

PIONEER

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The Future of Energy



1.7 Million B.C.

Discovery of fire

1700

Beginning of the Industrial Age

1850

The first oil refinery built in the world

1990 - Future

Focus towards renewable energy



The Future of Energy



National Energy, as the state agency responsible for promoting the diversification of the local energy sector, undoubtedly has a significant role in ensuring the future sustainability of Trinidad and Tobago's energy supply.

Energy has always been a central character in the story of human survival. Beginning as early as the stone-age, with the discovery of fire, men burned biomaterials, such as wood and animal fat, for heat. This practice continued until the mid-18th century when, with the advent of the industrial revolution, coal became a significant energy source. Coal continued to be heavily used throughout the early 20th century and energy sources, such as wind and hydro energy, were also used in negligible amounts for private energy supply.

As economies and technologies have evolved, the world's energy consumption has increased rapidly. Today, the world's energy is provided predominantly by hydrocarbons (petroleum and natural gas) which, in 2011, accounted for 52.8% of the energy supply¹. Other sources of energy include coal, biofuels and hydro and nuclear energy. However, the increased utilisation of finite sources of energy has given rise to concerns over the sustainability of energy supplies. Environmental impacts of hydrocarbon use have also forced countries and organisations to accelerate the search for cleaner, renewable forms of energy.

The energy landscape of the future is likely to see a combination of energy sources with a shift towards renewables as the major contributors. Experts also see hydrogen and nuclear fusion as real possibilities for the

future as research continues to be done with the aim of making these options commercially viable.

National Energy, as the state agency responsible for promoting the diversification of the local energy sector, undoubtedly has a significant role in ensuring the future sustainability of Trinidad and Tobago's energy supply. To this end, the Company is paying close attention to the major changes taking place today which would impact on the future of the nation. In this issue of the Pioneer we examine some of the global and local macro-environmental developments that are affecting the local energy industry and how companies like National Energy are responding to safeguard our energy future.

¹International Energy Agency, 2013 Key World Energy Statistics



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POSITIONING T&T ENERGY SECTOR FOR GROWTH



National Energy is on a mission to position the Trinidad and Tobago Energy Sector for growth. This sentiment was the focus of National Energy President Dr. Vernon Paltoo's keynote address at the Caribbean Energy Summit held in the Bahamas on 26-27 September, 2013. Speaking on day one of the conference, the President of National Energy took the opportunity to explain Trinidad and Tobago's response to rapid changes taking place in the global and regional energy landscape.

He began by giving a brief overview of the development of this country's energy sector which, after 100 years, can be deemed to be maturing. He also highlighted our major strategies for introducing new growth into the industry.

FOCUS ON DEVELOPMENT OF STRATEGIC ENERGY-BASED INDUSTRIES

National Energy continues to focus on specific segments of the energy market: petrochemicals, inorganics, plastics, energy-based manufacturing, biochemicals and speciality products, metals and renewables. Plans targeted towards these segments are supported by the Company's involvement in energy efficiency initiatives as well as local content development.

EXPLORATION OF GROWTH AVENUES IN NEW TERRITORIES

Trinidad and Tobago is seeking out investment opportunities in the South American Basin, Central America and the Caribbean. Several state companies are also poised to become multi-national operators as expansion into African countries gets underway. Dr. Paltoo explained that in the short to medium term, these individual initiatives are expected to become

Dr. Paltoo is of the firm view that our most valuable resource lies in the knowledge and skills of our people.



consolidated, thereby allowing Trinidad and Tobago to present a stronger, more cohesive front on the world stage.

EXPORT OF ENERGY EXPERTISE

Dr. Paltoo is of the firm view that our most valuable resource lies in the knowledge and skills of our people. During the last century, Trinidad and Tobago has developed a unique knowledge base which has allowed this small country to hold its own in an aggressive energy environment. He emphasised the fact that in the period following Independence in 1962, the energy industry has evolved, so that today 90% of energy companies in Trinidad and Tobago are headed by nationals. We have also developed a viable energy services sub-sector, which provides essential skilled labour for all stages of the value chain – upstream, mid-stream and downstream. Trinidad and Tobago is now ready to export human capacity to meet the growing demand for energy skills in emerging energy regions.

PROMOTION OF INVESTMENT IN ALTERNATIVE FORMS OF ENERGY

National Energy is in the business of economic development through energy industry development. Dr. Paltoo therefore underscored the Company's vision of limitless possibility in all forms of energy

– renewable, hydrocarbon, non-conventional and human energy.

The National Energy President acknowledged the challenge for Trinidad and Tobago to create the environment for growth. He outlined some key strategies that are being implemented to kick-start a new phase of development:

- State-initiated industrial development
- Partnerships with foreign multi-national corporations
- Joint venture arrangements between local and foreign organisations
- Attractive investment climate through fiscal incentives for renewable energy businesses
- Education and training

He indicated that participation in regional and international energy forums, such as the Caribbean Energy Summit, would form an integral part of National Energy's marketing strategy, as they provide a good opportunity for the Company to meet directly with its target market stakeholders. In the coming years, we can expect to see increased activity in the area of promotion of Trinidad and Tobago as a premier investment destination and emerging player on the global energy stage.

However, it was not until the late 1960s that the Government of Trinidad and Tobago took a bold policy decision to monetise the natural gas that was being flared at the time.



on construction of a building or structure or in respect of capital improvements made on or after 1 January, 1995. Plant and machinery acquired after 1 January, 1995 can be pooled together for the grant of wear and tear allowances. The allowance is calculated at the applicable rate to aggregate expenditure incurred on assets within a particular group on a declining basis.

The following concessions are available:

- Initial allowances of 10% on erection of buildings and structures
- Initial allowances of 50% on purchase of plant and machinery reduced in certain industries to 20%
- Annual allowances of 20% for wear and tear on plant and machinery

IMPORT DUTY CONCESSIONS

In the manufacturing/assembly sectors, exemption from Customs Duties is available for imports of the following:

- Machinery and Equipment
- Processing raw material inputs
- Parts for assembly

PROFIT REMITTANCE AND CAPITAL REPATRIATION

There are no restrictions on repatriation of capital, profits, dividends, interest, distributions or gains on investment. There is a withholding tax liability where applicable.

This basket of incentives has been instrumental in promoting Trinidad and Tobago as an attractive location for downstream natural gas-based investments, and has led to the establishment of a potential melamine downstream industry. Melamine production has laid the foundation for the eventual manufacture of decorative laminates, tableware, surface coatings, adhesives and resins. On the backdrop of this success, it is envisioned that a number of other downstream industries will follow, including, but not limited to, polypropylene, polyethylene, acetic acid and Dimethyl ether (DME).

As the state agency responsible for new energy-related and downstream development, National Energy is at the forefront of this initiative. This places the Company in a unique position to be the catalyst for growth in the energy sector, thus ensuring the sustainability of the sector, for the future benefit of our citizens.

- **Group 1 Enterprise:** Where local value added to the product is at least 50%
- **Group 2 Enterprise:** Where value added is at least 25% but less than 50%
- **Group 3 Enterprise:** Where the local value added is at least 10% but less than 25%
- **Enclave Enterprise:** An enterprise whose product is produced exclusively for export to countries outside the Common Market
- **Highly Capital Intensive Enterprise:** An enterprise with respect to the capital investment therein is not less than TT \$50 million or EC \$50 million, whichever is the greater.

For a period of no more than ten years, depending on the classification of the enterprise, the FIA Order granted by the President offers enterprises:

- Total or partial relief from customs duty in respect of the approved products; and
- Total or partial relief from income tax on dividends or other distributions made out of profits or gains derived from the manufacture of the approved products during the period, even though paid or remitted after the expiry of the exemption period.

These applications are available only to locally incorporated companies. No relief from corporation taxes is provided under the FIA.

INCOME TAX INCENTIVES

In the Income Tax (In Aid of Industry) Act, an initial allowance of 90% of the expenditure incurred in the provision of machinery and plant for manufacturing is granted to those entities not enjoying concessions under the FIA. Additionally, an annual wear and tear allowance of 10% of the capital expenditure



Fiscal Incentives 2 – Downstream Sector



The utilisation of natural gas in Trinidad and Tobago as a feedstock for producing downstream products dates back to the late 1950s. However, it was not until the late 1960s that the Government of Trinidad and Tobago took a bold policy decision to monetise the natural gas that was being flared at the time. This decision resulted in the establishment of the National Gas Company in 1975, and subsequently the National Energy Corporation (National Energy), for a single initial purpose – to capture the so-called ‘free gas’ that was being flared from AMOCO and bring it onshore with the expectation that there would be a plan for its use. This plan revolved around the establishment of the Point Lisas Industrial Estate which, at the time, only included investments in iron and steel, ammonia, urea and methanol.

While these initial investments were economically beneficial to

Trinidad and Tobago by way of revenue generation, job creation, capital formation and technology transfer, the energy industry leaders of the day recognised very quickly that the real value added element of the natural gas monetisation value chain occurs when these intermediate products are used in the production of secondary and tertiary products. Additionally, this further diversification of the natural gas utilisation mix was seen as necessary in order to create a sustainable petrochemical industrial base.

The Government of Trinidad and Tobago has made a deliberate attempt to encourage natural-gas based investments that would allow for the production of downstream products, allowing for levels of product differentiation that did not exist at the level of ammonia, methanol and urea production. These types of investments would also allow the energy sector to develop internal linkages with other sectors in the economy, namely the manufacturing sector.

In addition, the Government of Trinidad and Tobago, over time, sought to attract the relevant investments into the energy sector by formulating an attractive mix of legislative incentives. The list of incentives offered to investors fall mainly under the following legislature:

- The Fiscal Incentives Act, Chapter 85:01
- The Income Tax (In Aid of Industry) Act
- The Corporation Tax Act, Chapter 75:02
- The Free Zones Act, 19 of 1988
- The Customs Act, Chapter 78:01
- The Petroleum Act

The main incentives and concessions embedded within some of the aforesaid pieces of legislation are highlighted below.

FISCAL INCENTIVES

An approved enterprise is granted certain exemptions for the manufacture of approved products identified under the Fiscal Incentives Act (FIA). Projects are typically large-scale and are grouped in one of the five classifications, namely:

The 2014 Budget – Impact on the Energy Sector



For the Energy Sector, the 2014 Budget reflects the continuation of a policy direction to further incentivise upstream activities geared towards increasing oil production and arresting the decline in the natural gas reserves to production ratio.

Indeed the objective of the changes made to the fiscal regime to offer a more competitive package, thereby resulting in an increase in upstream activity and the continuous successes of bid rounds, is evident in an increase in drilling activity.

Regarding expenditure for development, activity capital allowances granted will be accelerated to be written off over three years with 50% allowance in year one, 30% in year two and 20% in year three. Under such arrangements, exploration expenditure incurred from 2014 to 2017 will be fully written off in the same financial year and, from 2018 onwards, expenditure allowances will be harmonised in alignment to the allowances for development activity. Currently, under the Supplemental Petroleum Tax (SPT) regime, petroleum companies are allowed to claim a tax credit against

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the SPT liability at a rate of 20% of qualifying capital expenditure. The new measure proposed will allow companies to carry forward any unused tax credits from SPT liabilities of the subsequent financial year. Prior to this, unused credits were restricted to the same financial year.

Although there is no marked reduction on the overall tax take over the life of the project, these changes should lead to an improvement in the tax shield earlier on in the project life. As such, investors will benefit by being able to recover their expenditure earlier, thereby improving the net present value of investments. It is therefore envisaged that certain exploration and development activities that were previously deemed uneconomic, may now be able to meet certain financial hurdles and, as such, lead to more favourable investment decisions.

In a similar vein, the mid-stream natural gas sector also stands to benefit from the improvement in the wear and tear allowances for gas compression facilities from 25% to 33.3%. The impact here will be a greater cash flow for companies that engage in such activity as they are able to recover costs in a shorter time frame. This should have a similar benefit of improving the net present value of the investments, thereby improving their attractiveness.

Thus as a policy initiative, the fiscal incentives will continue to have a positive impact on new exploration and development activity, to the long-term benefit of the mid and downstream energy industry in Trinidad and Tobago.

Energy Minister Visits National Energy Project Sites



Placed in order from left to right, National Energy Vice-President Operations Marleen Lord-Lewis, National Energy President Dr. Vernon Paltoo, Minister of Energy and Energy Affairs, Senator the Honourable Kevin Ramnarine, and National Energy Chairman Roop Chan Chadeesingh tour Port Galeota.

In August of 2013, the Minister of Energy and Energy Affairs, Senator the Honourable Kevin Ramnarine, visited two of National Energy's major project sites – Port Galeota in Guayaguayare and the Union Industrial Estate in La Brea. These project sites are of great significance to National Energy as the Company continues to deliver on its mandate of developing world-class industrial estates and ports.

In May of 2012, the Minister turned the sod for the construction of the Port and returned on 21 August, 2013 to the site to view the Port's progress. The Port, currently being constructed by National Energy, is a state of the art multi-purpose facility that will cater specifically to the offshore needs of the exploration and production operators and will also provide a number of specialised services.

Following his visit to Port Galeota, the Minister visited the south-west peninsula on 28 August, 2013. Here he toured the National Energy managed La Brea Industrial Estate and visited the La Brea Industrial Development Company Limited (LABIDCO), Trinidad Offshore Fabrication Unlimited (TOFCO) as well as the adjoining Brighton Port. The Minister also visited Trinidad Generation Unlimited (TGU) located on Union Industrial Estate (UIE). The Estate is also managed by National

Energy and the Company is responsible for its expansion with several projects under consideration, including the proposed construction of a Natural Gas to Petrochemical Complex.

These projects are part of National Energy's strategy to proactively pursue new energy-related and downstream development in Trinidad and Tobago.



Minister at TGU Control Room, Union Industrial Estate.

Shale Gas: A T&T Perspective



Atlantic's CEO, Nigel Darlow, was reported as saying that, "the emergence of US shale gas has had no significant impact on Atlantic's revenue over the past few years."

Shale gas refers to natural gas that is trapped within finely grained sedimentary rocks known as shale formations. Shale gas has been produced in the United States since 1821, but only in small volumes since it was expensive and technically difficult to develop. In fact, until recently, most shale gas resources were considered uneconomic to exploit because of the very low rock permeability, which yielded wells with very low and uneconomic production rates. However, in recent years, higher natural-gas prices and advances in hydraulic fracturing and horizontal drilling have made shale-gas wells more profitable.

The US has led the way in shale gas development. According to a recent Energy Information Agency (EIA) study, shale gas provided 1% of US natural gas production in 2000. Now shale comprises 31% of total natural gas reserves in the US and, by 2035, shale drilling is expected to account for about half of US natural gas production. The production of natural gas from shale formations has rejuvenated the natural gas industry in the US creating what is familiarly known as the "US shale gas revolution."

The recent start of shale gas production in the US has significantly influenced the American energy markets, and interest has spread to potential shale gas resources in the rest of the world. China is estimated to have the world's largest shale gas reserves and is targeted to produce 30 billion cubic meters a year from shale, equivalent to almost half the country's gas consumption in 2008. Europe and other countries globally also have significant shale potential (Figure 1) and studies are being considered for their development. The "shale gas revolution" is thought to be a major immediate threat to Trinidad and Tobago's energy sector. Much of the worry has been associated with Trinidad and Tobago's LNG sector, with fears due to the elimination of

our once lucrative export market in the US, especially as the US can now emerge as a significant and direct competitor.

Trinidad and Tobago's LNG sector, however, has reacted aptly to the reduction in US LNG consumption. Atlantic's CEO, Nigel Darlow, was reported as saying that, "the emergence of US shale gas has had no significant impact on Atlantic's revenue over the past few years. In fact over the past four years, we have decreased our US exports from 50% to less than 20 % to fetch those high priced markets." (Trinidad Guardian, July 4, 2013). Trinidad now ships about 80% of the LNG produced to 21 countries throughout Europe, South America and Asia. 35% is exported to South America: predominantly to Argentina, Brazil and Chile, while in Asia, the gas was shipped to Japan, South Korea, Taiwan and, to a lesser extent, India and China.

T&T should expect some competition when the US starts exporting gas via LNG, which is scheduled to begin in 2015. Presently, the US has approved the construction of four LNG export facilities, which have just over six billion cubic feet per day (bcf/d)

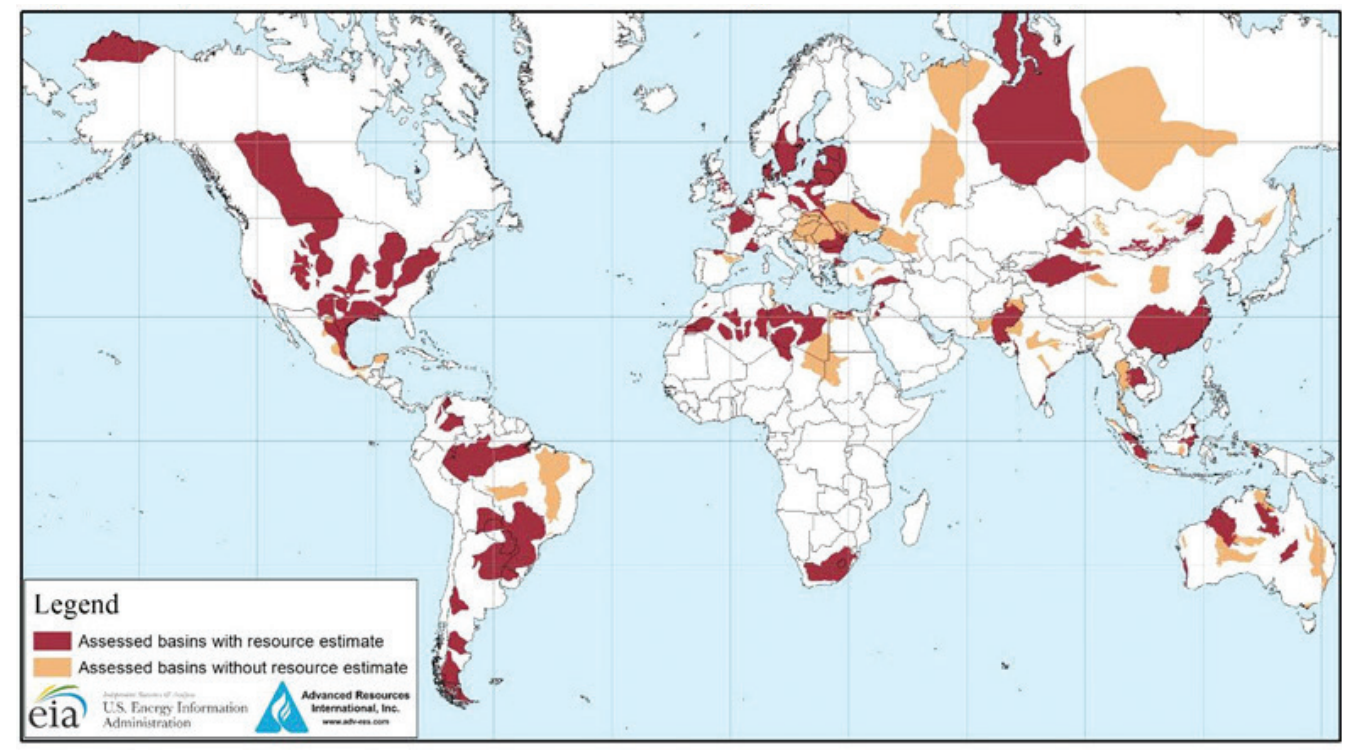


Fig. 1 Map of basins with assessed shale oil and shale gas formations, as of May 2013. Source: United States basins from U.S. Energy Formation Administration and United States Geological Survey; other basins from ARI based on data from various published studies.

of combined export capacity (T&T exports 1.97 bcf/d of gas). The impact of this new competition, however, is not expected to be significant for two reasons: limits on shale gas development outside the US; and strong projected growth in the global natural gas market.

The inability for other countries to replicate the United States' shale revolution is expected, since the shale gas industry, as we know it today, is still in its infancy. Additionally, the characteristics of each shale reserve differ significantly from country to country. As such, the technology being used in the US shale industry cannot simply be adopted by other countries, since it must be adjusted to match the unique characteristics of each field. Shale gas development is also causing growing concern among environmentalists, since the hydraulic fracturing technology it employs involves pumping a high-pressure water mixture into the earth to force gas stored in rock formations out and this is thought to have potential negative impacts on

the environment. This environmental issue was first raised in the US, but has quickly spread to Europe, where there has been visible opposition to plans for shale gas development in a number of countries on the continent. The limits that these factors have placed on the ability for shale gas development outside the US means that many countries are still dependent on LNG imports to meet natural gas demands.

As such, global natural gas demand is projected to outweigh supply in the near term and LNG is expected to play an even larger role, according to BP Energy Outlook for 2013. LNG production is expected to grow by 4.3% per annum and is expected to account for 15.5% of global gas consumption by 2030.

Trinidad and Tobago, being an established LNG player with low cost supply, is thus expected to remain a significant player in global LNG trade in the near future.

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Take your Kids to Work



- 01 Manager Operating Assets, Michelle Scipio-Hosang greets children at National Energy Take Your Kids to Work Day
- 02 International Coastal Clean-up (ICC)
- 03 Fish Broth Competition in Guayaguayare
- 04 Wishes Nite Spot is awarded the first place prize by Member of Parliament for Mayaro Winston Peters and National Energy Manager of Corporate Communication and Administration, Ms Wendy Seow
- 05 Winner of La Brea Got Talent, Mr. Bertille Hunte
- 06 Participants in National Energy's Dance Camp in La Brea
- 07 National Energy commemorates Breast Cancer Awareness month
- 08 National Energy celebrates Divali

La Brea Got Talent



Dance Camp



ICC



Breast Cancer Awareness



Fish Broth Competition



Divali



Towards Operational Excellence



WHAT IS OPERATIONAL EXCELLENCE?

In today's increasingly commoditised and globalised business environment, companies in all industries are finding it necessary to increase their competitive advantage by boosting their operating efficiency and reducing fixed costs. Hence the thrust towards solutions geared towards continuous improvement. One such solution is that of Operational Excellence.

Operational Excellence is a management philosophy with an operating model that strives to continually create value for customers, employees and key stakeholders by improving operations and business performance through a holistic, standardised management methodology and framework across the entire organisation.

Much of this management philosophy is based on earlier continuous improvement methodologies, such as Lean Manufacturing, Six Sigma, and Scientific Management. The focus of Operational Excellence goes beyond the traditional event-based model of improvement toward a long-term change in organisational culture. Figure 1 illustrates the theoretical foundation or roots upon which Operational Excellence is based.

NATIONAL ENERGY CONTEXT

A situational analysis of National Energy's operating environment revealed several existing threats that impact upon the optimal performance of the Operations Group and overall organisation.

National Energy owns and operates over TT \$1.5 billion in assets, which are leveraged in the delivery of specific financial and operating performance goals. Particularly with regard to the support of its core business of energy industry development, these assets are employed in the provision of engineering, design, construction services for the development of new industrial estates, port infrastructure for new and existing facilities and towage and launch services to cargo vessels.

In light of the aforementioned, as well as the Company's mandate to grow operating profits, it was deemed imperative to employ improvement

strategies within all business units, particularly in the Operations Group, as the primary contributor to National Energy's revenues.

National Energy therefore engaged a consultant to undertake an analysis for Operational Excellence within the organisation.

OPERATIONAL EXCELLENCE JOURNEY

The implementation of an Operational Excellence Programme typically commences with a diagnostic phase. During this phase, information on the organisation's current state is gathered through a variety of techniques including interviews, process mapping, field studies and observation, data analysis, and statistical studies.

A thorough diagnostic study was conducted during the third quarter of 2013 with the objective of assessing the state of National Energy's existing facilities, processes, procedures, systems and behaviours. This was achieved through engagement with executive management as well as the employee body at various levels of the organisation. Interviews were conducted with management and staff, followed by process mapping and statistical analyses.

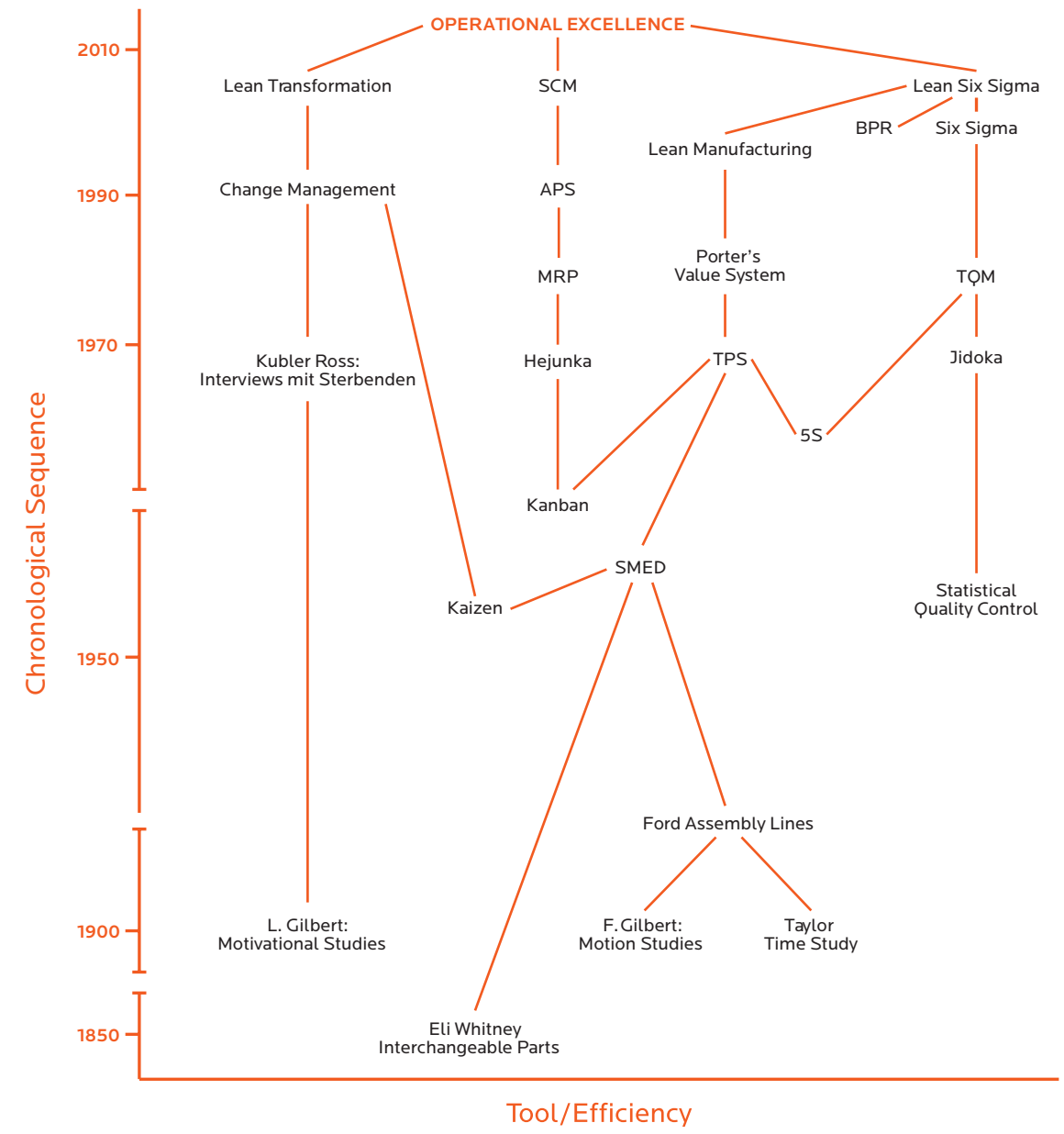


Fig.1 Foundations of Operational Excellence

During this phase, several organisational strengths were identified including a significant asset base, strong technical knowledge, engaged and passionate staff. Opportunities were identified in areas such as the existing management control systems, internal communication and project management. Following the identification of strengths and opportunities, the opportunities were quantified and a business case, recommendations and an implementation approach were provided.

National Energy has completed the crucial first steps along the journey towards Operational Excellence. The next steps will entail the implementation of the recommendations arising out of the diagnostic phase.

The attainment of Operational Excellence is envisaged to be a gradual process as cultural transformation, technology and leadership are necessary enablers for National Energy to achieve its vision to be a global leader in the development of sustainable energy based industries.

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Loran-Manatee Cross-Border Development

Historic Signing Augurs Well for Future of T&T Energy Sector



Trinidad and Tobago's Minister of Energy and Energy Affairs, Senator the Honourable Kevin Ramnarine meets Venezuelan Minister of People's Power for Energy and Petroleum, Mr. Rafael Ramirez. Photo courtesy Ministry of Energy and Energy Affairs.

In the April issue of the Pioneer we reported on the formation of the Energy Strategic Unit as an integral part of the Ministry of Energy and Energy Affairs' approach to bring focus to international and cross-border projects of strategic importance to Trinidad and Tobago. This new approach seems to be already bearing fruit as on 11 September, 2013 the Ministry announced that T&T and Venezuela had approved, among other things, the establishment of a Unit Operator for the Loran-Manatee cross-border reserve. This significant development moves all parties one step closer to the development of the Loran-Manatee gas field that straddles the Venezuela/Trinidad and Tobago maritime border.

The journey to this historic event has taken roughly 23 years, with several notable developments being made along the way. Firstly, on 18 April, 1990, T&T and Venezuela signed a delimitation treaty, which established the maritime boundaries between this country and Venezuela. Article (7) of that treaty dealt with "Unity of Deposits" and provided that

the parties (T&T and Venezuela) should seek to reach agreement as to the manner in which any hydrocarbon deposits that extend across the delimitation line should be exploited.

To this end, the Governments of Trinidad and Tobago and Venezuela signed a Memorandum of Understanding (MOU) concerning the procedure for the unitisation of any cross-border hydrocarbon reservoirs, on 12 August, 2003. Pursuant to this MoU, a joint steering committee was established. In March 2007, T&T and Venezuela then signed the Framework Unitisation Treaty. The Framework Unitisation Treaty was a template for unitisation treaties for each individual reservoir. The treaty provided for the principles of unitised exploitation, determination, allocation of reserves, redetermination and metering. It also provided for the Joint Ministerial Commission, which is made up of the Ministers of both T&T and Venezuela and their respective senior technocrats.

In August 2009, a Steering

Committee Meeting for the Unitisation of Cross-Border Reserves between the Bolivarian Republic of Venezuela and the Government of the Republic of Trinidad and Tobago was held, where it was agreed that the existing Steering Committee will proceed to finalise a draft Loran-Manatee Treaty and therefore make steps towards achieving the Unitisation of the Cross Border Reserves. In September 2009, the Government of Trinidad and Tobago agreed to accept the draft Loran-Manatee Unitisation Agreement, subject to positive vetting by the Attorney General and that the Minister of Energy and Energy Affairs execute the finalised Loran-Manatee Unitisation Agreement on behalf of the Government of the Republic of Trinidad and Tobago, on a date and venue to be agreed upon with the Government of the Bolivarian Republic of Venezuela.

On 16 August, 2010, the Loran-Manatee field specific treaty was signed in Caracas, and there was an exchange of instruments of ratification of the Framework Treaty. Article 4 of the Loran-Manatee field

specific treaty distributes the volumes in the Loran-Manatee field into 73.06 % for Venezuela and 26.94% for Trinidad and Tobago.

In accordance with Article 5 of the aforementioned Framework Unitisation Treaty, which was signed in 2007, a meeting of the Joint Steering Committee was held in Port of Spain, on 23 July, 2013, at the Ministry of Energy and Energy Affairs, where discussions concerning the functional structure and governance of the Unit Operator for the Loran-Manatee Unit Area took place. On the basis of these discussions, the Governments of Trinidad and Tobago and Venezuela approved the proposed functional structure and governance of the Unit Operator for the Loran-Manatee Unit Area on 11 September, 2013, in Caracas.

This approved functional structure establishes that the Unit Operator would comprise of three bodies, through which it would execute its functions. The first body is the directing committee, made up of representatives of both Governments and the four companies involved: Chevron, Trinidad and Tobago; Chevron Global; British Gas, Trinidad and Tobago; and PDVSA, the Venezuelan state company. Decision making within the directing committee requires a 2/3 majority, however final decisions are subject to a right of veto, which is held by the Governments of Trinidad and Tobago and Venezuela respectively. The Directing Committee representatives for both the Trinidad and Tobago and Venezuela Governments, as well as the representatives for the four companies, must be appointed within 30 days of the 11 September signing that took place in Caracas.

While the creation of a governance and functional structure is encouraging, the complexity of developing Loran-Manatee as a single unit should not be overlooked. It is expected that reaching agreement on all detailed issues will be an iterative process.

The second body is the Investing Committee, made up of the four companies just mentioned. This committee is responsible for the financing of the development of the cross-border reserve. The third body is the executing entity, also drawn from among the four companies. One of the entity's main responsibilities is to submit, within 90 days of its appointment, an Exploitation and Development Plan for the Loran-Manatee Unit Area. This plan will be submitted to the Joint Ministerial Commission, which is an entity comprising both Ministers of Energy for T&T and Venezuela. The Investing Committee representatives for both the Trinidad and Tobago and Venezuela Governments, as well as the representatives for the four companies, must also be appointed within 30 days of the 11 September signing that took place in Caracas.

This development is exciting news for the local energy sector as Trinidad and Tobago stands to benefit from an additional 2.7 tcf of proven gas reserves. This gas supply can be funnelled into extension of existing domestic contracts and/or a new LNG train. While Venezuela will determine where its gas will be routed, there is also the real possibility for cooperation between our countries for the initial gas produced. This presents a significant opportunity for local content participation, as well as an opportunity for

Trinidad and Tobago to leverage its considerable expertise in the management of the gas value chain to offer services to Venezuela in developing its gas resources.

While the creation of a governance and functional structure is encouraging, the complexity of developing Loran-Manatee as a single unit should not be overlooked. It is expected that reaching agreement on all detailed issues will be an iterative process. It is also to be expected that maintaining the agreement would require commitment from all parties to work together for the benefit of all. In regard to this agreement, both Governments have expressed optimism to see this project come to fruition.

National Energy, along with parent company, the National Gas Company of Trinidad and Tobago, (NGC), through the ESU, has been involved in the development of the Loran-Manatee cross-border reserve to the current stage. As facilitator of new energy-based and downstream industries in Trinidad and Tobago, National Energy holds a vested interest in the success of the measures contained in the Loran-Manatee negotiations, which when developed, are poised to deliver tremendous benefit to the local community.

Building Capacity Equals Minimising Risk



PLEA Training

National Energy's business sustainability largely depends on the Company's relationship with its stakeholders. As National Energy continues to deliver on its mandate to promote Trinidad and Tobago's energy brand and assist in the diversification and expansion of the energy sector, the Company has consciously invested in its stakeholders, in particular the fence-line communities of La Brea, Mayaro/Guayaguayare and Point Lisas South and East in an effort to obtain a license to operate within these areas. At present, National Energy is responsible for the development of the Galeota Port in Guayaguayare and the expansion of Union Industrial Estate in La Brea. The Company recognises that the stakeholders in these

areas are integral to the success of these projects and have solidified relationships with them to further promote the Company's initiatives.

Over the years, National Energy in collaboration with its community partners, has developed a strategic plan of action, which focuses on youth development, capacity building, culture, environmental sustainability and sport within these communities. The Company considers capacity building a key component to building sustainable communities. National Energy adopted the Corporate Social Responsibility theme of "Building Capacity, Minimising Risk" for 2013/2014.

National Energy is not a pioneer in

its way of thinking. In fact, worldwide there has been a shift in the way companies consider capacity building strategies and their impact on community development and transformation. So why is capacity building so integral to community development and how does it minimise risk? In order to answer that question another must first be examined. What is capacity building?

CAPACITY BUILDING

Steve Skinner, a specialist in capacity building working in Scotland and across the UK, defined capacity building as, "development work that strengthens the ability of community organisations and groups to build their structures, systems, people and skills so they are better able to define and achieve their objectives and engage in consultation and planning, manage community projects and take part in partnerships and community enterprises. It includes aspects of training, organisational and personal development and resource building, organised and planned in a self-conscious manner, reflecting the principles of empowerment and equality." In short, Skinner believes in the Chinese philosophy of "give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime." It is on this philosophy, too, that National Energy stands.



Roustabout Training

PRINCIPLES OF CAPACITY BUILDING

The core underlying principles of capacity building as stated by Skinner:

- **Empowerment:** It is important to strengthen the ability of individuals and groups, allowing them to influence issues that affect them and their communities.
- **Participation:** Communities often need support in their decision making processes.
- **Inclusion, equality of opportunity and anti-discrimination:** Recognition that some people may need additional support to overcome the barriers they face.
- **Self-determination:** Driven by the principle that communities themselves drive capacity building activity, and people are supported to make their own choices.
- **Partnership:** Recognising that many agencies can contribute to Community Learning and Development.
- **Equality:** Taking an inclusive approach to community capacity

building activities will strengthen and enhance everyone's experience, not just those from equalities groups.

- **Collective ability:** Focusing not simply on building individual capacity, but that of the community as a whole. This means lots of activity to build and strengthen ways for people to come together in their communities.
- **Building assets:** Capacity building is not about focusing on what is wrong with a community. It is about taking existing strengths and giving these the opportunities and support they need to develop.

WHAT ARE THE RISKS INVOLVED IN COMMUNITY PROJECTS?

There are several risks to community projects that can be considered. There is environmental risk which includes air pollution, water pollution and damage to the natural habitat. There is also reputational risk that speaks to several concerns including a loss of trust and goodwill, strike action in communities and, most importantly, the denial of a license to operate within the community. Operational risk is also a factor and includes loss time accidents and

incidents, poor customer satisfaction and political changes. Lastly, there is financial risk to be considered which speaks directly to a loss in revenue.

HOW DOES CAPACITY BUILDING MINIMISE RISK?

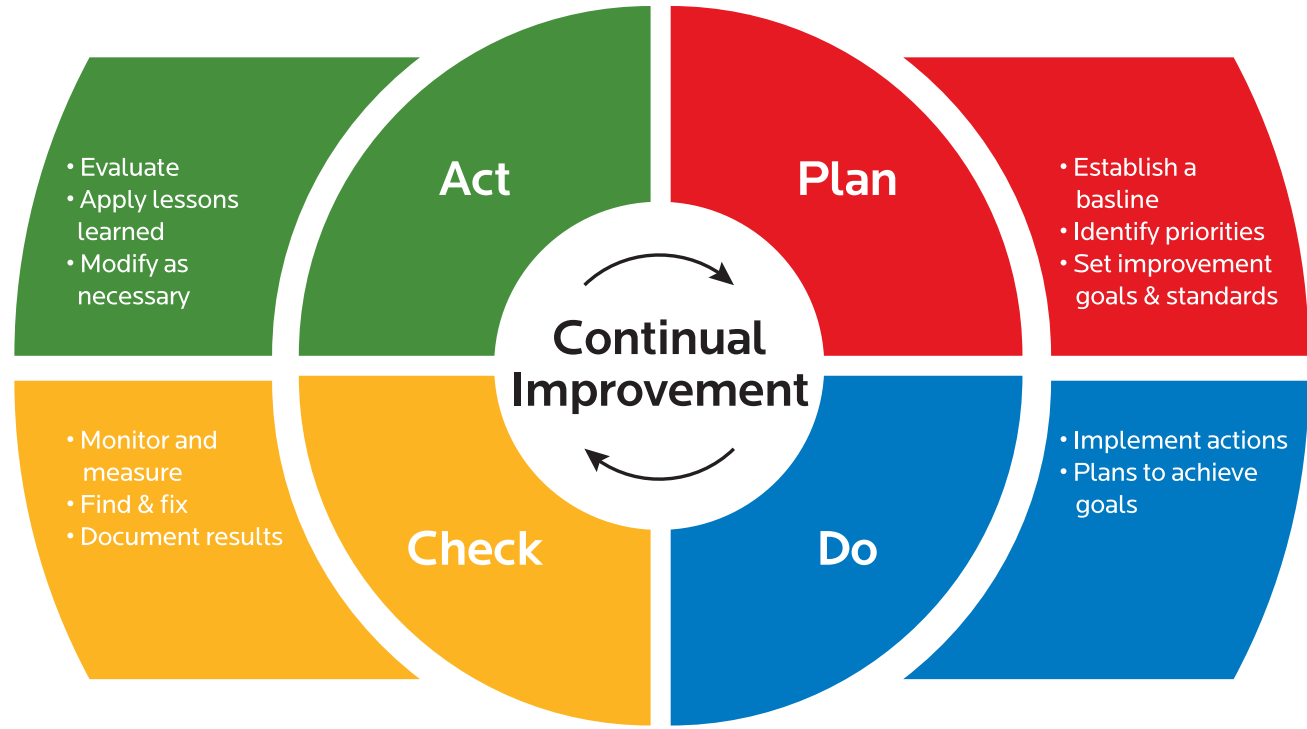
The incorporation of Skinner's principles into capacity building initiatives serves to mitigate if not remove some of these risks that impact on projects. Capacity building initiatives that embolden residents, provide education platforms and enable community partnerships to benefit not only communities but also the operators in those areas. Individuals who are trained and empowered become the catalysts for change in their communities. In turn, as communities become more collectively educated and are better able to absorb, understand and discern information that they may receive from operators in their areas, they are further able to contribute to project development and ultimately add local content to company projects.

So far for 2013, National Energy has engaged in approximately 13 capacity building initiatives in its fence-line communities, including an entrepreneurial workshop for women in Guayaguayare that focused on specific career paths such as agriculture and photography, and PLEA Training for residents in both Guayaguayare and La Brea. National Energy has also made engagement a part of its daily operations often meeting with the community to discuss future capacity building initiatives that will impact the Company's programme.

While capacity building initiatives are not quick fixes to the challenges operators can encounter in local communities, they are an essential part of a sustained approach to local development that can positively impact projects. It is the intention of National Energy to continue to pursue similar programmes as they have seen positive results.

PLAN-DO-CHECK-ACT

Most EHS Management Systems are based on the Plan-Do-Check-Act (PDCA) Model as defined by Dr W. Edwards Demming (called the Demming Circle). The PDCA model is an iterative four-step management method used in business for the control and continuous improvement of processes and products. Elements within the EHS Management System can be categorised into one of the Demming's quadrants.



EHS MANAGEMENT SYSTEMS AT NATIONAL ENERGY

National Energy has recognised that positive environmental, health and safety performance is beneficial for all our stakeholders, including our shareholders, regulatory authorities and the communities in which we operate and, as such, has embarked upon an initiative to implement an integrated Environment, Health and Safety Management System to foster pro-active environmental management, compliance with international standards and regulatory requirements and develop an organisational culture that endeavours to continually improve EHS performance.

This Integrated Management System is comprised of two major standards including the Occupational Health and Safety Assessment Series (OHSAS 18001) and the ISO 14001 certification for environmental management.

National Energy has taken its first steps towards the development of these systems through the engagement of a consultant to establish a framework for implementation of the both standards. To date, a gap analysis has been conducted to review National Energy's existing systems and procedures. It is envisaged that the implementation of an integrated management system will enable National Energy to successfully align its operations with the objective of sustainable development through excellence in environmental management, safety and health.

What is an Environmental Health & Safety (EHS) Management System?



National Energy has taken its first steps towards the development of these systems through the engagement of a consultant to establish a framework for implementation of the both standards.

An Environmental, Health & Safety (EHS) Management System is the policy, manual, procedures, and supporting information that address how a company handles their Environmental, Health and Safety. An example of a certified management system is ISO 14001 for Environmental and OHSAS 18001 for Health and Safety.

It can be further defined as a businesslike approach to EHS and is a systematic, explicit and comprehensive process for managing EHS risks. As with all management systems, an EHS management system allows for goal setting, planning, and measuring performance. It is woven into the fabric of an organisation and becomes part of the culture, the way people do business.

MARKET DRIVERS FOR EHS MANAGEMENT SYSTEMS:

- Assurance that an organisation is trying to manage their environmental impacts and managing health and safety risks and hazards.
- Proof that the organisation is proactively trying to address environmental, health and safety issues, both existing and potential.
- Can lead to possible reductions in inspections, expedited permits and help with penalty mitigation.

BENEFITS TO BUSINESSES:

- Demonstrated commitment to protecting the environment. This is important as the market places increasing emphasis on environmental performance.
- Risk Reduction in legal liability, accidents and environmental damage.
- Cost Reduction on insurance premiums, disposal costs and permitting fees.
- Competitive edge in countering international market pressures and investing now versus expense later.
- Improved company image, leverage as a criteria for doing business.
- Improved relations with customers, investors, regulators and the community.
- Tangible financial benefits, including savings in energy consumption.

Developing Future Leaders of the Energy Industry



As we seek to strengthen our nation's position in the global energy market, National Energy Corporation of Trinidad and Tobago Limited (National Energy) is mindful that the energy industry is driven by a cadre of skills and competencies inherent to its people.

National Energy has therefore embarked on a number of initiatives geared towards the development of young professionals through our Graduate Trainee Programme as well as our Vacation Employment Programme.

The Company's recently enhanced Vacation Employment Programme which commenced in July 2013 for a period of two months, was a huge success. This programme targeted university students in their first and second-year in various disciplines. A total of 11 students participated in the programme.

The students were given the opportunity to experience National Energy's operations in action by touring off-site facilities, such as the Galeota Port, the Savonetta Piers, Union Industrial Estate and La Brea Industrial Estate. Outfitted in full safety gear, the students' excitement was tangible as they boarded one of the Company's tugs at Savonetta Pier. National Energy's representatives at the different sites captured the full attention of their young audience who remained engaged as information was shared.

Coaching was also a critical aspect of the Vacation Employment Programme, as a mentor was appointed to guide each student towards delivery of a final project that would result in an improvement of a key aspect of National Energy's business. The students got first-hand experience in applying their studies towards analysing and proposing



Winner of the Vacation Employment Challenge, Khadija St. Louis receives her award from VP Operations Marleen Lord-Lewis.

solutions for real business issues.

Projects centred on the following themes:

- Process mapping
- Developing a coordination plan for the geotechnical investigation at Brighton Port, La Brea
- Conducting a feasibility study to determine the potential for bunkering LNG powered vessels at National Energy
- Organisational resilience and security standards
- Developing a behavioural based competency matrix for National Energy
- Developing a stakeholder matrix for National Energy

- Examining the impact of geopolitics and culture on the successful attraction of energy business to Trinidad and Tobago.

The pinnacle of the programme was indeed the "Presentation Challenge" in which students competed for the 1st, 2nd and 3rd prizes. The aspiring professionals presented their projects to an audience which comprised some members of the management team as well as their mentors. It was a euphoric moment for the mentors and National Energy at large in seeing the high calibre of projects skilfully presented by the students. In addition to the solid presentation and research skills demonstrated by the students, they also displayed a true sense of camaraderie, pride and mutual respect for one another. If this is a sign of things to come, the future of the energy sector looks truly bright.

10 Questions with Denise Cyrus



In an effort to highlight our employees, for this issue of the Pioneer, we will feature Ms. Denise Cyrus who is an Administrative Assistant in the Loss Prevention and Sustainability Department. Denise is a very active member of staff who is always enthusiastic about performing for events at National Energy. Denise shares with us what she enjoys doing and what influences her.

Pioneer: How long have you been at National Energy? What other positions have you held?

Denise: I started working at NGC in 2003, came to National Energy in 2009 as an Administrative Assistant II, and now I am an Administrative Assistant III in the Loss Prevention and Sustainability Department.

Pioneer: What do you enjoy doing/ what are your hobbies?

Denise: I enjoy listening to music, singing, taking part in drama and performing monologues.

Pioneer: What do you like most about working at National Energy?

Denise: The thing that I like most about working at National Energy is the experience I have managed to gather working in several departments over the years. I worked in Marine Terminal Operations (now Operating Assets), Engineering Design and Construction (now Infrastructure Planning and Development), Business Development (now Energy Industry Development), and occasionally in the Office of the President.

Pioneer: What ability/skill do you most wish you had (that you don't already have)?

Denise: To play the piano.

Pioneer: What motto do you live by? And how has that influenced your life?

Denise: I think the motto that I live by is 'taking things one day at a time'. This motto has influenced my life because sometimes I try to think about what I am going to do next week or next month, but when I take things in my life one day at a time, it helps me to plan better instead of rushing and skipping ahead.

Pioneer: Who in your life has influenced you the most? How did they do so?

Denise: The person that has influenced me most in my life is my mother. She did so by the values that she taught me such as being kind to others and always having manners and respect for elders. This has helped me both in my personal and my professional life.

Pioneer: If you could try out any job for a day, what would it be and why?

Denise: If I could be anything for a day, I'd have to say an actress. Anyone that knows me knows that I love drama and I would like to try out being on the big stage for a day.

Pioneer: What are the three most important things in your life?

Denise: God, my daughter/my family and my friends/co-workers.

Pioneer: What do you think is the biggest problem facing the world right now? And if you alone could solve it, what would you do?

Denise: I think the biggest problem facing the world today is violence and terrorist attacks. If I had to solve it I would try to find world peace.

Pioneer: What are your pet peeves?

Denise: People who have no manners.

Pioneer: If you could choose five words to describe yourself, what would they be?

Denise: Exciting, Caring, Bubbly, Interesting, Nature-seeker.

Pioneer: Is there anything you would like to share that most people don't already know about you?

Denise: Most people may not know that sometimes when I stand in front of an audience to perform I am scared. I am afraid that I may forget my lines but I trust in God that my performance would be one of excellence.

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