

# DOWNSTREAM GAS INDUSTRY

ANNUAL REPORT

# 2012



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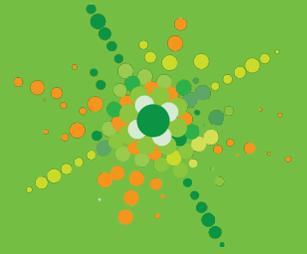
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Tower C  
International  
Waterfront Centre  
1 Wrightson Road  
Port of Spain  
Republic of Trinidad  
and Tobago

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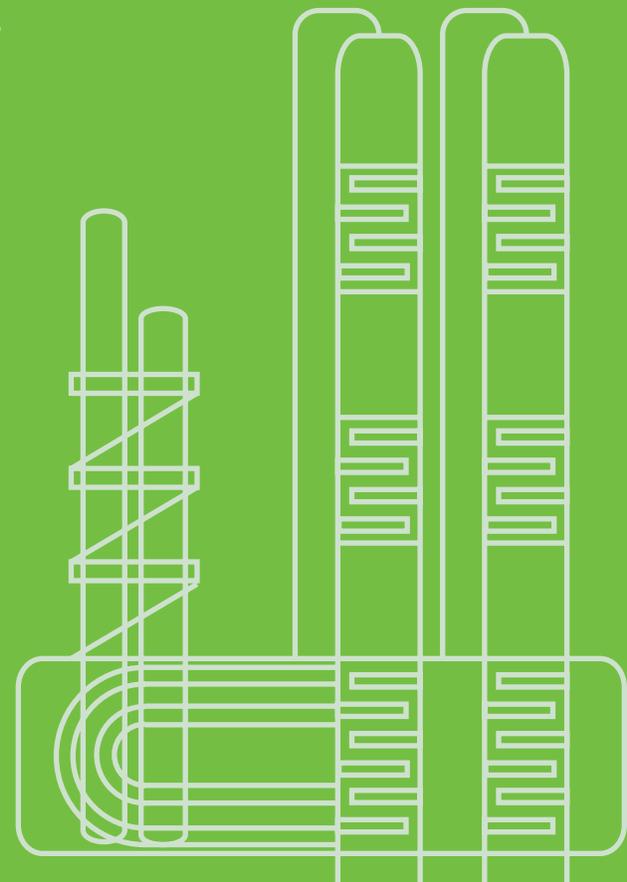
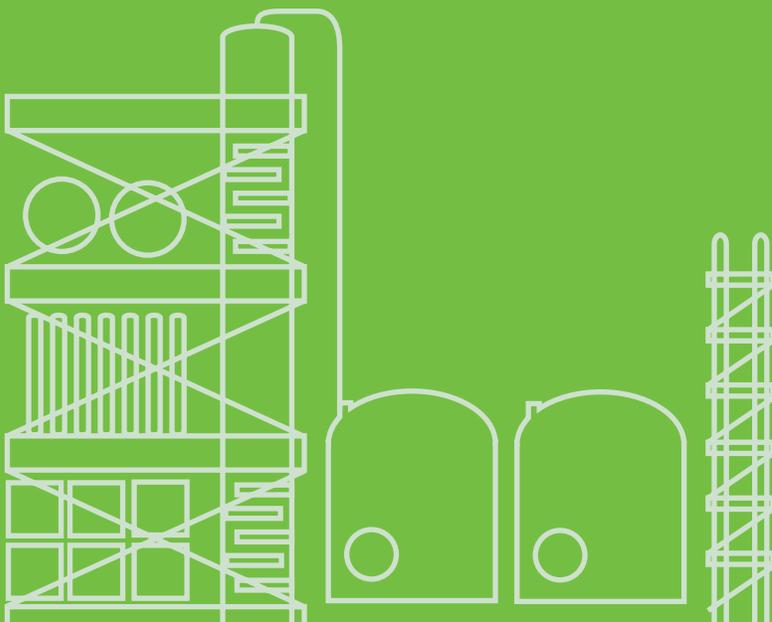
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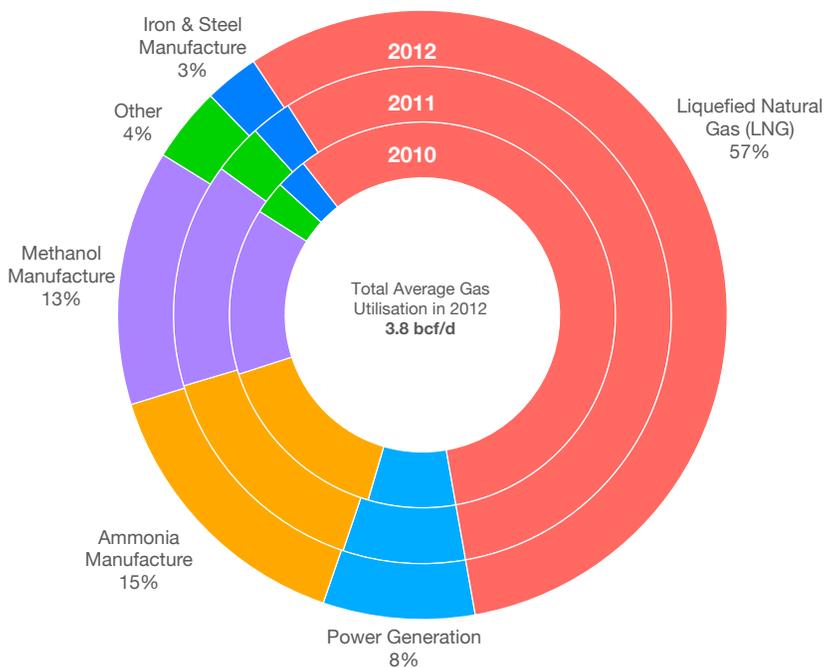
19 Upcoming Downstream Gas Projects



# OVERVIEW

The energy sector is the major contributor to the economy of Trinidad and Tobago, providing 58% of annual government revenue and 45% of gross domestic product (GDP) in 2011. The petrochemical sector alone contributed an estimated 13% to GDP in 2011.

Natural Gas Utilization By Sector 2012



Overall production and export for ammonia, methanol, urea and UAN decreased in 2012. The decreased production and export of ammonia, methanol and urea was due to plant repairs, turnarounds (TARs), plant outages and natural gas curtailments. However, the average prices for ammonia, methanol and urea increased as compared to 2011.

Output in the energy sector slipped in the context of heightened maintenance operations and maturing oil fields. The Ministry of Energy and Energy Affairs (MEEA) has worked with BP, BG, the NGC and ALNG to achieve an unprecedented level of corporation and coordination in order to mitigate this impact of this shortfall on the downstream gas users. This period of maintenance and curtailment in supply has impacted industrial output and has rippled through the output of ammonia, methanol, iron and steel and LNG.

Downstream investments serve as economic drivers for our economy. The government's energy policy is to further diversify the energy sector by promoting the establishment of downstream industries that maximise the multiplier effects and value added through the creation of linkages between the energy sector and the rest of the economy.

## Downstream energy landscape

- 1 Natural Gas Liquids Processing Facility
- 1 Crude Oil Refinery
- 4 Liquefied Natural Gas Plants
- 11 Ammonia Plants
- 1 Urea Plant
- 7 Methanol Plants
- 1 Methanol to Power facility
- 4 Iron and Steel Mills
- 6 Power Generation Sites
- 1 A-U-M Complex
- Other
  - Cement Manufacture
  - Over 100 Light Industrial Consumers & small gas consumers

Investments in downstream projects represent a shift towards diversification of the energy sector away from the traditional petrochemicals, towards new sectors in our energy industry. This step in the thrust towards diversification will see growth of the manufacturing sector utilizing downstream petrochemicals products while bringing increased revenue. With this vision in mind, the MEEA continues to hold discussions and negotiations with potential investors for investment in downstream projects. Some of these potential downstream and manufacturing projects range from calcium chloride to dimethyl ether (DME) to derivative melamine products.

Looking to the future of downstream gas markets, gas production from non-traditional sources has the potential to transform the global energy landscape. The United States has traditionally relied on imports for its natural gas needs. Emerging shale gas production has brought prices down, encouraging the revival of some idled ammonia and methanol plants and the construction of new facilities that will commence operation over the next few years. This stands to impact Trinidad and Tobago's downstream gas markets as continued progress is made in a dynamic environment.

# SUMMARY

Petrochemical	Production / MT			Percentage change 2011/12
	2010	2011	2012	
Ammonia	5,553,242	5,133,860	4,900,781	-4.5
Methanol	5,932,232	5,902,313	5,490,678	-7.0
Urea	708,760	625,742	569,804	-8.9
UAN	1,277,839	1,437,713	1,367,881	-4.9
Melamine	14,345	39,784	46,359	16.5

Petrochemical	Export / MT			Percentage change 2011/12
	2010	2011	2012	
Ammonia	5,254,926	4,669,908	4,533,321	-2.9
Methanol	5,978,154	5,793,082	5,548,682	-4.2
Urea	675,711	647,737	544,512	-15.9
UAN	1,194,300	1,509,289	1,338,441	-11.3
Melamine	13,262	40,805	45,772	12.2

Petrochemical	Location	Price / \$US/MT			Percentage change 2011/12
		2010	2011	2012	
Ammonia	Caribbean	369	536	560	4.6%
Methanol	US Gulf	325	370	385	4.1%
Urea	Caribbean	301	436	452	3.6%
UAN	US (Nola)	260	352	330	-6.1%
Melamine	US Gulf	2201	2306	2108	-8.6%

# AMMONIA

Trinidad and Tobago is currently the world's largest exporter of ammonia, exporting a volume of approximately 4.6 million MT (metric tons). The largest portion of the US offshore ammonia supply, about 70%, comes from T&T. Ammonia demand is primarily driven by urea consumption, which is mainly a function of fertiliser demand.

**4.9** million tons produced

## Production

The total ammonia production from the eleven ammonia plants (including the ammonia plant of the AUM complex) for the period 2012 was 4.9 million MT. This represented a 4.5% decrease from 2011 which had a total production of 5.13 million MT.

The production loss was mainly due to the following plant issues:

### Yara

January: Plant offline  
 October: Plant offline  
 November: Plant offline

### Tringen 1

May: Gas curtailment in effect for most of the month  
 September - October: Plant shutdown (10 days)  
 November - December: Gas curtailment in effect in addition to small outages

### Tringen 2

November: Outages and gas curtailment

### PLNL

September: Planned TAR commenced on 20th September  
 October: Plant restarted after turnaround repairs and gas curtailment from NGC due to heavy liquids. Plant trips occurred.  
 November: Plant shutdowns (16 days)

### PCS Nitrogen Plants

September & October: Natural gas curtailments

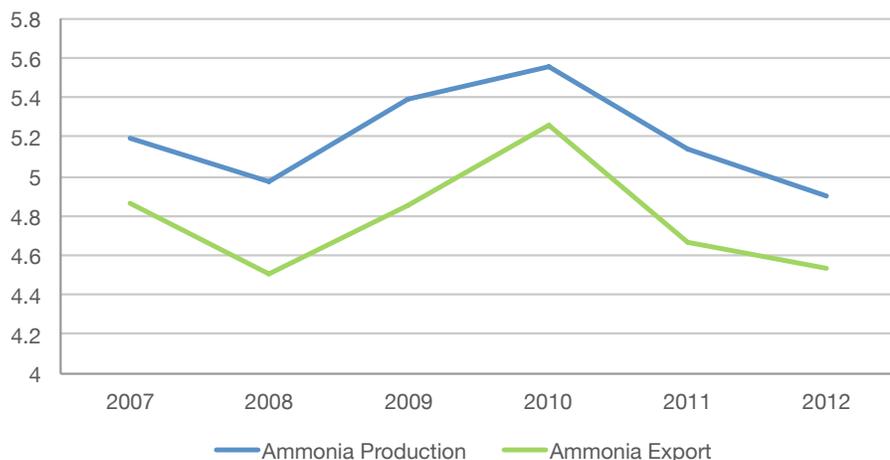
### CNC

July: Plant trip and natural gas limitations  
 October: Natural gas supply limitations  
 November: Natural gas supply limitations

### N2000

September: Plant trip and natural gas limitations  
 November: Natural gas supply limitations

Ammonia Production and Export 2007-2012 (million MT)



## Export

Total ammonia exports for the period 2012 was 4.53 million MT. This represented a 2.9% decrease from 2011 which had a total export of 4.67 million MT.

Main ammonia export destinations for 2012 were USA, Colombia and Mexico.

The average Caribbean Spot FOB price for ammonia from 2012 was 560 \$US/MT, while during 2011 the average price was 535 \$US/MT, as reported in the Fertilizer Market Bulletin.

**3%** decrease in exports

## Market Perspective

China is undeniably the largest producer and consumer of ammonia. Almost one third of the world's ammonia supply is consumed by China (approximately 50 million MT). Virtually all its current and future capacity is intended for domestic consumption. Out of the 164 million MT of ammonia produced globally in 2011, only 12% (19.4 million MT) was traded.

The ammonia industry is primarily driven by fertilizer demand which is in turn driven by population and economic growth. Over 75% of ammonia is used in the production of upgraded fertilizers, with 55% going to produce urea. For the past 50 years, grain consumption has increased by an average of 2% a year while the population has grown by 1.6% per year.

The ammonia industry was challenged by environmental, political and technical factors throughout 2012. An oversupply from the end of 2011 continued into January and February resulting in low prices. This was quickly overcome by the beginning of March when challenges to global supply had arisen. Firm pricing continued for the balance of the year.

Global ammonia prices have been on a general firming trend over the past couple of years, fuelled by stronger demand for downstream fertilizers and a steady recovery in industrial demand. With food security still a major concern, demand for fertilizer and, therefore, ammonia is likely to remain strong.

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La Nina conditions severely impacted soybean harvest in South America, declining by 15% compared to previous year.

Drought conditions also impacted southeastern Europe and Central Asia. In both Russia and Ukraine, the 2012 wheat and coarse grain harvests dropped by 30% and 13% respectively.

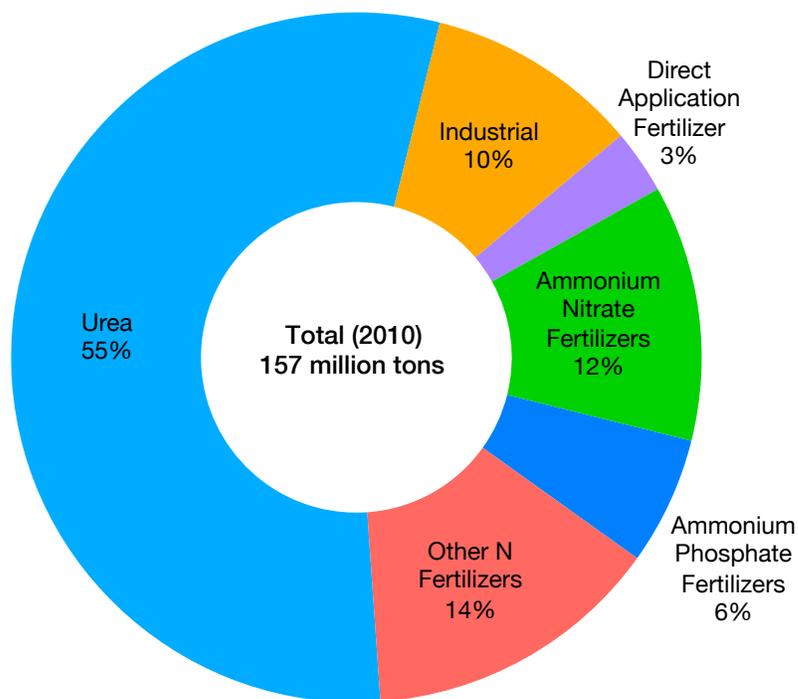
In India, the implementation of the Nutrient Based Subsidy resulted in

a rapid increase in the domestic price of phosphorus (P) and potassium (K) fertilizers. Hence, demand declined. Importers sought to delay deliveries under existing import contracts. Sanctions against Iran imposed by the US and EU significantly impacted ammonia availability. Their exports drastically declined, with only India taking cargoes.

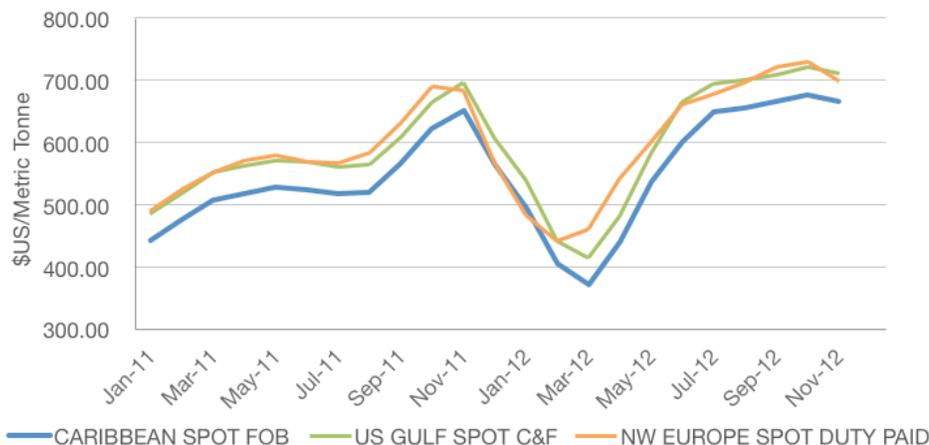
Ongoing gas supply issues due to maintenance work within Trinidad also posed challenges to the ammonia market. Ammonia plants, including Qafco V and VI within the Middle East experienced outages and/or other technical problems which also helped prices to firm. Galeen in the Netherlands and Safco IV in Saudi Arabia underwent turnarounds.

No new ammonia capacity was commissioned within 2012.

Global Ammonia Consumption by Application



Ammonia Prices 2011-12



## Market Outlook

The International Monetary Fund (IMF) forecasts 3.6% growth of global output in 2013. This represents a recovery from the negative economic impact of the euro crisis in 2012. Global fertilizer output is expected to grow by 2-3%. Ammonia, which is mainly used for fertilizers, is mainly affected by the world agricultural situation. Fiscal measures, trade policies and access to feedstock are also significant factors impacting the outlook.

The ammonia market will be affected by new plants coming on stream in the Middle East and North Africa in 2013, which will likely add to supply in Asian markets and force a downward correction in prices. In the western hemisphere, prices might have to react in order to remain competitive. However, in the longer term, this extra supply will be used downstream, keeping the market tight.

Natural gas prices can impact supply, as this is the major feedstock for ammonia. Increases in the price of Russian gas exported to Ukraine have raised production costs. In the US, shale gas production has brought prices down, encouraging the revival of some idled ammonia plants and

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Wheat and coarse grain production are expected to be well below previous highs. The resulting high wheat prices are expected to stimulate increased plantings during winter, a forecasted 2% increase in harvested area. South America suffered from declined oilseed production due to drought in 2011/12. A return to normalcy is however expected in Brazil and Argentina for 2013. Cane production is also seen as rebounding in Brazil.

Ammonia imports to the US are projected to increase from 6.3 million MT to 7.5 million MT in 2013 to meet additional demand in the agricultural sector. Economic incentives for US farmers to plant corn provide a favourable outlook for their fertilizer industry. Trinidad and Tobago has accounted for 60% of US imports in the

period 2008-11 and this trend is expected to be maintained.

The implementation of the Nutrient Based Subsidy in India has triggered a significant drop in domestic phosphorus (P) and potassium (K) fertilizer demand in 2012. This is expected to recover progressively in 2013 due partly to their need to rebalance their fertilization practices. In Iran, imposed trade sanctions will continue to challenge their economy as well as the global ammonia supply.

The Ammonia sector accounts for approximately 40% of gas-based petrochemical production capacity in Trinidad and Tobago and has grown to become a leading exporter of ammonia from a single site with 11 world-scale ammonia plants with a total production capacity for ammonia of approximately 5.7 million metric tonnes per year (MTPY).

Plant	Production (MTPY)
YARA	300,000
Tringen I	500,000
Tringen II	500,000
PCS 01	445,000
PCS 02	445,000
PCS 03	250,000
PCS 04	650,000
PCS (Total)	2,050,000
PLNL	650,000
CNC	650,000
N2000	650,000
AUM	650,000

# UREA

Urea is the most widely-produced and commonly-traded nitrogen fertilizer. Production amounts to around 150 million MT, of which about 40 million MT are traded internationally. It is produced in nearly 50 countries worldwide and consumed in every developed agricultural market. The largest producers are Chinese and Indian companies, who have massive domestic markets to serve. The main exporters are producers in areas where feedstock costs are lowest, notably the Middle East, Russia, Ukraine and Caribbean.

An estimated 10-15% of urea manufactured is used in industrial processes, such as urea-formaldehyde resins, the synthesis of melamine, in adhesives and paints, and for laminates, moulding compounds, impregnating paper and textiles. The balance is used in agriculture.

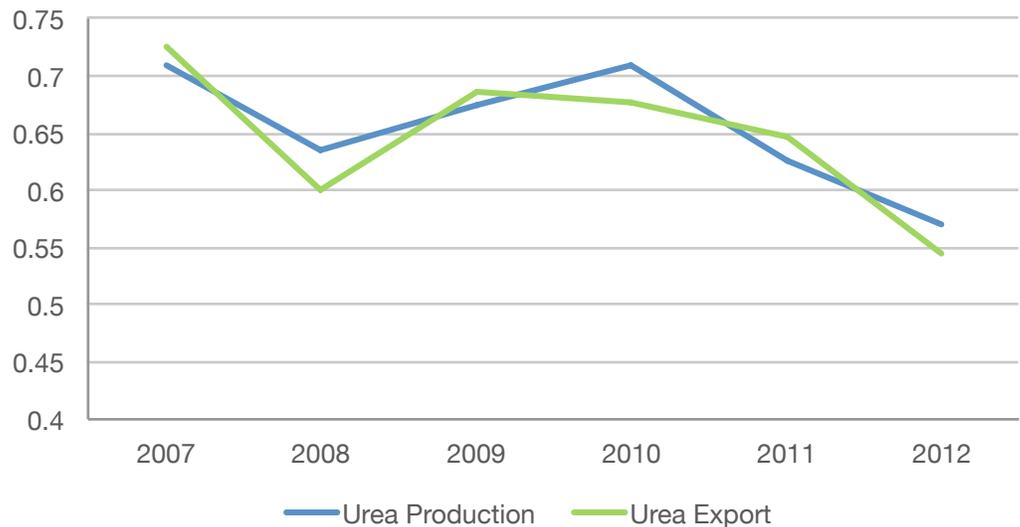
0.6 million tons produced

## Production

The total urea production from the single urea plant (PCS Nitrogen) for 2012 was 0.57 million MT. This represented an 8.9% decrease from 2011 which had a total production of 0.63 million MT.

The production loss was mainly due to the following plant issues:  
 March: Scheduled plant maintenance  
 July: Marketing factors causing restrictions for the Urea plant  
 November: Scheduled plant outage

Urea Production & Export 2007-2012  
(million MT)



## Export

Total urea exports for 2012 was 0.54 million MT. This represented a 15.9% decrease from 2011 which had a total export of 0.65 million MT.

The average Caribbean price for urea for 2012 was 452 \$US/MT while in 2011, the price was 436 \$US/MT as reported in the Fertilizer Market Bulletin publication.

### Market Perspective

**1.5%**  
increase  
in fertiliser  
demand  
in 2013

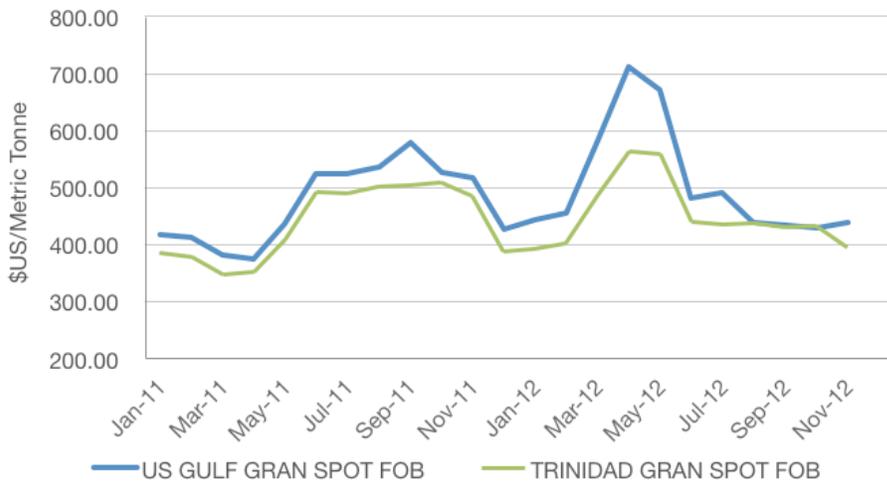
Global fertilizer markets have been relatively flat through 2012, which has impacted sales activity and seen prices put under pressure, particularly in the second half of the year.

Lacklustre demand from key import markets for most fertilizer products has seen stocks build and fresh business delayed, and phosphates and potash producers have opted to cut back operating rates moving into 2013 in a bid to balance supply and demand and put a floor to prices.

The slowdown has been attributed to uncertain economic conditions, exchange rate variation and unfavourable weather that has affected crop planting.

The global urea market has firmed over the past few years as demand for fertilizers has grown on the back of food security concerns.

Urea Prices 2011-2012



In the second half of 2012, two new 1.3 million MTPY urea plants started production in Qatar and exports have begun. With the inauguration of Qafco VI project, Qatar has become the world's 4th largest producer, and the largest exporter of urea, with 15% market share of the total traded urea being from Qafco. Qatar's total annual production urea capacity has reached to 5.6 million MT.

Due to primary use being in agriculture, demand for urea is very seasonal. Application takes place either at the time the crop is planted or during the growth phase of the crop. Generally, this is during the spring season. In the northern hemisphere, this leads to a significant peak in demand in March-April, with a smaller southern hemisphere peak in October-November. The main exceptions to this are in tropical agriculture and the Indian subcontinent, where application follows rainfall patterns.

The main application periods in India, for example, are July-September, following the monsoon, and November-December.

### Market Outlook

The International Fertilizer Industry Association (IFA) expects world fertilizer demand to increase by less than 1.5% in 2013, despite strong market fundamentals in agriculture.

The demand growth trend for fertilizer, and therefore urea, looks set to continue. However, pricing may be affected over the coming years by new capacity coming on stream, moving the market into an oversupply situation.

The IFA expects that urea demand will remain relatively firm in the fertilizer sector in 2013. However, supply growth is expected to exceed the projected increase in demand. Demand is expected to increase by 2.3% in 2013, but would need to rise by 4-5% to absorb the incremental supply due to come from Algeria, the UAE and sustained production from new facilities in Qatar. This supply surplus is likely to put pressure on pricing through 2013, assuming the start-ups of these units.

A new 1.2 million MTPY plant in Algeria is due to be running at full rate in early 2013, with exports to start soon after. There are more projects in North Africa and the Middle East due to come on stream in the coming years. Meanwhile, lower-priced shale gas in the US is prompting investment in new nitrogen facilities, which could impact import demand moving forward.

The Urea sector accounts for approximately 5% of gas-based petrochemical production capacity in Trinidad and Tobago.

The urea plant has a total production capacity of 0.7 million metric tonnes per year.

# METHANOL

Trinidad and Tobago has two of the largest methanol plants in the world: Atlas Methanol and M5000. This adds to T&T being the world's leading exporter of methanol, exporting a volume of approximately 5.5 million MT.

It is primarily used to produce formaldehyde, methyl tertiary butyl ether (MTBE) and acetic acid, with smaller amounts going into the manufacture of DMT, MMA, chloromethanes, methylamines, glycol methyl ethers, and fuels. Methanol is seeing growing demand in fuel applications such as dimethyl ether (DME), biodiesel and the direct blending into gasoline.

## Production

The total methanol production from the seven methanol plants in 2012 was 5.5 million MT. This represented a 7.0 % decrease from 2011 which had a total production of 5.9 million MT.

The production loss was mainly due to the following plant issues:

### MHTL Plants

#### M5

April: Plant Outage

May: Plant Start-up from April 2012

#### M4

October: Natural gas supply limitations

#### M3

October: Natural gas supply limitations

#### M2

September: Plant outage

October: Natural gas and carbon dioxide supply limitations

November: Natural gas supply limitations

#### M1

March: Plant maintenance

September: Natural gas supply limitations

October: Natural gas and carbon dioxide supply limitations

### Methanex Plants

#### Titan

January: Plant repairs were carried out on the plant which resulted in a production loss of 38,145 MT

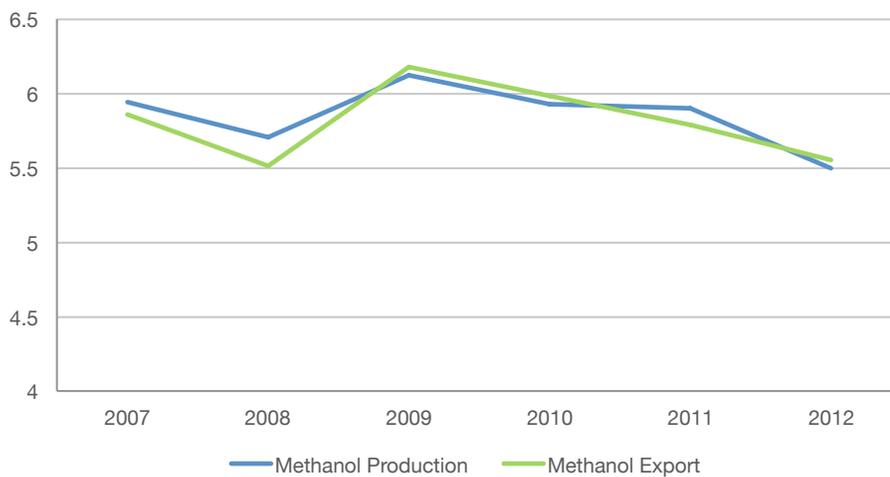
#### Atlas

January: 2012 Plant turnaround

February: 2012 TAR was completed within schedule. Methanol production was established on February 13

November: Repair work and natural gas supply limitations

Methanol & Export 2007 -2012  
(million MT)



## Export

Total methanol exports from the seven methanol plants for 2012 amounted to 5.5 million MT. This represented a 4.2 % decrease from 2011 which had a total export of 5.8 million MT.

Main methanol export destinations for 2012:

North America- USA, Canada

Europe- Belgium, Greece, Spain, France, Italy, Netherlands, Portugal

South America- Peru, Chile, Colombia, Brazil

Central America- Mexico

Asia- South Korea

The average US Gulf price for methanol for 2012 was 385 \$US/MT, while during 2011 the average price was 370 \$US/MT.

**5.5** million tons produced

## Market Perspective

The current methanol demand worldwide stands at around 55 million MTPY, with Asia taking around 70% of this share.

Fluctuations in supply and demand throughout the world in 2012 saw spot prices ranging from \$360-\$420 USD/MT in the US and \$350-\$432 USD/MT in Europe.

In 2012, political tensions and sabotage played an active role in the methanol trade referring specifically to Iran, a major player in the market. Several plants throughout the world were down or operated at reduced rates for reasons ranging from mechanical problems to maintenance operations.

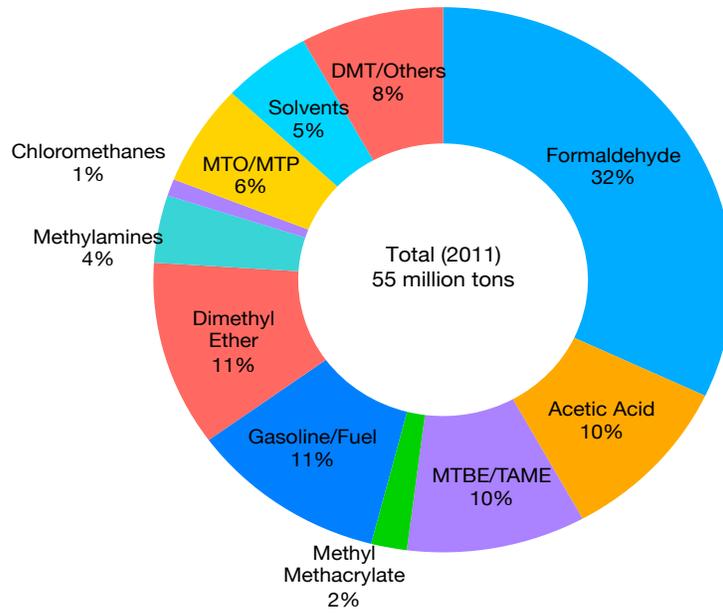
Iranian production was subject to sanctions due to political tensions with the west and Europe. In May, the Fanavaran (1 million MTPY) plant operated at low rates. The Kharg (660,000 MTPY) plant was down sometime during the 2nd week of May but confirmed that they had restarted soon after but were running at a reduced rate due to feed gas shortage. Zagros Petrochemical (3.3 million MT) was totally shutdown based on unconfirmed reports. This pattern continued throughout the year as Iranian capacity suffered due to its political situation.

In 2012, there seemed to be a gradual reduction in offline capacity which translated to an increase in supply. This was despite gas curtailments in Trinidad, sanc-

tions in Iran and problems with the start-up of major plants; NOC's Marsa Al Brega (660,000 MTPY) and OGI's unit (750,000 MTPY) in Beaumont Texas.

Major commissioned and restarted plants:  
 -Texas' OGI Beaumont (850,000 MTPY)- July 4th  
 -Southeast Asia's Methanex (650,000 MTPY), Motunui, New Zealand- July 5th  
 -Sirte Oil's Marsa al Brega NOG's line 1 (330,000 MTPY)- mid September

Global Methanol Demand by Application

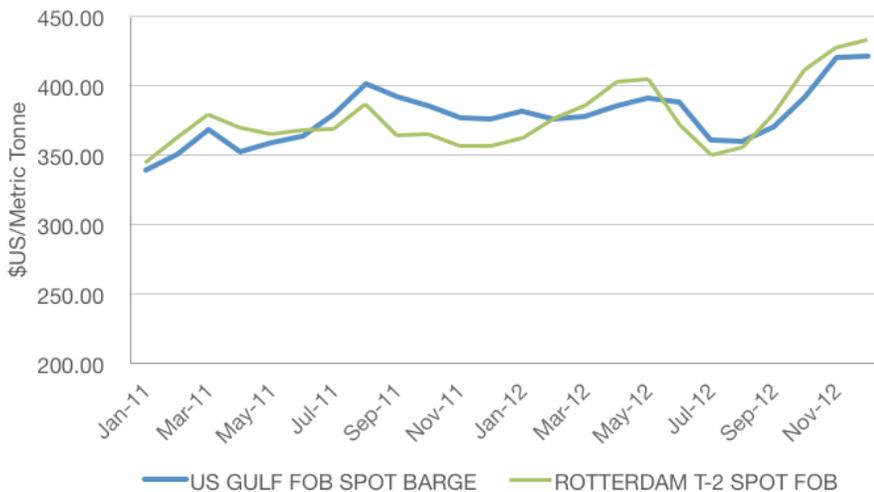


The Methanol sector accounts for 45% of gas-based petrochemical production capacity.

Trinidad and Tobago is the leading exporter of methanol with 7 methanol plants and total production capacity of 6.5 million metric tonnes per year.

Plant	Capacity (MTPY)
TTMC I	[M1] 480,000
CMC	[M2] 550,000
TTMC II	[M3] 570,000
MIV	[M4] 580,000
M5000	[M5] 1,890,000
Atlas Methanol	1,700,000
Titan Methanol	850,000

Methanol Prices 2011-2012



## Market Outlook

### Americas

Plant restarts in Canada and Texas over the past two years, another one expected in late 2013 plus two or three more scheduled for 2014-2015 make it appear that the US will not be importing any methanol by the end of the decade. Industry sources say that methanol will continue to gain attention as an alternative fuel source or additive.

Global methanol demand growth outlook remains strong, underpinned by a series of new energy-based applications that include making gasoline from methanol. Additional plant capacity is expected the US, which currently is around 2 million MTPY. Plant capacity is estimated to be 4.85 million MTPY by 2016 if just the announced projects are completed, the largest being LyondellBasell's restart in Texas in late 2013.

Methanex announced, in January, plans to relocate one of their idled units from Chile to Louisiana with expected start-up around mid-2014. An overall increase in US capacity can be noted with 850,000 MT added in 2012, 780,000 MT expected in 2013 and as much as 1.3 million MT expected to be online in 2015. This may cause immediate disruption in the supply dynamic of major exporters to the US including Trinidad and Tobago and Latin America due to fears of a shifting market.

### Europe

Methanol spot prices in Europe are expected to decrease in the first half of 2013, as the tight Atlantic supply that has gripped the market throughout the fourth quarter of 2012 begins to ease. Market participants broadly agree the market trend in the opening stages of 2013 will be downwards.

The greatest uncertainties lie with production, specifically those plants serving the US and European markets, problems at which have caused such protracted tightness in the fourth quarter and beyond.

Iran faces further sanctions and possible military incursion due to its threats against Israel and the continuation of the development of its nuclear program. Added to this is the perpetual instability in

## Annual Methanol Capacity Additions and Timing ('000 MTPY)

Country	Company	2012	2013	2014	2015	2016	2017
United States	OCI Beaumont	850					
	Methanex			1000			
	LyondellBasell		780				
	Celanese				1300		
	Lake Charles					1280	
New Zealand	Methanex	650					
Brazil	GPC Quimica		50				
	Petrobras						721
Qatar	QAFAC			80			
Azerbaijan	Azmeco		560				
Russia	JSC Ammoniy					230	
	ZAO Ural Methanol Group						600
India	GSFC		165				
	Assam PC					165	
China	Total China	5060	6180	12800	15500	11700	
Total		6560	7735	13880	16800	13375	1321

Middle East countries such as Syria, Egypt and Libya post Arab Spring. Instability translates to low-producing plants resulting in high commodity prices for that sub-market which will have a ripple effect on global prices. If tensions escalate in 2013 and beyond, the Middle Eastern market may be devastated with the onset of a new war involving a major producer of methanol. It was projected in August of 2012 that 1.4 million MT of capacity will be added by Iran's Kharg facility in 2014. However, this projection has since been underemphasized due to the uncertainty in that country.

### Asia

Asia's methanol prices may increase in 2013, underpinned by an expected strong demand growth from non-traditional applications in the key China market.

Innovative technologies in petrochemical production will translate to additional methanol demand of 2-3 million MT next year, industry sources said. These new uses include the production of olefins, fuel cells, dimethyl ether (DME), gasoline derived from methanol, as well as the blending of methanol into gasoline.

While non-traditional demand is set to grow, only one new methanol plant is ex-

pected to come on line in 2013. Azerbaijan Methanol Company (AzMeCo) aims to start operation of its 720,000 MTPY methanol plant in the Garadag district of the capital city of Baku, in March 2013.

Methanol consumption from traditional consumers – such as formaldehyde, acetic acid, 1-4 butanediol, mono methacrylate, methylamines, and chloromethanes - is expected to grow in line with the global GDP but demand from non-traditional applications, is expected to increase at almost double speed.

Although China dominates global production, it has little effect on the global methanol market since it consumes all of its output and even imports the commodity to fulfill its ever-growing appetite. However, with an expected hefty increase peaking at 1.6 million MT in 2015, it is expected that China will be able to satisfy its internal demand which leaves capacity for exporting of Chinese methanol. This is subject to changes in China's demand since China has a consistently increasing population and is expected to expand its methanol to olefins (MTO) and methanol to propylene (MTP) capacity from 2013 to 2016.

# UAN

Urea-ammonium nitrate (UAN) is made by dissolving urea and ammonium nitrate in water. This results an aqueous solution usually containing 28% nitrogen by weight. Liquid UAN solution is popular because of the versatility of a liquid source, as well as widespread availability.

UAN can be applied more uniformly than non-liquid forms of fertilizer. It can be mixed with herbicides, pesticides, and other nutrients, permitting farmers to reduce costs by applying several materials simultaneously rather than making several separate applications.

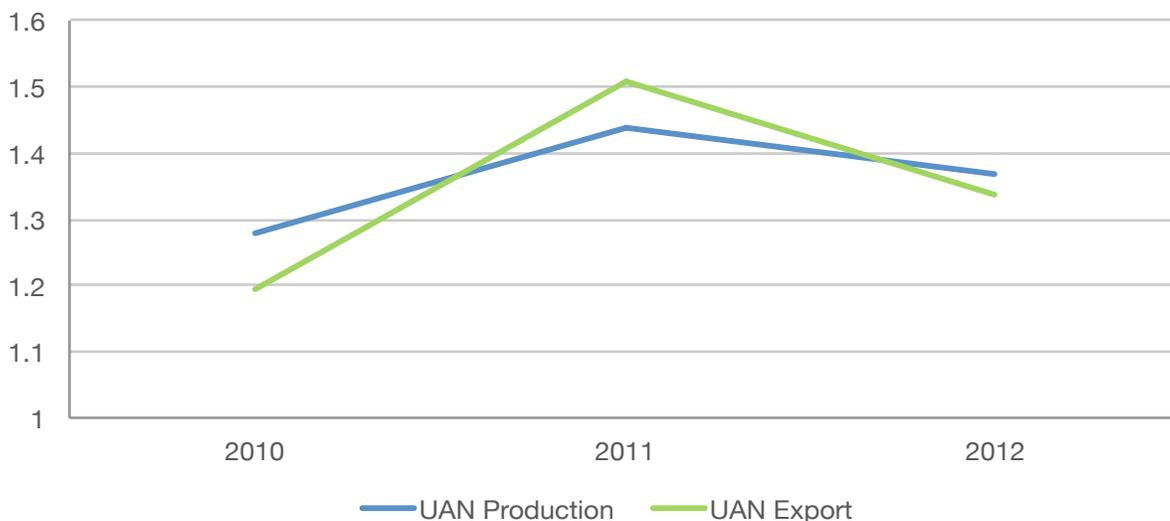
**1.4** million tons produced

## Production

The total UAN production from the AUM I complex for the period 2012 was 1.37 million MT. This represented a 4.9% decrease from 2011 which had a total production of 1.44 million MT.

The production loss was mainly due to the following plant issues:  
 May: T&TEC power interruption caused ammonia plant trip and damage to compressor also resulting in downstream stoppage  
 October: Rate reductions due to Natural Gas supply restrictions  
 November: Rate reductions due to Natural Gas supply restrictions

UAN Production & Export (million MT)



## Export

The total UAN exported from the AUM I complex for 2012 was 1.33 million MT. This represented a 11.3% decrease from 2011 which had a total export of 1.51 million MT.

The average NOLA Gran Spot FOB price for UAN for 2012 was 330 \$US/MT, while during 2011 the average price was 351 \$US/MT, as reported in the Fertilizer Market Bulletin. The average Rouen Gran Spot FOB price for UAN for 2012 was 292 \$US/MT, while during 2011 the average price was 176.237 \$US/MT.

## Market Perspective

The UAN industry is relatively small compared with other major nitrogen fertilizers such as urea and solid ammonium nitrate, both in terms of world's production and the number of manufacturers. Total world UAN capacity is estimated at 28.7 million MT in 2010 and production is estimated at 17.1 million MT. This is based primarily on UAN capacity from plants using an integrated production process.

UAN is used mostly in North America and only recently has been traded in international markets. Because of its high water content, UAN is expensive to transport, limiting its distribution to local regions. However, it has gained favour because of its safe handling and storage characteristics and ease of application.

Demand was soft at the start of 2012. This was maintained by a steady supply but was affected by the stronger euro and cold weather. In Q2-Q3 demand picked up for the spring fertiliser application season and in response to a surge in urea prices as well as tight supply especially in the US. Most farmers selected UAN solutions because of urea's high prices. Stockpiling of urea is risky because it suffers most from price volatility. In Q3 most of the ammonia available for the fall application was sold. This strengthened the robust demand for UAN and pushed up prices.

The AUM complex commenced UAN production in January 2010 and first export in February 2010. UAN accounts for 10% of gas-based petrochemical production capacity in Trinidad and Tobago with a total UAN production capacity of 1.5 million metric tonnes per year.

## US UAN Capacity Additions

Company	Location	Annual Capacity (Million MTPY)	Completion Date
CF Industries	Donaldsonville, Louisiana	1.8	2015
Orascom Construction Industries	Wever, Iowa	1.5	2015
Yara	Belle Plaine, Saskatchewan	0.2	2016
CHS	Spiritwood, North Dakota	1.0	2016
Ohio Valley Resources	Spencer County, Indiana	1.1	2016
Agrium	Corn Belt (unspecified)	1.8	2017

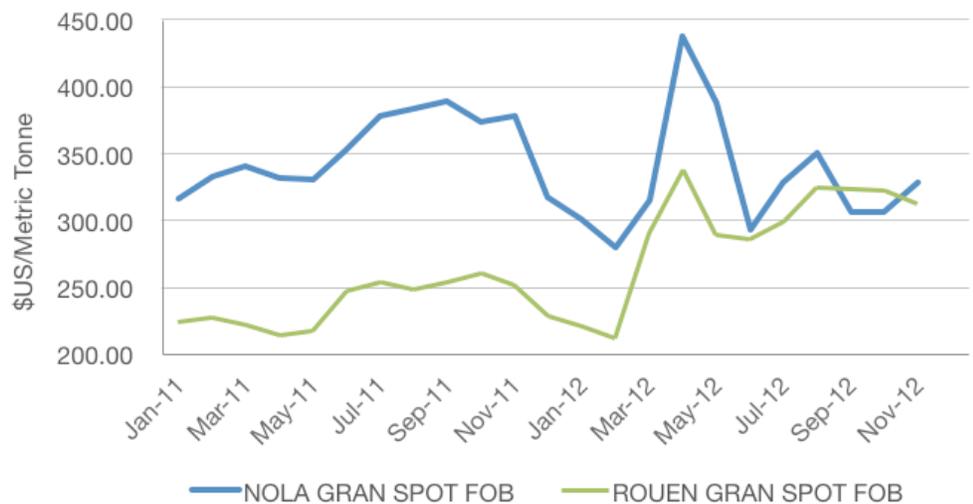
Market activity slowed at the end of Q3. This coincided with devastating drought in the US midcontinent which cut corn production for the current growing season and left more of the grain in storage.

## Market Outlook

Strong agricultural fundamentals and an improving US economy are expected to drive robust demand for all fertilisers in 2013. This strong forecasted demand coupled with the rapidly growing supply of natural gas in the US resulting from the boom in resource extraction from shale deposits have pushed companies to announce plans for new or expanded production of nitrogen fertilizers.

Growing supply of natural gas in the US has pushed companies to announce plans for expanded production of nitrogen fertilizers.

UAN Prices 2011-2012



# MELAMINE

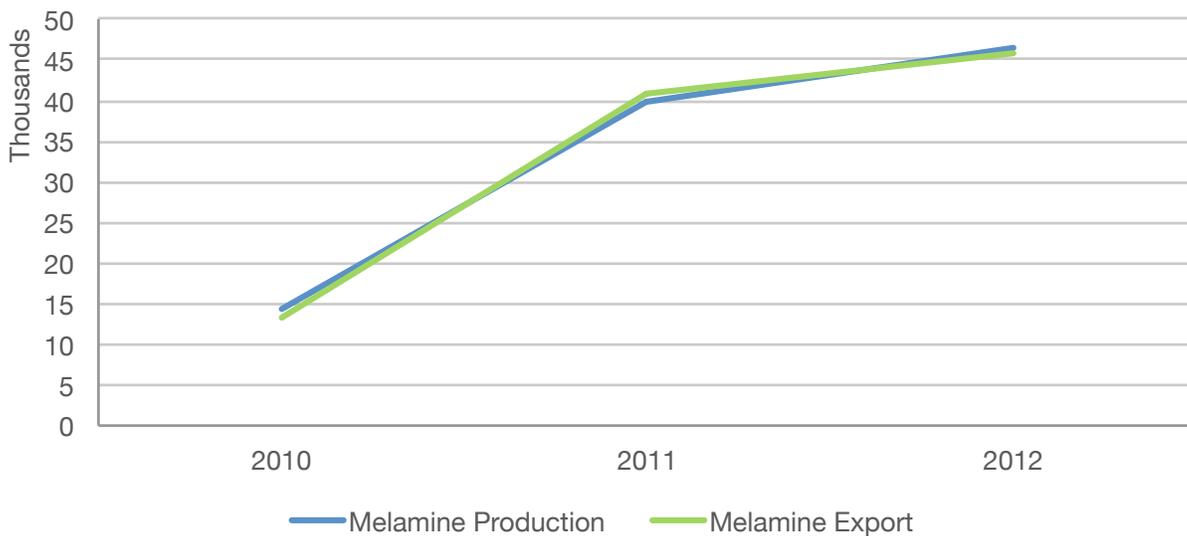
Melamine is used to make moulding powder that is used in dinner ware, coatings in cars, fan coils and appliances. Other uses include adhesive resins, which are used for making wood panels for construction of kitchens, bathrooms, furniture and flooring. The construction and automotive industries are strong growth drivers for melamine.

**46** thousand tons produced

## Production

The total melamine production from the AUM I complex for the period 2012 was 46,359 MT. This represented a 16.5% increase from 2011 which had a total production of 39,784 MT.

Melamine Production & Export (MT)



**12%** increase in exports

## Export

The total melamine exported from the AUM I complex for 2012 was 45,772 MT. This represented a 12.2% increase from 2011 which had a total production of 40,805 MT.

The average US Gulf price for melamine for 2012 was 2,108 \$US/MT, while during 2011 the average price was 2,305 \$US/MT.

## Market Perspective

Asia is the largest regional producer accounting for over 64% of the total melamine production, followed by Europe (about 26%). On a country level, China holds the largest capacity of melamine in the world with a share of over 54%.

Demand for melamine in 2012 has been stable as downstream markets have improved from 2011 but are slow to recover from the recent recession. This year demand for melamine resins from the automotive sector has led market growth.

### North America

The stalled US construction industry has dampened demand for melamine but the rapidly recovering automotive industry has kept demand in near balance with supply. Demand from the wood-based panel industry has been tepid as construction activity for homes and commercial projects remain far off the pre-recession pace of 2007. US melamine prices have increased by about 10% between Q1 and Q4 of 2012.

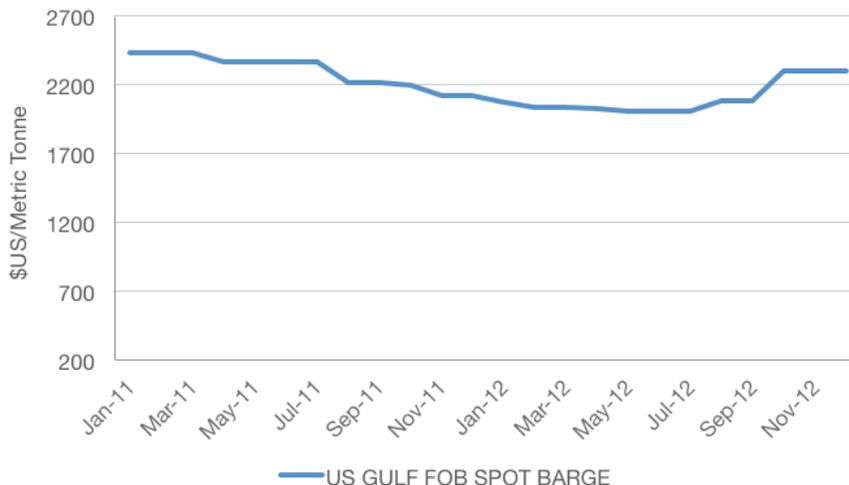
Melamine imports to the US from China decreased in early 2012 as demand for melamine in Asia has increased while production has been constrained creating a tight supply in the North American market. Melamine supplies are projected to remain tight as production remains limited and demand builds.

### Asia and Europe

The Asian and European melamine markets have experienced downward pressure since the first quarter of 2012 as a result of supply disruptions and weak markets. Demand in Europe, particularly in northern countries, has been steady while supplies have been tight. Asian demand has been soft through Q2 and Q3 of 2012. Asian market players remain uncertain about the demand outlook and consider recovery dependent on the outcome of the eurozone crisis, as end-users often sell melamine products to Europe.

OCI Melamine restarted its 30,000 MTPY located in Geleen, Netherlands in Q1 2012. The plant was shut down in 2008 in order to adjust output and inventories due to reduced global demand during the worldwide recession.

Melamine Prices 2011-2012



Demand for melamine in 2012 has been stable as downstream markets have improved from 2011.

## Market Outlook

The economic outlook for melamine in the near term calls for mild improvement in demand as downstream markets are awakened by increasing construction activity. As demand improves, suppliers should be able to increase prices and return margins to sustainable levels.

Demand from the construction industry in the US has strengthened significantly as the economy recovers from recession and is expected to further improve in 2013.

Further price increases are possible in Q1 of 2013 as supplies remain tight while demand increases.

Overall economic performance will continue to be the best indicator of future demand for melamine. Demand in most downstream markets is greatly influenced by general economic conditions.

The first of two melamine trains of the AUM Complex commenced production in May 2010. Melamine accounts for 0.5% of gas-based petrochemical production capacity in Trinidad and Tobago. The AUM plant has a total melamine production capacity of 60,000 metric tonnes per year.

# NATURAL GAS LIQUIDS

Natural gas liquids (NGLs) include ethane, propane, butane, isobutane, and pentane (natural gasoline) extracted from the natural gas production stream in natural gas processing plants, ending up as:

- Feedstock to petrochemical plants (e.g., ethane, propane). About 55% of total NGL production ends up here.
- Utilized for residential/commercial heating and cooking (e.g. propane). About 30% of total NGL supply enters the heating market.
- Blended (e.g. butanes, natural gasoline) into vehicle fuel. About 15% ends up here.

## Production

Commodity	Production/ million BBL			Percentage change 2011/12
	2010	2011	2012	
Propane	6.32	5.84	4.47	-23.5
Butane	4.76	4.51	3.60	-20.2
Natural Gasoline	6.14	5.69	4.82	-15.3

4.5 million barrels propane produced

### Propane

The total propane production in 2012 was 4.47 million bbl. This represented a 23.5% decrease from 2011 which had a total production of 5.84 million bbl.

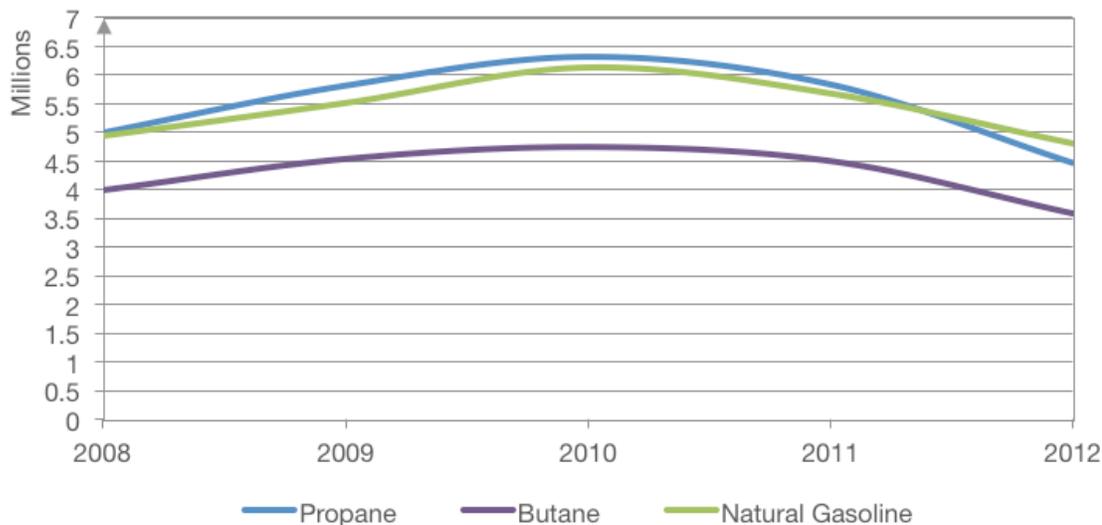
### Butane

The total butane production in 2012 was 3.6 million bbl. This represented a 20.2% decrease from 2011 which had a total production of 4.51 million bbl.

### Natural Gasoline

The total natural gasoline production in 2012 was 4.82 million bbl. This represented a 15.3% decrease from 2011 which had a total production of 5.69 million bbl.

NGL Production / Barrels



The production loss was mainly due to the following issues:

March: Atlantic Train 2 was offline for 7 days for schedule outage activities

April: Plant maintenance issues

August: EOG Toucan was offline and EOG Pelican was offline for several 3-4 days

September: Atlantic Train 2 was offline for 5 days and Atlantic train 1 was down for maintenance

October: BG Dolphin was offline and low inlet flow from Soldado Trinmar due to compressor problems

## Export

Commodity	Export / million BBL			Percentage change 2011/12
	2010	2011	2012	
Propane	6.08	5.93	3.86	-34.9
Butane	4.64	4.47	3.13	-29.9
Natural Gasoline	6.18	5.58	4.54	-18.6

3.9 million barrels propane exported

### Propane

The total propane exported in 2012 was 3.86 million bbl. This represented a 34.9% decrease from 2011 which had a total export of 5.93 million bbl.

The average price for propane for 2012 was 1.00 \$US/US gallon while during 2011 the average price was 1.46 \$US/gallon, as reported in the PPGPL Shipping Reports.

### Butane

The total butane exported in 2012 was 3.13 million bbl. This represented a 29.9% decrease from 2011 which had a total export of 4.47 million bbl.

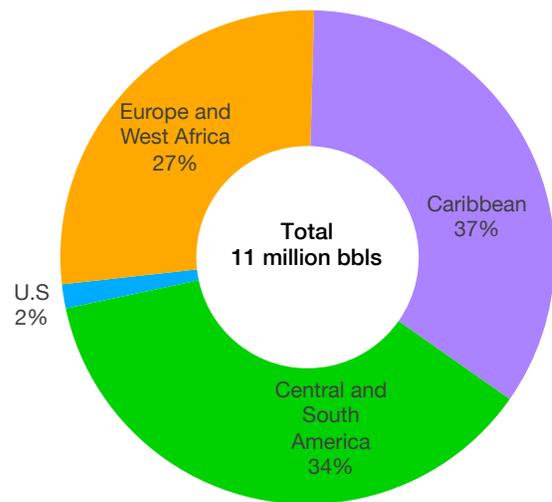
The average price for butane for 2012 was 1.65 \$US/gallon while during 2010 the average price was 1.86 \$US/gallon, as reported in the PPGPL Shipping Reports.

### Natural Gasoline

The total natural gasoline exported in 2012 was 4.54 million bbl. This represented an 18.6% decrease from 2011 which had a total export of 5.58 million bbl.

The average price for natural gasoline for 2012 was 2.34 \$US/gallon while during 2011 the average price was 2.14 \$US/gallon, as reported in the PPGPL Shipping Reports.

PPGPL Total Exports by Region 2012



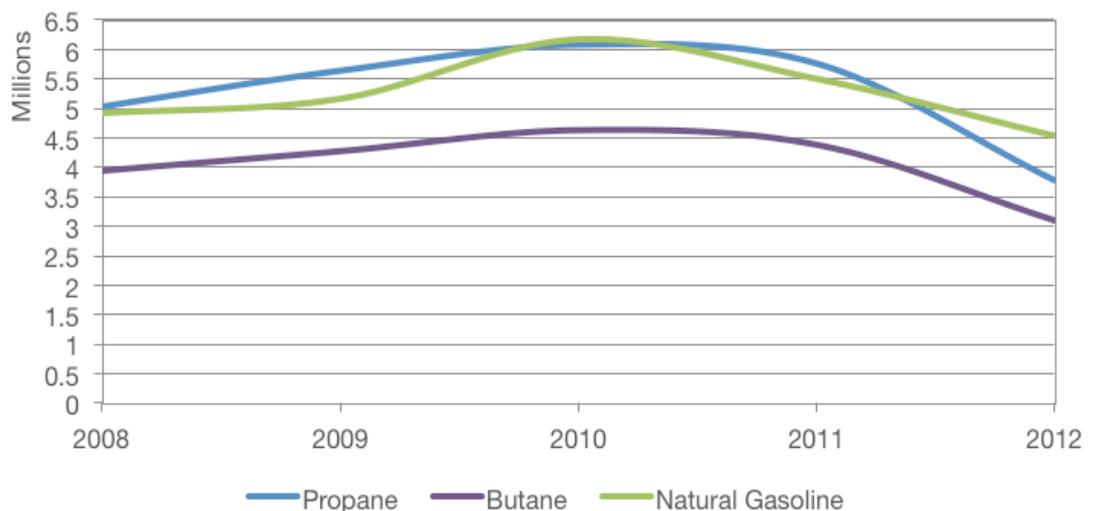
### Main PPGPL export destinations for 2012

Caribbean - Antigua, Anguilla, Aruba, Bahamas, Barbados, Bermuda, Cayman Islands, Colombia, Costa Rica, Dominica, Dominican Republic, Eastern Caribbean, Grand Cayman, Grenada, Guadeloupe, Guyana, Haiti, Jamaica, Martinique, Montserrat, Panama, Puerto Rico, St. Kitts & Nevis, St. Lucia, St. Maarten, St. Vincent, Tortola.

South & Central America- French Guiana, Suriname, Uruguay, Mexico.

Other Regions- West Africa, Europe.

NGL Exports/ Barrels



## Market Perspective

Natural gas prices have been lower in 2012 which led to increased interest in NGLs, as NGL prices are higher than dry natural gas. Natural gas producers dramatically shifted focus from drilling dry gas to liquid-rich gas (natural gas rich in NGLs).

Over the past four years, NGL production has increased from North America shale fields such as in the US shale regions of the Eagle Ford, Permian basin and Granite Wash in Texas, Marcellus in the northeast and Bakken shale in the midcontinent. This is due to improved recovery rates of "liquids-rich" gas.

Booming NGL output from North America's shale fields has created the impetus for energy industries to invest across North America in gas processing, pipeline transportation, liquids fractionation and petrochemical facilities such as crackers, as current levels of infrastructure are inadequate to handle the surge in NGL production.

Natural gas prices have been lower in 2012 which led to increased interest in NGL's

## Market Outlook

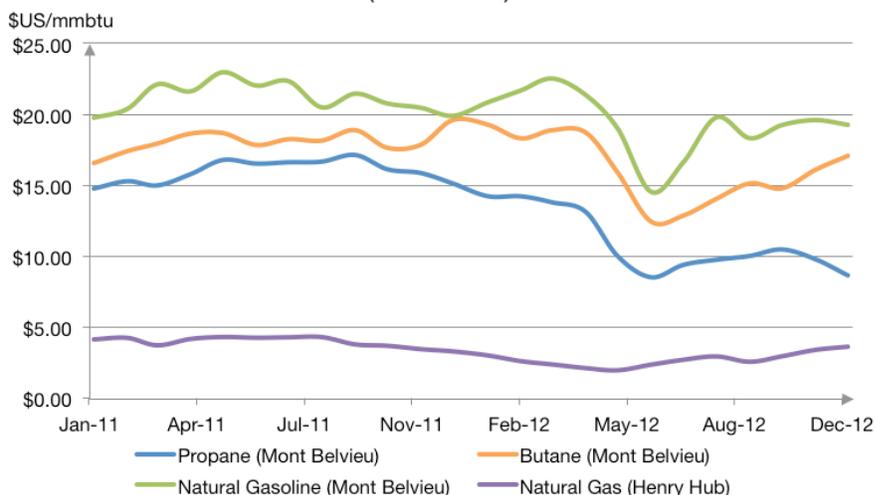
With increasing NGL supply, energy industries in North America have invested heavily in upgrading cracker (for ethylene) and fractionation capacity. Future projects include:

Chevron-Conoco Phillips joint venture Chevron Phillips Chemical's Greenfield is planning a 1.5 million MTPY ethylene cracker in Baytown, Texas, U.S. Its proposed start-up is 2016-2017.

### North American fractionator growth

Company	Location	New Capacity ('000 b/d)	Start Up
Chevron Phillips	Sweeny, Texas (U.S)	22	2013 (Q1)
Crosstex	Eunice, Los Angeles (U.S)	40	2014
Enterprise	Mont Belvieu, Texas (U.S)	75	2013 (Q4)
Oneok	Mont Belvieu, Texas (U.S)	75	2013 (Q4)
Targa	Cedar Bayou, Texas	100	2013 (Q2)

Natural Gas Liquids' Prices vs Natural Gas Prices (2011-2012)



312 thousand b/d new US capacity

PPGPL has been in operation over 20 years. They have 3 crogenic natural gas processing plants. One of its main operations includes fractionating NGLs from processes gas into propane, butane and natural gasoline at 70,000 barrels/day.

Gas Processing (MMCFD)	1,950
Fractionation (BPD)	70,000
Iso-Butane Splitting (BPD)	3,500

# IRON, STEEL AND CEMENT

Overall iron and steel activity decreased in 2012 as overall production decreased by 3.4% from 2011. Direct reduced iron production decreased by 4.4% (1,346 thousand MT in January - September 2012 from 1,409 thousand MT compared to the same period in 2011). Billets production remained steady and slightly increased by 0.3% (469 thousand MT in January-September 2012 from 467 thousand metric tons in January - September 2011). Steel wire rod production decreased by 4.5% (306 thousand MT in January-September 2012 from 320 thousand MT in January-September 2011).

Overall iron and steel exports slightly increased by 2% from 2011. Direct reduced iron exports decreased by 2.7% (802 thousand MT in January-September 2012 from 824 thousand metric tons in January - September 2011). Billets exports increased by 32% (124 thousand metric tons in January-September 2012 from 94 thousand MT in January - September 2011). Steel wire rod exports increased by 5.7% (288 thousand MT in January-September 2012 from 272 thousand MT in January-September 2011).

In the domestic market, overall iron and steel sales decreased by 14% from 2011. Local sales of billets decreased by 8.4% (27 thousand MT in January - September 2012 from 30 thousand MT in January - September 2011). Steel wire rod local sales decreased by 21% (20 thousand MT in January - September 2012 from 25 thousand MT in January - September 2011).

The billet price (average world fob) decreased to \$581US/MT in 2012 (Jan-Sep) from \$649 US/MT in 2011 and steel wire rods price increased to \$790 US/MT (Jan-Sep 2012) from \$710 US/MT in 2011.

ArcelorMittal suffered a US\$4 billion loss in the fourth quarter in 2012, hurt by its ailing European business and a drop in the value of its assets. The loss included US\$4.8 billion in charges and writedowns related to its European business, notably the idling of plants in Madrid and Florange, France, and the decision to close a plant in Liege, Belgium, where 1,300 jobs are threatened.

## Cement Industry Outlook

The cement industry activity declined in 2012 with a 26% decreased in production as compared to 2011 (446 thousand MT in 2012-Jan to Sep from 600 thousand MT in 2011). This was due to the 90-day strike by employees of the Trinidad Cement Limited, followed by the lock-out of workers by management in May. The decreased in production led domestic market prices to rise by 9.1% from \$47.50 per bag in the first quarter to \$51.80 per bag in the second quarter and then by 32.8% to \$68.80 per bag in the third quarter 2012. As a result both exports and local sales decreased by 38% and 8% respectively.

Direct Reduced Iron ('000 MT)	2011 (Jan-Sep)	2012 (Jan-Sep)
Production	1,409	1,346
Export	824	802
Own Consumption	469	477

Billets ('000 MT)	2011 (Jan-Sep)	2012 (Jan-Sep)
Production	467	469
Export	94	124
Local Sales	30	327
Own Consumption	336	324

Wire Rods ('000 MT)	2011 (Jan-Sep)	2012 (Jan-Sep)
Production	320	306
Export	272	288
Local Sales	25	20

Cement ('000 MT)	2011 (Jan-Sep)	2012 (Jan-Sep)
Production	600	446
Local Sales	401	370
Exports	198	124

800 thousand tons DRI exported

# UPCOMING DOWNSTREAM GAS PROJECTS

PROJECT	PRODUCT DESCRIPTION	PRODUCTION (MTPY)	GAS REQUIREMENT (MMSCFD)	STATUS	PROJECTED WORKS FOR 2013
Carisal Calcium Chloride Plant	Calcium chloride	120,000	4.2	Carisal is now seeking to sell the project for they are unable to raise the financing for this project.	
	Caustic soda	85,000			
	Sodium hypochlorite	8,000			
	Hydrochloric acid	1,000			
Severstal DRI/HBI Plant and Steel Mill	HBI	750,000	56	Memorandum of Understanding signed December 2011.	Project Feasibility Study to be undertaken.
	Cold DRI	750,000			
	Steel Billets	235,000			
Derivative Melamine Products	Moulding Compound	220	minimal	<p>In April 2012 a MOU was signed between NEC and Chemiplastica for the establishment of a melamine moulding compound (MMC) and dinnerware facility in Trinidad and Tobago.</p> <p>This has been put on hold, as market conditions for MMC are not favourable at this time.</p>	<p>NEC continues to develop / facilitate investment proposals from potential investors for derivative melamine projects.</p> <p>One project that is currently undergoing the environmental permitting process is Chemtech Ltd, for the development of an Integrated Melamine/Formaldehyde Resins Cluster in T&amp;T. Other proposals have been received and are being discussed/assessed by NEC/investor, but are not in a stage for public notice.</p>
	Dinnerware	220			
Methanol to Petrochemicals	Gasoline	299,000	100	The Ministry has terminated the negotiations with SABIC-SINOPEC in December 2012. The second preferred bidder, Mitsui, was invited to initiate discussions with NGC-NEC on their initial project.	Conclusion of Gas Sales Agreement, Project Agreement and Environmental Impact Assessment.
	LPG	60,000			
	Oxo-alcohols (eg. N-Butanol, 2-Ethyl Hexanol, Iso-Butanol)	108,000			
	Mixed Acrylate Esters	200,000			

PROJECT	PRODUCT DESCRIPTION	PRODUCTION (MTPY)	GAS REQUIREMENT (MMSCFD)	STATUS	PROJECTED WORKS FOR 2013																				
Natural Gas to Petrochemicals	Methanol	1,000,000	100	<p>Unsolicited proposal submitted to MEEA on 18th June, 2012. A committee comprising MEEA, NEC and NGC negotiated with Mitsubishi Consortium.</p> <p>Gas term sheet was initialed on 6th November, 2012. Project Development Agreement to be finalized on 30th January, 2013</p>	Projected Works for 2013 – Conclusion of Gas Sales Agreement, Project Agreement. Environmental Impact Assessment																				
	Dimethyl Ether	100,000				Ammonia & Downstream Derivatives – AUM II	Granulated urea	934,467	100	As of December 2012, there were pending issues related to litigation between GORTT and foreign investors.	Awaiting the outcome of the current arbitration between GORTT and one of the shareholder groups – CEL.	Melamine	27,139	Ammonium Sulphate	247,500	Melamine Urea Formaldehyde	10,350	Maleic Anhydride	Maleic Anhydride	50,000	62,000 (n-butane)	<p>Draft Non-disclosure Agreement being reviewed by all parties.</p>	<p>Finalisation of Non-disclosure Agreement by January 2012.</p> <p>Comprehensive review of economic model presented by Process Energy (Trinidad) Limited (PETL).</p> <p>Completion of Project Feasibility Study (if economic concerns are addressed).</p>	Methanol to Polyolefins	Copol/Homopol Polypropylene
Ammonia & Downstream Derivatives – AUM II	Granulated urea	934,467	100	As of December 2012, there were pending issues related to litigation between GORTT and foreign investors.	Awaiting the outcome of the current arbitration between GORTT and one of the shareholder groups – CEL.																				
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Methanol to Polyolefins	Copol/Homopol Polypropylene	572,000	160-165	<p>The Ministry has terminated the negotiations with SABIC-SINOPEC in December 2012. The second preferred bidder, Mitsui, was invited to initiate discussions with NGC-NEC on their initial project.</p>	Conclusion of Gas Sales Agreement, Project Agreement and Environmental Impact Assessment.																				

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