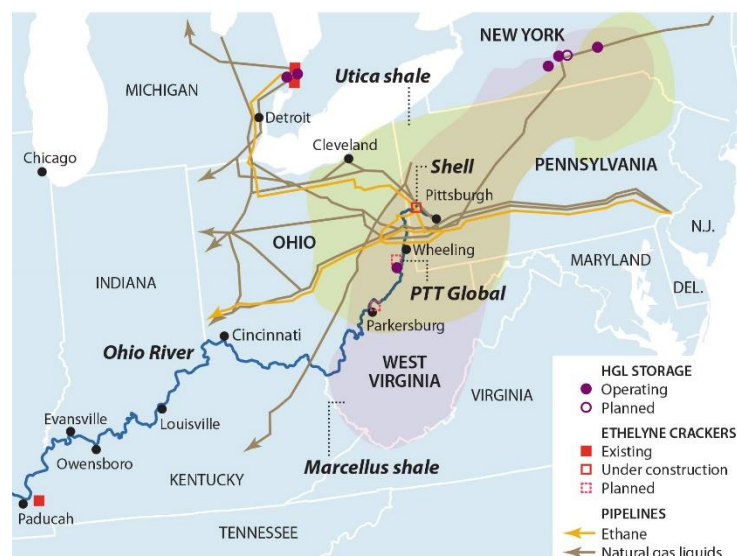


# Proposed PTTGC Petrochemical Complex in Ohio Faces Significant Risks

*Financial Outlook Dims as Financial and Policy Pressures Mount*

## Overview

The PTTGC Petrochemical Complex planned for Belmont County, Ohio by Thailand-based PTT Global Chemical (“PTTGC”) and Daelim of South Korea promises jobs, taxes and spinoff benefits to the State of Ohio and the people of southeastern Ohio. The project is also a critical element of a larger plan to establish a second U.S. petrochemical hub in the Ohio River Valley, akin to the Gulf Coast. This report highlights risks to the PTTGC project. The risks, left unheeded, strongly suggest that the plant will face financial distress when it opens and into the foreseeable future, reducing potential economic benefits.



The principal risks are:

- Under current and expected market conditions, the complex is likely to face plastic prices that are significantly lower than when the project was planned. Plastics prices today are 40% below the 2010-2013 period when the project was being planned. Futures plastics prices through 2021 are weak. Such weak prices will drive profit margins below investment targets.
- Oversupply from a global industry-wide plastics buildout is likely to drive prices and revenues down. The U.S. plastics buildout has oversupplied the market. Operating rates of cracker plants (which process ethane, a component of natural gas, to make raw materials for plastics) and profit margins for plastics manufacturers will decrease, and expected sales are likely to miss targets. Supply/demand imbalances are likely to last through 2026.

- PTTGC faces stiff competition in a constricted market that may depress prices. PTTGC's Ohio complex enters the plastics market in the U.S. during a time of intense competition from existing producers and suppliers. PTTGC's competition is made up of strong companies—ExxonMobil, Dow Chemical, Chevron—with existing domestic relationships. Slower U.S. economic growth projections by the International Monetary Fund (IMF) suggest a slowdown in the growth rate of plastics that may negatively impact both volume and prices of PTTGC's plastic products made in Ohio.
- PTTGC risks negative credit actions from pursuing the Ohio project at this time.
- PTTGC's investment in Ohio faces risk from unstable federal government policies.

After several postponed announcements, PTTGC has promised to make a final investment decision (FID) by June 2020. Long-term investment decisions must, by their nature, be based on business assumptions and made in good faith. They always contain an element of risk and a long-term perspective is needed that will be shaped by the investment environment of the moment at the time of the investment. The risks detailed in this report, taken individually, are manageable. Weighed collectively, however, the risks raise significant red flags that the anticipated number of jobs, enhanced revenues to local and state governments and spin-off economic activities will not materialize as promised.

## **Market Backdrop**

The oil and gas industry is in severe financial distress. The depth of this distress, however, is poorly understood. Current events often trigger a flow of facts that mask broader market trends. Putting the proposed plastics buildout for the Ohio River Valley against this broader backdrop will help to explain some of the strategies and risks identified in this report.

**The energy sector  
has ranked at, or near,  
the bottom of the S&P 500  
for the past 10 years.**

These trends include:

- In the late 1980s, oil and gas stocks represented 28% of the Standard and Poor's 500. Today they make up only 3.9% of the index. For many of the years from the 1980s through the early 2000s, the oil and gas sector dominated the stock market.
- In the 1980s, seven of the top ten companies in the S&P 500 were oil and gas stocks. Today, after ExxonMobil dropped out of the top ten in 2019, there are none.

- For the last ten years, oil and gas companies' stock performance has been at, or near, the bottom of the S&P 500 ranked by sector. The reasons for this decline have to do with broader changes in the energy industry and the global economy: 1) less energy is required to spur economic growth; 2) a proliferation of technological and cost-competitive options have been introduced that challenge established monopoly practices; 3) there are more geopolitical actors with conflicting national aspirations who are dependent upon oil and gas revenues to maintain fiscal solvency and political power; and 4) an increase in popular opposition and policy interventions to diminish the harm that oil and gas production has on national economies, local/regional environments<sup>1</sup> and the global climate.

These broad risks show up on the balance sheets of oil and gas companies and national governments as lower revenue and profits, fiscal distress, reduced capital spending and downward pressure on investor payouts. All oil and gas producers are experiencing diminished profitability from their exploration, drilling, extraction and sales activities.

Weakened profitability from these core activities has caused the oil and gas sector to seek profits from other assets.<sup>2</sup> Most major oil and gas companies are increasing capital expenditures in their petrochemical initiatives—despite historically lower returns from these assets.

*“Resigned to more pedestrian returns, integrated oil companies see a strong case for investing in a business that was once a sideshow.”<sup>3</sup>*

Driven by low natural gas prices, the strategy to increase investments in petrochemicals and effectively replace profits from oil and gas exploration has its challenges. Low natural gas prices, while a powerful incentive to stimulate plans for expanded use of natural gas, must also contend with the complex economic chain that links low natural gas prices to plastics end users. Sharp declines in feedstock prices do not lead to rising demand for petrochemical end products. Competition among natural gas producers and plastics manufacturers in a constrained market is more likely to produce financial underperformance.

**Sharp declines in  
feedstock prices do not  
lead to rising demand  
for petrochemical  
end products.**

The plastics buildout as a financial strategy is a hedge by certain companies and countries to generate cash while hitherto strong performing sectors in the oil and

<sup>1</sup> Petroleum Economist. [Downstream slumbers as plastics backlash grows](#). December 19, 2019.

<sup>2</sup> International Energy Agency. [The Future of Petrochemicals](#). October 2018, pps. 78-81.

<sup>3</sup> Wall Street Journal. [Big Oil Flashes the Plastic](#). July 28, 2019.

gas industry remain weak.

## Background to the PTTGC Petrochemical Buildout in Ohio

Thailand-based PTT Global Chemical (PTTGC) Petrochemical Complex is sponsored by PTTG Global Chemical, Ltd./PTTGCA America, LLC. The complex is to be built in Mead Township, Belmont County, Ohio. The PTTGC is a co-venture with Daelim Industries of South Korea.<sup>4</sup>

The integrated complex, with an estimated cost of \$5.7 billion,<sup>5</sup> will support one ethane cracker with a capacity of 1.5 tons per year (tpa) of ethane and two units of High Density Polyethylene (HDPE) with a 350,000 tpa capacity,<sup>6</sup> 500,000 tpa of monethylene glycol (MEG) and 100,000 tpa of ethylene oxide (EO).<sup>7</sup>

In addition, PTTGC has announced that Bechtel<sup>8</sup> will serve as the EPC contractor and Ineos technical applications will be used to process the HDPE project component. In December 2018, the company received an air pollution construction permit from the State of Ohio.<sup>9</sup>

Ohio has provided direct financial support to the project. JobsOhio, the state's privatized economic development arm, has provided \$50 million in pre-development grants<sup>10</sup> to PTTGC in the past two years as an incentive for the company to move forward with the full investment (and the agency previously granted \$17 million to the former owners of the site for clean-up and preparation).

**JobsOhio has provided  
\$50 million in  
pre-development grants  
to the PTTGC project.**

The company has stated that its interest in the project started in 2013<sup>11</sup> and culminated in an initial announcement in April 2015.<sup>12</sup> The project awaits an FID by PTTGC, which has delayed its decision since 2016, but recently stated it will decide

---

<sup>4</sup> PTTGC. [Project Facts](#). (Last visited March 17, 2020).

<sup>5</sup> Columbus Business Journal. [Thai Company confirms massive investment in Ohio](#). September 3, 2015.

<sup>6</sup> Ineos. [PTTGC America LLC has selected INEOS Technologies Innovene S HDPE process for its new polyethylene project in Ohio](#). November 12, 2015.

<sup>7</sup> ICIS. [Thai PTTGC eyes 2021 start up for U.S. cracker complex – CEO](#). June 24, 2016. See also: Marketscreener, [PTTGC Global Chemical PCL Bechtel wins EPC contract for Ohio petchem project](#). June 21, 2019.

<sup>8</sup> PTTGC. [Project Updates](#). (Last visited March 17, 2020).

<sup>9</sup> Ohio Environmental Protection Agency. [Ohio EPA issues air permit for Belmont county ethane cracker plant](#). December 21, 2018.

<sup>10</sup> Jobs Ohio. [Results](#). (Last Visited March 17, 2020).

<sup>11</sup> Columbus Business Journal. [Ethane Crackers path to Belmont County began 2 years ago](#). September 8, 2015.

<sup>12</sup> PTTGC. [Project Updates](#). (Last visited March 17, 2020).

by the end of June 2020.<sup>13</sup> The company estimates that construction will take 3½ years to complete.<sup>14</sup>

In 2019, PTTGC had annual revenues of \$13.1 billion and assets of \$14.5 billion. Its operations in the U.S. constitute .06% of revenues and 2.6% of total assets. Nearly two-thirds, or 65%, of PTTGC's revenues come from domestic production and sales in Thailand. The company has interests in the U.S., Vietnam, Myanmar, UAE, Netherlands, France, Malaysia, Indonesia and Singapore.

## Risks to Successful Completion of Project

The project will face significant risks should it proceed. The risks are presented individually in this report for analytical purposes but should be viewed cumulatively. These risks include pricing, oversupply, competition, economic growth, fracking, bond rating and the investment climate in the U.S.

### Price Risk

**Under current and expected market conditions, the complex is likely to face plastic prices that are significantly lower than when the project was originally planned.** Plastics prices today are 40% below those that existed in the 2010-2013 period when the project was first developed. Futures prices through 2021 are weak. Such weak prices will drive profit margins that are far below investment targets.

Table 1 and Table 2<sup>15</sup> show the price history for two of the more common HDPE products<sup>16</sup> produced by plastics manufacturers. During the 2010 to 2013 period, market prices for these two HDPE products hovered around 100 cents/lb. For example, in September 2014, the price for HDPE Injection General Purpose (GP) hit a 20-year high of 107 cents/lb. At the time of PTTG's announcement in April 2015, prices were in the low- to mid-90 cents/lb. for HDPE.

---

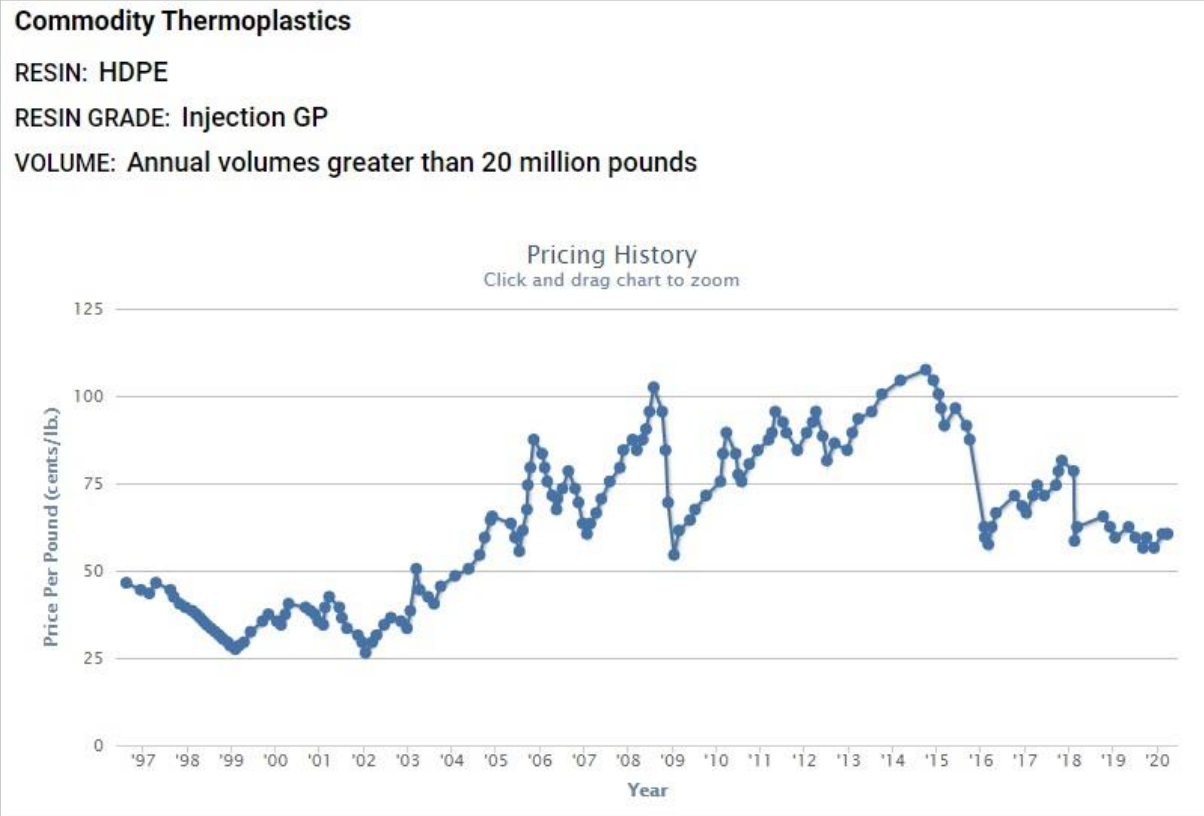
<sup>13</sup> The Intelligencer. [State grants 20 million for cracker project in Belmont County](#). February 2020.

<sup>14</sup> Columbus Dispatch. [Thai company gets serious about possible Belmont cracker plant](#). September 3, 2015.

<sup>15</sup> Plastics News. [Plastics Resin Pricing - Commodity Thermoplastics](#). (Last visited March 17, 2020).

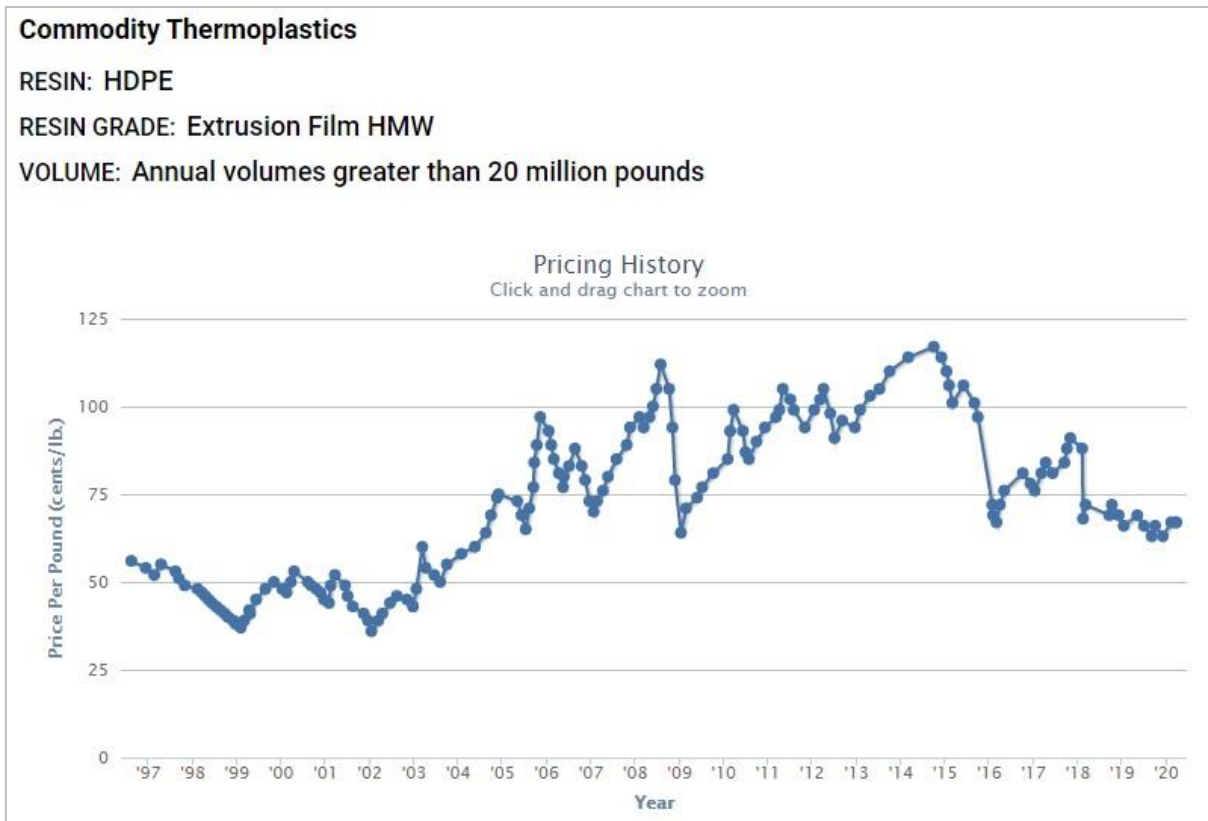
<sup>16</sup> PTTGCA has not released to the public details as to the precise Resin Grade that will be produced at the plant. Most related thermoplastic commodities have followed a similar price history that is currently down from mid to late 2000 peak prices. See Price histories for Low Density Polyethylene (LDPE), Linear Low Density Polyethylene (LLDPE), Polyethylene Terephthalate (PET), Polypropylene (PP), Polystyrene (PS) and Poly Vinyl Chloride (PVC). See: [Plastics Resin Pricing - Commodity Thermoplastics](#). (Last visited March 19, 2020)

**Table 1: Commodity Price History: HDPE-Injection GP (1997-2020)**





**Table 2: HDPE Extrusion Film HMW (1997-2020)**



Since 2015, prices have been substantially below the 100+ cents/lb. price environment that prevailed during the planning stages of the PTTGC Ohio project. Since 2016, prices dropped from a high of 81 cents/lb. to a low of 56.5 cents/lb. in December 2019.

According to *Plastics News*, current prices are in the 60 cents/lb. range. Plastics Exchange, which tracks spot prices in the plastics market, puts HDPE GP Injection sales spot market prices at 36 to 44 cents/lb. as of March 6, 2020.<sup>17</sup>

CME's HDPE forward price curves are at 31.5 cents/lb. through 2021.<sup>18</sup>

### *Risk of Oversupply*

***Oversupply from a global industry-wide plastics buildout is likely to drive prices and revenues down.*** The petrochemical buildout in the United States has oversupplied the market. Operating rates of cracker plants and plastics manufacturer margins placed downward pressure on operating rates and expected sales prices and margins. Most are expected to decline in the United States and

<sup>17</sup> Plastics Exchange. [Weekly Review](#). (Last visited March 13, 2020).

<sup>18</sup> CME Group. [HDPE High Density Polyethylene \(PCW\) Financial Futures Quotes](#). (Last visited March 13, 2020).

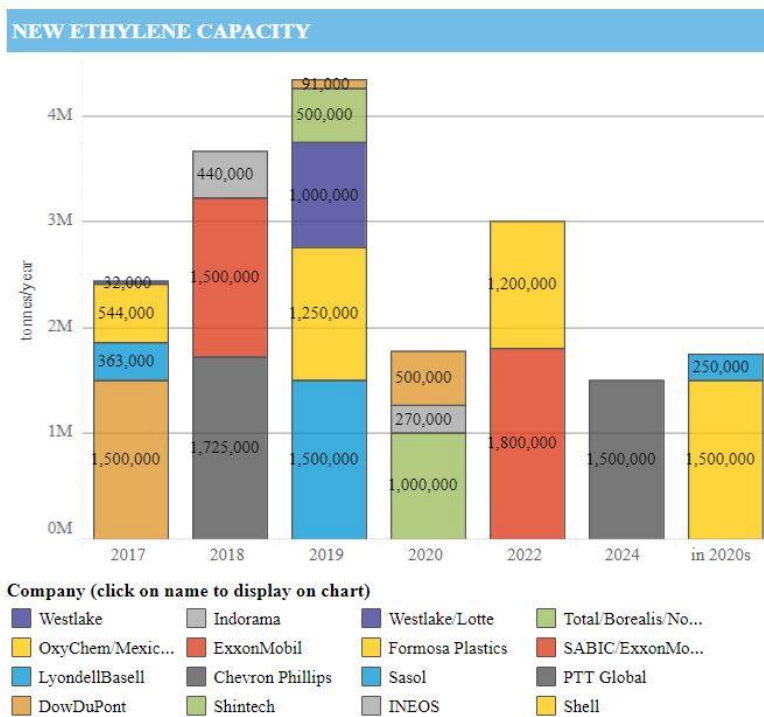
around the world. The supply/demand imbalances are likely to last through 2026.

From 2010-2013, industry analysts emphasized that no new cracker capacity had been added since 2005, resulting in operating rates above 95% and consistent demand growth.<sup>19</sup> With declining feedstock prices, created by rising production from fracking, market signals encouraged a plastics buildout in North America.

Supporting arguments for expanded production also came with warnings that substantial increased capacity could lead to margin declines and increased competition domestically and globally.<sup>20</sup>

Table 3<sup>21</sup> shows the number of new cracker facilities that have been added since 2017 and that are planned to be built through 2026.

**Table 3: Recently Added and New Cracker Capacity**



In late 2019, as new capacity was being added in the U.S. and around the world, plastics prices remained depressed. Although new capacity was being added, the markets were not growing at a rate sufficient to absorb the new facilities. Persistent oversupply was likely to continue through 2021.<sup>22</sup>

<sup>19</sup> IHSMarkit. [North American Resin Market Trends](#). January 2014.

<sup>20</sup> Ibid.

<sup>21</sup> ICIS. [Long term downcycle will transform global petrochemicals creating winners and losers](#). December 2019.

<sup>22</sup> RightPlace. [Resin Key Market Drivers and Outlook for 2020](#). September 25, 2019.



*Plastics News* also reported on projected lower operating rates through 2023:

*In the U.S., the wave of new capacity fueled by shale gas "is cresting" this year, with additions from Sasol, Formosa Plastics, ExxonMobil and LyondellBasell. Global PE operating rates also are expected to peak in 2019 before declining through 2023. At that point, linear low-density PE will be in the greatest oversupply.*<sup>23</sup>

Continued conditions of oversupply will maintain downward pressure on prices until either new demand absorbs the capacity, or a period of consolidation develops. Global capacity additions are expected to continue through 2026.<sup>24</sup>

## *Risks from Competitive Pressures*

**PTTGC faces stiff competition in a constricted market that may depress prices.** PTTGC's Ohio complex enters the plastics market in the U.S. during a time of intense competition from existing producers and suppliers. PTTGC's competition consists of strong companies—ExxonMobil, Dow Chemical, Chevron—with existing domestic relationships. Slower economic growth projections by the IMF for the U.S. suggest a slowdown in the growth rate of plastics that may negatively impact both volume and prices of PTTGC's plastic products made in Ohio.

**The expected slowdown in the growth rate of plastics may negatively impact both volume and prices.**

With lower prices, margins are down for current polyethylene producers generally. PTTGC will enter the market when its key competitors are pursuing strategies to recover from the current down cycle. The down cycle in the short-term is likely to be exacerbated by the coronavirus. Prices that are already depressed by oversupply are likely to be depressed further for PTTGC due to competitive pricing.

PTTGC faces competition from a formidable array of companies that already dominate U.S. market share.<sup>25</sup> Those companies include: Baystar, Chevron Phillips Chemical Company, Dow Chemical Company, ExxonMobil Chemical Canada, ExxonMobil Chemical Company, Formosa Plastics Corporation, INEOS Olefins & Polymers, LyondellBasell Industries, NOVA Chemicals, Ltd. and Sasol Chemicals North America.

<sup>23</sup> *Plastics News*. [Global PE Market faces most formidable set of issues](#). PP keeps rolling, July 23, 2019.

<sup>24</sup> See chart: GlobalData Center. [Global planned announced capacity additions in the ethylene industry by top 10 countries \(mtpa\) 2026](#). January 11, 2019

<sup>25</sup> American Chemistry Council. [The Resin Review 2019](#). (Proprietary Report – available upon request).

Competitive pressures are not limited to the U.S. Analysts are now identifying a lower growth scenario for the global economy and increased competition in the plastics sector.<sup>26</sup>

In the U.S., Moody's has taken note of PTTGC's relatively weaker position. Moody's analysis addresses the Ohio project specifically:

*"Such a large-scale project into a new geographical market where it has no existing operations, operating track record and a lack of strategic working partners, will significantly heighten execution risks during construction, and operating risks when completed."<sup>27</sup>*

PTTGC faces significant competitive risk as the market in the U.S. has tightened. Its entry into the market at this time poses the risk of depressed revenues driven by the need to find customers in an already well-supplied and constricted market.

### *Risks of Slower Growth*

**Slower economic growth projections in the U.S. suggest a slowdown in the growth rate of plastics that may negatively impact both volume and prices of PTTGC's plastic products made in Ohio.**

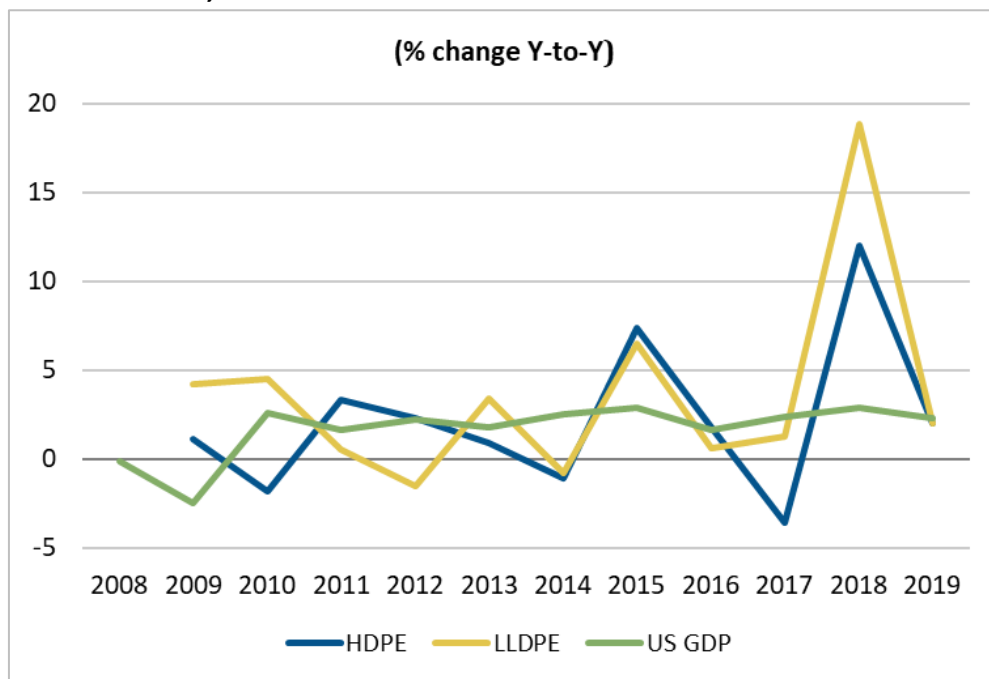
Growth in Gross Domestic Product (GDP) is not the sole determinant of the rise or decline of polyethylene sales but the plastics markets have generally done better when global GDP growth exceeds 3%, and when U.S. GDP growth exceeds 2%. In any given year, as GDP rises, the plastics market tends to improve, and as the GDP growth rate declines, rates of plastics growth follow suit.

---

<sup>26</sup> ICIS. [Surge in U.S. polyethylene exports occurs as China growth slows Asian margins turn negative](#). October 2019.

<sup>27</sup> Moody's Investor Service. *PTT Global Chemical and SK Global Chemical*, Issuer-In-Depth. June 4, 2018.

**Table 4: HDPE, LLDPE and U.S. GDP Growth 2008 to 2019**



Recently, the IMF has lowered its global growth projections.<sup>28</sup> While growth projections globally remain above 3%, slower growth in China’s baseline economy is expected. Further, the IMF sees U.S. growth at 2% for 2020 and declining through 2021.

These slower growth projections were developed prior to the recent precipitous drop in oil prices, a decline from already historically low levels. The projection was also made prior to the onset of the coronavirus.

### *Feedstock Risk*

**PTTGC’s plan to secure a low-cost reliable supply from third-party natural gas producers may not materialize. The company may be required to make additional unanticipated capital outlays to directly acquire acreage and develop natural gas wells in an integrated effort to maintain the supply and control costs of its feedstock.**

One of the strongest pitch points for the plastics buildout is tied to what is expected to be a long-term, low-cost supply of natural gas<sup>29</sup> and with it, a low-cost supply of ethane. Low-cost natural gas is seen as a major driver that cements the petrochemical buildout in the Ohio River Valley as a logical investment strategy.

<sup>28</sup> International Monetary Fund. [World Economic Outlook Update](#). January 2020.

<sup>29</sup> This was true in 2014 as the buildout progressed (EIA. [Global demand, inexpensive natural gas are increasing plastic production](#). February 5, 2014) and it remains a widely held justification for the buildout generally and expansion into the Ohio Valley specifically: Crescent USA/IHSMarkit, [Shale Crescent USA IHS Executive Summary](#), March 2 and: Crescent USA, [2019 Progress Report](#), 2019.

Ethane is a feedstock for ethylene and plastics production, a competitive complement to the use of oil-based naphtha as feedstock for plastics production.

The natural gas exploration and production (E&P) sector, which is led by technological advances in horizontal drilling and hydraulic fracturing (“fracking”), like the rest of the energy sector, is in a state of severe distress driven by weak fundamentals – faltering revenues from oversupplied markets, distressed sales and significant value destruction as well as a negative outlook.

**Fracking, like the rest of the energy sector, is in a state of severe distress driven by weak fundamentals.**

Fracking interests in the U.S., including those in the Marcellus and Utica (M-U) shale basins, are at substantial risk of bankruptcies<sup>30</sup> and face a period of financial distress. This is causing some noteworthy retrenchments in drilling activity. For example, Banpu, a Thailand-based, publicly traded, integrated energy company, is one of the twenty largest gas producers in Appalachia. During the last two years, the company has made substantial investments, including the purchase of Devon Energy assets.<sup>31</sup> Recently, reports say the company is curtailing new drilling in Appalachia until prices<sup>32</sup> turn around.<sup>33</sup>

The banking sector has already curtailed market access to distressed fracking-focused companies, many of which are players in the M-U.<sup>34</sup> The PTTGC plan, and other projects envisioned as part of the plastics buildout in the Ohio River Valley, are meant to bring an element of stability to producers in the region. Given the magnitude of the market problems facing producers, the PTTGC project is likely to have a modest impact on the market and offer some stability to those specific companies that capture long-term contracts.<sup>35</sup>

Instead, knowledgeable analysts foresee a growing number of bankruptcies followed by fewer producers with deeper pockets snapping up distressed assets. Many of these new players may be foreign investors with interests that are hostile to U.S. interests.<sup>36</sup> Faced with these changes in the fracking sector in the M-U,

---

<sup>30</sup> IEEFA.org. [Bankruptcies in Fracking Sector Mount in 2019](#). January 2020.

<sup>31</sup> Banpu. [Banpu Invests USD 770 million to Expand Shale Gas Production Portfolio, Accelerating the Growth of Its Energy Resources Business Aligning with Greener & Smarter Strategy](#). December 18, 2019 and Natural Gas Intelligence. [Devon exits Barnett, Thailand’s BKV expands stakes in lower 48 natural gas](#). December 18, 2019.

<sup>32</sup> Banpu. [U.S. shale gas: special analyst workshop](#). July 24, 2019.

<sup>33</sup> Marcellus Drilling News. [The Big Write down for MU drillers - Banpu stops new drilling](#). February 12, 2020.

<sup>34</sup> Wall Street Journal. [Frackers scrounge for cash as Wall Street Closes Doors](#). June 7, 2019.

<sup>35</sup> Exploration and Production companies are quick to publicize any long term contracts they receive in the current environment. See for example: Kallanish Energy, [ET announces Eagle Ford and Delaware Basin Deals](#), February 2, 2020.

<sup>36</sup> Marcellus Drilling News. [Vultures circle: which shale companies will survive price crash?](#) March 11, 2020.

companies like PTTGC may have to participate in these upstream markets to maintain a reliable supply of low-cost feedstock.

In Thailand, PTTGC receives its feedstock for plastics largely from PTT, its state-owned parent company with oil and gas holdings. PTTGC benefits from these long-term supply agreements that are integral to the stable functioning of the Thai government.<sup>37</sup> The volatility and tumult that currently characterize the finances of the U.S. fracking sector pose an additional risk to PTTGC.

**The volatility that currently characterizes the U.S. fracking sector poses an additional risk to PTTGC.**

For its Ohio complex, and under current assumptions, PTTGC would secure its feedstock supply from M-U producers through arms-length supply agreements with marginally stable independent companies. The risk to PTTG is that it may acquire natural gas assets in the M-U in order to maintain a reliable, low-cost supply with predictable pricing. Additional expenditures on capex for distressed natural gas assets to maintain the project risks a lower rate of return for the complex as a whole, and for PTT, the parent company.

### ***Bond Rating Risks***

**PTTGC risks negative credit actions from pursuing the Ohio project.**

PTTGC's credit ratings are AA+, Baa2 and BBB+ from Fitch, Moody's and Standard and Poor's, respectively.<sup>38</sup> The company has strong backing from its parent PTT. The company had a difficult 2019, with profits down by 60%.<sup>39</sup> Company finances are expected to remain weak through 2020 and to post a turnaround in 2021.<sup>40</sup> The turnaround could be delayed as the first half of 2020 creates challenges related to the coronavirus.

In a February 2020 opinion, Moody's affirmation of the Baa2 rating assumed:

*"Moody's estimates incorporate its expectation that PTTGC will significantly reduce its shareholder returns and not embark on any new capacity expansion plan or make any acquisitions until margins improve on a sustained basis."*<sup>41</sup>

PTTGC's general financial profile contains significant strengths related to its the government of Thailand's ownership of its parent company. It nevertheless carries a near-speculative credit rating due to the nature of the petrochemical business, with

---

<sup>37</sup> Moody's Investor Service. *PTT Global Chemical and SK Global Chemical*, Issuer-In-Depth. June 4, 2018, p.2.

<sup>38</sup> PTT Group. [Credit Rating](#). (Last visited March 17, 2020).

<sup>39</sup> PTTGC. [Financial Statement](#). Statements of Profit and Loss/Gross Profits. December 31, 2019, (electronic page 8/103).

<sup>40</sup> Moody's Investor Service. [Moody's assigns PB2 to PTTGC's MTN program](#). March 5, 2020.

<sup>41</sup> Ibid.

its margin volatility, current conditions and execution risks that are part of its expansion plans. Moody's suggests that downward pressure on PTTGC's rating could occur if the company launches "large scale projects in new geographies/product chains."<sup>42</sup>

## *Risks Related to Investment by Foreign Companies in United States*

**PTTGC's investment in Ohio faces risk from unstable governmental policies at the federal level.**

Foreign companies and nations looking to conduct business in the U.S. face protectionist policies.<sup>43</sup> Chinese-U.S. trade disputes cast a shadow over the more U.S.-based plastics buildout. The oversupply in the U.S. suggests most of the new capacity is expected to be sold into Asian markets – which will complicate the risk picture further.<sup>44</sup>

**Most of the oversupply  
in plastics capacity is  
expected to be sold  
into Asian markets.**

On a separate front and more generally, Thai interests have become controversial in Washington due, in part, to the U.S.'s broader conflicts with China.<sup>45</sup> These and other unknown policy disputes and an unpredictable resolution process in Washington create uncertainty.

State actions to support the project in money and policy preferences may be offset by the impact of market forces and/or the negative quality of inconsistent policies at the federal level.

## **Conclusion**

Should it go forward, PTTGC's planned petrochemical investment in Ohio could be completed as early as 2024-25, and would face significant risks in both the short and medium terms. The facility would open with a high risk of weak prices, significant domestic and global competition, slowing global GDP, a financially unstable feedstock supply, downward credit pressure and an uncertain investment environment in the U.S.

---

<sup>42</sup> The complete statement on the risk of downward pressure on company ratings: "PTTGC's ratings would experience downward pressure if PTTGC's standalone profile weakens by more than one notch. This could happen if (1) refining and petrochemical margins fail to recover; (2) PTTGC faces major hurdles or delays in completing its new naphtha cracker; (3) PTTGC maintains high shareholder returns; (4) PTTGC undertakes large-scale projects in new geographies/product chains; or (4) PTTGC makes large debt-funded acquisition." Ibid.

<sup>43</sup> Société Générale. [Country risk of the United States: investment](#). March 2020.

<sup>44</sup> SP Global.com. [U.S. Chemical Industry Caught in U.S.—China Trade War](#). October 2018.

<sup>45</sup> Nikkei Asian Review. [Trump squeezes Thailand in trade row over chemicals ban](#). October 17, 2019.



The risk factors identified in this report can be treated as analytically distinct, but, in reality, they are cumulative in real time and real-world impact. The question for decision makers who are seeking to support constructive, reliable long-term investment partners to provide jobs, community revitalization and tax revenues for distressed communities is: will this project actually provide those benefits?

## About IEEFA

The Institute for Energy Economics and Financial Analysis conducts research and analyses on financial and economic issues related to energy and the environment. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. [www.ieefa.org](http://www.ieefa.org)

## About the Authors

### Tom Sanzillo

Tom Sanzillo, director of finance for IEEFA, is the author of several studies on coal plants, rate impacts, credit analyses and public and private financial structures for the coal industry. He has testified as an expert witness, taught energy-industry finance training sessions, and is quoted frequently by the media. Sanzillo has 17 years of experience with the City and the State of New York in various senior financial and policy management positions. He is a former first deputy comptroller for the State of New York, where he oversaw the finances of 1,300 units of local government, the annual management of 44,000 government contracts, and where he had oversight of over \$200 billion in state and local municipal bond programs and a \$156 billion pension fund.

### Kathy Hipple

Kathy Hipple, a financial analyst at IEEFA, teaches the finance sequence at Bard's MBA in Sustainability and is the founding partner of Noosphere Marketing. Hipple has written extensively about sustainable, responsible and impact finance and investing. As Vice President at Merrill Lynch for 10 years, she placed fixed income securities with international institutional clients, and advised international life insurance companies and pension funds. She later founded Ambassador Media, a local search firm in New York City, and served as its CEO. She has served on several boards, including the national Local Search Association and Bennington County's Meals on Wheels.

### Suzanne Mattei

Energy Policy Analyst Suzanne Mattei is an attorney and a former regional director for the New York State Department of Environmental Conservation. She has 30 years of experience in public interest law and policy.

This report is for information and educational purposes only. The Institute for Energy Economics and Financial Analysis ("IEEFA") does not provide tax, legal, investment, financial product or accounting advice. This report is not intended to provide, and should not be relied on for, tax, legal, investment, financial product or accounting advice. Nothing in this report is intended as investment or financial product advice, as an offer or solicitation of an offer to buy or sell, or as a recommendation, opinion, endorsement, or sponsorship of any financial product, class of financial products, security, company, or fund. IEEFA is not responsible for any investment or other decision made by you. You are responsible for your own investment research and investment decisions. This report is not meant as a general guide to investing, nor as a source of any specific or general recommendation or opinion in relation to any financial products. Unless attributed to others, any opinions expressed are our current opinions only. Certain information presented may have been provided by third-parties. IEEFA believes that such third-party information is reliable, and has checked public records to verify it where possible, but does not guarantee its accuracy, timeliness or completeness; and it is subject to change without notice.