FIER VIII Regional Energy Integration Forum 2013

OLADE’s 40 Years: Contributions to the History of Energy Integration in Latin America and the Caribbean. Lessons learned, Achievements and Challenges

November 25th and 26th, 2013 - Punta Cana, Dominican Republic
T&T’s Experience in Energy Integration in Latin America and the Caribbean: Achievements, Challenges and Lessons Learnt in Oil and Gas Industry

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November 26th, 2013
Discussion Areas

Outline
• Background on T&T
• Concept of Integrated Energy Development
• Examples
  – Achievements
  – Challenges
  – Lessons Learnt
• Closing Remarks
Discussion Areas

Examples

• Eastern Caribbean Gas Pipeline
• Cross Border Hydrocarbon Fields with Venezuela
• Conventional -vs- Small/Mid Scale LNG
• Methanol to Power
• Dimethyl Ether
The T&T Experience

Challenges

LESSONS LEARNT

Achievements
Trinidad and Tobago
HISTORY

Darwent Well, Aripero (1866-1867)

Dr. Hans Kugler and Prof Urich (standing) at site of Darwent Well (1922)

Randolph Rust & John Lee Lum (1910)

Rust Wells Guayaguayare (1903-1904)

Arthur Beeby-Thompson

The pioneer of commercial oil production in T&T
Oil & Natural Gas Production 1908-2012

- Petroleum History: 105 yrs
- Gas Utilization: 60 yrs
- Trinidad and Tobago Model

Cumulative Production (1908-2013):
- Oil: > 3.5 billion barrels
- Gas: > 3.8 billion boe
T&T Onshore and Offshore Assets
THE GOVERNMENT OF THE REPUBLIC OF TRINIDAD AND TOBAGO

T&T Energy Value Network

**OIL & GAS**

**Upstream (Exploration and Production)**
- (Exploration) Seismic, Geological, & Drilling
- (Develop Field) and (Produce) Wells & Facilities
- ( Decommission) Wells & Facilities

**Downstream**
- Ammonia & Methanol Plants
- Melamine, UAN, Polyolefin
- Plastics & Speciality Chemicals
- Retail Sites / Stations
- End Users

**Operators**
- centrica
- REPSOL
- PetroChina
- Atlantic
- PLC
- ING
- National Energy
- CARIDOC
- Schlumberger
- Tucker
- Halliburton
- WEY Group
- Inspection Technologies Ltd

**Service Providers**
- Prescon
- Parex
- Carillion
- Fluor
- Technip-CoFlexip
- NESC
- UTU
- PIPDECO
- PMDC
- RBC
- Citibank
- Price Waterhouse Coopers

**Regulatory Agencies:**
- EOC
- TTTA
- Ministry of Energy and Energy Affairs
- Ministry of Development Planning and Poverty Reduction
- MOF
- MOE
- MOI
- MOH
- World Bank

**Capital Build Projects**
- Platforms
- Refineries
- Primary Petrochemicals (Ammonia & Methanol)
- Downstream Petrochemicals

**Indirect Support**
- EVEREST & YOUNG
- IBM
- CIty of Light
- Dell
- Price Waterhouse Coopers
T&T Natural Gas Value Network

Upstream
- bpTT
- British Gas
- Chevron
- EOG Resources
- NOC

Midstream
- Transportation, Marketing, Distribution, Processing

Downstream
- Power
- Petrochemicals
- Light Industrial/Commercial/CNG
- Metals/Heavy Industry
- Export as LNG
- Utilization or Conversion Shipping
The Government of the Republic of Trinidad and Tobago

Major cities:
- Guayaguayare
- Toco
- Pt. Fortin

Generation stations:
- Caribbean Sea
- Gulf of Paria
- Port of Spain
- San Rafael
- Trinidad Power
- Trinity Power
- Titan
- Desalcott
- Pt. Lisas
- Rio Claro
- Guayaguayare

Key load centers:
- Pt. Lisas
- Trinidad Power
- Desalcott
- Penal

Capital:
- Port of Spain

Power transmission system:
- 132kV overhead line
- 66kV overhead line
- 33kV overhead line
- 220kV overhead line

TTEC Transmission System

Ministry of Energy and Energy Affairs
Power, Prosperity, Progress.
Train 1 - 1999
Initial Capacity: 3.0 mtpa

Trains 2/3 - 2002/03
Train 4 - 2005
Capacity: 15.3 mtpa
Key Characteristics of T&T’s Success

1. Strategic Location
2. Stable Democracy
3. Legal System
4. Competitive Gas Price
5. Fiscal Regime
6. Transparent Decisions
7. Liberalized Currency
8. Skilled Workforce
9. Trade Liberalization
10. Strategic Alliances
Optimization

3E Trilemma

Environmental Impact

J.S. Gregg (2009)
Discussion Areas

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Cross Border Fields with Venezuela
Conventional -vs- Small/Mid Scale LNG
Dimethyl Ether (DME)

Methanol (CH$_3$OH)

DME (CH$_3$OCH$_3$)
Promoting social and economic internal development

- Regional Political Vision
- Legal and Regulatory Frameworks
- Participation of Actors
Social and economic internal development at risk??
Closing Remarks

![Venn diagram showing the intersection of Fast, Good, and Cheap.]

![Image of a wooden window.]

![Image of a revolving door.]
THANK YOU

Questions?
Comments?