrials Sector Index around the Report Date was compared against the median PBR of the Guideline Companies approximate to the Report Date. The median PBR of the Guideline Companies of 3.0 falls below the PBR of the S&P TSX Industrials Sector Index of 3.6 by a material level. Consequently, the market values the net assets of the Guideline Companies operating in this sector to be worth approximately 17% less than the weighted average value of the net assets of all industries combined based on the composition of companies listed on the S&P TSX Industrials Sector Index.

265. It is important to note that the PBR measure is not considered a reliable indicator of EO given that the PBR can be impacted by other variables not related to EO such as a

company's capital structure, the extent of analyst coverage and dividend policy, among other things. Notwithstanding this, the results of the analysis are presented on **Schedule 5.5** for information purposes.

Industrial Capacity Utilization Rate Analysis

266. As noted previously, data on the industrial capacity utilization rates of manufacturing plants operating in this subsector in Ontario and/or Canada was not available. As a substitute, the industrial capacity utilization rates of the Chemical Manufacturing sector, as a whole, were analyzed from 2004 to 2014 to gauge whether current production levels are consistent with historical levels.

267. The current capacity utilization rate for the Chemical Manufacturing sector (NAICS 325) based on the average capacity utilization rate for 2014 falls slightly above the median rate for the past ten years.

268. Accordingly, it appears that the current productivity rate of the Chemical Manufacturing sector is consistent with its historical level.

269. As noted previously, EO can exist even when an asset's capacity utilization rate is at maximum and/or at the industry norm because, although the asset may be operating at its normal/maximum capacity utilization rate, the return being generated by the asset(s) may still be below an economic level.

270. The results of the analysis of industrial capacity utilization rates for the Chemical Manufacturing sector have not been factored into the conclusion on the rate of EO present in this sector given that sector specific data was not available and because of the limitations regarding the analysis as discussed above, however, the calculations are presented on **Schedule 3.6** for information purposes.

Conclusion

271. Based on the scope of review, research, and analysis carried out, and subject to the restrictions as set out herein, **the rate of EO present in the pesticide, fertilizer and other agricultural chemical manufacturing industry in Ontario is estimated to be 0.0% as at January 1, 2016.** The calculation of the estimated rate of EO is detailed below (see Schedule 5):

PESTICIDE, FERTILIZER & OTHER AGRICULTURAL CHEMICAL MANUFACTURING			
Guideline Company Ratio Analysis	Indicated EO	Assigned Weight	Weighted Average
Return on Invested Capital	13.2%	0	0.0%
Gross Profit Margin (%)	2.7%	0	0.0%
Inventory Turnover Ratio	4.2%	0	0.0%
Fixed Asset Turnover Ratio	17.9%	0	0.0%
Price to Book Ratio	16.7%	0	0.0%
Industrial Capacity Utilization	0.0%	0	0.0%
		0	0.0%
	divide by total assigned weight		0
Estimated Rate of EO as at January 1, 2016			0.0%

272. In concluding on the rate of EO, the results of the profitability and efficiency ratio analysis of the Guideline Companies is not considered to accurately reflect the current economic state and future outlook of this sector based on the qualitative evidence reviewed and given that there were a limited number of guideline company comparables identified to be operating within this sector in Ontario and/or Canada available for the quantitative analysis portion of this review. Accordingly, a weighting of zero was assigned to the EO indicated by the ROIC, gross profit margin (%), ITR and FATR analyses.

273. A weighting of zero was assigned to the PBR analysis given that it is not a reliable measure of EO as it can be impacted by other variables unrelated to a change in the economic return on an investment. Accordingly, this analysis is presented for information purposes only.

274. A weighting of zero was also assigned to the industrial capacity utilization analysis as sector specific rates were not available and because of the limitations regarding the analysis as described previously. Accordingly, this analysis is presented for information purposes only.

OTHER PLASTIC PRODUCT MANUFACTURING INDUSTRY IN CANADA AND ONTARIO

Background

275.The other plastic product sector manufactures a wide range of plastic products, including housewares, building materials, motor vehicle parts, resilient floor coverings and appliance parts.

276.The sector relies on several key industries to purchase its products including automotive manufacturers, which account for 23.7% of revenue and the construction industry, which accounts for 26.0% of industry revenue.

Key External Market Influences Impacting the Subsector

277.The key external influences impacting the revenue growth and profitability of the sector are identified and discussed below.

Demand from Car and Automobile Manufacturing

278.The Car and Automobile Manufacturing industry is one of the largest markets for plastic product manufacturers. This market uses plastic parts and components for the interior and exterior of motor vehicles, as well as in some engine components. Demand from car and automobile manufacturing is expected to increase in 2015, representing a potential opportunity for the industry.

Demand from Construction

279.The level of construction activity affects demand for industry products, which are used as building materials for residential and commercial purposes. As the economy picks up, IBISWorld expects an increase in construction, particularly with corporate renovations; many companies will start remodeling their buildings with energy-efficient materials.

280.Demand from construction is expected to decline in 2015, posing a potential threat to the industry.

World Price of Crude Oil

281.The world price of crude oil directly impacts the price of plastic inputs that industry operators use in their manufacturing processes. When oil prices rise, the price of plastic inputs rises as well; conversely, when they fall, plastic products become more cost effective to manufacture. In 2015, the world price of crude oil is expected to decrease.

Canadian-dollar Effective Exchange Rate Index

282.The Canadian-dollar effective exchange rate index (CERI) compares the Canadian dollar against the currencies of Canada’s major trading partners. The six foreign currencies in the CERI include the U.S. dollar, the European Union euro, the Japanese yen, the Chinese yuan and the Mexican peso.

283.When the CERI decreases, the Canadian dollar depreciates and domestically produced products become relatively less expensive for foreign buyers typically increasing demand for Canadian exports of domestically produced products. Alternatively, when the CERI rises, this trend causes domestically produced products to be relatively more expensive for global consumers, thereby cutting into global demand for Canadian exports. This has a significant impact on this industry because imports displace a large portion of domestic demand and exports generate a large share of revenue.

284.The Canadian-dollar effective exchange rate index is expected to decrease in 2015.

Demand from Building Material and Supplies Dealers

285.Building material and supplies dealers supply the construction industries with plastic bolts, nuts, rivets and other plastic construction supplies. An increase in construction activity supports demand for these products. The housing market is expected to grow in 2015, resulting in rising demand for plastic products from building material and supplies dealers during the year.

Current Industry Performance and Market Trends

286.IBISWorld estimates that industry revenue increased at an annualized rate of 1.8% to \$11.7 billion for the five years to 2015. The industry has been stabilizing as demand gradually improved from the shock of the economic downturn. In 2015, revenue is expected to increase 0.8%. Export sales for this sector were estimated to grow an average 0.2% per year over the same period. Profit is expected to account for 4.5% of industry revenue in 2015, a substantial improvement from recessionary lows.¹¹

Future Outlook for the Industry

287.Improving economic conditions are expected to stimulate modest industry revenue growth at an annualized rate of 0.3% to total \$11.9 billion in the next five years. IBISWorld projects that Car and Automobile Manufacturing industry revenue will increase at an average

¹¹ Report published by IBISWorld entitled “Plastic Products Miscellaneous Manufacturing in Canada – March 2015”;

annual rate of 1.9% in the five years to 2020, which will lead to growth opportunities for manufacturers of plastic parts and components used in vehicles. Per capita disposable income is also expected to rise at an annualized rate of 1.4%, which will drive consumer spending for items that use plastic products, including furniture and electronics and developers and individuals will be more likely to invest and undertake new construction projects and repairs.¹²

288.As economic conditions improve, manufacturers in this sector are expected to experience increasing profitability. IBISWorld expects manufacturers to hedge input costs by adjusting selling prices, minimizing manufacturing costs and consolidating to achieve greater production volumes, which will maintain profit margins.

Analysis of Existence of Economic Obsolescence

289.Based on the above, total revenue is expected to continue to grow steadily. Profits are also expected to remain stable. Consequently, there are no significant factors indicating that EO was present within the subsector at the Report Date.

Approach to Quantifying Economic Obsolescence

290.There were no guideline public companies identified to be operating within this sector in Ontario and/or Canada for the quantitative analysis portion of this report. Accordingly, the evidence indicated from the qualitative analysis as detailed above has been solely relied on to arrive at an estimated rate of EO for this sector. Based on the qualitative evidence as detailed above, there are no significant factors indicating that EO was present within the subsector at the Report Date.

Industrial Capacity Utilization Rate Analysis

291.The current capacity utilization rate for the Plastic Product Manufacturing sector (NAICS 3261) based on the average capacity utilization rate for 2014 falls well above the median rate for the past ten years.

292.Accordingly, it appears that the current productivity rate of the Plastic Product Manufacturing sector is well above historical levels. Consequently, the rate of indicated EO based on the industrial capacity utilization rate analysis is 0.0%.

293.As previously noted, EO can exist even when an asset's capacity utilization rate is at maximum and/or at the industry norm because, although the asset may be operating at its

¹² Report published by IBISWorld entitled "Plastic Products Miscellaneous Manufacturing in Canada – March 2015";

normal/maximum capacity utilization rate, the return being generated by the asset(s) may still be below an economic level.

294. The analysis of industrial capacity utilization rates for the Plastic Product Manufacturing sector is presented on **Schedule 6.1** as further support for the conclusion on the rate of EO present in this sector notwithstanding its limitation as detailed above.

Conclusion

295. Based on the scope of review, research, and analysis carried out, and subject to the restrictions as set out herein, **the rate of EO present in the other plastic products manufacturing sector in Ontario is estimated to be 0.0% as at January 1, 2016 (see Schedule 6)**

ASSUMPTIONS AND RESTRICTIONS

296. The financial and operating results of the Guideline Companies, as sourced from the Thompson Reuters Eikon database (“Reuters”), are fairly stated and free of material errors. If the financial and operating results of the Guideline Companies, as sourced from Reuters, are not free of material errors, such errors could have a material impact on the conclusion(s) stated herein.

297. The information contained in the IBISWorld reports, including aggregate financial results, statistics and prospects of the Industries in Canada, is accurate, reasonable and reflects best estimates based on the information available at the Report Date.

298. There will be no significant change in the operating and financial results of the Guideline Companies from fiscal 2014 to the Effective Date. If a significant change in the operating and financial results of the Guideline Companies does occur during this period, such changes may cause the conclusion(s) stated herein to be materially different at the Effective Date.

299. There will be no significant changes in market conditions and/or Canadian/global economic conditions from the Report Date to the Effective Date. If any significant changes in market conditions and/or Canadian/global economic conditions do occur from the Report Date to the Effective Date, such changes may cause the conclusion(s) stated herein to be materially different at the Effective Date.

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Yours very truly,

Deborah Sprenger, CPA, CGA, CBV

Schedule 1

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE IN
THE LUBRICANT OIL, CHEMICAL AND OTHER PLASTIC PRODUCTS
MANUFACTURING INDUSTRIES IN ONTARIO
SUMMARY OF GUIDELINE COMPANIES RATIO ANALYSIS**

<u>Ontario Manufacturing Industries</u>		<u>Estimated Rate of EO</u>
Lubricant Oil Manufacturing	Schedule 2	4.0%
Chemical Manufacturing:		
Basic chemical	Schedule 3	0.0%
Resin, synthetic rubber & synthetic fibres	Schedule 4	3.0%
Pesticide, fertilizer & other agricultural chemical	Schedule 5	0.0%
Other Plastic Products Manufacturing	Schedule 6	0.0%

Schedule 2

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
LUBRICANT OIL MANUFACTURING
SUMMARY OF GUIDELINE COMPANIES RATIO ANALYSIS**

<u>Guideline Company Ratio Analysis</u>		<u>Indicated EO</u>	<u>Assigned Weight</u> (Note 1)	<u>Weighted Average</u>
Return on Invested Capital	Schedule 2.1	55.4%	0	0.0%
Gross Profit Margin (%)	Schedule 2.2	3.7%	1	3.7%
Inventory Turnover Ratio	Schedule 2.3	29.7%	0	0.0%
Fixed Asset Turnover Ratio	Schedule 2.4	32.7%	0	0.0%
Price to Book Ratio	Schedule 2.5	55.6%	0	0.0%
Industrial Capacity Utilization	Schedule 2.6	<u>0.9%</u>	<u>0</u>	<u>0.0%</u>
			1	3.7%
	<i>Range of EO Indicators - 0% to 55%</i>		<i>divide by total assigned weight</i>	<u>1</u>
Estimated Rate of EO as at January 1, 2016 (rounded) (Note 1)				<u>4.0%</u>

Note:

(1) In concluding on the rate of EO, the only weight assigned was to the EO indicated by the gross profit margin (%) analysis as it better reflects the current economic state and future outlook of this sector given the nature of the industry. No weight was assigned to the ROIC, ITR and FATR analyses as the EO indicated by these analyses is not considered to accurately reflect the current economic state and future outlook of this sector based on the qualitative evidence reviewed and given that there were a limited number of guideline public company comparables identified to be operating within this sector in Ontario and/or Canada available for the quantitative analysis portion of this review. As well, all of the Guideline Companies derive a significant portion of their revenue from other sectors, some of which have experienced extreme volatility over the past five years, thereby possibly skewing the results of the analyses.

A weighting of zero was assigned to the PBR analysis given that it is not a reliable measure of EO as it can be impacted by other variables unrelated to a change in the economic return on an investment. Accordingly, this analysis is presented for information purposes only.

A weighting of zero was also assigned to the industrial capacity utilization analysis as sector specific rates were not available and because of the limitations regarding the analysis as described in the narrative portion of this report.

Schedule 2.1

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
LUBRICANT OIL MANUFACTURING
RETURN ON INVESTED CAPITAL ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated EO
											Max	Min	Mean	Median		
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 2)	(Note 2)	(Note 2)	(Note 2)	(Note 1)	(Note 3,4)
														(B)	(A-B/A)	
1 Suncor Energy Inc.	10.8%	9.8%	19.9%	15.7%	8.3%	2.7%	4.4%	7.1%	4.2%	5.8%	19.9%	2.7%	8.9%	7.7%	3.9%	49.4%
2 Royal Dutch Shell PLC	16.3%	20.9%	19.0%	19.8%	15.2%	6.7%	9.6%	13.7%	11.1%	6.4%	20.9%	6.4%	13.9%	14.5%	5.6%	61.4%
3 Ashland Inc.	5.5%	35.7%	3.7%	4.4%	3.9%	-3.8%	1.1%	0.6%	0.1%	5.3%	35.7%	-3.8%	5.7%	3.8%	0.7%	81.6%
4 Exxon Mobil Corp.	18.0%	23.6%	24.3%	24.1%	26.5%	11.2%	15.3%	17.5%	18.7%	12.6%	26.5%	11.2%	19.2%	18.4%	12.3%	33.2%
Mean											25.8%	4.1%	11.9%	11.1%	5.6%	56.4%
Median											23.7%	4.6%	11.4%	11.1%	4.8%	55.4%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Company from 2004 to 2013.

(3) Indicated EO for the Guideline Company was measured by calculating the differential in the historical return on invested capital ("ROIC") benchmark (based on the median rate from 2004 to 2013) and the current ROIC based on 2014 as follows: $((\text{Median ROIC} - \text{Current ROIC}) / \text{Median ROIC})$. If the current ROIC was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 2.2

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
LUBRICANT OIL MANUFACTURING
GROSS PROFIT MARGIN ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated EO
											Max	Min	Mean	Median		
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 2)	(Note 2)	(Note 2)	(Note 2)	(Note 1)	(Note 3,4)
													(A)	(B)	(A-B/A)	
1 Suncor Energy Inc.	60.3%	51.9%	51.3%	36.0%	-10.7%	12.2%	53.7%	53.8%	55.3%	56.3%	60.3%	-10.7%	42.0%	52.8%	56.3%	0.0%
2 Royal Dutch Shell PLC	16.2%	17.6%	17.5%	19.8%	16.0%	17.9%	16.4%	15.6%	15.2%	15.4%	19.8%	15.2%	16.8%	16.3%	15.1%	7.4%
3 Ashland Inc.	18.3%	17.6%	16.6%	17.2%	15.8%	26.2%	28.2%	24.8%	25.6%	29.3%	29.3%	15.8%	22.0%	21.6%	24.8%	0.0%
4 Exxon Mobil Corp.	34.9%	32.4%	33.7%	32.6%	30.0%	29.8%	29.1%	27.1%	25.9%	25.1%	34.9%	25.1%	30.1%	29.9%	24.8%	17.1%
Mean											36.1%	11.4%	27.7%	30.2%	30.3%	6.1%
Median											32.1%	15.5%	26.1%	25.8%	24.8%	3.7%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Company from 2004 to 2013.

(3) Indicated EO for the Guideline Company was measured by calculating the differential in the historical gross margin (%) benchmark (based on the median rate from 2004 to 2013) and the current gross margin (%) based on 2014 as follows: $((\text{Median GM}\% - \text{Current GM}\%) / \text{Median GM}\%)$. If the current GM(%) was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 2.3

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
LUBRICANT OIL MANUFACTURING
INVENTORY TURNOVER ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated EO
											Max	Min	Mean	Median		
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 2)	(Note 2)	(Note 2)	(Note 2)	(Note 1)	(Note 3,4)
													(A)	(B)	(A-B/A)	
1 Suncor Energy Inc.	8.3	10.5	12.5	11.6	19.7	7.7	4.9	4.8	4.3	4.5	19.7	4.3	8.9	8.0	4.7	41.3%
2 Royal Dutch Shell PLC	15.9	14.4	12.2	10.4	15.2	9.8	10.8	13.6	13.3	12.6	15.9	9.8	12.8	13.0	14.4	0.0%
3 Ashland Inc.	10.5	12.4	12.4	11.3	13.0	7.7	8.5	7.1	5.0	4.9	13.0	4.9	9.3	9.5	6.0	36.8%
4 Exxon Mobil Corp.	20.6	25.8	24.2	24.1	28.3	18.3	21.4	24.3	22.6	20.6	28.3	18.3	23.0	23.4	18.1	22.6%
Mean											19.2	9.3	13.5	13.5	10.8	25.2%
Median											17.8	7.4	11.1	11.3	10.2	29.7%

Notes:

- (1) Source: Thomson Reuters Eikon database.
- (2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Company from 2004 to 2013.
- (3) Indicated EO for the Guideline Company was measured by calculating the differential in the historical inventory turnover rate ("ITR") benchmark (based on the median rate from 2004 to 2013) and the current ITR based on 2014 as follows: $((\text{Median ITR} - \text{Current ITR}) / \text{Median ITR})$. If the current ITR was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.
- (4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 2.4

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
LUBRICANT OIL MANUFACTURING
FIXED ASSET TURNOVER ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	Max	Min	Mean	Median	(Note 1)	EO
											(Note 2)	(Note 2)	(Note 2)	(Note 2)	(B)	(Note 3,4)
														(A)		(A-B/A)
1 Suncor Energy Inc.	0.9	0.9	1.0	0.8	0.7	0.4	0.6	0.7	0.7	0.7	1.0	0.4	0.7	0.7	0.7	0.0%
2 Royal Dutch Shell PLC	3.0	3.5	3.4	3.5	4.3	2.3	2.7	3.2	2.9	2.5	4.3	2.3	3.1	3.1	2.2	29.0%
3 Ashland Inc.	4.7	6.6	8.1	8.1	8.1	3.3	2.9	2.7	2.3	2.3	8.1	2.3	4.9	4.0	2.5	37.5%
4 Exxon Mobil Corp.	2.7	3.3	3.3	3.3	3.8	2.3	2.2	2.3	2.0	1.8	3.8	1.8	2.7	2.5	1.6	36.4%
Mean											4.3	1.7	2.9	2.6	1.7	25.7%
Median											4.1	2.1	2.9	2.8	1.9	32.7%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Company from 2004 to 2013.

(3) Indicated EO for the Guideline Company was measured by calculating the differential in the historical fixed asset turnover rate ("FATR") benchmark (based on the median rate from 2004 to 2013) and the current FATR based on 2014 as follows: $((\text{Median FATR} - \text{Current FATR}) / \text{Median FATR})$. If the current FATR was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 2.5

MUNICIPAL PROPERTY ASSESSMENT CORPORATION ANALYSIS OF ECONOMIC OBSOLESCENCE LUBRICANT OIL MANUFACTURING PRICE TO BOOK RATIO ANALYSIS

Price to Book Ratio at June 25, 2015 (Note 1)

1	Suncor Energy Inc.	1.2
2	Royal Dutch Shell PLC	1.1
3	Ashland Inc.	2.4
4	Exxon Mobil Corp.	2.0

Maximum	2.4
Minimum	1.1
Mean	1.7
Median	1.6
S&P / TSX Industrials Sector Index at June 25, 2015 (Note 1)	3.6
Indicated EO (Note 2)	<u>55.6%</u>

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) Indicated EO was measured by calculating the differential in the median of the range of price to book ratios of the Guideline Companies and the weighted average price to book ratio of the S&P/TSX Industrials Sector Index.

Schedule 2.6

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
PETROLEUM & COAL PRODUCT MANUFACTURING (NAICS 324)
INDUSTRIAL CAPACITY UTILIZATION RATES**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)
Petroleum and coal products	93.9	88.3	83.2	82.5	75.0	77.9	83.8	79.5	79.4	79.0	80.3

Maximum - 2004 to 2013	93.9
Minimum - 2004 to 2013	75.0
Median - 2004 to 2013	81.0
Five Year Average - 2009 to 2013	79.9
Ten Year Average - 2004 to 2013	82.3
2014	80.3
Indicated EO (Note 2)	<u>0.9%</u>

Notes:

(1) Source: Statistics Canada - CANSIM Table 028-0002

(2) Indicated EO was measured by calculating the differential in the median capacity utilization rate from 2004 to 2013 and the current rate based on the average capacity utilization rate for 2014.

Schedule 3

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
BASIC CHEMICAL MANUFACTURING
SUMMARY OF GUIDELINE COMPANIES RATIO ANALYSIS**

<u>Guideline Company Ratio Analysis</u>		<u>Indicated EO</u>	<u>Assigned Weight</u> (Note 1)	<u>Weighted Average</u>
Return on Invested Capital	Schedule 3.1	0.0%	2	0.0%
Gross Profit Margin (%)	Schedule 3.2	0.0%	2	0.0%
Inventory Turnover Ratio	Schedule 3.3	4.5%	1	4.5%
Fixed Asset Turnover Ratio	Schedule 3.4	5.8%	1	5.8%
Price to Book Ratio	Schedule 3.5	22.2%	0	0.0%
Industrial Capacity Utilization	Schedule 3.6	<u>0.0%</u>	<u>0</u>	<u>0.0%</u>
			6	10.3%
	<i>Range of EO Indicators - 0% to 22%</i>		<i>divide by total assigned weight</i>	<u>6</u>
Calculated Rate of EO (rounded)				<u>2.0%</u>
Estimated Rate of EO as at January 1, 2016 (rounded) (Note 1)				<u>0.0%</u>

Note:

(1) In concluding on the rate of EO, the greatest weight was assigned to the EO indicated by the ROIC and gross profit margin (%) analyses given that these analyses best reflect financial/economic performance as they directly measure changes in profitability and overall return on total assets.

The EO indicated by the ITR and FATR analyses were assigned a lower weight given that although these analyses reflect changes in the magnitude of sales revenue generated in relation to inventory and fixed asset investments, they do not directly measure changes in profitability and/or overall return on investment.

A weighting of zero was assigned to the PBR analysis given that it is not a reliable measure of EO as it can be impacted by other variables unrelated to a change in the economic return on an investment.

A weighting of zero was also assigned to the industrial capacity utilization analysis as sector specific rates were not available and because of the limitations regarding the analysis as described in the narrative portion of this report.

Schedule 3.1

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
BASIC CHEMICAL MANUFACTURING
RETURN ON INVESTED CAPITAL ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated EO
											Max	Min	Mean	Median		
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 2)	(Note 2)	(Note 2)	(Note 2)	(Note 1)	(Note 3,4)
													(A)	(B)	(A-B/A)	
1 Dow Chemical Co.	8.7%	13.2%	11.0%	8.4%	1.8%	1.3%	4.3%	5.1%	2.0%	8.5%	13.2%	1.3%	6.4%	6.8%	6.8%	0.0%
2 Cabot Corp.	6.4%	-2.5%	4.6%	6.5%	4.7%	-3.7%	6.3%	8.6%	6.7%	4.5%	8.6%	-3.7%	4.2%	5.5%	6.6%	0.0%
3 Cytec Industries Inc.	7.6%	2.4%	6.1%	6.3%	-6.3%	-0.3%	2.2%	1.9%	2.5%	6.3%	7.6%	-6.3%	2.9%	2.5%	6.1%	0.0%
4 Methanex Corp.	13.5%	9.5%	24.5%	16.9%	7.1%	0.0%	3.6%	8.7%	-1.3%	12.7%	24.5%	-1.3%	9.5%	9.1%	14.9%	0.0%
Mean											13.5%	-2.5%	5.8%	6.0%	8.6%	0.0%
Median											10.9%	-2.5%	5.3%	6.2%	6.7%	0.0%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Companies from 2004 to 2013.

(3) Indicated EO for each of the Guideline Companies was measured by calculating the differential in the historical return on invested capital ("ROIC") benchmark (based on the median rate from 2004 to 2013) and the current ROIC based on 2014 as follows: ((Median ROIC - Current ROIC) / Median ROIC). If the current ROIC was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 3.2

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
BASIC CHEMICAL MANUFACTURING
GROSS PROFIT MARGIN ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated EO	
											Max	Min	Mean	Median			
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 2)	(Note 2)	(Note 2)	(Note 2)	(Note 1)	(Note 3,4)	
													(A)	(B)	(A-B/A)		
1 Dow Chemical Co.	14.7%	17.3%	15.5%	13.3%	9.5%	12.8%	14.7%	14.9%	15.8%	17.0%	17.3%	9.5%	14.6%	14.8%	18.4%	0.0%	
2 Cabot Corp.	24.9%	21.0%	16.7%	19.8%	15.2%	10.3%	18.8%	18.0%	20.0%	19.1%	24.9%	10.3%	18.4%	19.0%	20.1%	0.0%	
3 Cytec Industries Inc.	24.3%	21.0%	19.8%	21.4%	22.8%	18.7%	30.0%	27.5%	29.8%	33.7%	33.7%	18.7%	24.9%	23.6%	30.1%	0.0%	
4 Methanex Corp.	25.3%	27.2%	37.9%	28.8%	15.7%	11.8%	13.8%	27.0%	28.3%	36.6%	37.9%	11.8%	25.2%	27.1%	33.8%	0.0%	
											Mean	28.5%	12.6%	20.8%	21.1%	25.6%	0.0%
											Median	29.3%	11.1%	21.7%	21.3%	25.1%	0.0%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Companies from 2004 to 2013.

(3) Indicated EO for each of the Guideline Companies was measured by calculating the differential in the historical gross margin (%) benchmark (based on the median rate from 2004 to 2013) and the current gross margin (%) based on 2014 as follows: $((\text{Median GM\%} - \text{Current GM\%}) / \text{Median GM\%})$. If the current GM(%) was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 3.3

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
BASIC CHEMICAL MANUFACTURING
INVENTORY TURNOVER RATIO ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated EO
											Max	Min	Mean	Median		
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 2)	(Note 2)	(Note 2)	(Note 2)	(Note 1)	(Note 3,4)
													(A)	(B)	(A-B/A)	
1 Dow Chemical Co.	7.6	7.4	7.3	7.2	8.0	6.1	6.6	7.0	6.0	5.6	8.0	5.6	6.9	7.1	5.8	18.3%
2 Cabot Corp.	3.1	3.4	4.6	4.9	5.6	4.3	6.6	7.3	5.7	5.7	7.3	3.1	5.1	5.3	6.1	0.0%
3 Cytec Industries Inc.	5.9	6.7	5.9	5.5	4.4	4.4	2.5	3.8	5.3	4.9	6.7	2.5	4.9	5.1	5.0	2.0%
4 Methanex Corp.	9.6	8.5	6.8	5.8	8.0	6.1	8.4	7.5	6.8	6.5	9.6	5.8	7.4	7.2	6.7	6.9%
Mean											7.9	4.3	6.1	6.2	5.9	6.8%
Median											7.7	4.4	6.0	6.2	6.0	4.5%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Companies from 2004 to 2013.

(3) Indicated EO for each of the Guideline Companies was measured by calculating the differential in the historical inventory turnover rate ("ITR") benchmark (based on the median rate from 2004 to 2013) and the current ITR based on 2014 as follows: $((\text{Median ITR} - \text{Current ITR}) / \text{Median ITR})$. If the current ITR was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 3.4

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
BASIC CHEMICAL MANUFACTURING
FIXED ASSET TURNOVER RATIO ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	Max (Note 2)	Min (Note 2)	Mean (Note 2)	Median (Note 2) (A)	(Note 1) (B)	EO (Note 3,4) (A-B/A)
1 Dow Chemical Co.	2.9	3.4	3.6	3.8	4.0	2.8	3.0	3.4	3.3	3.3	4.0	2.8	3.3	3.3	3.3	0.0%
2 Cabot Corp.	2.1	2.4	2.8	2.6	3.0	2.0	2.8	3.1	2.5	2.2	3.1	2.0	2.6	2.6	2.3	11.5%
3 Cytec Industries Inc.	2.6	3.3	3.2	3.4	2.9	2.2	1.1	1.5	2.2	2.1	3.4	1.1	2.4	2.4	1.9	20.8%
4 Methanex Corp.	1.3	1.2	1.5	1.6	1.4	0.6	0.9	1.1	1.3	1.5	1.6	0.6	1.2	1.3	1.3	0.0%
Mean											3.0	1.6	2.4	2.4	2.2	8.1%
Median											3.3	1.6	2.5	2.5	2.1	5.8%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Companies from 2004 to 2013.

(3) Indicated EO for each of the Guideline Companies was measured by calculating the differential in the historical fixed asset turnover rate ("FATR") benchmark (based on the median rate from 2004 to 2013) and the current FATR based on 2014 as follows: $((\text{Median FATR} - \text{Current FATR}) / \text{Median FATR})$. If the current FATR was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 3.5

MUNICIPAL PROPERTY ASSESSMENT CORPORATION ANALYSIS OF ECONOMIC OBSOLESCENCE BASIC CHEMICAL MANUFACTURING PRICE TO BOOK RATIO ANALYSIS

Price to Book Ratio at June 25, 2015 (Note 1)

1	Dow Chemical Co.	2.7
2	Cabot Corp.	1.3
3	Cytec Industries Inc.	3.7
4	Methanex Corp.	2.9

Maximum	3.7
Minimum	1.3
Mean	2.7
Median	2.8
S&P / TSX Industrials Sector Index at June 25, 2015 (Note 1)	3.6
Indicated EO (Note 2)	<u>22.2%</u>

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) Indicated EO was measured by calculating the differential in the median of the range of price to book ratios of the Guideline Companies and the weighted average price to book ratio of the S&P/TSX Industrials Sector Index.

Schedule 3.6

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
CHEMICAL MANUFACTURING (NAICS 325)
INDUSTRIAL CAPACITY UTILIZATION RATES - FOOD MANUFACTURING (NAICS 324)**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)
Chemical manufacturing	81.5	80.2	79.8	82.0	75.0	70.9	75.3	75.8	77.0	77.2	77.8

Maximum - 2004 to 2013	82.0
Minimum - 2004 to 2013	70.9
Median - 2004 to 2013	77.1
Five Year Average - 2009 to 2013	75.2
Ten Year Average - 2004 to 2013	77.5
2014	77.8
Indicated EO (Note 2)	<u>0.0%</u>

Notes:

- (1) Source: Statistics Canada - CANSIM Table 028-0002
- (2) Indicated EO was measured by calculating the differential in the median capacity utilization rate from 2004 to 2013 and the current rate based on the average capacity utilization rate for 2014.

Schedule 4

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
RESIN, SYNTHETIC RUBBER & SYNTHETIC FIBRES MANUFACTURING
SUMMARY OF GUIDELINE COMPANIES RATIO ANALYSIS**

<u>Guideline Company Ratio Analysis</u>		<u>Indicated EO</u>	<u>Assigned Weight</u> (Note 1)	<u>Weighted Average</u>
Return on Invested Capital	Schedule 4.1	0.0%	2	0.0%
Gross Profit Margin (%)	Schedule 4.2	0.0%	2	0.0%
Inventory Turnover Ratio	Schedule 4.3	11.0%	1	11.0%
Fixed Asset Turnover Ratio	Schedule 4.4	4.0%	1	4.0%
Price to Book Ratio	Schedule 4.5	29.2%	0	0.0%
Industrial Capacity Utilization	Schedule 3.6	0.0%	0	0.0%
			6	15.0%
<i>Range of EO Indicators - 0% to 29%</i>			<i>divide by total assigned weight</i>	<u>6</u>
Estimated Rate of EO as at January 1, 2016 (rounded) (Note 1)				<u>3.0%</u>

Note:

(1) In concluding on the rate of EO, the greatest weight was assigned to the EO indicated by the ROIC and gross profit margin (%) analyses given that these analyses best reflect financial/economic performance as they directly measure changes in profitability and overall return on total assets.

The EO indicated by the ITR and FATR analyses were assigned a lower weight given that although these analyses reflect changes in the magnitude of sales revenue generated in relation to inventory and fixed asset investments, they do not directly measure changes in profitability and/or overall return on investment.

A weighting of zero was assigned to the PBR analysis given that it is not a reliable measure of EO as it can be impacted by other variables unrelated to a change in the economic return on an investment.

A weighting of zero was also assigned to the industrial capacity utilization analysis as sector specific rates were not available and because of the limitations regarding the analysis as described in the narrative portion of this report.

Schedule 4.1

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
RESIN, SYNTHETIC RUBBER & SYNTHETIC FIBRES MANUFACTURING
RETURN ON INVESTED CAPITAL ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated EO
											Max	Min	Mean	Median		
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 2)	(Note 2)	(Note 2)	(Note 2)	(Note 1)	(Note 3,4)
1 Lanxess AG	-0.3%	-2.1%	7.0%	3.8%	5.9%	1.1%	9.4%	11.3%	9.6%	-3.1%	11.3%	-3.1%	4.3%	4.9%	0.8%	83.7%
2 Sumitomo Bakelite Co Ltd.	7.0%	9.1%	6.3%	1.1%	-4.6%	2.2%	3.6%	1.9%	2.6%	4.2%	9.1%	-4.6%	3.3%	3.1%	3.8%	0.0%
3 AirBoss of America Corp.	5.6%	2.0%	8.5%	4.1%	-1.4%	5.9%	15.2%	13.8%	7.4%	5.4%	15.2%	-1.4%	6.7%	5.8%	10.1%	0.0%
4 Dow Chemical Co.	8.7%	13.2%	11.0%	8.4%	1.8%	1.3%	4.3%	5.1%	2.0%	8.5%	13.2%	1.3%	6.4%	6.8%	6.8%	0.0%

Mean	12.2%	-2.0%	5.2%	5.2%	5.4%	20.9%
Median	12.3%	-2.3%	5.4%	5.4%	5.3%	0.0%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Companies from 2004 to 2013.

(3) Indicated EO for each of the Guideline Companies was measured by calculating the differential in the historical return on invested capital ("ROIC") benchmark (based on the median rate from 2004 to 2013) and the current ROIC based on 2014 as follows: $((\text{Median ROIC} - \text{Current ROIC}) / \text{Median ROIC})$. If the current ROIC was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 4.2

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
RESIN, SYNTHETIC RUBBER & SYNTHETIC FIBRES MANUFACTURING
GROSS PROFIT MARGIN ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated EO
											Max	Min	Mean	Median		
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 2)	(Note 2)	(Note 2)	(Note 2)	(Note 1)	(Note 3,4)
													(A)	(B)	(A-B/A)	
1 Lanxess AG	21.0%	22.6%	22.2%	22.1%	22.2%	21.8%	24.4%	22.9%	23.2%	18.7%	24.4%	18.7%	22.1%	22.2%	19.8%	10.8%
2 Sumitomo Bakelite Co Ltd.	28.5%	28.9%	26.4%	26.1%	22.3%	28.6%	28.7%	27.0%	28.3%	27.0%	28.9%	22.3%	27.2%	27.7%	28.3%	0.0%
3 AirBoss of America Corp.	14.3%	11.6%	13.1%	8.9%	11.2%	10.2%	15.0%	12.3%	10.5%	12.1%	15.0%	8.9%	11.9%	11.9%	14.9%	0.0%
4 Dow Chemical Co.	14.7%	17.3%	15.5%	13.3%	9.5%	12.8%	14.7%	14.9%	15.8%	17.0%	17.3%	9.5%	14.6%	14.8%	18.4%	0.0%

Mean	21.4%	14.9%	19.0%	19.2%	20.4%	2.7%
Median	20.9%	14.1%	18.4%	18.5%	19.1%	0.0%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Companies from 2004 to 2013.

(3) Indicated EO for each of the Guideline Companies was measured by calculating the differential in the historical gross margin (%) benchmark (based on the median rate from 2004 to 2013) and the current gross margin (%) based on 2014 as follows: $((\text{Median GM}\% - \text{Current GM}\%) / \text{Median GM}\%)$. If the current GM(%) was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 4.3

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
RESIN, SYNTHETIC RUBBER & SYNTHETIC FIBRES MANUFACTURING
INVENTORY TURNOVER RATIO ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated EO
											Max	Min	Mean	Median		
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 2)	(Note 2)	(Note 2)	(Note 2)	(Note 1)	(Note 3,4)
													(A)	(B)	(A-B/A)	
1 Lanxess AG	4.8	5.0	5.1	5.3	5.3	4.2	5.5	5.5	4.8	4.8	5.5	4.2	5.0	5.1	4.8	5.9%
2 Sumitomo Bakelite Co Ltd.	6.2	6.2	6.5	5.7	6.3	5.8	6.8	6.1	5.5	5.8	6.8	5.5	6.1	6.2	5.2	16.1%
3 AirBoss of America Corp.	6.7	7.4	7.1	6.9	6.5	4.4	6.1	6.7	6.1	6.2	7.4	4.4	6.4	6.6	7.0	0.0%
4 Dow Chemical Co.	7.6	7.4	7.3	7.2	8.0	6.1	6.6	7.0	6.0	5.6	8.0	5.6	6.9	7.1	5.8	18.3%
Mean											6.9	4.9	6.1	6.3	5.7	10.1%
Median											7.1	5.0	6.3	6.4	5.5	11.0%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Companies from 2004 to 2013.

(3) Indicated EO for each of the Guideline Companies was measured by calculating the differential in the historical inventory turnover rate ("ITR") benchmark (based on the median rate from 2004 to 2013) and the current ITR based on 2014 as follows: $((\text{Median ITR} - \text{Current ITR}) / \text{Median ITR})$. If the current ITR was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 4.4

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
RESIN, SYNTHETIC RUBBER & SYNTHETIC FIBRES MANUFACTURING
FIXED ASSET TURNOVER RATIO ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated EO
											Max	Min	Mean	Median		
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 2)	(Note 2)	(Note 2)	(Note 2)	(Note 1)	(Note 3,4)
													(A)	(B)	(A-B/A)	
1 Lanxess AG	4.4	4.7	4.6	4.5	4.2	2.9	3.6	3.7	3.2	2.8	4.7	2.8	3.9	3.9	2.6	33.3%
2 Sumitomo Bakelite Co Ltd.	2.5	2.7	2.8	2.5	2.5	2.1	2.5	2.5	2.4	2.5	2.8	2.1	2.5	2.5	2.3	8.0%
3 AirBoss of America Corp.	3.9	4.5	4.4	3.8	4.9	3.9	5.0	6.6	5.7	4.8	6.6	3.8	4.7	4.6	5.5	0.0%
4 Dow Chemical Co.	2.9	3.4	3.6	3.8	4.0	2.8	3.0	3.4	3.3	3.3	4.0	2.8	3.3	3.3	3.3	0.0%
Mean											4.5	2.9	3.6	3.6	3.4	10.3%
Median											4.4	2.8	3.6	3.6	3.0	4.0%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Companies from 2004 to 2013.

(3) Indicated EO for each of the Guideline Companies was measured by calculating the differential in the historical fixed asset turnover rate ("FATR") benchmark (based on the median rate from 2004 to 2013) and the current FATR based on 2014 as follows: $((\text{Median FATR} - \text{Current FATR}) / \text{Median FATR})$. If the current FATR was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 4.5

MUNICIPAL PROPERTY ASSESSMENT CORPORATION ANALYSIS OF ECONOMIC OBSOLESCENCE RESIN, SYNTHETIC RUBBER & SYNTHETIC FIBRES MANUFACTU PRICE TO BOOK RATIO ANALYSIS

Price to Book Ratio at June 25, 2015

(Note 1)

1	Lanxess AG	2.4
2	Sumitomo Bakelite Co Ltd.	0.9
3	AirBoss of America Corp.	4.5
4	Dow Chemical Co.	2.7

Maximum	4.5
Minimum	0.9
Mean	2.6
Median	2.6
S&P / TSX Industrials Sector Index at June 25, 2015 (Note 1)	3.6
Indicated EO (Note 2)	29.2%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) Indicated EO was measured by calculating the differential in the median of the range of price to book ratios of the Guideline Companies and the weighted average price to book ratio of the S&P/TSX Industrials Sector Index.

Schedule 5

MUNICIPAL PROPERTY ASSESSMENT CORPORATION ANALYSIS OF ECONOMIC OBSOLESCENCE PESTICIDE, FERTILIZER & OTHER AGRICULTURAL CHEMICAL MANUFACTURING SUMMARY OF GUIDELINE COMPANIES RATIO ANALYSIS

<u>Guideline Company Ratio Analysis</u>		<u>Indicated EO</u>	<u>Assigned Weight</u> (Note 1)	<u>Weighted Average</u>
Return on Invested Capital	Schedule 5.1	13.2%	0	0.0%
Gross Profit Margin (%)	Schedule 5.2	2.7%	0	0.0%
Inventory Turnover Ratio	Schedule 5.3	4.2%	0	0.0%
Fixed Asset Turnover Ratio	Schedule 5.4	17.9%	0	0.0%
Price to Book Ratio	Schedule 5.5	16.7%	0	0.0%
Industrial Capacity Utilization	Schedule 3.6	<u>0.0%</u>	<u>0</u>	<u>0.0%</u>
<i>Range of EO Indicators - 0% to 18%</i>		<i>divide by total assigned weight</i>		<u>0</u>
Estimated Rate of EO as at January 1, 2016 (rounded) (Note 1)				<u>0.0%</u>

Note:

(1) In concluding on the rate of EO, the results of the profitability and efficiency ratio analysis of the Guideline Companies is not considered to accurately reflect the current economic state and future outlook of this sector based on the qualitative evidence reviewed and given that there were a limited number of guideline company comparables identified to be operating within this sector in Ontario and/or Canada available for the quantitative analysis portion of this review. Accordingly, a weighting of zero was assigned to the EO indicated by the ROIC, gross profit margin (%), ITR and FATR analyses.

A weighting of zero was assigned to the PBR analysis given that it is not a reliable measure of EO as it can be impacted by other variables unrelated to a change in the economic return on an investment.

A weighting of zero was also assigned to the industrial capacity utilization analysis as sector specific rates were not available and because of the limitations regarding the analysis as described in the narrative portion of this report.

Schedule 5.1

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
PESTICIDE, FERTILIZER & OTHER AGRICULTURAL CHEMICAL MANUFACTURING
RETURN ON INVESTED CAPITAL ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated EO
											Max	Min	Mean	Median		
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 2)	(Note 2)	(Note 2)	(Note 2)	(Note 1)	(Note 3,4)
													(A)	(B)	(A-B/A)	
1 CF Industries Holdings Inc.	6.3%	-3.7%	3.7%	37.3%	54.6%	25.3%	8.8%	23.0%	22.8%	16.6%	54.6%	-3.7%	19.5%	19.7%	14.5%	26.4%
3 Chemtura Corp.	-2.2%	-7.2%	-7.6%	-1.3%	-38.5%	-12.1%	-23.2%	3.9%	4.1%	-0.9%	4.1%	-38.5%	-8.5%	-4.7%	34.4%	0.0%
4 Agrium Inc.	13.7%	13.2%	1.5%	12.9%	23.0%	5.2%	9.4%	16.7%	15.2%	10.2%	23.0%	1.5%	12.1%	13.1%	7.2%	45.0%
5 Monsanto Co.	3.7%	2.7%	7.7%	9.6%	17.3%	15.3%	7.9%	11.4%	13.6%	15.7%	17.3%	2.7%	10.5%	10.5%	16.7%	0.0%

Mean	24.8%	-9.5%	8.4%	9.7%	18.2%	17.9%
Median	20.2%	-1.1%	11.3%	11.8%	15.6%	13.2%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Companies from 2004 to 2013.

(3) Indicated EO for each of the Guideline Companies was measured by calculating the differential in the historical return on invested capital ("ROIC") benchmark (based on the median rate from 2004 to 2013) and the current ROIC based on 2014 as follows: $((\text{Median ROIC} - \text{Current ROIC}) / \text{Median ROIC})$. If the current ROIC was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 5.2

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
PESTICIDE, FERTILIZER & OTHER AGRICULTURAL CHEMICAL MANUFACTURING
GROSS PROFIT MARGIN ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated EO
											Max	Min	Mean	Median		
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 2)	(Note 2)	(Note 2)	(Note 2)	(Note 1)	(Note 3,4)
													(A)	(B)	(A-B/A)	
1 CF Industries Holdings Inc.	13.1%	10.6%	7.2%	24.3%	31.2%	32.2%	29.7%	47.5%	51.0%	46.0%	51.0%	7.2%	29.3%	30.5%	37.5%	0.0%
3 Chemtura Corp.	23.0%	26.3%	24.7%	24.3%	22.7%	25.2%	23.8%	25.6%	26.5%	22.9%	26.5%	22.7%	24.5%	24.5%	23.2%	5.3%
4 Agrium Inc.	31.9%	31.5%	22.8%	30.3%	32.1%	21.3%	24.6%	28.0%	26.9%	24.0%	32.1%	21.3%	27.3%	27.5%	22.1%	19.6%
5 Monsanto Co.	46.6%	47.7%	48.7%	50.7%	54.4%	57.9%	49.4%	51.4%	52.2%	51.5%	57.9%	46.6%	51.1%	51.1%	54.1%	0.0%

Mean	41.9%	24.5%	33.1%	33.4%	34.2%	6.2%
Median	41.6%	22.0%	28.3%	29.0%	30.4%	2.7%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Companies from 2004 to 2013.

(3) Indicated EO for each of the Guideline Companies was measured by calculating the differential in the historical gross margin (%) benchmark (based on the median rate from 2004 to 2013) and the current gross margin (%) based on 2014 as follows: $((\text{Median GM}\% - \text{Current GM}\%) / \text{Median GM}\%)$. If the current GM(%) was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 5.3

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
PESTICIDE, FERTILIZER & OTHER AGRICULTURAL CHEMICAL MANUFACTURING
INVENTORY TURNOVER RATIO ANALYSIS**

	2004 (Note 1)	2005 (Note 1)	2006 (Note 1)	2007 (Note 1)	2008 (Note 1)	2009 (Note 1)	2010 (Note 1)	2011 (Note 1)	2012 (Note 1)	2013 (Note 1)	2004 to 2013				2014 (Note 1) (B)	Indicated EO (Note 3,4) (A-B/A)
											Max (Note 2)	Min (Note 2)	Mean (Note 2)	Median (Note 2) (A)		
1 CF Industries Holdings Inc.	6.4	7.5	9.3	10.2	6.6	4.4	11.7	11.1	10.3	10.7	11.7	4.4	8.8	9.8	12.4	0.0%
3 Chemtura Corp.	4.5	3.9	3.6	3.8	3.8	3.1	4.1	3.9	3.8	4.6	4.6	3.1	3.9	3.9	5.0	0.0%
4 Agrium Inc.	4.7	4.6	5.1	4.3	3.4	2.8	3.5	4.1	3.9	3.7	5.1	2.8	4.0	4.0	3.6	10.0%
5 Monsanto Co.	2.5	2.3	2.2	2.4	2.5	1.9	1.9	2.2	2.4	2.5	2.5	1.9	2.3	2.4	2.2	8.3%

Mean	6.0	3.1	4.8	5.0	5.8	4.6%
Median	4.9	3.0	4.0	4.0	4.3	4.2%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Companies from 2004 to 2013.

(3) Indicated EO for each of the Guideline Companies was measured by calculating the differential in the historical inventory turnover rate ("ITR") benchmark (based on the median rate from 2004 to 2013) and the current ITR based on 2014 as follows: $((\text{Median ITR} - \text{Current ITR}) / \text{Median ITR})$. If the current ITR was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 5.4

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
PESTICIDE, FERTILIZER & OTHER AGRICULTURAL CHEMICAL MANUFACTURING
FIXED ASSET TURNOVER RATIO ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated EO
											Max	Min	Mean	Median		
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 2)	(Note 2)	(Note 2)	(Note 2)	(Note 1)	(Note 3,4)
													(A)	(B)	(A-B/A)	
1 CF Industries Holdings Inc.	2.4	3.1	3.3	4.5	6.1	3.6	1.7	1.6	1.6	1.4	6.1	1.4	2.9	2.8	1.0	64.3%
3 Chemtura Corp.	3.1	2.9	2.7	3.1	3.3	2.9	3.8	3.8	3.3	3.3	3.8	2.7	3.2	3.2	3.1	3.1%
4 Agrium Inc.	2.3	2.6	3.2	3.4	5.3	4.8	5.4	6.6	5.3	3.7	6.6	2.3	4.3	4.3	2.9	32.6%
5 Monsanto Co.	2.5	2.8	3.0	3.3	3.8	3.4	2.7	2.7	3.1	3.3	3.8	2.5	3.1	3.0	3.3	0.0%
Mean											5.1	2.2	3.4	3.3	2.6	25.0%
Median											5.0	2.4	3.2	3.1	3.0	17.9%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Companies from 2004 to 2013.

(3) Indicated EO for each of the Guideline Companies was measured by calculating the differential in the historical fixed asset turnover rate ("FATR") benchmark (based on the median rate from 2004 to 2013) and the current FATR based on 2014 as follows: ((Median FATR - Current FATR) / Median FATR). If the current FATR was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 5.5

MUNICIPAL PROPERTY ASSESSMENT CORPORATION ANALYSIS OF ECONOMIC OBSOLESCENCE PESTICIDE, FERTILIZER & OTHER AGRICULTURAL CHEMICAL MANUFACTURING PRICE TO BOOK RATIO ANALYSIS

Price to Book Ratio at June 25, 2015 (Note 1)

1	CF Industries Holdings Inc.	3.6
3	Chemtura Corp.	1.9
4	Agrium Inc.	2.3
5	Monsanto Co.	6.2

Maximum	6.2
Minimum	1.9
Mean	3.5
Median	3.0
S&P / TSX Industrials Sector Index at June 25, 2015 (Note 1)	3.6
Indicated EO (Note 2)	<u>16.7%</u>

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) Indicated EO was measured by calculating the differential in the median of the range of price to book ratios of the Guideline Companies and the weighted average price to book ratio of the S&P/TSX Industrials Sector Index.

Schedule 6

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
OTHER PLASTIC PRODUCT MANUFACTURING
SUMMARY OF GUIDELINE COMPANIES RATIO ANALYSIS**

<u>Guideline Company Ratio Analysis</u>		<u>Indicated EO</u>	<u>Assigned Weight</u> (Note 1)	<u>Weighted Average</u>
Return on Invested Capital		n/a	0	0.0%
Gross Profit Margin (%)		n/a	0	0.0%
Inventory Turnover Ratio		n/a	0	0.0%
Fixed Asset Turnover Ratio		n/a	0	0.0%
Price to Book Ratio		n/a	0	0.0%
Industrial Capacity Utilization	Schedule 6.1	<u>0.0%</u>	<u>0</u>	<u>0.0%</u>
			0	0.0%
	<i>Range of EO Indicators - N/A</i>		<i>divide by total assigned weight</i>	<u>0</u>
Calculated Rate of EO (rounded)				<u>0.0%</u>
Estimated Rate of EO as at January 1, 2016 (rounded) (Note 1)				<u>0.0%</u>

Note:

- (1) There were no guideline public companies identified to be operating within this sector in Ontario and/or Canada for the quantitative analysis portion of this report. Accordingly, the evidence indicated from the qualitative analysis as detailed in the narrative portion of this report has been solely relied on to arrive at an estimated rate of EO for this sector. Based on the qualitative evidence as detailed in the narrative portion of this report, there are no significant factors indicating that EO was present within the subsector at the Report Date.

The analysis of industrial capacity utilization rates for the Plastic Product Manufacturing sector is presented on Schedule 6.1 as further support for the conclusion on the rate of EO present in this sector notwithstanding the limitations of this analysis as detailed in the narrative portion of this report.

Schedule 6.1

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
PLASTIC PRODUCT MANUFACTURING (NAICS 3261)
INDUSTRIAL CAPACITY UTILIZATION RATES**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)
Plastic product manufacturing	90.1	81.3	77.9	75.1	72.6	66.2	71.1	75.5	77.1	76.7	80.4

Maximum - 2004 to 2013	90.1
Minimum - 2004 to 2013	66.2
Median - 2004 to 2013	76.1
Five Year Average - 2009 to 2013	73.3
Ten Year Average - 2004 to 2013	76.4
2014	80.4
Indicated EO (Note 2)	<u>0.0%</u>

Notes:

(1) Source: Statistics Canada - CANSIM Table 028-0002

(2) Indicated EO was measured by calculating the differential in the median capacity utilization rate from 2004 to 2013 and the current rate based on the average capacity utilization rate for 2014.