

GLOBAL BUSINESS REPORTS

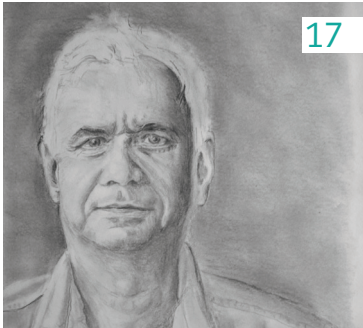
INDUSTRY EXPLORATIONS



Trinidad and Tobago Hydrocarbons 2013

Economy • Business Environment • Exploration • Production • Downstream • Finance

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We heading straight to the top, know that we're going right down to the very last drop

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The Point Lisas petrochemical complex is Trinidad and Tobago's economic gem, unique in the region. Facing increasing challenges. This special section examines how will it is overcoming them.

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I'll spend this cash probably, if you could loose it we could lose it on the floor

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Trinidad and Tobago is one of the Caribbean's leading financial hubs, which undoubtedly helps fuel the country's hydrocarbon sector. We explore the relation between the two.

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This research has been conducted by Caroline Stern, Maher Tariq Ali, Ramzy Bamieh and Chloe Dusser | Edited by Barnaby Fletcher
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SENATOR THE HONOURABLE KEVIN C RAMNARINE

MINISTER FOR ENERGY AND ENERGY
INDUSTRIES



Trinidad and Tobago is at a crossroads. Our petroleum sector needs to be reinvented both from the point of view of the oil industry and preparing the gas industry for this new world. We have to change the way we do business in Trinidad.

I do not believe Trinidad's fiscal regime is competitive enough: we still need to come up to par with Colombia, Brazil and West Africa. Early next year a government committee will conduct a comprehensive reform of the fiscal regime for the energy sector. In the meantime, we are encouraging exploration.

For the latest deepwater bidding round, we made a number of changes to the fiscal regime. First, we increased the rate of cost recovery to 80% (the recovery rate was 60% in prior rounds). Second, we repurposed all the 3D seismic data that we held for deep water. Third, we marketed the bidding rounds very differently, attending many international conferences. We also presented a smaller number of blocks: only six blocks as compared to 11 deepwater blocks in previous rounds. Other factors in the success of the round included the opening up of the Guyana basin, which contributed to greater prospects for Trinidad.

There will also be a land-based bid round launched in January, spearheaded by Petrotrin and supported by the Ministry of Energy. We went on a road show in Calgary to promote this bid round, because we believe smaller companies are the best fit for land in Trinidad; Trinidad is ideal for small- to medium-sized companies. In March 2013, we want to launch another deep water round with six new blocks, and three companies

have already shown interest. Deep water is still in the exploration phase. Exploration took place on our continental slope in 2002, which proved the existence of a working hydrocarbons system but did not find commercial quantities of oil and natural gas. However, things will have changed a lot since 2002 and the technology has taken new leaps. With a new fiscal regime, new technology, and greater processing, we believe Trinidad's deep water holds great potential.

The success of the latest bidding round and the interest we are already seeing in the upcoming bidding rounds shows that many companies have now realized Trinidad is a good place to do business, due to our stable political situation and ability to speak English. Companies like BP have had a good experience in Trinidad over the last 50 years. The largest investment in the history of the Caribbean is Atlantic LNG: it has over \$5 billion worth of foreign investment coming into Trinidad. That project spanned the period 1995 to 2006, during which we had three different governments in Trinidad, which speaks volumes about our political stability. This project remains the lowest cost per ton of LNG in the world today, which has made Trinidad very competitive in global markets.

Nonetheless, we must accept that there are challenges to overcome. As minister, I would like to reinvent the entire energy sector, which includes the oil industry, deepwater exploration and the downstream industry. Furthermore, I am pushing for the internationalization of Trinidad's energy sector, using the NGC as a vehicle to take the Trinidad and Tobago name abroad. •

An Introduction to Trinidad and Tobago

A brief overview of the country and economy

The twin island republic of Trinidad and Tobago has undergone tumultuous economic times since its independence from British rule in 1962. GDP growth jumped mainly between 1% and 5% for the first decade of the newly sovereign nation, before war in the Middle East caused oil prices to dramatically rise, providing a boon for Trinidad and Tobago's at that time small hydrocarbon industry and pushing Trinidad and Tobago's economic growth to a 1980 peak of 10.39%.

This peak proved to be at the edge of a cliff however. As oil prices fell so did Trinidad and Tobago's rapid rate of growth and in 1983 the nation's economy contracted by 9.2%; it was not until 1990 that the country returned to growth. Yet the harshness of this lesson was not lost on successive governments, who increasingly sought to diversify the economy and move away from the volatility of crude oil dependency. The success they have made in this regard is obvious; the 14 years of uninterrupted economic growth between 1994 and 2008 was the second longest such period in Trinidad and Tobago's post-independence history and peaked at 14.43% growth in 2003. As a result, Trinidad and Tobago is one of the most prosperous countries in the Caribbean, with its GDP-per-capita of \$20,000 the fourth highest in the Latin America and Caribbean region. An average economic growth of over 8% between 2000 and 2007 was significantly higher than the regional average (3.7%) and has kept unemployment down to 5.5%, one of the lowest rates in the region. Sound financial policies have kept the public debt to 38.8% of GDP and the budget deficit to 1.2% of GDP.

Although oil and gas still accounts for around 40% of GDP and 80% of exports,

other sectors are growing. Playing to existing strengths, the downstream chemical industry (discussed in the special section on Point Lisas, pages 52 to 59) is remarkably well developed for a small nation and increasingly a gas economy rather than an oil economy is emerging. Tourism attracts between 400,000 and 500,000 visitors a year and accounts for 10.9% of GDP. And Trinidad and Tobago is one of the Caribbean's leading financial sectors, providing 12% of the country's GDP and governed by transparent and effective regulations by the Central Bank of Trinidad and Tobago. The Trinidad and Tobago Stock Exchange is the largest stock exchange in the Caribbean region, with a market capitalization of \$14.721 billion.

None of this protected the country fully against the recent global economic crisis, from which the country has still not recovered. Three years of recession are expected to end in 2012, yet the predicted growth of just 1% hardly marks a return to a vibrant economy. Strong oil prices in 2010 and 2011 have been mitigated by a delay in the resumption of oil production by BHP Billiton and temporary delays at BP's natural gas production facilities, and this has had a direct knock-on effect on downstream manufacturing. Despite this, Trinidad and Tobago still retains a strong reputation as an investment site and is continues to provide a diversified and stable economic base; characterized by successful development of the downstream industry, growing tourism sector and an enviable position as one of the Caribbean's leading financial centres. A growing trade surplus will also help an economic recovery that, although slow, should be fairly steady. •

**\$21.6051
BILLION**

GDP

(current US dollars) 2011

Source: World Bank

5.1%

**Inflation Rate
Average Consumer Prices 2011**

Source: CIA World Factbook





Trinidad and Tobago at a Glance

Source: CIA World Factbook

Population: 1,227,383 (July 2012 estimate)
Capital: Port of Spain
Head of Government: Prime Minister Kamla Persad-Bissessar
Currency: Trinidad and Tobago Dollar (TTD)
GDP: \$22.22 billion (2011 estimate)
Growth Rate: -1.5% (2011 estimate)
GDP per Capita: \$20,000 (2011 estimate)
Economic sector breakdown: agriculture: 0.3%, industry: 58.6%, services: 41.1% (2011 estimate)
Exports: \$13.02 billion (2011): petroleum and petroleum products, liquefied natural gas, methanol, ammonia, urea, steel products, beverages, cereal and cereal products, sugar, cocoa, coffee, citrus fruit, vegetables, flowers
Imports: \$9.552 billion (2011): mineral fuels, lubricants, machinery, transportation equipment, manufactured goods, food, chemicals, live animals
Major Trade Partners: US, Spain, Brazil

-1.4%
GDP Growth Rate
2011
 Source: World Bank

Population and Workforce information

Source: CIA World Factbook, NRC

1,227,383

Population 2012

613,600

Labor Force 2011

17%

Poverty Line 2010

5.5%

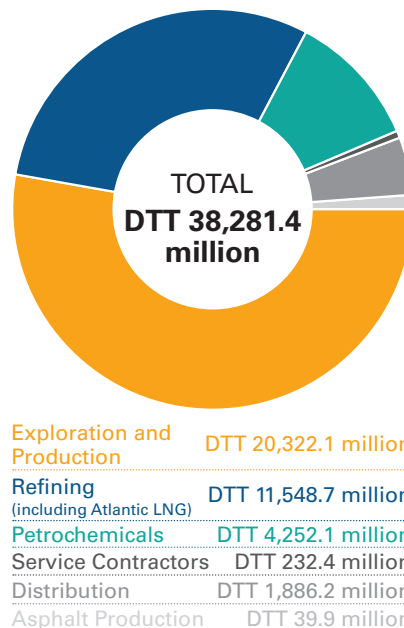
Unemployment Rate 2011

5%

Population employed by the oil and gas industry 2010

Petroleum Sector Breakdown 2011

Source: Central Statistical Office



Economic Profiles of CARICOM Countries

Source: CIA World Factbook

	GDP-per-capita (US Dollars)
The Bahamas	30,009
Barbados	22,744
Antigua and Barbuda	21,363
Trinidad and Tobago	19,739
Argentina	17,382
Saint Kitts and Nevis	16,218
Chile	16,078
Uruguay	16,019
Mexico	14,514
Venezuela	13,480
Dominica	13,222
Grenada	13,135
Panama	12,615

Interview with Norman Christie

REGIONAL PRESIDENT, BP TRINIDAD AND TOBAGO



Could you please provide an overview of BP Trinidad and Tobago's contribution to the global BP network?

Calculating Trinidad and Tobago's importance to BP's overall production depends on whether or not BP includes or excludes Russia from its calculations. Traditionally, Russia has been the largest contributor to our network, but when the sale of BP's Russian assets is finalized, this is likely to change, to the relative advantage of Trinidad's contribution. However if you separate our various North American and Gulf of Mexico operations, Trinidad and Tobago is by far our largest net producer, currently producing around 400,000 bpd. This reduction from our numbers some years ago is due in large part to the integrity work we are carrying out at the moment, which is set to be completed in 2013.

There has been an overall downturn in production in Trinidad and Tobago; what do you think are the contributing factors to this?

There is a misperception that the downturn in production is linked to American discoveries of shale gas; this is not true. There is a relationship in the change of our markets, but not in the levels of production. We have not had a problem selling the amount of gas being produced to various markets, but we have certainly seen more diversity in the markets we supply. The largest contributing factor to the downturn has actually been the integrity work that we are conducting. Because of BP's contribution to Trinidad and Tobago's overall production, our integrity work has a very visible impact on our numbers, but similar work is happening across the sector at the moment. We expect that as production comes back on line in 2013, it will do so with both increased quantities and efficiency.

With substantial potential remaining even after more than 100 years of production, Trinidad and Tobago presents an interesting story; do you think that investors understand the opportunities offered here?

Investors in Trinidad and Tobago certainly do understand the opportunity here, and foreign investors are increasingly beginning to do so as well, as evidenced by the latest bid round. Newer players are getting involved here and the challenge for investors entering the market will be the changing dynamics; the model that has worked for several years will not necessarily be the model that works going forward. Up until now, the model has been predicated on relatively low costs with a relatively low margin for gas. We are now seeing an escalation in costs and change in dynamics in margins so investors will have to assess exactly how they view the new model.

The contract structure that NGC shares with the upstream is a particularly unique one; what are your thoughts on this?

There are several considerations to take into account in examining our contract structure with NGC. BP sells approximately 60% of our gas to Atlantic LNG and the remainder to NGC through a series of complex contracts. Many of our older contracts with NGC were suitable at the time of signing but changing cost structures and commodity sales call for a re-examination of how they stand now. NGC operates as the middleman between the upstream and the downstream, so we need to consider what has changed in the markets to which the downstream sells. Our contract with Atlantic LNG is a different story; there are several contracts there that change from train to train and as these come up for renewal in the next few years, we have to assess how we can make them the most beneficial for the country while ensuring that rents are distributed in the right way. Renewed contracts would have to take into consideration how much gas is available for the off-takers versus the upstream and how much should remain in Atlantic LNG itself.

Given the significant portion of BP's global production that Trinidad and Tobago provides, what lessons does the company take from its operations here?

There is a significant amount of expertise going out of Trinidad and Tobago; right now BP has more Trinidadian nationals outside of the country than we have expats within the country. This is one of the most extensive gas value chains in the entire BP group, so it does not come as a surprise that if such activities are going to be carried out elsewhere, individuals of Trinidad and Tobago will be present. Walking through the BP hierarchy, one will find connections to Trinidad and Tobago over and over again. Working here, we experience everything; from the upstream all the way through various midstream players to downstream assets.

Approximately 90% of your staff here is local; what are your views as the biggest operator in Trinidad and Tobago of the local content laws here?

At BP, we view local content laws as more than just laws; local content is, simply put, good business. Our vision in the country is to materially make an impact on the nation and its individuals. In order to do this, local content has to be more than just something we hang on the wall; we have to consider our entire supply chain and how we interact with this. In doing so, there are three major things we focus on. The first is ensuring a level playing field for the contracts we work with. The second is looking at the welfare not only of our employees but also the employees of contractors that work with us: anybody working on any of our sites. The third major focus is the space surrounding local content. It is essential to develop capacity and capability for the environment in which we operate. We spearheaded the fabrication of platforms in country and our normally manned installations have also been built here. We have an entire strategy around local content and how to develop it in a sustainable manner. •

Are US Shale Gas Finds a Blessing in Disguise for Trinidad & Tobago?

Looking out over the lush forests of Point Fortin in Trinidad's southern peninsula, it is hard to believe that beneath this canopy, the vast majority of Trinidad and Tobago's onshore oil reserves have yet to be explored, let alone extracted.

With an oil and gas industry more than twice as old as the country itself, the twin-island nation of Trinidad and Tobago has managed to remain an extremely relevant, if often quiet, player in the global energy marketplace. Consistently punching above its weight given its relatively small size, Trinidad and Tobago now finds itself at a crossroads. With production of both oil and gas down in recent years, proven reserves have been depleting in the face of no new exploration. While the government prepares to announce the results of the latest successful (and over-subscribed) deepwater bid round and gears up for another edition in March of 2013, little attention has been paid to the potential of Trinidad's existing onshore fields. With an onshore bid round slated to take place early next year, we need not wait until lengthy offshore exploration is carried out to see a resurgence in the country's production numbers; a spate of smaller players have had their eyes on opportunities provided by Petrotrin's lease operatorship and farm-out programs in the onshore space.

Still, even onshore development will not have an immediate effect on Trinidad and Tobago's oil production, paving the way for more immediately effective solutions, as well. Trinidad and Tobago has, for much of its history, employed various Enhanced Oil Recovery (EOR) techniques to maximize production. The continued use of EOR in rejuvenating the country's mature oilfields will result in increased production almost immediately.

Petrotrin, the state-owned oil company, believes that only 20% of the estimated 1.5 billion barrels initially in place on shore have been recovered in Trinidad's 104-year production history. Petrotrin, who is granted an automatic stake in all exploration and

production licenses issued in the country, has taken a renewed interest along with the Ministry to increase the current onshore production of just under 14,000 bpd. Since 2005, Petrotrin has been granting licenses to private operators to perform workover activities on idle wells. By the end of the 2005 fiscal year alone, 19.1 million barrels of oil were produced from these programmes. With the market dominated by global players such as BP, BG, and EOG Resources, junior operators from across the globe are beginning to realize the under-explored niche market that awaits them.

Leni Gas & Oil plc, an AIM-listed junior with assets in Spain, has just sold its operations in the Gulf of Mexico as a part of its strategy to bring increased focus to Trinidad and Tobago. In addition to the company's 1,900-acre Icacos Oilfield on the Cedros Peninsula, Leni has just acquired the underexplored Gourdon Oilfield in the island's Southeast, which has an estimated production potential in the range of 1,000 to 4,000 bpd. Neil Ritson, Leni's CEO, sees the mix of already-producing wells and unexplored territory as a golden opportunity for publicly-listed, independent oil companies such as Leni, Range Resources and Trinity (with its newly-acquired Bayfield assets) to experience some healthy competition. Although these assets are situated in the middle of proven and producing fields, increased attention to deepwater exploration and production has left onshore infrastructure to fall behind. Insufficient rigs and service providers are a persistent impediment to companies looking to ramp up their onshore assets quickly.

In addition to increasing the country's oil production, the expansion of mature, onshore development will provide opportunities for synergy and increased technology transfers into Trinidad and Tobago. Says Ritson, "There is much potential for inter-company cooperation here. While the service industry is good, it does need encouragement by an injection of investment...for

technologies such as fracking and group airborne gravity surveys."

Range Resources, a junior exploration and production company double listed on AIM and the ASX has adopted a similar tactic to Leni Gas & Oil in making Trinidad and Tobago the center of its operations. Walter Cukavac, Range's Country Manager for Trinidad and Tobago, says, "Trinidad and Tobago provided an interesting option for Range mainly because there are different levels of projects with different levels of associated risk. Instead of simply offering exploration... Trinidad offered turnkey opportunities that had existing production and infrastructure." Cukavac and Leni's Ritson both agree that the country's onshore fields provide investors with an attractive mix of opportunities from across the value chain. The exploration required onshore would also mean several years before production can begin but, as Cukavac points out, the capital flow from wells that are already producing would eliminate any downtime; indeed a luxury in the exploration phase of this industry.

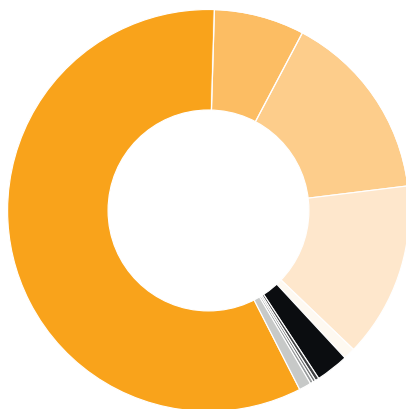
Geologically speaking, the onshore possibilities by and large run along the same trends that feed Trinidad's massive offshore wells. One of Range's two main controlling areas falls along a series of anticlines on the Southern Range just off the island's South coast. A geologist by profession, Cukavac says, "there are over 200 oil seeps along the Southern Range anticline... and many of the structures have never actually been drilled onshore, so there are tremendous opportunities that have smaller reservoirs of five to ten million barrels."

Typically, such small reserves would not attract any significant attention from the BPs and BGs of Trinidad and Tobago, but there is still plenty of oil in smaller reserves that provide an interesting operating space for juniors with fewer resources looking to take advantage of Petrotrin's existing wells.

As March approaches and brings a new deepwater bid round with it, both the government and the industry would do well to keep in mind the role that EOR can play in boosting the sector through other means. With 210,000 acres spread across two blocks just below the Herrera Field, 500 million barrels lie untouched in a low-risk setting ideal for junior companies to occupy. It is clear that the southern half of Trinidad is set to see a great deal of activity in the coming years as these mature fields are revitalized through new technology and an influx of capital. •

Natural Gas Utilization (2010)

Source: Ernst & Young



The Importance of Petrochemicals and Refining

Source: Ministry of Energy and Energy Affairs

NON-ENERGY SECTOR	56%
ENERGY SECTOR	44%
Exploration and Production	48%
Petro-chemicals	24%
Refining	15%
Services	13%



Methanol Plants of Trinidad and Tobago

Source: Ministry of Energy and Energy Affairs

Liquefied Natural Gas (LNG)	57.97%
Power Generation	7.27%
Ammonia Manufacture	15.31%
Methanol Manufacture	14.11%
Refinery	0.95%
Iron & Steel Manufacture	2.65%
Cement Manufacture	0.30%
Urea Manufacture	0.22%
Small Consumers	0.25%
Gas Processing	0.97%

Plant	Owner	Start-up Year	Technology	Annual Capacity (MT/yr)
TTMC I (M1)	MHTL	1984	ICI Low Pressure Process	480,000
CMC (M2)	MHTL	1993	ICI Low Pressure Process	550,000
TTMC II (M3)	MHTL	1996	ICI Low Pressure Process	570,000
Methanol IV (M4)	MHTL	1998	ICI Low Pressure Process	580,000
Titan	Methanex	1999	Lurgi Mega Methanol	850,000
Atlas	Methanex	2004	Lurgi Mega Methanol	1,700,000
M5000 (M5)	MHTL	2005	ICI Low Pressure Process	1,890,000

Ammonia Plants of Trinidad and Tobago

Source: Ministry of Energy and Energy Affairs

Plant	Start-up Year	Technology	Annual Capacity (MT)
Yara Trinidad Limited	1959	Braun	285,000
Tringen I	1977	Fluor	500,000
PCS 01	1981	M.W.Kellogg	445,000
PCS 02	1981	M.W.Kellogg	445,000
Tringen II	1988	Braun	495,000
PCS 03	1996	Braun	250,000
PCS 04	1998	Kellogg Advanced Ammonia Process	650,000
Point Lisas Nitrogen Limited	1998	Kellogg Advanced Ammonia Process	650,000
Caribbean Nitrogen Company	2002	Kellogg Advanced Ammonia Process	650,000
Nitrogen 2000	2004	Kellogg Advanced Ammonia Process	650,000
AUM Ammonia	2009	Kellogg Advanced Ammonia Process	650,000