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The National Gas Company of
Trinidad and Tobago Limited

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NEO/Tobago Pipeline Projects

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Striving for a More
Informed T&T
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December 2010

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FRONT COVER:

View of the two 36-inch HDD closing spools

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Dredging Works in progress at Brighton Harbour



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NGC'S PUBLIC EDUCATION PROGRAMMES

NATURAL GAS LITERACY - STRIVING FOR A MORE INFORMED AND DEVELOPED TRINIDAD & TOBAGO

As the sole buyer, transporter and seller of natural gas in Trinidad and Tobago, NGC plays a pivotal role in the country's economic development. This role comes with many responsibilities. The first among them, of course, is that NGC must conduct its operations in a safe, reliable and efficient manner so it is always able to meet its delivery of gas volumes contracted.

NGC has developed and implemented an extensive Public Education Programme as a core pillar of its Corporate Strategic Responsibility or social involvement strategy. The Programme has two main components: a Community Awareness and Emergency Response (CAER) Programme and a nationwide Natural Gas Literacy Programme.

CAER is driven by NGC's "duty of care" for communities impacted by its operations. In the conduct of its core business of natural gas marketing and transportation, NGC operates an extensive natural gas pipeline network which runs adjacent to numerous communities. Awareness is a major risk mitigator both while pipelines are being built and when operational. Conversely, natural gas literacy is driven by the need for the company to reach the entire country to build the national community's understanding of the natural gas industry.

Rationale

For over 10 years, NGC has been creating strong links between its positive business performance and



Gas Rush Winners 2011 – Miracle Ministries High School

social involvement. For NGC, social involvement means strong and informed communities and valued and trustworthy partnerships. A strong NGC needs a strong community to deliver on its mandate to monetize the gas resource for the community of Trinidad and Tobago. And, conversely, an informed, strong and empowered community needs strong, home-grown entities like NGC to further opportunities for the citizenry.

In this regard, NGC's extensive public education programme seeks to educate and inform the public about natural gas and the value this resource provides the people of the nation, thereby ensuring that the nation is building a future generation that understands this industry sufficiently to be good decision-makers.

Indeed, while it is easy to assume that citizens in a gas-based

economy would be well informed and knowledgeable about the energy sector, periodic surveys have indicated a general lack of understanding about the gas-based industry, and its role in national development, and NGC.

Programme's History

Since 1999 when it started construction of its 36-inch line from Guayaguayare to Point Lisas, NGC has been engaged in major pipeline and other infrastructure development activity to meet growing domestic and export gas demand. This led the company to carry out an information outreach programme to schools along the 36-inch Right of Way (ROW) and to create and distribute various communication tools for schoolchildren along this ROW and later across the country. In 2003, the Company ran a year-long information campaign which it inserted in the press as a daily natural gas fact sheet. Later, in 2004-2005, during construction of the Cross Island Pipeline, BUD slug catcher and pipeline and Union Industrial Estate Projects, NGC carried out a comprehensive and structured Community Awareness Programme which reached thousands of persons and brought the knowledge and assurance that NGC was the local flagship enterprise that could look after the interests of the company's natural gas resource in ways that benefited not only the company's bottom line but the nation's future development.

Since that period NGC has expanded its public education initiatives by devising and fine-tuning a series of educational programmes aimed at several different target demographics, from pre-schoolers to tertiary level students, from the general public to special interest groups. The programmes involve the use of every imaginable media, from print to radio to television, to exhibitions, outreach programmes and school visits on its premises.



Gas Rush Competition brings the world of gas to secondary schools and general audiences on TV.

Employee Involvement

By and large, NGC's Public Education thrust is the responsibility of its Corporate Communications Division, and most programmes and initiatives are devised and implemented by them. However, the scope of the programmes, which are often country-wide, means that NGC's Public Education sometimes, especially in the last year, must rely on the general employee body to take its messages to the public.

While there have always been employees willing to give back to their communities in this manner, NGC recently launched a new incentive programme, called the Reputation and Relationship (RR) Ambassador Programme, to increase and reward participation. The programme formalises and quantifies employee involvement in social and corporate events, and awards a specific number of points for each activity. The points are credited to the Balanced Score Card and, at the employee's wish, to individual performance contracts.

Eligible contributions include

participating in exhibitions, presenting lectures, hosting school visits or producing educational materials and articles. Other areas are: serving on community councils, state or other boards, professional organizations, etc., participating in environmental or charitable projects, and planning or implementing in-house corporate activities.

Though the RR Ambassador programme is not limited to NGC's educational initiatives, these have seen a significant rise in employee involvement since the programme was launched.

Gas Rush Game Competition

NGC hosted the second season of its highly popular *Gas Rush* game show in 2010. The game is aimed at 3rd and 4th Form students from secondary schools throughout Trinidad and Tobago. With its modern technology, bright colours, and fast pace, it was a hit with students; 94 schools signed up for the qualifying round.

The purpose of the game is to teach basic concepts about natural gas, not

just to the competing teams, but also to teachers, parents, and studio and TV audiences. The game show was also a good opportunity to open the eyes of these young people to the variety of careers within the industry.

The meticulously planned campaign involved sending out almost 100 RR Ambassadors to schools throughout both islands, enticing them to participate and sharing learning materials designed specifically for the game. The topics for study included: the nature and formation of natural gas; the carbon cycle; natural gas and the environment; natural gas safety; the Upstream, Midstream, and Downstream sectors; the monetization of natural gas; and the development of T&T's natural gas industry, and NGC's role in the industry.

The number of competing schools was soon winnowed down to the 32 schools that would go on to the preliminary round, where they would be challenged with several new categories inserted into the learning materials provided. These categories included: How natural gas is measured; classification of resources; T&T's natural gas in a global context; renewable and non-renewable energy; and places of interest in energy.

During the two-month competition, NGC hosted workshops with the young competitors and their teachers, not only to ensure that students performed at their best come competition time, but also to maximize the educational impact of the exercise.

In the final round, televised on CNC3, and hosted by Reagan Des Vignes, one of the country's more popular hosts with kids in the age group targeted by *Gas Rush*, first and second places went to Miracle Ministries Pentecostal and Iere High Schools respectively, with Naparima Girls and Presentation Boys, Chaguanas holding the next two positions.

The game show has been the most successful and popular of NGC's secondary school initiatives so far, and the Company will continue to invest



Prize-giving ceremony – CAER Safety Art competition.

the time and effort it requires to make it a red-letter event on the annual educational calendar. Planning will soon begin for the 2012 instalment of the game, the game being held biannually.

Tertiary Education Workshops

NGC is particularly interested in reaching out to students at the tertiary level, since they are at such a critical juncture in their lives as far as career planning is concerned. For the past several years, NGC has held Tertiary Education Workshops during the July-August semester break.

Approximately 200 local tertiary level students are hosted at a series of four one-week workshops held at NGC's Head Office in Point Lisas. These are run in conjunction with the

University of Trinidad and Tobago (UTT). Once again, staff volunteers and UTT lecturers give of their time to pass on their knowledge of a variety of pertinent subjects. These include the origins, nature and properties of natural gas, the gas value chain, exploration and production, pipeline construction and maintenance, and the financial, legal and economic aspects of the business.

Sessions are open and interactive, and students perform hands-on experiments and view equipment used in everyday scenarios. Also on the itinerary are field trips to facilities such as the Abyssinia Regulator Station in Guayaguayare. Upon completion of the workshops, students are tested for recall and receive Certificates of Participation which are valuable items to insert into their curriculum vitae.

Community Awareness and Emergency Response (CAER)

• *Schools CAER*

In 2010, the main objective of the CAER Schools' Programme was to create emergency-ready schools. The programme, as in the past, targeted 18 primary and secondary schools located within a 500m radius of NGC's natural gas installations.

The objectives were:

- To test recall of the schools visited by NGC in 2008 and 2009; conduct evaluation drills, and identify deficiencies and gaps for the information of the respective school administrations; make recommendations for improvements via customized Emergency Response Plans for each participating school, and the donation of emergency equipment, such as fire extinguishers and signs;
- To expand the CAER programme to new schools that have not benefited from the programme;
- To provide teacher-training workshops – NGC facilitates teacher-training workshops in basic fire-fighting and basic first aid for CAER schools.

Visits included interesting and conversational presentations on gas and gas safety, which were educational not just for students but also for teachers. Children are also efficient conduits for information, as they usually share what they have learned with parents, siblings, and other family members.

For the first time, a Safety Art Competition for the seven primary schools visited in 2010 bore fruit in the form of over 250 drawings and paintings being submitted. The aim of the competition was to select 13 art pieces which could be used for NGC's corporate consumables or brand items such as diaries and calendars for 2011. The Safety Art Competition's chief judge was renowned artist and musicologist Dr. Pat Bishop, TC.



Young recipients receive their prizes from Dr. Pat Bishop (TC), Chief Judge – Safety Art Competition.

• *Community CAER*

As it continues to meet its responsibilities as a corporate citizen, NGC initiated a Community CAER Programme for communities close to its larger natural gas installations. The main aim of CAER is to educate NGC's fence-line communities on the risks involved in living near a natural gas pipeline, and offering solutions for reducing these risks. Residents are taught how to respond in the event of a natural gas emergency.

The programme involves meetings with residents and community leaders to determine their concerns and to educate them on various aspects of natural gas. Apart from ensuring that the residents receive accurate information on the pipelines in their area, NGC can also refute inaccurate assumptions about NGC's responsibilities.

The CAER programme has been embraced by communities as a way to exchange information about the risks associated from living close to natural gas pipelines, solve issues, and build relationships. Their respective Regional Corporations' disaster preparedness units have been assisting the CAER programme, through the Office of Disaster Preparedness and Management (ODPM), which has been developing Disaster Management Teams (DMTs) throughout the country.

Under Community CAER, various DMTs were invited to attend Natural Gas Safety Lectures at NGC. The CAER team, made up of NGC's Public Education, Community Relations, and Environment, Health and Safety personnel, believes this approach helps to sensitize the DMTs about natural gas safety. This allows the DMTs to expand their present scope, which has been restricted to responding to and managing natural disasters such as hurricanes, floods and earthquakes.

One of the key elements of the Community CAER programme is establishing Community Emergency Response Trained (CERT) volunteers in selected communities. The first group of 24 trainees, who represented Poole Valley, Rio Claro; St. John's, Brothers Road; Clarke Road, Penal; and Avocat, Fyzabad, completed a five-week training course in the middle of November 2009. The sessions were conducted by members of the Trinidad and Tobago Voluntary Emergency Response Trainers (TTVERT). The training helped to establish and nurture a culture of safety within their respective communities, while equipping the volunteers to respond appropriately in the event of any kind of emergency, including natural gas incidents and natural disasters. The course ended with an emergency drill conducted at NGC's Head Office in

Point Lisas, in which graduates were called upon to deploy their newly-learned skills in the face of a simulated emergency. They were then presented with Certificates of Participation.

NGC hopes that these CERT volunteers will form the first line of defence in any emergency. The first group of graduates will receive further training in first aid and fire-fighting next year. Another group of volunteers will have the opportunity to participate in the programme in the third quarter of 2010. This year's CERT programme, through which NGC interacted with over 100 people in five different communities, continues to represent the commitment of the Company to public safety.

Primary Schools Lesson Plan

NGC has designed and produced an attractive, colourful and child-friendly natural gas lesson plan for primary schools. The plan will guide teachers through a series of fun sessions, including a puppet show featuring NGC's popular cartoon characters Monkey and Iguana. NGC intends to hold an interactive exhibition later in 2011, at which the concept will be introduced and the packages, which include hand puppets and a poster, distributed to schools.

NGC recognizes the ability of social media to deliver information to its publics in a quick and timely manner, especially among its younger audience.

Schools Outreach

NGC conducts a primary and secondary school outreach programme which, though unrelated to CAER, also allows the Company to share information with the nation's children. At the moment, visits are tied to major construction projects such as the Tobago pipeline, and the North Eastern Offshore pipeline, and since 2009, teams have been visiting and sharing valuable information with schools in these areas via communication centres in Tobago, Galeota and Claxton Bay. The visits have been successful not only for their educational benefits but also because they open a door to better, more personal relationships with the communities.

SBA Assistance and School Visits

Over the years, NGC has gained a reputation among SBA students for being a student-friendly company. At NGC, staff are always willing to meet young people and supply them with the information and advice they need to complete this important part of their secondary school curriculum.

Primary and secondary field trip groups are also welcome, and are treated to an informative and entertaining package that includes a presentation and tour of the Point Lisas Industrial Estate.

Publications

NGC's publications have always been in high demand by persons seeking information about the industry. *Gasco*, of course, is the flagship magazine, which is read by a more technical, sophisticated audience. *Gasco* is available in print and online in the NGC website's Media Centre.

Other materials, designed and produced to support specific programmes, range from the brightly coloured and attractive Gas Rush study guides to brochures and handouts on various subjects. Past campaigns have

included unusual learning materials such as comic books, board games, bookmarks, animated videos, puzzles and colouring books. The Student Centre on NGC's website, ngc.co.tt, continues to be a popular area for students.

Social Media

NGC recognizes the ability of social media to deliver information to its publics in a quick and timely manner, especially among its younger audience. It set up a Facebook page for Gas Rush 2010, which found favour with participants, supporters, and game enthusiasts.

NGC will continue to explore its options for social and electronic media to disseminate information, educate the public, and further its programmes.

Future Education Goals

NGC will be placing even greater emphasis on using its RR Ambassadors in its educational programmes, and will be devising training programmes specifically for them, so that they might be better equipped to pass that information on.

While much of its effort has been placed on educating students at all levels, NGC intends to develop more programmes to serve the needs of other publics, such as special interest groups. The education programmes will continue to be high on NGC's list of priorities, as it can better serve the needs of a public that is empowered, informed, and ready to participate in the future development of the industry.

Traditionally, companies earned trust and built their reputation from the quality of their products and strong financial performance. However, in today's business environment, a company is not just tied to responsible business operations, but, also, to community involvement which in the case of NGC is its natural gas literacy programmes and CAER which adds to the economic development of Trinidad and Tobago.

THE MAYARO/GUAYAGUAYARE FISH LANDING FACILITY NEC'S CORPORATE CONTRIBUTION TO THE COMMUNITY

NEC proposes to develop a much-needed facility to support the fishing industry in the Mayaro/Guayaguayare area. This will form part of the Corporation's community development initiative, in connection with its Galeota Port development project. The existing facility used is shown in the photographs below.

History of the area's fishing industry

In 1986, the Archipelagic Waters and Exclusive Economic Zone Act created a marine zone almost 15 times the land area. Fishing within this territorial boundary remained predominantly coastal and artisanal. Studies have identified a total of 1,013 species of fish in the area, of which only a small percentage are caught and landed (Ramjohn, 1999). In addition, some 85 species of crustaceans have been identified (Fisheries Division, 2007).

By VIJAI LAL

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The waters around Trinidad are also inhabited by cetaceans, manatees and sea turtles, which are all considered endangered species by the IUCN (International Union for Conservation of Nature and Natural Resources).

The estimated total catch has declined annually since 2002 and trends to an estimated 12,000 metric tonnes at present (Fisheries Division, 2008).

Imports declined from TT\$86 million in 2002 to TT\$42 million in 2004. Domestic fishing is governed by the Fisheries Act of 1916, later amended in 1975 for up to a 12-mile territorial limit. However, a management regime is in place regulating trawling activities.

The fishing industry on the south-east coast targets mainly the commercially important coastal pelagic species (king fish, carite, ancho), which peak in abundance in the dry season (Fabres, 1983). Five main demersal species of commercial importance dominate the inshore coastal areas (croaker, salmon, redfish, grunt,



Loading fishing piroque in Guayaguayare



*Fish landing facility in Guayaguayare
(Taitt's Place)*



New Guayaguayare Fish Landing Facility under Construction

3-D conceptualization of the Fish Landing Facility Design



catfish). The deeper off-shore waters are associated with grouper and snapper.

Apart from recreational fishing, commercial fishing is the second most common small marine business. It is traditionally important to the socio-economic and cultural fabric of Mayaro/Guayaguayare. Mayaro's annual surf fishing competition is well known.

The existing landing site

In 2005, total landing at the site was estimated at 108 metric tonnes. Commercial fishing accounts for 90% of landings, principally using artisanal pirogues and trawlers. The range of vessels is limited by a lack of chilled storage space for fish, crew accommodation and communication, and navigation equipment. Mooring for vessels, service facilities for nets and engines, storage and commercial vending facilities would also improve the viability of the site.

In stakeholder consultations, the fishermen repeatedly cited their plight, which is compounded by the need to transport equipment home daily to avoid pilferage, lack of ice making, and fuel facilities. Support was absent and competition from developing other natural resources was contributing to declining fish stock.

Generally, 25 boats operate in the area, with a seasonal influx in the dry season increasing to as many as 50 boats. Of the estimated 2,491 registered fishermen, approximately 250 operate from the area. The concerns expressed by the fishermen are:

- Increased marine traffic
- Increased pollution
- Loss of fishing area
- Safe anchorage for energy sector vessels
- Waiting time
- Encroachment on fishing grounds
- The impact of other industries on

the sea-grass and natural habitat for nurseries

- Increase in travel time and fuel costs on new routes to go around ship traffic
- Compensation for equipment damage and loss of certain types of fishing activities
- Security and safety.

The proposed fish landing and processing facility

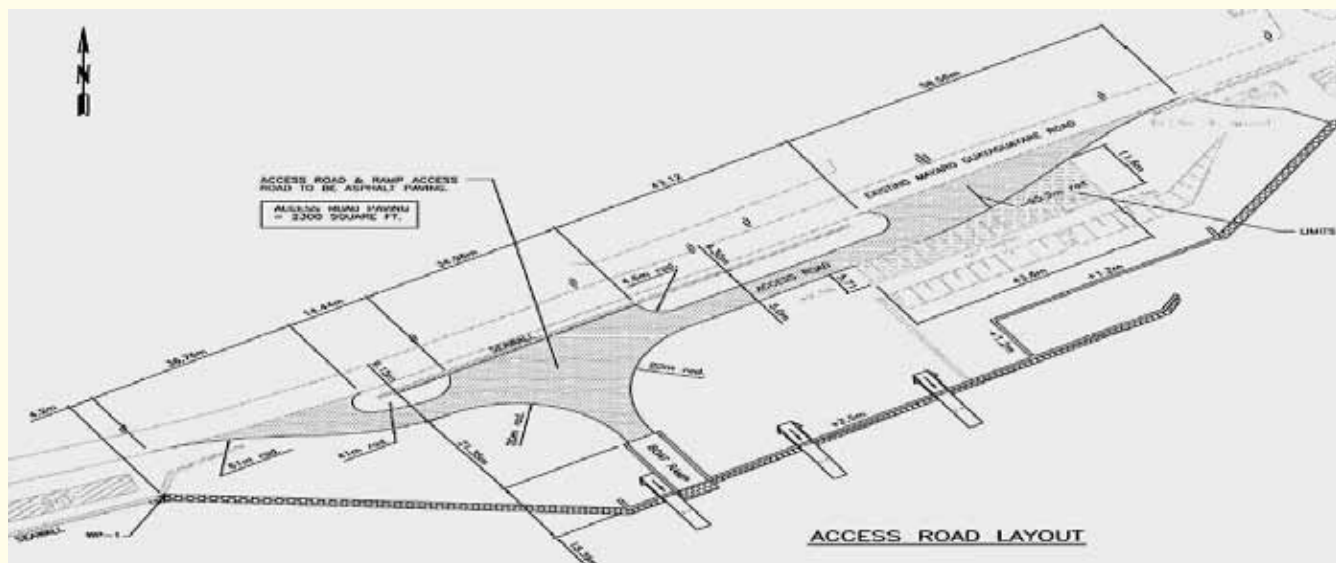
During the conduct of the Environmental Impact Study for the Galeota Port Development project, which was performed in fulfilment of the requirements for the grant of a CEC by the EMA, it was agreed that compensation for the fishing industry would be mitigated by the construction of a fish landing facility.

This facility represents a corporate commitment of US\$5 million by NEC to develop and build in Guayaguayare. It also improves safety and security by keeping the energy port separate from the fish landing site.

The objective of the new fish landing facility is to mitigate against any negative concerns and to recognize the importance of the fishing sector as the single largest economic influence in the area. The new facility was proposed by NEC to alleviate the

The objective of the new fish landing facility is to mitigate against any negative concerns and to recognize the importance of the fishing sector as the single largest economic influence in the area

Layout Design of the Fish Landing Facility (from which 3-D was developed)



present lack of adequate infrastructure and accommodation. The community received the proposal with eagerness and enthusiasm.

The proposal for the development of the fish landing facility is shown in

the 3-D architect's illustration. It will be located at the eastern edge of the Guayaguayare seawall.

Construction of the fish-landing facility commenced on 15th March 2010. A design-build contract was

awarded on 21st April 2008 to GLF Construction Corporation. Other services leading to the final implementation required the conduct of the EIA study, for which a contract was awarded to Coastal Dynamics on 3rd March 2008 for the sum of TT\$2,536,934. Upon the grant of the CEC, Coastal Dynamics was also awarded a contract for shoreline management and monitoring, and CEC-related matters such as sea-grass, mangrove, water quality, air quality and noise monitoring. In addition, the firm QES and Associates provides assistance with the project management and contract administration.

NEC remains committed to its corporate contribution of the single largest compensation package for the community. It is a means of tangible and sustainable development and contribution to the welfare of one of the communities in which NEC operates. This cause, which they championed, was genuinely shared by NEC's staff, who pursued the matter for approval and, eventually, implementation.

Completion is anticipated by June 2011.

The progress achieved to date is as follows:

• Setting out work at the fish landing site	100% completed
• Construction of temporary site facilities	100% completed
• Site offices, fencing, signage and contractor's facilities	100% completed
• Mobilization of sub-contractor by GLF	100% completed
• Demolition of the existing retaining wall to create a site access	100% completed
• Construction of approximately 200 metres of rock revetment	90% completed
• Placement and compaction of approximately 20,000 cubic metres of fill	85% completed
• Soil testing undertaken and soil density achieved	Ongoing
• Vibration monitoring (no damage to adjacent property)	Ongoing
• A silt curtain enclosing the fish landing facility installed	100% completed
• Piling works for the facility	90% completed
• Pile cap	55% completed
• Boat ramp	100% completed

ENERGY EFFICIENCY - THE PATH TOWARDS A SUSTAINABLE ENERGY FUTURE

Trinidad and Tobago has been a major player in the energy industry for over 100 years and has monetized the oil and gas resources through capital outlays of billions of dollars in downstream processing facilities that now operate at Point Lisas, Point Fortin and Pointe-à-Pierre. In 2009 the Petrochemical Industry celebrated 50 years with the start up of the first ammonia producing plant, Yara (formerly FEDCHEM) in 1959 and most recently the Methanol Holdings Trinidad Limited (MHTL) Ammonia, Urea and Melamine (AUM) 1 complex which started production in April of 2009. The industry contributes significantly to the overall economy of Trinidad and Tobago accounting for 6.9% of Gross Domestic Product (GDP) and 20.6% of government's revenue. The complex configuration of processing plants at the Point Lisas Industrial Estate demands a vast consumption of our natural gas resources as raw material and fuel at varying levels of efficiencies. In fact the industry's gas utilization within the domestic gas sub-sector has increased from 281 MMSCFD in 1990 to 1,312 MMSCFD in 2010, an increase of over 360%, making it the second largest user to natural gas behind the Liquefied Natural Gas (LNG) export industry. In this context and taking cognizance of the finite nature of our natural resource, together with the Government of Trinidad and Tobago's continued thrust in industrialization and sustainable development via the energy sector, that the Ministry of Energy and Energy Affairs (MEEA) recently announced its goal for greater energy efficiency at the petrochemical plants in the Point Lisas Industrial Estate. In this regard MEEA mandated NEC to embark on a study



By MERLYN RENNIE-BROWNE
Team Leader, Business Development, NEC

to establish a framework for execution of energy audits and the determination of baseline data for the plants. NEC was directed to proceed with Terms of Reference (TOR) which included:

1. Development of an Energy Efficiency Policy for the Petrochemical Industry
2. Establishment of a framework for development of an Energy Efficiency Programme that involves the following:
 - i. Establishment of baseline data
 - ii. Development of an energy audit programme including an energy audit manual and mechanisms for industry compliance
 - iii. Design of training programmes for development of local auditing expertise
 - iv. Identification of areas for improvement in energy efficiency
 - v. Development of a benchmarking programme.

Energy Efficiency Worldwide

Energy efficiency has risen to the top of the policy agenda in many countries. On the heels of the oil shocks of the

1970s, and out of concern for security of their energy supply, countries – in particular the G8 nations – promoted Energy Efficiency (EE) in all segments of their economies. Today, EE is driven not only by anxiety over security of supply but also by the financial crisis and concerns for the climate. In fact, experts believe that improvements in EE have played and will continue to play a crucial role in sustainable development. This belief was reaffirmed in the recent meetings (2005 Gleneagles–Scotland, 2006 St. Petersburg–Russia and 2007 Heiligendamm, Germany) of the G81 Leaders and Ministers.

The International Energy Agency (IEA) has projected that global primary energy demand could rise by 55% by 2030 and that this growth will continue to be met largely by fossil fuels (petroleum) which means greater competition for energy resources and rising greenhouse gas emissions. Experts have indicated that a strong correlation (90%) exists between the changes in the chemical composition of the atmosphere and human activity associated mainly by the burning of fossil fuels which according to the IEA will continue. In fact, IEA has projected a 57% increase in carbon dioxide emissions by 2030. Here in Trinidad and Tobago, carbon dioxide emissions from the energy sector have increased by 278% from 16,806 gigagrams over the period 1990-2006 in line with the increase in operating facilities. Governments the world over have acknowledged that these increases present global challenges that can only be attenuated by a global response and therefore are turning increasingly to EE measures to mitigate greenhouse gas (GHG) emissions.

Additionally, the IEA in its World

Energy Outlook of 2008 estimated that it will require over US\$25 trillion in energy supply infrastructure investments by 2030 or 36% of 2008 global GDP to meet in primary energy demand. Experts believe that meeting the growing demand through traditional energy generation measures is unsustainable both from energy security and environmental perspectives and experience has shown that EE is one of the most powerful and least cost options for meeting energy demand, and benefits all segments in society, governments, industries, consumers and the environment.

But what do we mean when we speak of Energy Efficiency. EE speaks to carrying out the same activity or producing the same amount of goods and services while utilizing less energy. Energy Conservation, on the other hand, calls for a change in operations or activities that result in a reduction in use of energy.

But why EE and the emphasis placed on it? Experts have agreed that EE is:

- Key for countries especially the developing nations to achieve better distribution of income and growth as energy is needed for such development.
- The cornerstone to meeting climate change goals and growing energy needs.
- The “low-hanging fruit” on the “energy tree” to address a number of objectives.
- A cost-effective and important instrument to help meet the global growth in energy demand.
- A new and untapped energy source which represents an alternative to increasing production.
- Powerful and cost-effective tool for achieving a sustainable energy future.

The Role of the International Energy Agency (IEA) in Promoting Energy Efficiency

The IEA is an intergovernmental autonomous body acting as an energy policy advisor for the majority of the countries belonging to the Organization

for Economic Cooperation and Development (OECD) in their efforts to ensure reliable, affordable and clean energy for their citizens. Founded during the oil crisis of 1973-74, the IEA initial role was to co-ordinate measures in times of oil supply emergencies. However, its mandate has been expanded to include economic development and environmental protection along with energy security. The IEA's current work also focuses on, inter alia, diversification of energy sources, renewable energy, climate change and energy efficiency.

IEA's work in the area of EE has led to the recommendation of 25 policy measures across seven priority energy consuming sectors for the G8 nations to adopt and implement to significantly enhance EE. The package of policy measures was developed under the Gleneagles (Scotland) G8 Plan of Action for the pursuit of a clean, clever and competitive energy future.

The sectors are as follows:

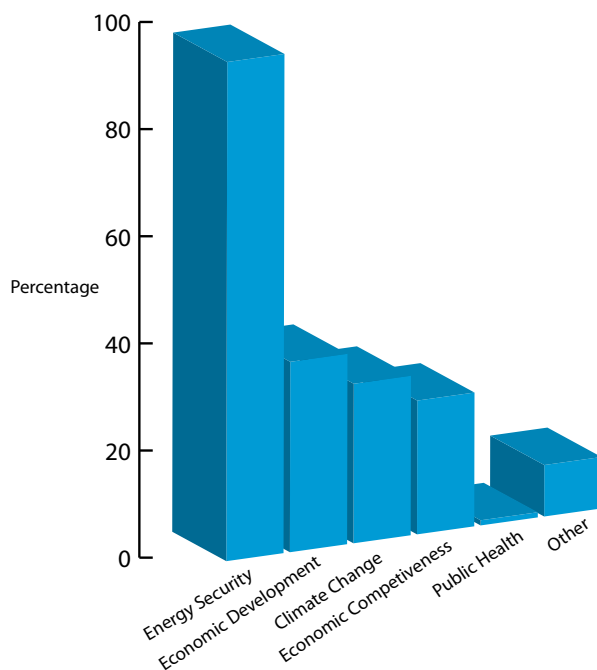
- Cross-sectoral
- Buildings
- Appliances
- Lighting
- Transport
- Industry
- Utilities

Energy Efficiency Policies

The imperative to promote EE remains a priority for all governments. According to the IEA, the drivers for governments' push towards EE can be summarized as follows:

- Energy Security
- Climate Change Mitigation
- Financial and Economic Crisis
- Economic Development
- Public Health and Livelihood Improvement with energy security as the major motivator for governments' quests for more energy efficient economies as shown in Figure 1 at left.

Figure 1 – Energy Efficiency Policy Drivers



EE Policy Implementation

Although implementation of EE measures has shown to be cost-effective and meet objectives, the rate of implementation lags well behind the opportunities for energy savings. The IEA estimates that none of the G8 nations have fully implemented more than 55% of the 25 recommendations. This means that over 40% of potential energy savings are there to be captured. The burning question is therefore why are businesses and citizens not picking that low-hanging fruit.

The answer is barriers. Experience has shown that EE measures face numerous technical, market, financial, information and awareness and regulatory and institutional barriers to implementation. These barriers are further detailed in Figure 3.

To overcome the barriers, governments must put in place a set of policy measures and mechanisms under the umbrella of a proper and effective governance structure. Such measures include:

Pricing Mechanisms

- Taxes (gasoline and vehicle access charges)
- Penalties for inefficient or fuel-consuming equipment
- Inverted block rates (higher energy consumption priced at higher rate)

Regulatory and Control Mechanisms

- Compulsory activities (energy audits, hiring of energy managers)
- Minimum energy performance standards (MEPS) for appliances
- Thermal building codes
- Obligations on energy producing and consuming companies

Fiscal Measures and Tax Incentives

- Grants and subsidies for EE projects

Figure 2 – Uptake of EE Recommendations by G8 Nations

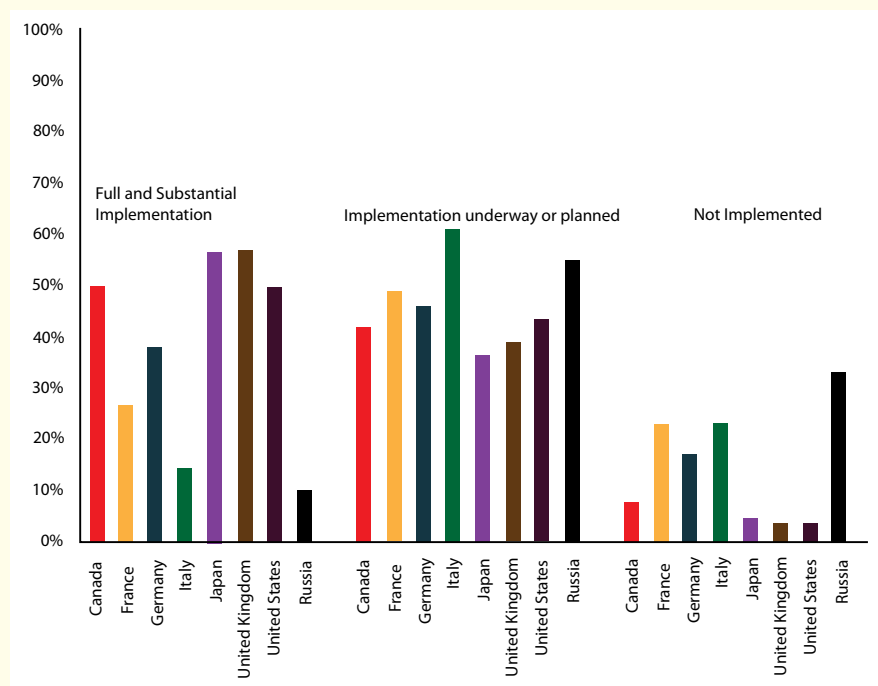
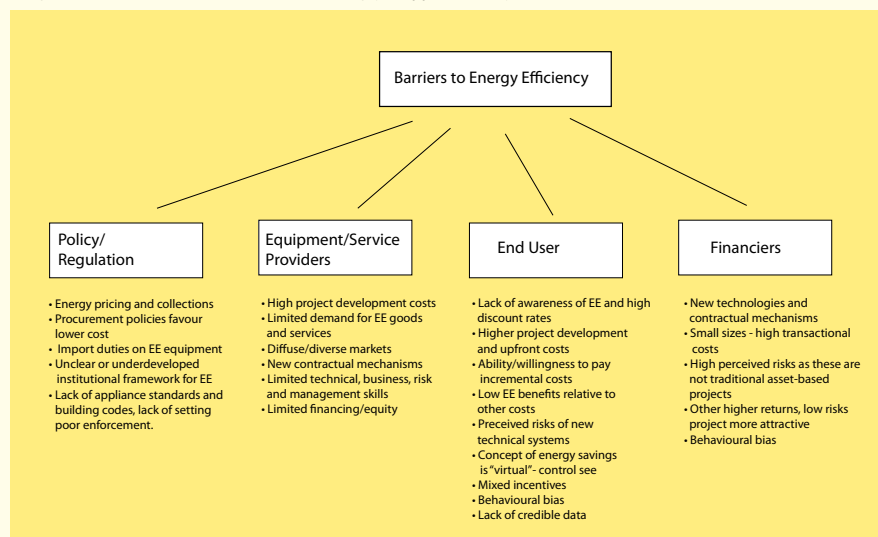


Figure 3 – Barriers to Energy Efficiency Investments



- Tax credits and accelerated depreciation for EE investments
- Direct procurement of EE goods and services by governments
- Import duty exemptions for EE equipment
- Reduced sales or VAT tax on EE purchases

Promotional and Market Transformation

- Public information campaigns and promotions
- School curricula
- Product labelling and building certification

Other Types of Measures

- Technology Development – Development and demonstration of EE technologies
- Commercial Development or Industry Support
 - Encouraging private sector-led EE companies (ESCOs for EE audits and EE programmes)
 - Training for EE professionals (auditors, managers)
- Financial
 - Special credit lines for asset owners and ESCOs
 - Project preparation facilities
 - Loan guarantee facilities.

In order for these measures to be sustained a proper and effective governance structure must be put in place. Such structures should incorporate enablers such as laws and decrees and mechanisms for funding. Institutional arrangements that deal with the implementing agencies, the role of the energy providers, stakeholders' engagement and even cooperation with international donors must be components of any governance structure. Additionally, there must be coordination mechanisms to control the interaction between and among government bodies, the setting of targets and goals and for evaluation/assessment and oversight.

EXAMPLES OF ENERGY EFFICIENCY POLICIES AND POLICY MEASURES

The Japanese Policy for EE in its Industrial Sector

Japan has the lowest energy consumption per Gross Domestic Product (GDP) in the world and has improved its efficiency by 37% since the 1970s. Japan's focus on EE was a result of the first and second global oil shocks and its policies are driven by continuous innovation to resolve the "trilemma" of economic development, energy security and climate change.

The supportive measures are based on the Energy Conservation and Recycling Assistance Laws which provide regulations for low-interest loans for adoption of energy conservation methods, tax incentives...

Japan's policy for EE in its Industrial Sector is geared towards Sustainable Development. To this end a harmonized approach to Energy Efficiency and Conservation (EE&C) was adopted, bringing together concerns for energy security, the economy and the environment. The EE&C policy measures are based on an overall National Energy Master Plan and informed by a National Energy Balance and Database which categorized energy consumption in terms of residential, commercial and industry. The measures address the following:

1. Responsibilities (establishment of the Energy Conservation Centre Japan-ECCJ),
2. Long-term comprehensive Energy Plan
3. Legislative measures. Regulative measures (law/regulations) Supportive measures (financial/technical)
4. Promotional measures (award/commendation system)
5. Corporate Partnership Programme

The ECCJ is responsible for implementation and monitoring of the policy measures and for sanctioning, in conjunction with the Ministry of Economy, Trade and Industry (METI) the targets suggested by the industry associations.

The long-term Energy Plan consists of measures for Energy Supply-Demand Management and measures for intensive research and development of Energy Efficiency Technologies.

The legislative measures consist of an Act Concerning Rational Use of Energy which established guidelines for:

1. factory/business establishments including:
 - a. Standards for judgment (targets, indicators, standards, objectives and measures).
 - b. Regulations for Energy Management in companies including classification of factories and plants according to annual energy consumption and which calls for, among other things, the employment of Energy Managers, certified by METI, and responsible for compliance by the companies, to the agreed targets and measures.
2. Measures for machinery and equipment
3. Measures for transportation for the industries.
4. Promotion of standardized Energy Management

The supportive measures are based on the Energy Conservation and Recycling Assistance Laws which provide regulations for low-interest loans for adoption of energy conservation methods, tax incentives such as deduction of corporation tax or special depreciation for promoting investment to renovate energy supply-demand structure.

The promotional measures consist of a number of awards to incentivize companies to adopt and maintain EE&C methods through the following:

1. Excellent cases for energy conservation
2. Excellent factories for practicing energy management
3. Excellent contributors to establish energy management

4. Excellent energy efficient machine/equipment
5. Excellent Energy Service Companies (ESCO) projects through business

Non-compliance to EE measures by a company attracts a fine and negative publicity nationwide. The latter appears to be more effective as a result of the Japanese culture and also the fine is not large.

A key element in the success of the policy measures is the formation of industrial associates which represent unified bodies to discuss policy direction and regulations with the government based on consistent data and information. The associations also facilitate the sharing of data and information (operation data, project information) among member companies and the coordination and implementation of joint projects for research and development. Examples of such associations are the Japan Iron and Steel Federation, Japan Chemical Industries and Japan Gas Association.

The associations also engage in setting targets in consultation with the ECCJ and facilitate benchmarking among members and within the Asia-Pacific Partnership (APP) and internationally through APP.

The EE&C policy has been able to improve energy efficiency by 1% per annum.

Another EE programme in Japan that has contributed to that country's improvement in EE is its Top Runner Programme which has been very successful in raising the standards for

appliances within the country. The programme focuses on the supply-side of the market encouraging manufacturers and importers to supply more energy efficient products. A key feature of the programme is the selection, after market investigation of the "top runner" and the standards of that manufacturer or importer are adopted to be the industry standards. A consultative process with key stakeholders is used to fine tune the standards and determine the year in which they are to be implemented.

The United Kingdom (UK) Energy Efficiency Action Plan for the Transportation Sector

The UK EE Action Plan was developed by the Department for Environment, Food and Rural Affairs. The transportation sector in the UK accounts for approximately a quarter of the country's domestic energy use and emissions of CO₂ with the majority of the emissions (93%) originating from road vehicles. The Action Plan for the transportation sector includes the application of pricing mechanisms, fiscal instruments, trading and regulation, promotion of technological development and encouraging behavioural change. Specifically, the measures involve the following:

Fiscal mechanisms

- Increase in Vehicle Excise Duty (VED) for the highest emissions least fuel efficient cars while reducing to zero the lowest emissions cars more efficient vehicles

- Calibrating VED by carbon emissions

Pricing Mechanisms

- Increase in fuel duty by 2 cents per litre in 2007 with a further increase in 2008.

Regulatory Measures

- Review of standards and targets for Government's car fleet to ensure reduction in CO₂ emissions from new cars.

Promotional Mechanisms

- Encourage greater use of public transport where it is the best mode of journey. This is supported by increased investment in public transport.
- Promote more sustainable patterns of travel using a range of measures known as Smarter Choices. These measures include workplace, school and personalized travel planning, travel awareness campaigns and marketing that offer great potential to reduce congestion and carbon emissions.
- Development of long-term rail strategy detailing the challenges facing the rail system over the next 30 years, identifying the respective roles of government and industry in responding to those challenges.

The UK government expects these policy measures to result in energy savings amounting to 37.8 terawatt-hour (TWh) and 2.6 MT of carbon by 2012.

Mexico's Lighting Initiative

Closer to home, the Mexican Congress in 2008, approved the law on Sustainable Use of Energy. Arising out of this piece of legislation, a National Programme for the Sustainable Use of Energy was developed and seven key priority action items to improve EE were identified. The most important of these was lighting. The objective

A key feature of the programme is the selection, after market investigation of the "top runner" and the standards of that manufacturer or importer are adopted to be the industry standards

of the lighting initiative is to foster a market transformation and increase efficiency in the lighting sector through regulation and projects. With regard to regulation, mandatory standards are being developed to establish minimum requirements for lighting efficiency in residential, commercial, industrial and public sectors. In terms of projects, two major projects are being conceptualized. For the residential sector, the project involves the change out of incandescent light bulbs with Compact Fluorescent Lamps (CFL) in low and middle-income households. A target of 45.8 million CFL change out by 2012. For the public sector, the Mexican Development Bank is to provide credits to municipalities to replace the inefficient public lighting with the expectation that the costs would be offset by energy savings.

The Way Forward for Trinidad and Tobago

The increased recognition of EE and its potential has catapulted it to the top of the global political and business agendas. In fact a number of businesses have now included EE in their strategic planning and target setting.

Where is Trinidad and Tobago today with regard to EE? There are no laws or regulations addressing EE or the rational use of energy. The Carbon Reduction Strategy Task Force established in April 2010 and the Renewable Energy Committee formed in February 2009 both considered EE as one strategy to reduce carbon emissions and conserve energy. However, apart from the mandate given to NEC as mentioned previously, the only other initiatives directly targeting EE are the following fiscal measures for industries announced in the 2010-2011 national budget:

1. The granting of a tax allowance of 150% on the cost incurred by companies in the commissioning of energy audits.

2. Accelerated Depreciation of 75% in the year of acquisition on the capital incurred by companies in the acquisition of smart energy efficient systems.

Given the advancements worldwide and even in our neighbouring Latin American and Caribbean countries (Refer to Appendix I) in promoting EE and our reserves position (Refer to Appendix II) Trinidad and Tobago has to accelerate initiatives to promote and advance EE in all sectors of the society.

A good starting point is the drafting and enacting of legislation to deal with the sustainable use of energy. This legislation can be part of an overall National Energy Master Plan. Other initiatives to address EE include the following:

- Development of national EE policy and policy measures
- Establishment of an Energy Efficiency Agency. According to a World Energy Council (WEC) 2009 survey almost 70% of countries worldwide have a national department or ministry for EE. The fact that most countries have set up EE agencies is a testament to their usefulness.

Such an agency is one with strong technical skills dedicated to implementing the national EE policy. Specially, the agency should be mandated to design, implement and evaluate EE programmes and measures and to ensure coordination with higher or lower levels of authorities (international, national,

regional and local) for all government initiatives

- Development of EE programmes with official overall and sectoral quantitative targets for EE improvements. Such official target setting can avoid the negative effect of “stop and go” actions. The WEC has indicated that about 45% of countries in the world have established targets.
- Implementation of regulations to ensure that the objectives of EE policies are met.
- Regulations include mandatory reporting of energy consumption, employment of energy managers by businesses, mandatory maintenance and energy savings on utilities and mandatory energy audits and benchmarking in industries.
- Fiscal Incentives such as tax credits, tax reductions and accelerated depreciation.

EE represents a huge potential for resolving the “trilemma” facing the world and therefore all nations including Trinidad and Tobago must be part of the solution. However for countries to meet their EE objectives, EE must be viewed as an integral part of a broad and complex social economic energy system. As such EE policies should be designed and implemented in ways that engage all stakeholders and take into account all activities and actions that influence energy productivity and consumption patterns.

EE policies should be designed and implemented in ways that engage all stakeholders and take into account all activities and actions that influence energy productivity and consumption patterns.

APPENDIX I

ENERGY EFFICIENCY POLICIES AND POLICY MEASURES OF SELECTED COUNTRIES IN THE LATIN AMERICAN AND CARIBBEAN REGIONS

Country	Energy Efficiency Policy and Measures
Argentina	<p>Legislation: Decree 140/07 for the Rational and Efficient Use of Energy</p> <p>Institutions: Energy Efficiency Coordination Office</p> <p>Programmes: PRONUREEE Energy Efficiency Programme</p> <p>Fiscal/Economic Incentives: Free distribution of CFLs</p> <p>Equipment labelling to provide information on the efficiency of appliances</p> <p>Financing for EE: National budget contribution and World Bank funding</p>
Barbados	<p>Legislation: None</p> <p>Institutions: Energy Efficiency Committee in the Ministry of Investments, Finance and Energy.</p> <p>Programmes: Sustainable Energy Programme to promote and support EE efforts and includes EE activities in hotels and institutional strengthening.</p> <p>Fiscal Incentives: Tax exemption to 150% of investment in EE projects</p> <p>Financing for EE: IDB funding for Sustainable Energy Programme</p> <p>Bolivia Legislation: Supreme Decree D.S No. 29.466</p> <p>Institutions: The Vice Ministry of Electricity and Alternative Energy</p> <p>Programmes: National Energy Efficiency Programme “Electricity for living with dignity” involves optimization of electricity demand and promoting the displacement of electricity consumption outside of peak hours.</p> <p>Labelling of CFLs imported from China.</p> <p>Financing for EE: National budget</p>
Brazil	<p>Legislation: Federal Law No. 9.991 (2000) which regulates that 1% of gross revenue of electricity companies be used for EE projects.</p> <p>Emergence of ESCOs.</p> <p>Institutions: The Ministry of Mines and Energy</p> <p>Programmes: EE Programmes of Distribution Concessionaires –1. Replacement of instant electric water heaters with solar heaters. 2. Replacement of refrigerators and lighting systems. 3. Adjustments of residential installation.4. Brazilian Labelling programme for household appliances and light vehicles.</p> <p>Financing for EE: National budget and federal funds from electricity distribution companies.</p>
Jamaica	<p>Legislation: None</p> <p>Institutions: The Ministry of Energy and Mines. The national petroleum company has an EE unit.</p> <p>Programmes: Energy audits, retrofitting of water chillers in hospitals, project to replace 4 million inefficient lamps, projects in police stations, equipment labelling, establishment of building codes, promoting public awareness and education programme.</p> <p>Fiscal Incentives: Tax exemptions and customs duty waiver.</p> <p>Financing for EE: National EE fund and IDB</p>

APPENDIX I (cont'd)

ENERGY EFFICIENCY POLICIES AND POLICY MEASURES OF SELECTED COUNTRIES IN THE LATIN AMERICAN AND CARIBBEAN REGIONS

Country	Energy Efficiency Policy and Measures
St. Vincent	<p>Legislation: National Energy Policy aimed at ensuring clean, reliable and affordable energy to population. A National Energy Action Plan approved 2010.</p> <p>Institution: Energy Unit under the Office of Prime Minister</p> <p>Programmes: Replacement of incandescent light bulbs with energy-saving lamps, EE study of 75 public buildings, project for capacity building in renewable energy and EE, equipment labeling.</p> <p>Fiscal Incentives: 10% tax on incandescent light bulbs, elimination of taxes on solar heaters and photovoltaic solar panels, environmental levy on vehicles built before 2000.</p> <p>Financing for EE: An Energy Conservation Fund established</p>
Venezuela	<p>Legislation: Draft law to promote EE (2001)</p> <p>Institutions: Ministry of Popular Power for Energy and Petroleum, National Electricity Corporation</p> <p>Programmes: Replacement of incandescent bulbs, Vehicle Natural Gas Programme, Creation of EE standards, Use of alternative energy, campaigns to educate and raise awareness, replacement of air conditioning units in residences, pilot study on EE in four large electricity consumers and in the Aluminum Industries, equipment labelling, building codes to address the thermal quality of buildings</p> <p>Fiscal Incentives: Incentives to encourage design and construction of buildings with higher thermal quality than that required by regulation.</p> <p>Financing for EE: State</p>

APPENDIX II

Gas Reserves (2000-2009)	Year 3P Reserves (BCF)
2000	32 781
2001	34 322
2002	35 100
2003	33 326
2004	34 870
2006	31 037
2007	30 768
2008	30 111
2009	28 146

Source: Ministry of Energy and Energy Affairs

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**THE NATIONAL GAS COMPANY
OF TRINIDAD AND TOBAGO LIMITED**

CONSOLIDATED FINANCIAL STATEMENTS

For year ended 31 December, 2009

CHAIRMAN'S REPORT

I am pleased to report that The National Gas Company of Trinidad and Tobago Limited (NGC) maintained its profitability in 2009, notwithstanding the negative impact of the global financial crisis, with sales turnover of TT\$9 billion and after tax profits of TT\$1.7 billion.

Although these results are not at the level experienced in 2008 which was an exceptional year, NGC's core business of purchase, transportation and sale of natural gas as well as dividend income received from its key strategic investments in the liquefied natural gas (LNG) and natural gas liquids (NGL) business remained stable. The company also continued its infrastructure development works to expand its offshore pipeline capacity.

I am further pleased to advise that NGC continued to maintain its international reputation by having its investment grade credit rating reconfirmed by international and regional rating agencies, viz: Standard & Poor's - BBB+, Moody's - A3 and CariCRIS - Cari AAA.

Larry Howai
Chairman

AUDITORS' REPORT

We have audited the financial statements of The National Gas Company of Trinidad and Tobago Limited and its subsidiaries for the year ended 31 December, 2009, from which the summarized financial statements were derived, in accordance with International Standards on Auditing. In our report dated 26 November, 2010 we expressed an unqualified audit opinion on the consolidated financial statements from which the summarized financial statements were derived.

In our opinion, the accompanying summarized financial statements are consistent, in all material respects, with the financial statements from which they were derived.

For a better understanding of the Group's financial position and the results of its operations for the period and of the scope of our audit, the summarized financial statements should be read in conjunction with the consolidated financial statements from which the summarized financial statements were derived and our audit report thereon.

Port of Spain, Trinidad
26 November, 2010

CONSOLIDATED STATEMENT OF FINANCIAL POSITION (Expressed in Trinidad and Tobago dollars)

	2009 \$'000	2008 \$'000
Assets		
Non-Current Assets	13,242,607	10,713,253
Current Assets	13,482,962	14,050,088
Total Assets	26,725,569	24,763,341
Equity and Liabilities		
Stated Capital	1,752,848	1,752,848
Capital Subscribed	102,418	-
Reserves	1,381,004	974,651
Retained Earnings	13,458,830	12,529,611
Equity attributable to:		
- Equity holders of the Parent	16,695,100	15,257,110
- Minority Interests	333,610	315,496
Total Equity	17,028,710	15,572,606
Non-Current Liabilities	5,758,486	5,672,497
Current Liabilities	3,938,373	3,518,238
Total Equity and Liabilities	26,725,569	24,763,341

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME (Expressed in Trinidad and Tobago dollars)

	2009 \$'000	2008 \$'000
Sales	9,125,401	17,744,608
Gross profit	1,682,137	6,369,819
Other operating income	112,432	144,521
Interest and other Investment Income	1,070,807	1,400,806
Share of profit from joint venture	472,133	735,197
Finance costs	(291,772)	(797,533)
Administrative, maintenance & general expenses	(618,538)	(1,690,282)
Other	(111,335)	(92,106)
Profit before tax	2,315,864	6,070,422
Income tax expense	(603,432)	(2,410,291)
Profit for the year	1,712,432	3,660,131
Other comprehensive income		
Available-for-sale financial assets	223,060	(107,786)
Foreign currency translation	212,338	(62,053)
Other comprehensive income for the year, net of tax	435,398	(169,839)
Total comprehensive income for the year	2,147,830	3,490,292
Attributable to:		
- Equity holders of the Parent	1,985,572	3,229,432
- Minority interests	162,258	260,860
	2,147,830	3,490,292



**THE NATIONAL GAS COMPANY
OF TRINIDAD AND TOBAGO LIMITED**

CONSOLIDATED FINANCIAL STATEMENTS

For year ended 31 December, 2009

CONSOLIDATED STATEMENT OF CHANGES IN SHAREHOLDERS' EQUITY (Expressed in Trinidad and Tobago dollars)

	Attributable to Equity Holders of the Parent							
	Stated capital \$'000	Capital subscribed \$'000	Reserve fund \$'000	Other reserves \$'000	Retained earnings \$'000	Total \$'000	Minority interests \$'000	Total equity \$'000
Year ended 31 December 2008								
Balance as at 1 January 2008	1,752,848	–	438,192	729,020	9,757,618	12,677,678	261,677	12,939,355
Total comprehensive income for the year	–	–	–	(168,400)	3,397,832	3,229,432	260,860	3,490,292
Transfer of depreciation for offshore plant and equipment and pipelines	–	–	–	(24,161)	24,161	–	–	–
Dividends	–	–	–	–	(650,000)	(650,000)	(207,041)	(857,041)
Balance as at 31 December 2008	1,752,848	–	438,192	536,459	12,529,611	15,527,110	315,496	15,572,606
Year ended 31 December 2009								
Balance at 1 January 2009	1,752,848	–	438,192	536,459	12,529,611	15,527,110	315,496	15,572,606
Total comprehensive income for the year	–	–	–	430,350	1,555,222	1,985,572	162,258	2,147,830
Transfer of depreciation for offshore plant and equipment and pipelines	–	–	–	(23,997)	23,997	–	–	–
Dividends	–	–	–	–	(650,000)	(650,000)	(144,144)	(794,144)
Capital subscribed	–	102,418	–	–	–	102,418	–	102,418
Balance as at 31 December 2009	1,752,848	102,418	438,192	942,812	13,458,830	16,695,100	333,610	17,028,710

CONSOLIDATED STATEMENT OF CASH FLOWS (Expressed in Trinidad and Tobago dollars)

	2009 \$'000	2008 \$'000
Cash flows from operating activities		
Net profit for the year	2,315,864	6,070,422
Adjustment for non-cash items	(307,923)	862,041
Operating profit before working capital	2,007,941	6,932,463
Changes in working capital	(308,416)	(509,606)
Cash generated from operations	1,699,525	6,422,857
Net taxation, interest and pension contributions paid	(808,238)	(1,864,965)
Net cash generated from operating activities	891,287	4,557,892
Net cash used in investing activities	1,271,197	(4,278,372)
Net cash generated from financing activities	(1,257,434)	(734,629)
Net decrease in cash and cash equivalents	905,050	(455,109)
Net foreign exchange differences	81,622	14,521
Cash and cash equivalents beginning of year	1,428,978	1,869,566
Cash and cash equivalents end of year	2,415,650	1,428,978

The Group's subsidiaries, joint venture and associated company are as follows:

Name of Company	Country of Incorporation	Percentage Equity Interest
Subsidiary Companies		
National Energy Corporation of Trinidad and Tobago Limited (NEC)	Trinidad and Tobago	100%
NGC Pipeline Company Limited	Trinidad and Tobago	100%
Trinidad and Tobago LNG Limited	Trinidad and Tobago	100%
La Brea Industrial Development Company Limited (LABIDCO)	Trinidad and Tobago	83%
NGC NGL Company Limited	Trinidad and Tobago	80%
NGC Trinidad and Tobago LNG Company Limited	Trinidad and Tobago	62.16%
Associated Company		
Trinidad and Tobago Marine Petroleum Company Limited (TRINTOMAR)	Trinidad and Tobago	20%
Joint Venture		
Phoenix Park Gas Processors Limited*	Trinidad and Tobago	51%
Others		
Atlantic 1 Holdings LLC**	United States of America	10%
Atlantic LNG 4 Company of Trinidad and Tobago Unlimited***	Trinidad and Tobago	11.11%

* owned by NGC NGL Company Limited

** owned by NGC Trinidad and Tobago LNG Company Limited

*** owned by Trinidad and Tobago LNG Limited

NOTES TO THE SUMMARISED FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER, 2009 (Expressed in Trinidad and Tobago Dollars)

1. Incorporation and business activities

The National Gas Company of Trinidad and Tobago Limited and its subsidiaries ("the Group") is a diversified company primarily engaged in the purchase, transmission, distribution and sale of natural gas in Trinidad and Tobago. The Company is wholly owned by the Government of Trinidad and Tobago (GORTT). The Company's registered office is located at Orinoco Drive, Point Lisas Industrial Estate, Point Lisas, Trinidad.

2. Stated capital

	2009 TT\$	2008 TT\$
Authorized		
An unlimited number of ordinary shares of no par value		
Issued and fully paid		
1,752,848,000 ordinary shares of no par value	1,752,848	1,752,848



NGC's Ghana Project

By the end of January 2011, NGC will know if it has been chosen by the Government of Ghana to partner a potentially lucrative gas extraction project that will use natural gas from that country's Jubilee field for electricity and power generation.

The NGC chairman, Mr. Larry Howai, said the project if implemented would mean less than half the cost of what the country presently pays for its use of diesel fuel-generated electricity. He pointed out the challenges faced by NGC would come from the many number of proposals from countries and companies, including one from China's state oil company. Mr. Howai said, however, that NGC could still be selected because of its expertise and experience at having successfully

developed a gas-based industry that was world class.

This notwithstanding, he added that the project could lead to a diversification of NGC's revenue streams since the Company had become too heavily pegged to the cyclical fortunes of two commodities, ammonia and methanol, and, in that context, NGC had to diversify its revenue portfolio to remain successful in the future.

Union Pipeline Project

The Union Pipeline Project consists of a 24-inch-diameter supply pipeline from a tap-off on the 56-inch pipeline at Grant's Trace and running to the Union Industrial Estate (UIE) at La Brea. The scope of the project includes a pig launcher and receiver, gas metering and pressure regulation

facilities, and eight-inch polyethylene distribution piping to the Union and LABIDCO Industrial Estates. The 24-inch pipeline has been laid, tested and connected. The distribution lines will be constructed in 2011. The gas facility has been substantially completed, with slug catcher, pig receiver, separators, meters, and condensate vessels already in place. Electrical and Instrumentation (E&I) work has been completed at the facility's two unmanned Control Rooms. These systems have been tested and pre-commissioned. Fire-detection and access control systems are fully operational, while security and surveillance systems have been installed and are awaiting activation.

The 165-foot telecommunications tower will be integrated into NGC's telecommunications system by the end of January. The pig launcher facility

at Rousillac has been completed and pre-commissioned. The pipelines and completed vessels have been filled with nitrogen until the system can be put into service. Site Acceptance Tests (SATs) for all systems, have been performed, and remedial action is being taken on a few small items. Excluding the HDPE pipeline, the project is about 97% complete. First gas will be delivered to the consumer in late January, contingent upon the required Ministry and stakeholder approvals.

NEO/Tobago Pipeline Project Updates

Both the North Eastern Offshore (NEO) and Tobago Pipeline projects are being undertaken simultaneously. The project consists of a 36-inch subsea pipeline from the newly-constructed BHP Billiton Platform to NGC's Mayaro Regulator Station, and a 12-inch pipeline from the BHP platform to Tobago's Cove Industrial Estate.

• Tobago

The main offshore line has been completed and tested. It is being connected to the BHP Platform via piping spools by British contractor, Bibby Offshore. Once this is finished, all offshore work relevant to the Tobago project will be completed.

The onshore segment is being constructed by local company, API Pipeline Construction, and is approximately 70% completed. Adverse weather has caused some delays. Contracts will soon be tendered for the pigging of the lines, following which they will be filled with nitrogen until the time comes to introduce natural gas.

At the Cove Estate facility, most of the vessels are already in position, and piping and Electrical and Instrumentation (E&I) equipment are being installed. The Control Room is



Marine pipelaying activities – Tobago Pipeline



Construction work for marine pipe-laying.

substantially finished, including amenities and accommodations. Once completed, the Control Room will be manned continuously by NGC staff on a shift basis.

As it stands, the only customer ready to receive natural gas once the project is completed is the PowerGen electricity generation plant.

• NEO

As with the Tobago project, offshore

spools are being connected by same contractor.

The 10.5 km onshore segment will be tied in to the Abyssinia facility by the contractor, South M. Once again, the inclement weather has caused some delays, but on-time completion is still anticipated. Once the tender is awarded, the same contractor who will be engaged to pig the 12-inch Tobago line will also pig the NEO 36-inch line. The project is 65% completed.



NEC's Towage and Harbour Fleet – tugs, workboats and launch.

Towage and Harbour Highlights

Following the restructuring of the National Energy Corporation's Towage and Harbour Operations Department into the Towage and Harbour Operations Division, NEC assumed control of the technical management of its vessels, which had initially been the responsibility of contractors. Primary among their responsibilities are the maintenance and operation of the Corporation's nine tugs and workboats and one launch.

NEC is seeking to obtain an International Safety Management (ISM) System, which will bring the Corporation's operations in this area in line with the industry standards for best practice, thus improving its competitiveness. After careful assessment and examination of several possibilities, the tendering process was followed and a contract was awarded for the implementation of a new ISM system.



"NEC Empress" does manoeuvres.

The system was developed by Trinidad Import and Export Limited. An in-house coordinator has been appointed to manage this strategic move. Once the new system is implemented, all relevant crew will be trained.

The Corporation will also now be responsible for performing its own preventative maintenance on its vessels. A new three-year contract for the crewing and manning of the vessels will also be awarded in January, to a contractor who will train and manage the crews, who at the moment are temporary employees of NEC.

A contract for the delivery of a Computerized Preventative Maintenance System (PMS) has awarded to Damen, the company which also built and supplied of all tugs owned by NEC. The advantage to selecting this company is that as builders they are already familiar with the specifications and requirements of the vessels. Once the training is completed, the improved maintenance management of the vessels is expected to improve their performance and reliability. Training on this system will roll down to all staff in the third quarter of 2011.

Capital and Maintenance Dredging (CMD) at Brighton Harbour

After a significant delay, capital dredging at the La Brea Harbour began in August 2010. This dredging project is part of a contract awarded to Boskalis Westminster Overseas (BWO) in August 2007 for the maintenance and capital dredging at the Port of Brighton.

The contract involves the deepening of the existing access channel and turning basin to a depth of -12.8m relative to chart datum and the widening of the turning basin to a diameter of 500 metres.

While the maintenance dredging was completed in the last quarter of 2007, the capital dredging was postponed due to an unforeseen delay in acquiring the Certificate of Environmental Clearance (CEC).

With the award of the CEC in May 2010, the capital dredging commenced. Works are ongoing and are expected to be completed in January 2011.



Overall Site Looking North



Looking South

Alutrint Material Storage & Handling Facilities (AMSHF)

Following the cessation of the Alutrint aluminum smelter project at La Brea by the new government, the scope of a contract for the construction of material storage and handling facilities has been reduced. The original Engineering, Procurement and Construction (EPC) Contract had been awarded to Grandi Lavori Fincosit (GLF) in November 2008. It involved the development of the 9-hectare parcel of land adjoining the new ADSY dock to receive, handle and store imported raw materials and to accommodate the export of finished products for the Alutrint Smelter Plant. It included the provision of a vacuum ship unloader and approximately one kilometre of conveyor system for the transfer of alumina and petroleum coke

from ships at the dock front to the storage silos and coke storage building respectively.

Also included in the original scope are warehousing, office/control house, Customs bonded area, liquid and solidified pitch storage, drainage network, road network, firefighting system, potable water, waste treatment, electrical system, and data and telecommunications system. The Certificate of Environmental Clearance (CEC) was obtained from the Environmental Management Authority (EMA) in July 2008 and construction commenced in August 2009.

Changes to this contract include the discontinuation of construction of the alumina silo, the erection/installation of the conveyor system and the pneumatic ship unloader, and modification of the

electrical system to match the reduced electrical demand.

At the time of the new government's decision, engineering designs, procurement of major equipment (ship unloader, conveyor system, pre-engineered buildings etc.) were significantly advanced. Therefore, in an effort to minimize the Corporation's exposure to liabilities, including contractor claims, NEC's management approved the continuation of all civil works, utilities and buildings, with the intention of creating an asset that can be utilized for alternative purposes.

The AMSHF project is currently at 90% completion and is expected to be completed by April 2011. The process of marketing the facility for alternative uses is currently ongoing.

Seepersad-Bachan Appointed Alternate President of GECF

Energy Minister, Dr. Carolyn Seepersad-Bachan, has been appointed Alternate President of the executive board of the Gas Exporting Countries Forum (GECF). The appointment will take effect from 1st January 2011, and is for one year. The Honourable Minister will assume the role of President if Sameh Fahmy, Egypt's Energy Minister, is unable to carry out his functions. Due to her appointment, the executive of the Gas Exporting Countries Forum will be located in Trinidad and Tobago at the Ministry of Energy and Energy Industries.

Some Experts Believe Focus Should Remain on Energy

According to a book on Trinidad and Tobago's Industrial Policy, by former Cabinet Minister, Mr. Wendell Mottley, a group of energy sector experts identified as members of the former Energy sub-Committee is advocating that this country should continue to focus on the energy sector in its industrial development plans.

The former administration's strategy was based on the development of petrochemicals, metals, plastics, and their downstream products, LNG, information technology, financial services and light manufacturing. However, seven non-energy industries were also equally identified for development. These included film and entertainment, yachting, merchant marine, food and beverage, printing and packaging.

The experts believe that Trinidad and Tobago has little strategic advantage in many of these non-energy industries, and while they agree that these diversification initiatives have value, they are also faced with major obstacles, such as limited local demand for the products, relatively high implementation costs, and lengthy project development phases.

Atlantic LNG has shifted exports from the low-priced US market to Europe (where prices average US\$7 MMBtu) and the Far East (approximately \$9 MMBtu).

The experts hold that the country's emphasis on energy should continue in view of the international respect T&T's energy sector has already earned.

Government to Promote CNG Use

The Government is actively encouraging an increased reliance on compressed natural gas (CNG) by local drivers. This will not only help lower the country's carbon footprint and reduce the cost of goods and services, but will also decrease the annual gas subsidy, which was \$2.6 billion in 2009. The Government is looking to grant new licences for the establishment of CNG service stations, of which five are expected to be constructed over the next 18 months, and at least 64 in the next five years.

As such, the Government has requested proposals from both NP and Inapt (Unipet) regarding the location of new CNG stations. Critical to their operations will be the implementation of new technology that will significantly shorten the time for filling CNG kits, which has been a major discouragement to drivers to date.

Over the next five years, the Government hopes to increase the number of CNG-ready vehicles to 100,000.

Gas Prices to Rise Along with Oil ?

Oil prices leaped to \$90 in early December, the highest in two years, Oil prices had remained fairly stable

throughout 2010, moving between \$70 and \$80, but likely to increase to \$100 by early 2011. However, local energy experts do not see the price of natural gas rising in tandem: the forecast for gas for the first half of 2011 is US\$4.25 per million BTUs, down from US\$4.70. This can impact investment decisions as low gas prices negatively affect the willingness of investors to undertake new exploration activities. However, hopes are that gas prices will move upward with oil, resulting in better prices for T&T's ammonia and methanol as well as for LNG.

T&T Faces Stiff Competition in LNG Exports

A global gas glut, increased exploitation of shale gas by the US, and stiff competition from established and new gas exporting countries are seriously affecting T&T's LNG exports. The US, T&T's largest market, has in fact begun re-exporting LNG.

In response, Atlantic LNG has shifted exports from the low-priced US market to Europe (where prices average US\$7 MMBtu) and the Far East (approximately \$9 MMBtu). However, related costs such as shipping are also higher. Furthermore, because Trinidad is an island, it faces limitations in its exportation of gas that many of its competitors do not.

Half of this country's gas usage (about 2.3 Bcf) are dedicated to LNG. The LNG trade is expected to grow by 10 to 15 per cent over the next few years.

one
moment
please

to reflect on the beauty
that surrounds us here
in Trinidad and Tobago



A group of red howler monkeys (*Alouatta seniculus*) walk among the treetops off Plum Road, Manzanilla, in a ritualistic sojourn to the area every day. The diet of howler monkeys consists mainly of leaves, but they also rely on nuts, small animals, fruits, seeds, and flowers for important sources of nutrition. Photo by Andrea de Silva



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