

2004 IFA PRODUCTION AND INTERNATIONAL TRADE CONFERENCE

3-5 October 2004, Dubai, UAE

**AN OVERVIEW OF QATARGAS WITH A FOCUS
ON SULPHUR PRODUCTION, HANDLING & EXPORT**

by

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**All the papers and presentations prepared for the
IFA Conference in Dubai are included on a cd-rom
released in November 2004.**

An Overview of Qatargas with a Focus on Sulphur Production, Handling & Export

by
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(Slide 1)

Introduction

Good Morning, on behalf of Qatargas' management I would like to thank the International Fertilizer Association for their kind invitation to present a paper relating to Qatargas' involvement in the sulphur industry.

Qatargas' involvement in the fertilizer and sulphur industry can be described as working on two levels, a personal level and a corporate level. The former being the fact that our Managing Director's (Mr Faisal Al-Suwaidi) previous position was as Managing Director of Qatar Fertilizer Company (QAFCO), so you can certainly understand our management's personal interest in the fertilizer industry. As for the later, we certainly understand the importance that the fertilizer industry plays as it relates to the consumption of the sulphur we produce as a by-product of our company's LNG production.

(Slide 2)

Sulphur Overview

Let's start this morning's discussion by looking at the symbiotic relationship between the oil and gas industry with that of the sulphur consuming fertilizer industry.

To quote our colleagues at *The Sulphur Institute* – “The oil and gas industry *is* the sulphur industry”. Let's look at why this is so.

Throughout the world the voluntary production of sulphur via the Frasch process and pyrites is declining dramatically and this is because of three primary factors related to the involuntary production of sulphur by the oil and gas industry:

- Refineries are processing greater quantities of sour (vs. sweet) crude oils to fulfill their feedstock requirements
- More sour gas fields (such as the North Field in Qatar) are being utilized, and
- New regulations are requiring higher levels of sulphur be removed from fuels such as bunker fuels, diesel, and gasoline

To emphasize this point you will note that 67% of the world's sulphur production in 2003 was generated as a direct result of the oil and gas industry.

However, we are fortunate that a beneficial and symbiotic relationship exists with our colleagues in the fertilizer industry.

Clearly the sulphur consuming fertilizer industry plays an important role in balancing the world's sulphur supply and demand, as we can note 56% of the world's sulphur consumption in 2003 went directly into the fertilizer industry.

Another promising development is that sulphur is now widely recognized as the 4th major plant nutrient along with nitrogen, phosphorus, and potassium. Finally, the value of sulphur as an important component of plant growth is being recognized.

(Slide 3)

Qatargas General Information

Qatargas is a three train LNG operation located in the Ras Laffan Industrial City, which is approximately 80 kilometers North of Qatar's capital city of Doha. Our feed gas is supplied to us from our offshore platform located in the vast North Field. Our base customer is Chubu Electric along with a group of seven other Japanese Buyers who in total buy over 6 MMT per year of our capacity. We have also signed a long-term agreement to provide Gas Natural of Spain with LNG. Qatargas has been in the LNG business for almost eight years now and we are proud of the fact that we have delivered all of our LNG cargoes to date on time and on specification.

(Slide 4)

Qatargas Project: Shareholders

Please allow me to provide you with details regarding the shareholders of Qatargas as it currently stands. I will speak more about our ongoing expansion activities (which have different shareholders) later in this presentation. Qatargas is divided into two main projects with separate shareholder groups.

The upstream joint venture is composed of the offshore production facilities to the onshore receiving facilities and has the following shareholders:

Qatar Petroleum	65.0%
Total	20.0%
ExxonMobil	10.0%
Mitsui	2.5%
Marubeni	2.5%

The downstream joint venture is composed of the onshore LNG Plant and has the same shareholders as the upstream joint venture but in slightly different percentages:

Qatar Petroleum	65.0%
Total	10.0%
ExxonMobil	10.0%
Mitsui	7.5%
Marubeni	7.5%

For both the upstream and downstream joint ventures having such a diverse group of shareholders bring a tremendous amount of added value and expertise to the project.

(Slide 5)

The North Field

No discussion about Qatargas would be complete without spending a few moments highlighting the vast energy resources that are available at its fingertips.

The North Field is a relatively new finding in that it was only discovered in 1971. It is the world's largest non-associated gas field with over 900 trillion cubic feet of reserves. Qatar Petroleum (QP) first tapped into the field's reserves for domestic requirements in 1991 and Qatargas was the pioneer for LNG production in Qatar when we started receiving gas onshore in 1996.

(Slide 6)

Qatargas LNG Overview

I would like to now take a few moments to familiarize you with the four major steps in bringing LNG to the marketplace.

First, the gas must be extracted from the vast North Field. At Qatargas' offshore facilities 20 wells from 3 wellhead platforms are used to produce the approx. 1,500 MMSCF per day of gas required by our liquefaction plant. However, before the gas from our wells goes into our 82 kilometer 32" pipeline to Ras Laffan, dehydration takes place and water must be removed offshore from the gas/condensate mix.

After the gas/condensate mix comes onshore the first process is to segregate the field condensate from the gas. This field condensate is then stabilized and stored for eventual export the same way any other crude oil is exported from the region. The next important step is to remove any impurities (including sulphur) from the feed gas. The acid gas stream that is generated is then eventually processed into liquid sulphur via the Claus process, I will discuss in more detail the handling and export of sulphur later in this presentation.

After treating the feed gas for any impurities it is then transformed into LNG, a cryogenic liquid with a temperature of -161 Degrees Celsius. This is accomplished by first pre-cooling the gas using propane as part of the refrigerant and then sending the gas to a specially designed heat exchanger to complete the remainder of the liquefaction process.

In addition, as a result of the liquefaction process, further liquids from the gas stream are condensed and this is known as plant condensate that is very similar in composition to naphtha. Like the field condensate this plant condensate is also segregated and stored for eventual export on conventional tankers.

(Slide 7)

Qatargas LNG Overview (cont.)

After liquefaction the LNG is piped to specially designed and constructed storage tanks to await shipment. At Qatargas we have four such storage tanks with a combined capacity of over 300,000 cubic meters (cu3) of LNG storage. Our LNG to our Japanese customers' is delivered on an ex-ship basis and hence we have a large fleet of 10 vessels assigned to this trade.

It is paramount in the LNG industry that the cargoes are delivered on time and as scheduled, therefore the industry is often referred to as a “floating pipeline” on account of its very good reliability record.

You will logically find many of the same features of an LNG loading terminal at a LNG discharge facility. First of all you will need adequate marine facilities to berth a LNG vessel and then sufficient storage to receive the cargo as it is being discharged. After receiving the cargo of LNG it is at this stage that the buyer then converts the LNG back into a gaseous state. This is generally accomplished by the use of large water-cooled vaporizers. Then, as appropriate, the natural gas is either put into a pipeline system for use by an end user or may be converted directly to energy to fuel a large power plant.

It is interesting to note that the development of offshore terminals to receive LNG is gaining momentum with plans to place the first one shortly in Italy. This technology will likely become more important as the United States searches to find suitable sites to place additional LNG terminals in the future to meet its gas import requirements.

(Slide 8)

Qatargas Sulphur Handling & Export

I would like to now turn your attention to how Qatargas takes the liquid sulphur that is produced as a result of the Claus process and prepares it for export. First the liquid sulphur is stored in the heated tank that you see here. The liquid sulphur is then piped to the granulator unit Qatargas has on site which turns the sulphur into solid form. As I mentioned earlier, at present we are producing approximately 450 Metric Tonnes per Day (MTD) of granulated sulphur. The product is then transported via a short conveyor belt system to a small storage hopper. This small hopper is then used to fill one of three gravity discharge trucks that Qatargas’ owns. Each truckload corresponds to about 18 MT of sulphur.

(Slide 9)

Qatargas Sulphur Handling & Export (cont.)

After loading the trucks transport the solid sulphur via road a few kilometers away to the port area. Here the sulphur is gravity discharged into another hopper system and the product is then conveyed to the top of our sulphur silo. The capacity of the silo is about 20,000 MT but we normally export parcels in the 12,000-14,000 MT size range to take into consideration any potential shipping delays. As we all know the bulk shipping market has been very tight as of late with the tremendous demand for raw materials into China and it can sometimes be difficult securing timely tonnage. Qatargas cannot jeopardize our core LNG business and therefore it is very important that our sulphur is exported in a timely and reliable manner.

Once a ship is alongside Qatargas empty the silo via discharge chutes that are fitted on the bottom sides of the silo. Then a conveyor system brings the solid sulphur to the ship loader (which you will note is in the stowed position as no ship is alongside) you can see in this picture. The ship loader is designed so that we can load at approximately 800-1,000 MT per hour but with the smaller ship sizes frequent shifting of the ship loader is required in order to maintain the vessel’s stress and stability requirements. Typically if all the cargo is available for loading in the silo at the time of the vessel’s arrival Qatargas can load the full parcel in under 36 hours.

The berth itself can accommodate much larger vessels (approximately 45,000 DWT depending on displacement and draft) so larger parcel sizes can be easily accommodated which is important considering the recent tremendous growth in gas related projects at Ras Laffan.

(Slide 10)

Qatargas Typical Sulphur Specification

Qatargas is pleased to provide a high quality sulphur product into today's demanding marketplace. As you can see from the typical specifications highlighted on this slide our sulphur meets or exceeds the requirements for a premium product.

In addition, one of the key elements of our Company's Direction Statement focuses on customer satisfaction. Besides providing a high quality product we are proud of the successful relationships we have developed with our existing customers.

(Slide 11)

Qatargas Sulphur Export

This slide highlights the fact that Qatargas has exported almost 500,000 MT of sulphur from our facility since start up. As you can see we tend to average almost a cargo per month. Historically the majority of the cargoes have been destined for the Indian market place due to its local proximity and ability to receive small parcel sizes. However, more and more, we are seeing our sulphur exported to other locations, especially the rapidly developing Chinese market.

(Slide 12)

Qatargas Expansion Activities

You may be aware that Qatargas is involved with a number of key expansion projects, please allow me a few minutes to discuss them as they will have an impact on our future sulphur production.

Qatargas Debottlenecking Project:

This project is tasked with upgrading Qatargas' three existing LNG trains and expanding them so they can produce approximately 9.2 MMT of LNG vs. their original name plate capacity of 2.2 MMT each (6.6 MMT in aggregate).

The project has been carried out in stages and is scheduled for completion in early 2005.

Qatargas II Project:

This is the first of our major expansion projects and is all about economy of scale. The plan is to build the world's largest LNG plants ever built (two 7.8 MMT trains) and couple their production with the world's largest LNG ships. The destination for the LNG is South Hook in Wales in the United Kingdom and first gas export to the UK is expected in the winter 2007/2008 timeframe.

(Slide 13)

Qatargas Expansion Activities (cont.)

Laffan Refinery:

This project also has a slightly different shareholder mix than the base Qatargas company with Qatar Petroleum taking 80% of the venture and Total and ExxonMobil each taking 10% respectively.

The project has been underway since 2002 and will take unsweetened condensate and process it into naphtha, kerosene, gasoil, and butane and propane (LPGs) for export. Key work is going on as we speak and it is anticipated that startup of the Laffan Refinery will take place by 2008.

Qatargas 3 Project:

This project is very similar to the Qatargas II project except that at the moment only one large LNG train is planned for. This project is set to capitalize on the estimated future demand for LNG into the United States. The project was launched in July 2003 and first gas to the US is targeted for 2009.

The base case for all of the above expansion projects assumes that all the sulphur will be recovered, formed, and exported. Qatargas is not at this stage contemplating acid gas re-injection as a means for disposing of the acid gas stream.

In order to meet the expansion activities of Qatargas as well as the new sulphur production being contemplated by other projects in Ras Laffan, the sulphur export facilities at the port of Ras Laffan that I discussed earlier will be upgraded significantly over the next few years.

A detailed study is currently underway and it is anticipated that the project will be done in stages to accommodate in a timely manner the new sulphur production capacity coming on stream. Highlights of the new facility will include:

- Significant increase in sulphur storage facilities
- Liquid sulphur rundown to the port facilities (vs. current trucking method) where forming will now take place
- New ship loading capability - able to load at significantly higher loading rates

In short, we believe that these upgrades will transform Ras Laffan into a world-class sulphur export facility.

(Slide 14)

Qatargas' Viewpoint towards Sulphur

As a producer of sulphur Qatargas believe that it is important to be a responsible member of the sulphur community.

We are keen to promote responsible sulphur consumption in an effort to keep the balance between supply and demand in line. We believe there is a great opportunity for the further use of sulphur in fertilizers, especially in soils that have been classified as sulphur deficient, to increase crop yield.

Furthermore, we are confident that other sulphur consuming industries outside of the fertilizer-manufacturing base will continue to consume increasing volumes of sulphur. These include further applications for sulphur in copper and nickel leaching; sulphur asphalt, and sulphur concrete.

Qatargas are proud of our recent membership into *The Sulphur Institute* and we look forward to working with this prestigious organization to solve tomorrow's sulphur challenges.

From a sulphur marketing perspective our beliefs are simple and we are interested in three key issues:

- Prefer a fair and steady pricing policy
- Want a "win-win" relationship between Qatargas and our Buyer
- Interested in long term strategic relationships with Buyers

(Slide 15)

Reference Material

Lastly I would like to provide to you some useful Internet sites that can be accessed to provide you with more information about Qatargas, Qatar Petroleum, and Ras Laffan Industrial City as well other entities that have been discussed this morning.

Thank you very much for your kind attention and our thanks again to the IFA for the opportunity to present this paper in front of such an esteemed audience. I hope you enjoy the remainder of the Conference.