

MIND YOUR OWN BUSINESS



M.Y.O.B

**How to keep track of
Trinidad and Tobago's
energy billions**

A GUIDE FOR CIVIL SOCIETY, AND ALL OF US

*A Trinidad and Tobago Sustainable Development Network Initiative.
Produced by:*

THE CROPPER FOUNDATION



Funded by the Revenue Watch Institute

THE MONEY IS OUR PATRIMONY.

Who owns the oil and natural gas of Trinidad and Tobago, source of the country’s wealth? Those hydrocarbon resources are owned in common by all citizens; that makes them the national patrimony.

The State acts as the trustee or custodian, on behalf of the true owners—we the people. As national, property-owning shareholders, we are entitled to know what’s going on with oil and gas. We also have an indisputable right to be involved in the decisions being made about those hydrocarbon resources.

This booklet offers a guide to information that could give the people the means to exercise our rights of ownership.

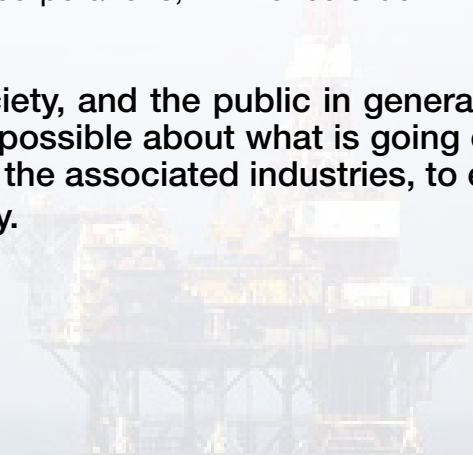
OIL AND GAS: WE USE THEM, WE LOSE THEM.

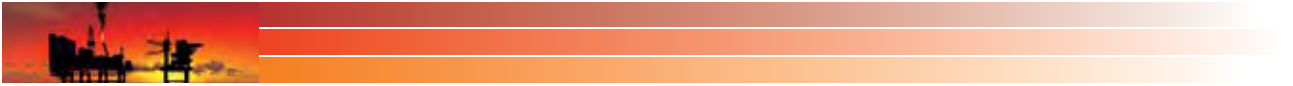
Our hydrocarbon resources are called finite, or wasting, resources because they run down as they are used and cannot be replaced in our lifetime. What is certain is that the resources we own, and depend on so heavily, will one day be exhausted.. For a certainty, the resources on which we are so dependent will some day run out entirely.

WHO GOES THERE?

The dominant actors in the energy or hydrocarbon sector are large, international, well-organised and experienced corporations. Compared to such corporations, the public authorities who manage the sector have limited capacities, and can be outmatched in negotiations with the corporations, with effects detrimental to the national interest.

This is why civil society, and the public in general, must be as well informed as possible about what is going on with oil and natural gas and the associated industries, to ensure the highest transparency.





A FIVE-POINT T&T ENERGY PRIMER.

This energy primer will cover five key questions :

1. *How much we depend on oil and natural gas, and why.*
2. *Reliable measures of how much oil and gas we have.*
3. *What we use our oil and gas for.*
4. *Are energy firms buying local: can better be done?*
5. *What happens when it dries up. Are we providing adequately for the future?*

WHERE TO LOOK, FOR WHAT.

In Trinidad and Tobago, a lot of energy data are available. Not always, however, in a form that is easily accessible to non-specialist citizens. A probe into existing data should prove up information needed for each item of our T&T Energy Primer.

Each of the questions in our “Energy Primer” can be, and has been, fleshed out further in *A Guide for Monitoring the Management of Oil and Gas Resources in Trinidad and Tobago*, published online and in print by the Trinidad and Tobago Sustainable Development Network.

www.thecropperfoundation.org/sdn



LINES OF INQUIRY:

1. How much we depend on oil and natural gas

From Table 1, showing Central Bank’s Annual Economic Survey data between 2002 and 2006, we can assess the contribution of the energy sector to GDP (gross domestic product), government revenue, export earnings, employment and domestic investment. The picture is of increasing reliance on the energy sector over those five years. Except in employment where, despite rapid expansion, the sector has shown relatively no growth in job creation.

Table 1. Economic Contribution of Energy Sector 2002-2006

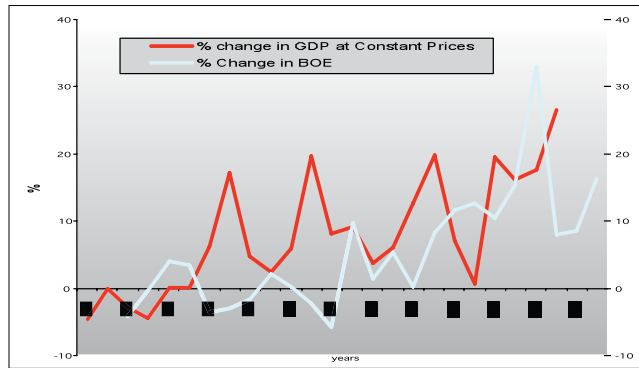
ITEM	2002	2003	2004	2005	2006 ^p
GDP	26.2	33.9	37.1	42.9	45.1
Government Revenues	27.8r	42.8r	42.4r	53.6r	61.7
Merchandise Exports	75.9	83.3	85.8	85.9	91.0
Employment	3.4	3.2	3.6	3.4	3.5

Notes: p- provisional , r – revised

A quick look at each of these categories:

- **GDP** (total value of goods and services produced in the country). See Figure 1. From 1982, GDP has grown hand in hand with oil and gas output measured in combination as barrels of oil equivalent (BOE). GDP rises and falls as output of oil and gas moves up and down.

Figure 1. Changes in GDP and Hydrocarbon Production



- **Government revenue (taxes and royalties).**

This category of revenue includes only payments made by companies in the exploration and production business and the refining business (Petrotrin). It excludes payments by Atlantic LNG, by the petrochemical industry firms, and by the National Gas Company, whose taxes are not counted as part of the State’s “petroleum” revenue. See Figure 2.

The State’s dependence on hydrocarbons for revenue has remained strong, even when prices are lowest. Note, too, that revenues from oil and gas are lumped together, making it difficult to know the relative contribution of each.

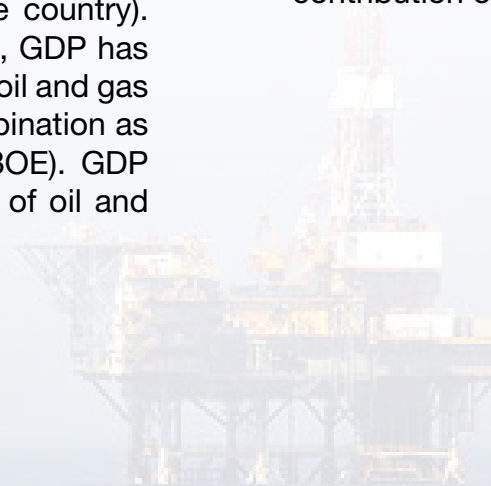


Figure 2. Hydrocarbon Revenues 1981-2006

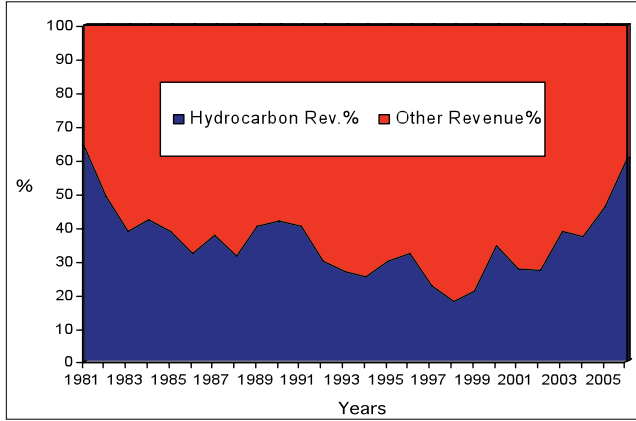
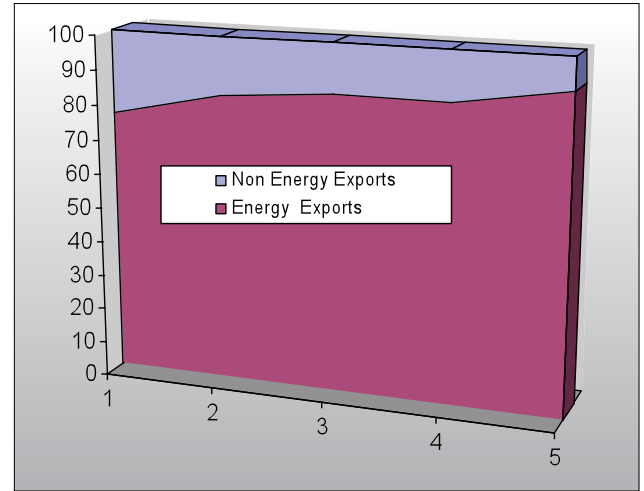


Figure 3. Energy vs Non-Energy Exports 2001 -2005



• **Foreign exchange earnings**

Figure 3 shows the historical proportion of hydrocarbon exports in total export earnings. As it had been in 1981, so it was again in 2007, when hydrocarbons brought in about 90 per cent of the country’s foreign exchange.

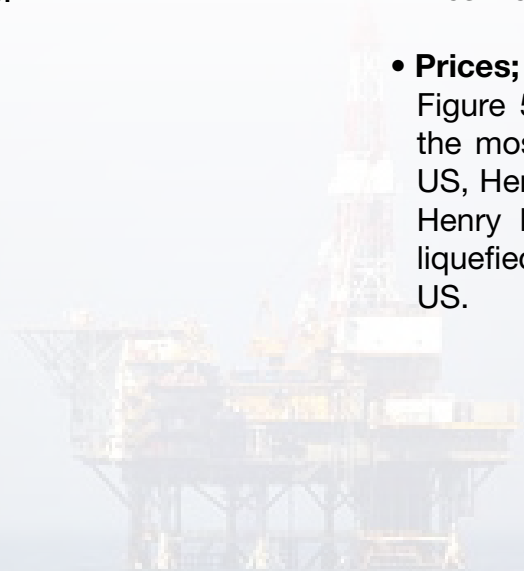
Some of the foreign exchange earned is subsequently repatriated by foreign-owned firms as profits and other payments to shareholders abroad. Energy-sector companies account for the bulk of the foreign exchange thereby sent abroad, about US\$964 million in 2007, up from US\$397 million three years before.

• **Prices; oil**

International market prices, often unpredictable, decide how much revenue the government earns from oil and natural gas. Figure 4, showing West Texas Intermediate (WTI) “marker” crude oil prices from 1986, confirms a steady climb since 2002. Crude from off Trinidad’s east coast, called “Galeota Blend,” fetches US\$8-\$10 a barrel less than WTI; crude produced on land and off the south west coast sells for about US\$20 a barrel less than West Texas Intermediate.

• **Prices; natural gas**

Figure 5 shows natural gas prices at the most popular trading point in the US, Henry Hub in Southern Louisiana. Henry Hub prices indicate trends in liquefied natural gas (LNG) sales in the US.





LNG exported by Atlantic LNG to Europe is sold by a different system from that in the US. Everywhere, however, natural gas prices have been trending upward to new record levels, though not as fast as oil.

Figure 4. Crude Oil Prices WTI 1986-2007

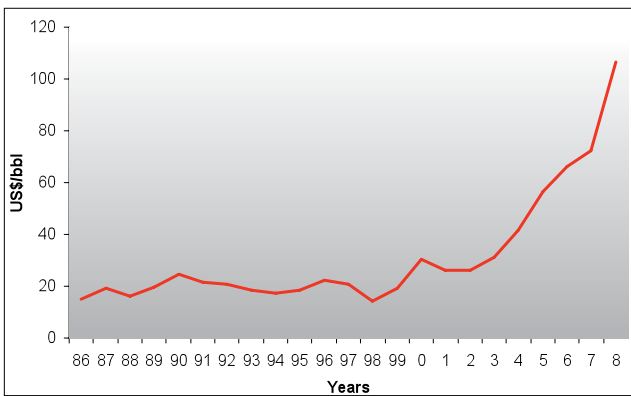
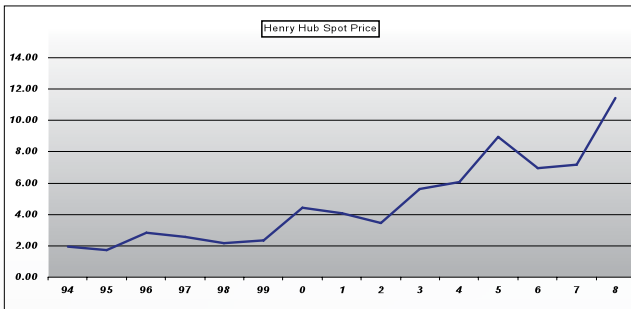


Figure 5. Natural Gas Prices (US\$/MMBTU)



WHERE TO FIND WHAT

To get hard data about how much we depend on oil and gas, check the publications listed below, and the websites of the listed institutions.

- Central Bank of Trinidad and Tobago (Annual Economic Surveys for Various Years) www.central-bank.org.tt

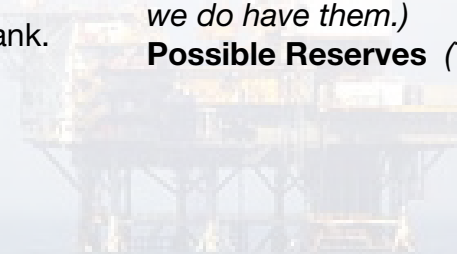
- Central Statistical Office: Trinidad and Tobago Balance of Payments Reports Various Issues. Central Statistical Office www.cso.gov.tt
- Ministry of Finance, Review of the Economy www.finance.gov.tt
- US Energy Information Administration (EIA) <http://tonto.eia.doe.gov/dnav/pet/hist/rwtca.htm>
- South Trinidad Chamber of Industry and Commerce- Petroleum Congress Proceedings www.southchamber.org
- Ministry of Energy and Energy Industries: Annual Reports. www.energy.gov.tt
- International Monetary Fund (IMF) Country Reports; Article IV consultations <http://www.imf.org/external/np/sec/pn/2007/pn07127.htm>

2. How much oil and gas we have, for how long

Reserves.

This is the key word and the all-important concept. The long-term viability of the energy sector depends on reserves.

- Hydrocarbon reserves are of three kinds.
- Proved Reserves** (*We are sure we have and can exploit now.*)
 - Probable Reserves** (*Fifty per cent chance we do have them.*)
 - Possible Reserves** (*Ten per cent chance.*)

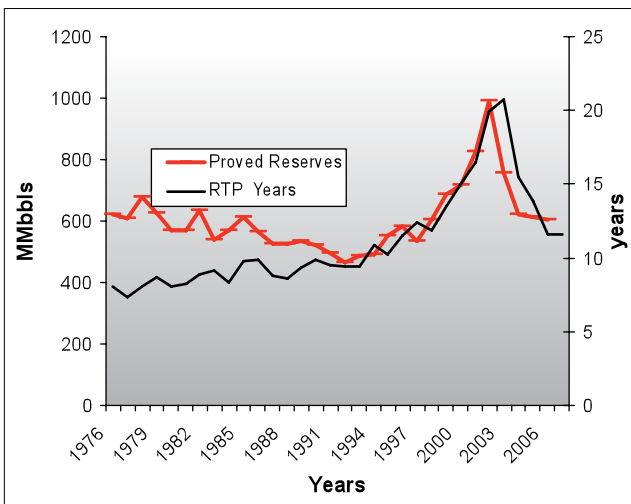


Oil

A big boost came with the 2001 discovery by BHP Billiton of the Angostura field off the north east coast.

Over the last two years, however, a steep decline has been recorded, partly as a result of a reassessment of the size of oil reserves in new fields. Still, the experts suggest a possibility of 10 to 20 years of production from the identifiable reserves.

Figure 6. Proved Oil Reserves and R/TP



Natural gas

Figure 7 shows overall growth from 1976 to 2006. The biggest stimulus for new exploration was provided by the LNG business in Trinidad and Tobago. Proved gas reserves peaked in 2003 at 20.76 trillion cubic feet (tcf). Since then, the rate of consumption has mostly exceeded the rate of discovery resulting in a fall in the reserves to production (R/TP) ratio.

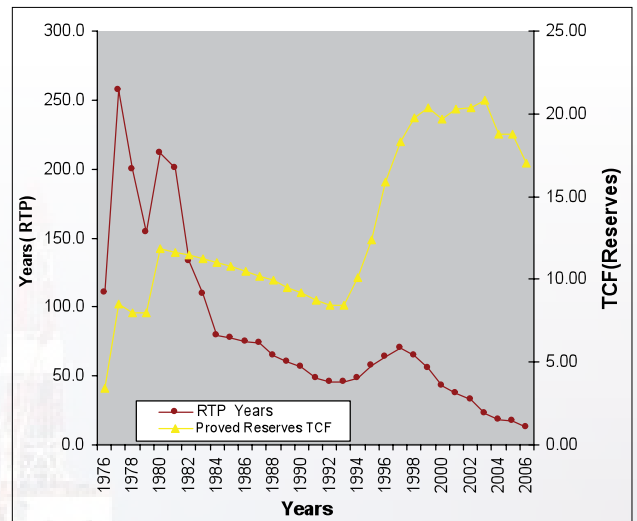
The latest audit estimated total natural gas reserves at 30.75 tcf, of which 16.99 tcf are

classified as proved reserves. At current rates of depletion, the reserves-to-production ratio is now about 12.6 years based on only known, proven, reserves.

WHERE TO FIND WHAT

- Central Bank of Trinidad and Tobago (Annual Economic Surveys for Various Years), Handbook of Key Economic Indicators www.central-bank.org.tt
- Ministry of Finance, Review of the Economy www.finance.gov.tt
- Ministry of Energy and Energy Industries: Annual Reports. Registry of PSC Bids. www.energy.gov.tt
- Geological Society of Trinidad and Tobago: www.gstt.org
- Energy Information Administration: http://tonto.eia.doe.gov/country/country_energy_data.cfm?fips=TD

Figure 7. Natural Gas Proved Reserves and R/TP



3. What we use our oil and gas for

First, a look at what we derive from these resources. We get primary products such as crude oil, natural gas, condensate, and natural asphalt; and secondary products from crude oil such as gasoline, kerosene, diesel, naphtha, aviation fuel and LPG or cooking gas. From natural gas we get five main kinds of secondary uses: a) LNG or liquefied natural gas; b) petrochemicals; c) metals; d) power; and e) light industrial and commercial fuel applications.

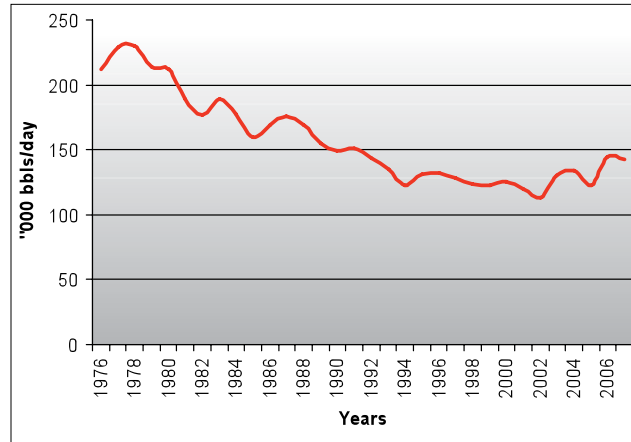
Crude Oil Production

Crude oil output averaged 114,200 barrels a day between January and May 2008, the lowest production since 2001. In fact, output has declined since 1976.

Table 2. Crude Oil Producers 2007

Company	Barrels per day	% Share
Petrotrin	49,830	44
BP	21,783	19
BHP	19,962	17
REPSOL	11,625	10
Others	10,999	10
Total	114,200	100

Figure 8. Crude Oil Production 1976-2008

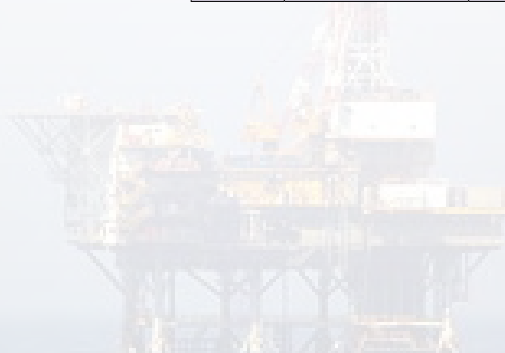


Petroleum products

The Petrotrin refinery at Pointe-a-Pierre, with capacity to refine some 160,000 barrels of oil daily, processes only about 60,000 barrels a day of local crude. The quality of crude produced off Trinidad’s east coast is not considered right for the refinery. Producers export the east-coast oil, and Petrotrin imports crude for its refinery.

Table 3 Refinery Throughput (ooo bbl)

Year	Throughput	Imports	Capacity Utilization%
2002	54801	32241	82
2003	54512	33186	85
2004	47838	22772	79
2005	60088	34200	94
2006	55602	29728	92



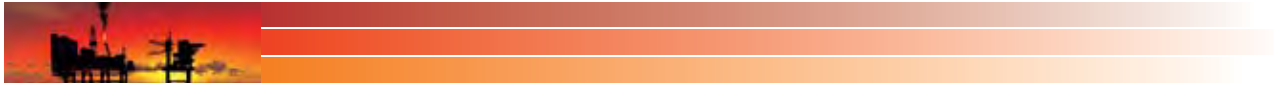
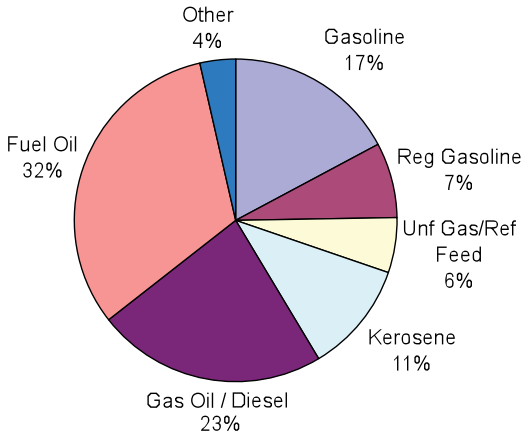


Figure 9. Refinery Product Mix



PETROTRIN, SMALL PLAYER, INTERNATIONAL FOOTPRINT

8

Though a small player in the international market, Petrotrin exports propane gas, aviation fuel, motor gasoline, kerosene, gas oil, fuel oil, and bitumen, throughout the world.

The local market accounts for 20,000 barrels a day of refined products from Petrotrin, about one-eighth of its production.

NATURAL GAS MARKETS

The Trinidad and Tobago natural gas market comprises the domestic gas segment and the LNG segment. In the domestic market, the National Gas Company (www.ngc.co.tt) operates as the pipeline provider, and retailer. NGC buys gas from producers and then sells to local firms. In a few notable cases, where the producer also owns shares in the gas-consuming plant, gas is sold directly from producer to consumer, with NGC providing transportation.

NGC pipelines move gas to Atlantic LNG. In 2007, gas sales thus made to Atlantic constituted about 54 per cent of total gas utilization.

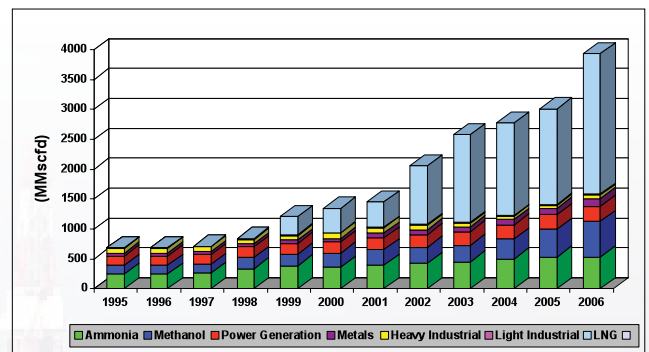
NATURAL GAS PRODUCTION

Four LNG plants, established between 1999 and 2006, have stimulated T&T natural gas production. Table 4, listing the major natural gas producers in 2007, shows the dominance of foreign firms who produce more than 95 per cent of all gas.

Table 4 .Natural Gas Producers 2007
(in millions of standard cubic feet a day)

COMPANY	OUTPUT (MMscfd)	% Share
BPTT	2539	67%
BGTT	754.4	20%
EOG Resources	343.8	9%
Others (Petrotrin, NGC)	148.4	4%

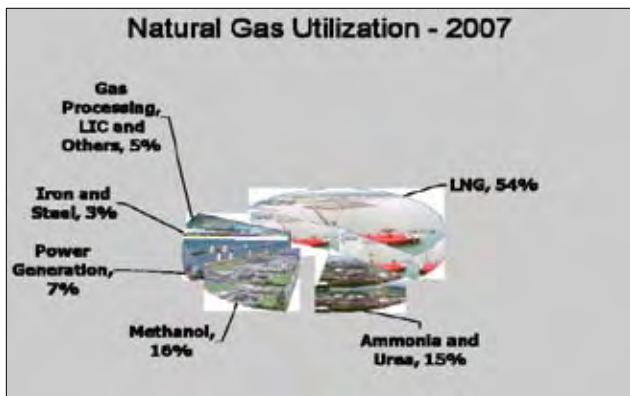
Figure 10. Gas Utilization 1995-2007
Gas utilization



Apart from LNG (54 per cent), the principal uses of natural gas in T&T include power generation (seven per cent); methanol (16 per cent); ammonia (15 per cent); iron and

steel, (three per cent); and other heavy, light, industrial and commercial applications (five per cent). (Figure 11) The number of natural gas consumers now exceeds 140, of which 122 are light industrial and commercial customers.

Figure 11. Natural Gas Utilization 2007



NATURAL GAS LIQUIDS

At Phoenix Park Gas Processors Limited (PPGPL), natural gas liquids (NGLs), or heavy hydrocarbons, are extracted from natural gas. Some extracts, such as propane and butane, are bottled as “cooking gas,” or liquid petroleum gas (LPG). Phoenix Park, 51 per cent-owned by NGC, also extracts natural gasoline, and pentane.

The Phoenix Park plant has seen a steep increase in production resulting from the voluminous increase in liquids coming from Atlantic LNG operations.

Figure 12. Natural Gas Liquids Production

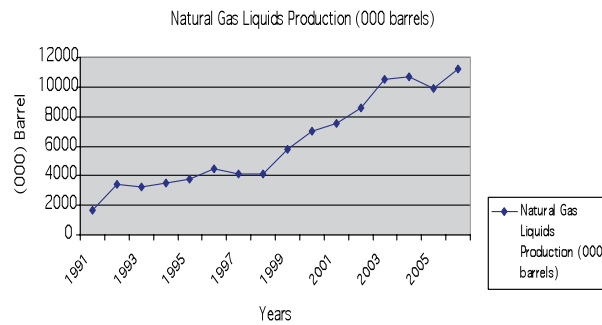
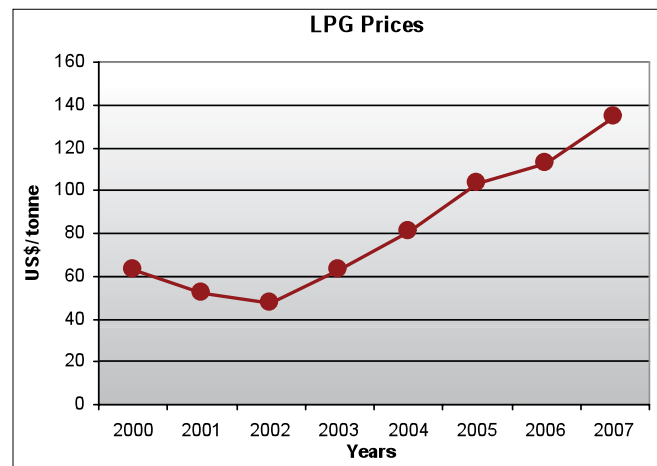


Figure 13. LPG Prices 2000-2007



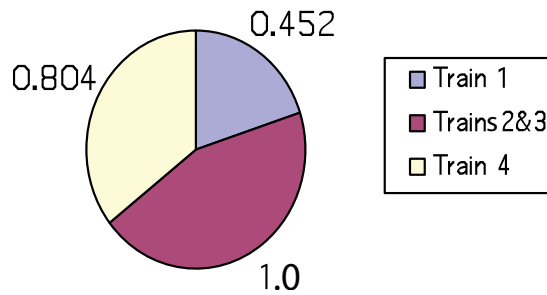
LIQUEFIED NATURAL GAS

Atlantic LNG, which owns and operates the LNG plants in Point Fortin, has become the single largest exporter of LNG to the US. Atlantic’s annual LNG production capacity reaches 16.1 million tonnes. The pie chart below (Figure 14) shows the amount of natural gas liquefied by all four plants. About 55 per cent of all natural gas produced in Trinidad and Tobago ends up as LNG for export. www.atlanticlng.com



Figure 14 LNG Gas Utilization

ALNG Gas Utilization (billion scf/d)



WHO OWNS THE POINT FORTIN POWERHOUSE

Atlantic LNG comprises four plants (called Trains) with three different ownership structures and gas-supply arrangements. The principal companies involved in the LNG business at Point Fortin are BP, Repsol/YPF; BG; Suez LNG and National Gas Company of T&T.

LNG REVENUES

The major markets for Atlantic LNG exports are the US, Spain, Puerto Rico and the Dominican Republic. Atlantic LNG commands about 72 per cent of the American market.

Between 1999 and 2006, Atlantic LNG made a substantial economic contribution to national revenues. Estimated value of LNG sales was US\$229 billion. Total taxes from Trains II, III and IV are estimated as US\$396 million. (Train I enjoys a ten-year tax holiday.)

WHERE TO FIND WHAT

- Central Bank of Trinidad and Tobago Annual Economic Survey and Economic Bulletin. www.centralbank.org.tt
- Ministry of Energy and Energy Industries: Annual Reports and Monthly Statistical Bulletin
- The Energy Journal http://tonto.eia.doe.gov/country/country_energy_data.cfm?fips=TD
- Oil and Gas Journal <http://studio-5financialcontent.com>
- Penn Energy Oil and Gas Research International Data
- American Association of Petroleum Geologists
- Geological Society of Trinidad and Tobago www.gstt.org
- www.bp.com
- <http://www.bg-group.com/OurBusiness/WhereWeOperate/Pages/TrinidadandTobago.aspx>
- www.atlanticlng.com
- World Gas Intelligence-http://www.energyintel.com/PublicationDetail.asp?publication_id=10
- Natural gas .org- www.naturalgas.org Section 1
- Centre for Liquefied Natural Gas www.lngfacts.org
- Federal Energy Regulatory Commission <http://www.ferc.gov/industries/lng>

PETROCHEMICAL INDUSTRIES

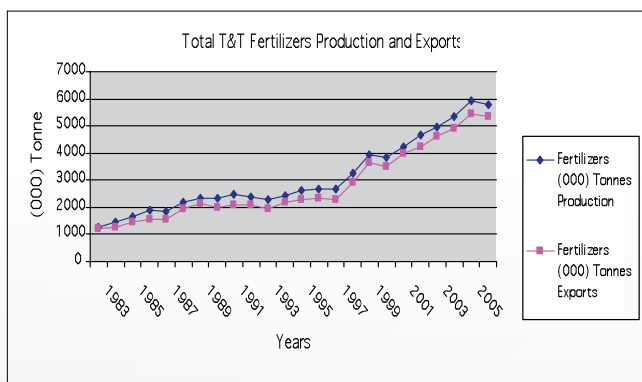
For half a century T&T has had a vibrant, natural gas-based petrochemical sector, also called the downstream sector. These downstream industries may be classed as follows:

Ammonia

In the fertilizer business since the opening in 1959 of the Federation Chemicals plant (now Yara).

Trinidad and Tobago is today a major fertilizer-producing centre. Ten fertilizer plants operate here, of which nine produce ammonia and one, urea. This country is also the world's leading exporter of ammonia.

Figure 15. Ammonia Production and Exports



Methanol

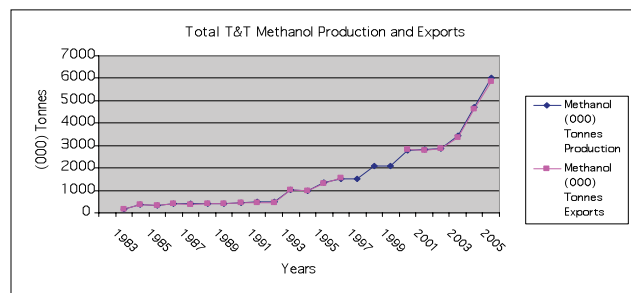
Six methanol-producing plants are owned by two groups of companies. T&T private conglomerate, CL Financial, through its holding company, Methanol Holdings Trinidad Limited (MHTL) www.tmethanol.com, holds 11.25 per cent of

four firms, and majority ownership (64.3 per cent) of the largest company.

MHTL, with capacity to produce 4.1 million metric tonnes of methanol a year, is the second largest producer of methanol in the world. MHTL exports 65 per cent to the US, and 34 per cent to Europe. The net foreign exchange derived from the MHTL plants in 2006 was estimated as US\$141 million.

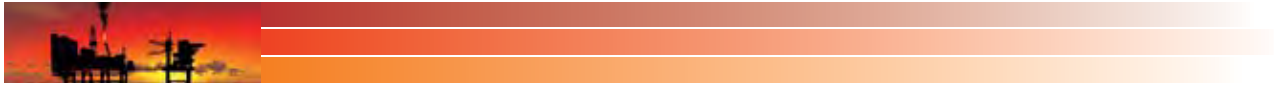
The largest producer of methanol in the world, Methanex operates two large plants in T&T.

Figure 16. Methanol Production and Exports



WHERE TO FIND WHAT: PETROCHEMICALS

- Annual Economic Survey: Central Bank of Trinidad and Tobago. www.central-bank.org.tt
- Economic Bulletin: Central Bank of Trinidad and Tobago. www.central-bank.org.tt
- Energy Caribbean: bimonthly publication of Media and Editorial Projects Limited
- www.meppublishers.com
- Annual Report: Ministry of Energy



and Energy Industries www.energy.gov.tt

- Methanol Holdings Trinidad Limited—www.ttmethanol.com
- Methanol Market Report—Chemical Market Associates Inc. <http://www.cmaiglobal.com/>
- Ammonia Outlook: Quarterly publication of www.ferticon.com
- Fertecon Ammonia Report: Weekly publication of FERTECON Limited
- Green Markets; Fertilizer Markets Intelligence Weekly publication of Pike and Fisher. www.greenmarkets.pf.com
- Methanex Monthly Average Regional Posted Prices

The second plant is owned by NU Iron Unlimited, a subsidiary of US firm Nucor www.nucor.com. Nu-Iron’s plant has capacity to produce 1.8 million tonnes a year of direct reduced iron.

The ESSAR Group is set to construct a new US\$1.1billion steel mill, with an expected annual capacity of four million tonnes (www.essar.com). The plant, whose establishment faces opposition by environmentalists and concerned citizens, is planned to be running by 2009.

Figure 17. T&T Direct Reduced Iron Production and Exports 1981-2006

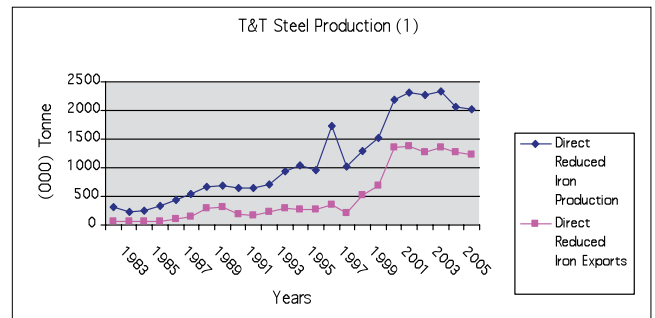
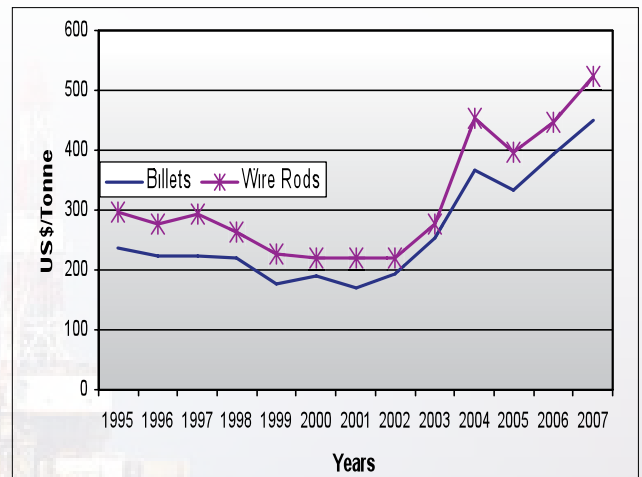


Figure 18. Billets / Rods Prices



12 METALS

Cheap natural gas and electricity have facilitated the rise of T&T’s energy-intensive metals industries. The steel industry continues to grow; efforts are underway to establish an aluminum smelter.

IRON AND STEEL

Two companies make steel, and a third plant is under construction. In 1989, the first iron and steel firm, State-owned Iron and Steel Company of Trinidad and Tobago (ISCOTT), was divested to Ispat. The successor to Ispat, Arcelor Mittal (www.arcelormittal.com), the world’s largest steel maker, today runs an expanded iron and steel company at the old Iscott Point Lisas site, producing direct reduced iron, billets and wire rods.

ALUMINUM

After false starts by other companies, Alutrint seems poised to deliver the country's first aluminum smelter. Alutrint is owned 60 per cent by the State and 40 per cent by Sural of Venezuela. Alutrint's 125,000 tonnes-a-year facility is under construction at the Union Industrial Estate in La Brea. The company promises downstream expansion into rods, wire and cables, and aluminum-alloy car wheels.

WHERE TO FIND WHAT: METALS

- Arcelor Mittal (www.arcelormittal.com)
- Nucor (www.nucor.com).
- Essar Steel (www.essar.com)
- Central Bank of Trinidad and Tobago; (www.central-bank.org.tt)
- Metal Bulletin (www.metalbulletin.com)

POWER GENERATION

The power generation sector comprises one transmission and distribution company—Trinidad and Tobago Electricity Commission—and two power generators—Powergen and Trinity Power. T&TEC, which is responsible for procuring natural gas for the generation companies, has a contract with the National Gas Company (NGC) to purchase natural gas as fuel for electricity generation.

4. Local content and value added

Local content and participation are defined to include ownership, control, decision-making, and preferential access to financing.

The government has identified local content as a way of fostering the participation of “locally owned businesses, local financing and human capabilities in the conduct of all activities connected with the energy sector...within and outside T&T.”

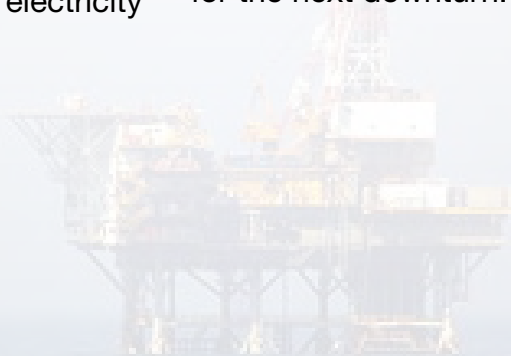
No data are, however, available to confirm the extent of local content and value added.

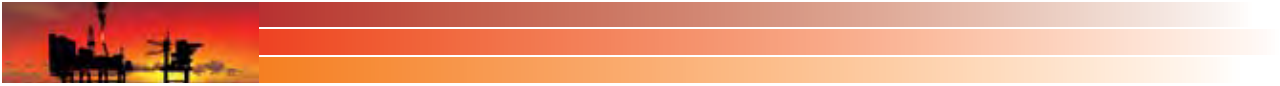
The policy document is available from the Ministry of Energy Website:

http://www.energy.gov.tt/applicationloader.asp?app=doc_lib_details&id=194

Lessons should have been learned from the 1973-1981 oil boom that turned to bust when reserves of US\$3.2 billion were dissipated as oil prices collapsed between 1982 and 1987. The effects devastated foreign exchange earnings and government revenue.

Starting in 2000, when oil prices bounced back, and climaxing in 2007 with enactment of the Heritage and Stabilisation Fund, the authorities have again attempted the prepare for the next downturn.





Citizens must remain concerned, however, about whether enough of the oil and gas “rents” are being saved in the Fund. Everyone should be watchful to guard against the danger of withdrawals to meet income shortfalls leaving less and less for future generations.

The legislation provides for an irreducible minimum balance in the Fund to remain untouched. This minimum is, however, set at just about \$6 billion TT, that is to say, a small fraction of the annual budgets,

Table 5 Heritage and Stabilization Fund

Year	US \$million	TT\$ Million
September 1999/2000	65.87	415
September 2001	161.11	1015
September 2002	162.66	1015
September 2003	249.12	1566.9
September 2004	449.23	2830.2
September 2005	640.33	4034.1
September 2006	1354.13	8544.6
September 2007	1,680.00	10,617.60



CONCLUSION

Keeping track of Trinidad and Tobago's energy billions

The money is our patrimony

This booklet, *Mind Your Own Business*, offers a small snapshot of the big picture of Trinidad and Tobago's energy sector. Energy, oil and gas, and hydrocarbons have appeared interchangeably in the text, referring to the T&T economy and, specifically, to the most important sector of the economy.

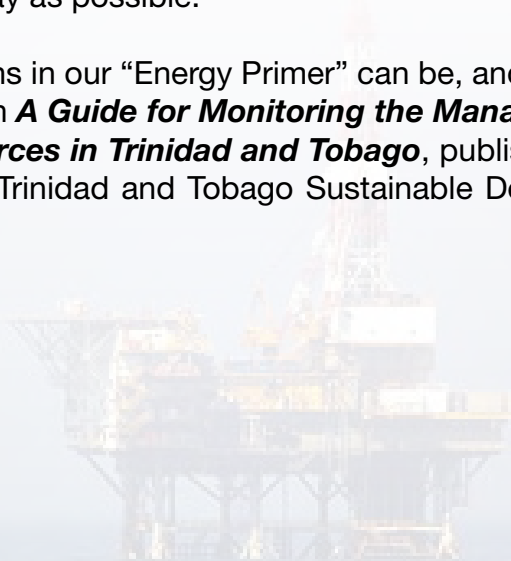
The aim of the publication has been to lift the veil of mystery that, in the minds of many citizens, may obscure proper understanding of such terms.

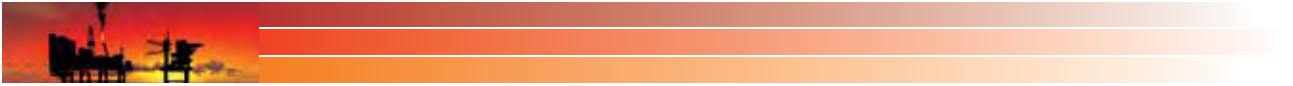
It is through finding, producing, and making use of the oil and gas deposited by nature as "hydrocarbons" underground, and under seabeds, that T&T has made a relatively good living for ourselves.

Often we have taken our oil and gas resources for granted, but we need to recognise energy as vital national business. This is our business, of which we, the shareholding people of T&T, must be able to take more direct charge.

Knowledge is power. On that basis, *Mind Your Own Business* has identified some core questions and explored them briefly and in as straightforward a way as possible.

Each of the questions in our "Energy Primer" can be, and has been, fleshed out further in *A Guide for Monitoring the Management of Oil and Gas Resources in Trinidad and Tobago*, published online and in print by the Trinidad and Tobago Sustainable Development Network.





In that thorough-going research paper, you can find a lot more of the need-to-know information and data to answer at least some salient and topical questions:

- Is Trinidad and Tobago hooked on oil and gas and, if so, how bad is our dependence?
- Are we stricken, like some other oil-producing countries, with The Resource Curse, and how are we coping?
- Do we suffer from the Dutch Disease, the economic contagion which causes the energy sector to boom but other sectors to bust?
- Will our oil and gas run out, and how soon?
- While they last, are we making the best use of oil and gas products and their spin-offs?
- Have we made good enough deals with the foreign energy corporations, and are we really gaining from their operations, and learning as much as we should?
- Are we making ready for the transition when energy boom turns to bust?
- Are we saving and investing enough of the present windfall billions so as to keep ourselves on a steady path now, and to give our children and their children a right start?
- Are government policies and actions equal to the management challenges of our energy-based economy?

The SDNTT is set to join civil society and the rest of the country in discussions on the above and other matters. You can join in by sharing this booklet, and by checking The Cropper Foundation website: www.thecropperfoundation.org/sdn

