



## IPT 2009 Property Tax Symposium • November 8 – 11, 2009

---

### Think Global, Appraise Local: Economic Obsolescence in Today's Economy

*Donna L. Jernigan, CMI, PE*  
*Property Tax Advisor*  
*Exxon Mobil Corporation*  
*Houston, TX*  
*713.431.2783*  
[donna.l.jernigan@exxonmobil.com](mailto:donna.l.jernigan@exxonmobil.com)

*Gregory W. Kort, CMI, PE, ASA*  
*Director, Complex Property Appraisals*  
*Popp, Gray & Hutcheson, LLP*  
*Austin, TX*  
*512.473.2661*  
[greg@property-tax.com](mailto:greg@property-tax.com)

The global financial crisis and recession has significantly impacted the market value of U.S. industrial property for many years to come. The impact from the decline in demand for goods and services as a result of the global financial crisis and recession represents economic obsolescence that must be accounted for in determining the market value of industrial property.

This paper will provide an overview of the global financial crisis and recession and issues impacting industrial property. The paper will also discuss how to incorporate these economic obsolescence issues into the valuation of industrial property.

#### Overview

“You don’t need to hear another list of statistics to know that our economy is in crisis, because you live it every day. It’s the worry you wake up with and the source of sleepless nights. It’s the job you thought you’d retire from but now have lost; the business you built your dreams upon that’s now hanging by a thread; the college acceptance letter your child had to put back in the envelope. The impact of this recession is real, and it is everywhere.” (President Barack Obama, 2009 State of the Union Address).

The U.S. economy peaked in December 2007 and then entered a recession in January 2008. However for the first eight months of 2008 conditions were relatively flat. Unfortunately, because of the financial crisis in September 2008, non-financial firms and individuals began to experience reductions of available credit. Although it appears the recession has run its course, the impact on the market value for industrial property will be felt for many years to come.

The global financial crisis and recession impacted all industries due to a weak housing market, high level of unemployment, weak credit markets and weak commodity prices. The global financial crisis and recession had a severely negative effect on the manufacturing industry. In the last part of 2008, there was an unprecedented decline in demand for manufactured products because of inventory destocking and lack of credit to both companies and customers. During the past year, overcapacity was removed from the marketplace and economic stimulus packages were initiated to stabilize global economies. Recently, it appears destocking has ended, and the declines in demand for manufactured goods may have bottomed out.

#### Outlook for 2009 and 2010<sup>1</sup>

The forecast for 2009 is for economic growth to fall during the first half of the year. But it is predicated to rise fractionally, by 0.2% in the third quarter of 2009 and faster in the fourth quarter, by 1.7%. For the year as a whole, real GDP is predicted to fall by 1.8%. The economy of the U.S. is then forecasted to rise by 3.2% in 2010. With the economy struggling, the unemployment rate is expected to rise to 9.9% by the fourth quarter of 2009 and then edge just a bit down to 9.5% by the final quarter in 2010. Industrial production is forecasted to decrease by 7.5% this year and then rise to a strong 5.4% next year. The housing sector is forecasted to bottom out this year. Residential investment is predicted to fall by an additional 16.8% this year. Residential investment is then expected to rise 5.8% next year. Housing starts are anticipated to reach the bottom in the second quarter of 2009 and are predicted to rise from 0.53 million units this year to 0.74 million units in 2010.

In its April update to the World Economic Outlook, the IMF projected that world trade volumes would be off by 11% and world GDP to contract by 1.3% in 2009, the first contraction in world GDP since WWII.<sup>2</sup> The global economy appears to be recovering led by the emerging Asian economies. The 2009 and 2010 real GDP forecast for other global economies is presented in the table below:<sup>3</sup>

Country	% Change on Year Ago	
	2009	2010
China	8.1%	8.5%
India	5.5%	6.3%
Japan	-5.5%	1.4%
United Kingdom	-4.3%	1.1%
France	-2.1%	1.5%
Canada	-2.2%	2.1%

<sup>1</sup> Economy to turn the corner in 2010, William A. Strauss, The Federal Reserve Bank of Chicago. August 2009, <[http://www.chicagofed.org/publications/fedletter/cflaugust2009\\_265a.pdf](http://www.chicagofed.org/publications/fedletter/cflaugust2009_265a.pdf)>.

<sup>2</sup> Mid-Year 2009 Situation & Outlook, American Chemistry Council, June 2009.

<sup>3</sup> The Economist, - Economic and Financial Indicators, September 12, 2009.

---

Germany	-5.0%	1.6%
Australia	0.5%	2.0%
Indonesia	4.1%	4.4%
Saudi Arabia	-1.0%	3.3%

### Economic Stimulus

Key industries such as housing, automotive and electronics have temporarily stabilized, helped by government stimulus packages. In February 2009, Congress passed the American Recovery and Reinvestment Act. This \$787 billion plan includes federal tax cuts and incentives, an expansion of unemployment benefits, and other spending on social entitlement programs. In addition, federal agencies are using funds to award contracts, grants, and loans around the country.

In November 2008, China announced an economic stimulus package aimed at bolstering its weakening economy. China said it would spend an estimated \$586 billion over the next two years, roughly seven percent of its gross domestic product each year, to construct new railways, subways and airports and to rebuild communities devastated by an earthquake in the southwest region.

These economic stimulus plans are intended to jumpstart the global economies' but many of the projects funded by stimulus money, especially those involving infrastructure improvements, are expected to contribute to economic growth for many years.

### U.S. Industry Impacts

Perhaps more than other types of property, industrial properties are impacted by not only domestic trends but also global ones. U.S. industrial properties that compete in the global marketplace face increased competition from foreign manufactures with lower wage, healthcare and benefit costs. The following are three industries significantly impacted by the global financial crisis and recession:

#### Oil Refining Industry

The global financial crisis and recession has led to reductions in worldwide energy demand and prices. The impact of the global financial crisis and recession on oil refiners continues to evolve, and many oil refiners have sought to offset weakening demand by cutting throughputs and temporary closing refineries. In addition, oil refiners have also sought to improve their cash flows by cutting capital expenditures for upgrades and expansions in light of a poor margin environment. With new capacity online and under construction the refining industry's poor economic outlook is expected to continue for the foreseeable future.

The most surprising issue about the current refining environment has been the speed at which gasoline consumption in the U.S. has declined. In October 2008, the U.S. Department of Transportation reported that in August 2008 the number of miles driven by Americans was down by 5.6% compared to a year ago, the largest decline on record. Part of the reduction in miles driven is likely be due to job losses reducing commuter travel, and part will likely be due to changed leisure travel or shopping patterns. Furthermore, President Barack Obama's energy policies are focused on reducing oil consumption, rather than increasing oil supply.

Petroleum Economist's 2009 annual survey of refinery construction points to a sharp reduction in the volume of new capacity likely to be brought on stream worldwide.<sup>4</sup> New refineries and expansions totaling 8.5 million barrels per day are under construction or planned in 2009, down from the 12 million barrels per day identified a year ago. Some large projects have come on stream since last year's survey, most notably Reliance's near-doubling of capacity at Jamnagar, India, which is now the world's largest refinery site with a capacity of 1.2 million barrels per day. But many planned projects have faltered since last year, at first as a result of high construction costs and later in response to the downturn in products consumption. Some US expansions have either had their completion dates put back (Motiva at Port Arthur, Total at Port Arthur) or have been postponed indefinitely (Valero at Port Arthur, Marathon at Detroit). Inevitably, when the outlook is for world refining capacity to be in surplus for some years, a number of the planning-stage projects included in the survey will be postponed or shelved.

The period of 2003-2007 came to be known as the Golden Age of Refining. The Golden Age of Refining is now behind us and we are now in the Dark Ages. The main consequence of the expected global refining surplus will be an eventual rationalization of inefficient and uncompetitive refineries. Oppenheimer & Company energy industry analyst Fadel Gheit said the time isn't best for putting oil and gas assets on the block especially with low valuations in the battered refining sector. "If you sell refining assets now, you're going to get scrap value."<sup>5</sup>

### Chemical Industry

The business environment for the chemical industry through 2009 will be the most dismal in years. Many chemical customers reduced their purchases of products in the face of slowing market demand and their efforts to reduce inventories in response to the adverse impact of the credit crisis. Main issues impacting chemical plants into the foreseeable future are rising raw materials prices, falling demand and downward pressure on product selling prices. Looming in the background is a significant increase in global capacity from new facilities in the Middle East and China. Many chemical industry experts expect the bottom of the economic cycle to last until 2011.

Many chemical companies that announced temporary capacity reductions in 2009 are now making these decisions permanent. Although much excess capacity has been removed from the marketplace, the potential for more plant closures is still a possibility.

Many of these permanently shutdown plants are integrated with operating units of other companies. For example, LyondellBasell's facility in Chocolate Bayou was shutdown permanently in April 2009. This closure in turn

---

<sup>4</sup> Refining profits slump on adverse fundamentals, Petroleum Economist. September 2009.

<sup>5</sup> ConocoPhillips moves to slash its debt, Brett Clanton, Houston Chronicle. October 7 2009, <<http://www.chron.com/disp/story.mpl/headline/biz/6657619.html>>.

impacted the facilities of Solutia and Huntsman, which rely upon shared services to operate. This situation in turn impacts the fixed and variable costs to operate the operating plants and will in turn have an impact on their market value.

Adding to the dismal picture for the U.S. chemical industry is news that new ethylene plants are coming on line in the Middle East and China. These plants will be cheaper to operate and are closer to Asia's markets. These projects will likely cut into the U.S. export market.

ICIS Chemical Business wrote the following in "Capacity tsunami set to strike" (November 17, 2008):

"I can't see the need for any new capacity for possibly the next 10-15 years. Why build anything? Too much has been added on easy credit on the assumption that demand growth would continue at 2002-2007 levels. We are now facing an industry crisis as bad as 1980."

### Automotive Manufacturing Industry

The backbone of U.S. manufacturing, the auto industry remains a driving force of the U.S. economy, employing 1 in 10 American workers, and is one of the largest purchasers of steel, aluminum, copper, plastics and electronics. The recent bankruptcy of two of the three U.S. auto industry manufacturers has significantly reduced light vehicle production. Auto parts suppliers are also facing challenges from high costs, along with price and volume pressures. Light vehicle sales volumes are expected to be about 10.5 million in 2009 and 12.5 million in 2010.<sup>6</sup>

The big three U.S. auto manufacturers are collectively expected to lose market share to foreign companies into the foreseeable future. Many auto manufacturing plants have been shut down as a result of the global financial crisis and recession, and more will continue to be shutdown as restructuring continues. GM announced plans to reduce its total number of assembly, powertrain and stamping facilities in the U.S. from 47 in 2008 to 33 by 2012. Meanwhile foreign manufacturers have been increasing their production in the U.S. The sale of Hummer to a Chinese investment firm has given China the ability to make inroads into the U.S. market. Further foreign investment is expected with the sale of Volvo and possibly Saturn brands.

According to J.D. Power & Associates, China, with more than 1.3 billion people, is leading Asia's automotive demand ever higher. By some estimates, there are now more than 30 vehicles per 1,000 people in China compared with a world average of about 120 per 1,000. At some point between 2014 and 2018, China will overtake the US as the world's largest vehicle market, according to J.D. Power, which forecasts China's volume at 19.9 million in 2018, compared with 17.6 million for the US.

---

<sup>6</sup> GM 2009-2014 Restructuring Plan - February 17, 2009.

---

Effects on Ad Valorem Tax Appraisals for Industrial Properties

The impacts of decline in demand for goods and services from the global financial crisis and recession result in an economic reduction in the enterprise value of industrial property. Property tax authorities often refuse to make deductions for the economic obsolescence attributable to the global financial crisis and recession because they feel this situation is only temporary. This economic reduction in value is a form of economic obsolescence that must be accounted for in all three approaches to value.

The American Society of Appraisers describes economic obsolescence as the loss in value caused by conditions external to the asset. Economic obsolescence can be defined as a form of depreciation, or an incurable loss of value, caused by any combination of unfavorable conditions external to the property such as the local economy, economics of the industry, availability of financing, encroachment of objectionable enterprises, loss of material and labor sources, shifting of business centers, passage of new legislation, adverse impact of governmental regulations and restrictions, or other similar characteristics.<sup>7</sup>

The following sections address how economic obsolescence from the global financial crisis and recession impact the three approaches to value.

Cost Approach

In the cost approach, the cost new must be reduced to reflect physical deterioration, functional obsolescence, and economic obsolescence attributable to the subject property. All components of depreciation and obsolescence must be quantified to result in the cost indicator of value. Decline in demand for goods and services from the global financial crisis and recession represents a form of economic obsolescence. Therefore, an economic obsolescence adjustment is necessary to compensate for the fact that utilization and the return on capital employed are dismal.

Income Approach

When applicable, the income approach estimates future revenues, operating expenses, capital requirements and working capital changes. The resulting net cash flow is then discounted to present value to determine the value of the business enterprise. The global financial crisis and recession impacts the income approach to value in the following ways:

- Production rates may decrease dramatically in the first few years of the forecast to reflect lack of demand;
- Increases the discount rate due to increased cost of debt and additional risk;
- Increases in operating expenses due to excess infrastructure in place; and
- Decreases revenues by having lower product prices.

---

<sup>7</sup> Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets (2005). American Society of Appraisers, Washington, DC.

### Sales Comparison Approach

The sales comparison approach is used to establish value through an analysis of recent transactions of comparable properties. Actual sales are analyzed and adjusted to reflect differences in size or capacity, market conditions, age, condition of improvements and location between the subject and the market comparables. At this time the sales comparison approach indicator is extremely limited given the lack of transaction activity for industrial properties. However, there could be market evidence that because of the lack potential buyers the value of the property is depressed.

### *Application of Think Global, Appraise Local*

Looking at a worldwide economy that is currently not as robust as it once was while seeking to appraise locally can be overwhelming. Nonetheless, as technology advances and industrial competition becomes more global every year, to ignore the global influence may overstate the value of the property being appraised.

As with any overwhelming task, the first step in resolving the dilemma is to divide the task into manageable parts. Thinking globally and appraising locally for industrial properties can be simplified to A, B, C – Assess the industry's global economy; Balance the global economy with the state of the industry's domestic economy; and Clarify the effect of the economy on the value of the property being appraised.

### Assess the Global Economy

For whatever industrial property is being appraised, its industry, whether oil and gas, food processing, or general manufacturing, will be impacted by competition in other countries. One way to define this impact is to ask questions, the answers of which may narrow the data needed to quantify the impact. For instance,

- Is there new capacity online in other countries?
- Have foreign industrial sites changed the quality of their product in a way that might threaten the domestic competition?
- Has there been a change in the import of foreign products in competition with the property's products?
- Have any countries with globally competitive sites nationalized that industry within their country?
- Have there been finishing plants or added capacity that would threaten domestic competition?
- Have there been changes to the feedstock supply to global competitors?
- Have there been major changes, such as technology, utilities, etc., which would give global industrial competition the advantage?

The responses to the above questions should indicate the foreign competition's influence on the economy of the global industry. The next step would be to see how this global influence affects the domestic industry.

---

---

Balance with the Domestic Economy

Just like with the examination of the global economy, the state of the domestic economy must also be evaluated. The domestic industrial competition will be more likely to have direct influence on the local appraisal. The evaluation of the domestic economy of the subject industry should include both domestic effects of the global economy as well as national effects.

Look around at other sites in the U.S. Take note of the operating changes as reported in the public media as well as trade journals.

- Has any new capacity come online recently? (Even if new capacity is more than a year old, the effect of its influence may not have been recordable until recently.)
- Has any capacity been shut down, either permanently or temporarily?
- Have the reasons for the capacity shutdown been published?
- Have any company's published net earnings included detail regarding the subject's products?
- Have any restrictions or changes been made to domestic feedstock supply (tariffs, etc.)?
- Have any domestic restrictions or other changes been placed on the industry's product?
- Have there been any major changes influencing the costs required to manufacture the product (technology, utilities, pollution control, etc.)?

Consider both competitors' data as well as the owner's other sites which manufacture the same product. The in-house information may lead to more areas of published data regarding factors which may influence the subject property. Also, although inter-company decisions made may not be available for use in the appraisal of the subject property, the physical change in operations may be an argument to influence value.

Once these questions have been answered, they may lead to other questions and to published data to support a change in the value of the subject industrial property.

Clarify the Economic Impact on the Subject

Examine the subject property's value over time, including sales comparison approach, income approach, and cost approach. Within these approaches to value, the assumptions and adjustments made may have changed over the time period reviewed. Document, if possible, the reasons for the changes. Other areas to evaluate to determine the economic influence on value may include:

- Expenses per unit – quantify changes in utility costs, pollution control equipment expenses, etc.
- Net income – quantify the changes in net income - due to rising feedstock prices or decreased product demand and price
- Investment – quantify the changes in the amount of investment for the subject as compared to historical investment

- Utilization – especially if excess capacity is evident in the global and domestic industry

### Conclusion

The valuation of industrial properties in today's marketplace presents challenges to both property tax professionals and taxing jurisdictions. The impact from the decline in demand for goods and services as a result of the global financial crisis and recession will continue to have a significant impact on the market value of industrial properties for years to come. It is important to continue monitoring industrial properties for indicators of diminished production and quantify the economic obsolescence associated with the property.

**DONNA L. JERNIGAN, CMI, PE**, is a Property Tax Advisor for Exxon Mobil Corporation in Houston, Texas. She has over 20 years of property tax experience with industrial facilities, mineral properties, office and laboratory buildings, and business personal property. Properties for which she currently has responsibility include a petroleum refinery, three chemical plants, refinery and chemical inventories, a salt dome storage facility, and business personal property associated with each. Prior to joining the Property Tax Division, Ms. Jernigan was a gas plant and facilities engineer for Exxon Company USA. She is a Certified Member of the Institute (CMI) for Professionals in Taxation and certified in Texas as a Professional Engineer (P.E.). Ms. Jernigan graduated from Texas A&M University in 1980, earning a Bachelor of Science degree in Mechanical Engineering.

**GREGORY W. KORT, CMI, PE, ASA**, is the Director of Complex Property Appraisals for Popp, Gray & Hutcheson, LLP in Austin, Texas. He has over nine years of valuation experience in ad valorem tax, purchase price allocations, and studies for fair market value in continued use and in exchange. Properties he has appraised include petroleum refineries, chemical plants, electric power generation facilities, pipelines, and business personal property. Prior to joining Popp, Gray & Hutcheson, LLP, Mr. Kort was a Director for American Appraisal Associates. Mr. Kort is a Certified Member of the Institute for Professionals in Taxation (CMI), certified in Wisconsin as a Professional Engineer (PE), licensed as a Certified General Appraiser in Texas and Wisconsin, and is an Accredited Senior Appraiser (ASA) of the American Society of Appraisers. He was a speaker at IPT's 2007 Property Tax Symposium. Mr. Kort graduated from Michigan Technological University in 1994, earning a Bachelor of Science in Chemical Engineering and received his MBA from DeVry University in 2002.