CARIBBEAN ENERGY CHAMBER

Review of T&T's Energy Conservation and Energy Efficiency Efforts and Impacts (2010-2024)

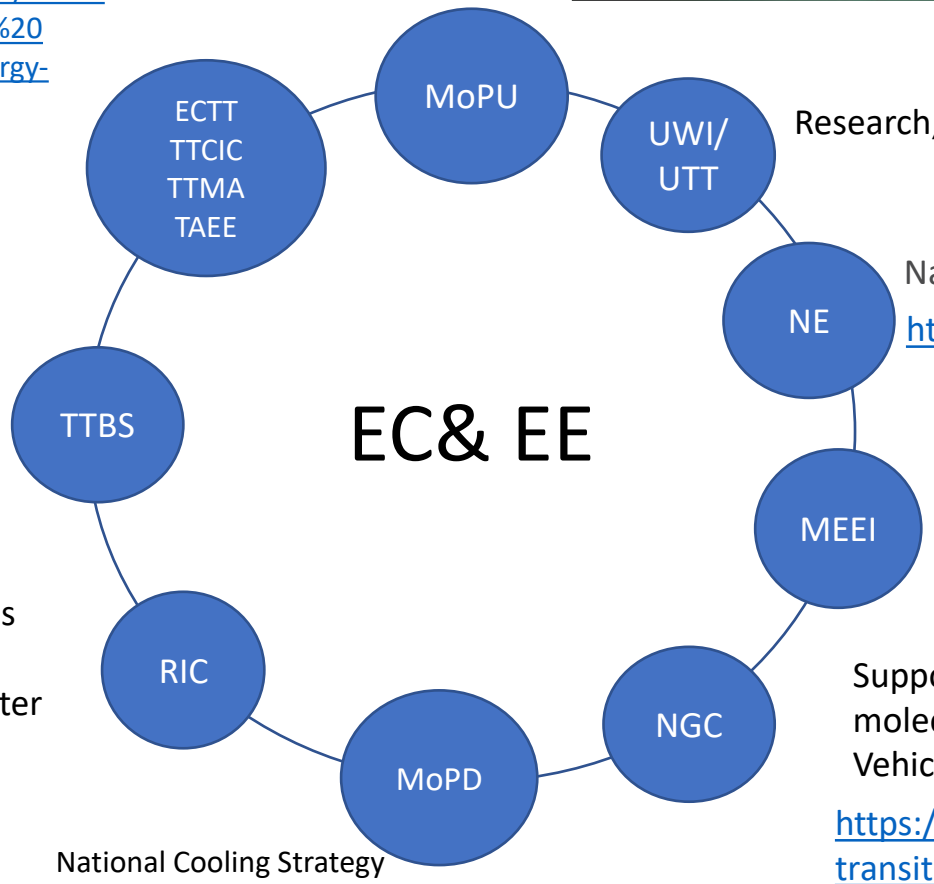
What Have We Done?

T&T Entities That Drive Energy Conservation(EC) and Energy Efficiency(EE)

Advocacy particularly with member companies. Most active is ECTT with a Committee and annual Sustainability Conference. TTIC has partnered with NGC on initiatives shttps://energynow.tt/events/clean-energy-conference-2019?rq=energy%20efficiency%20
https://energynow.tt/blog/50-companies-sign-energy-efficiency-declaration
https://chamber.org.tt/green-agenda-award-2023

Unclear on current role after publishing Policy and Action Plan- Nothing on website

ENERGY CONSERVATION AND ENERGY EFFICIENCY POLICY AND ACTION PLAN FOR TRINIDAD AND TOBAGO 2020 - 2024



Research, training and development

National Energy as a Super ESCO(Energy Service Company)
https://nationalenergy.tt/Sustainability/Energy-Efficiency

Leading GORTT Policy on RE and EE and driving initiatives
https://www.energy.gov.tt/our-business/brief-on-renewable-energy-and-energy-efficiency/

Supports GORTT Policy, maximize value of natural gas molecules and diversify business model into renewables. Vehicles – NGC Green
https://carigreenststg.wpengine.com/?taxonomy=energy-transition-taxonomies&term=energy-efficiency
https://ngc.co.tt/wp-content/uploads/2024/05/green-energy-map-2024-April.pdf

Establish standards and testing
https://gottbs.com/2024/03/01/trinidad-and-tobago-leads-the-way-in-energy-efficiency-with-the-qsec-project/

T&T Utility Regulator – Reviews and makes recommendations for rate increases. Promotes education on electricity and water conservation and efficient use
https://www.ric.org.tt/wp-content/uploads/2015/02/Promoting-Energy-Efficiency.pdf
https://www.ric.org.tt/rics-final-determination-for-the-electricity-transmission-and-distribution-sector-of-trinidad-and-tobago-2023-2028/

National Cooling Strategy
https://www.planning.gov.tt/sites/default/files/NCSTT%20Final%20Cabinet%20Approved%202020.pdf

Energy Efficiency through the Development of Low-carbon RAC Technologies in Trinidad and Tobago -
https://www.guardian.co.tt/news/ministry-of-planning-and-undp-launches-us5152-million-climate-project-6.2.1570646.a2cca4d81e

Initiatives/Developments to Drive T&T Electrical Energy Efficiency

(Highlights -Not exhaustive)

Early ESCO entrepreneurs
E.g. Energy Dynamics Limited enter the market

- Absorption cooling
- High Efficiency VRV A/C Systems.
- Energy Audits

GORTT approves the following incentives in Finance Act 13 of 2010 to be effective Jan 1, 2011

- 150% Allowance for EE audits the design and installation of energy saving systems by a Certified Energy Service Company(ESCO)
- Certified ESCO can write off value of assets in two years: -

a) 75%Depreciation on plant, machinery and equipment acquisition;
b) 25% Wear& Tear allowance in following year

- 0-Rated VAT granted for solar water heaters, solar PV panels and wind turbines
- Tax Credit for Solar Water Heaters- 25% for up to a limit of TT$2500
- Wear and Tear Allowance on 150% of expenditure incurred on:

- The acquisition of plant, machinery, parts and materials for use in the manufacture of solar water heaters
- The acquisition of wind turbines and supporting equipment; solar photovoltaic systems & supporting equipment; and solar water heaters.

2000

2010

2011

T&T National Climate Change Policy established. Includes the following.

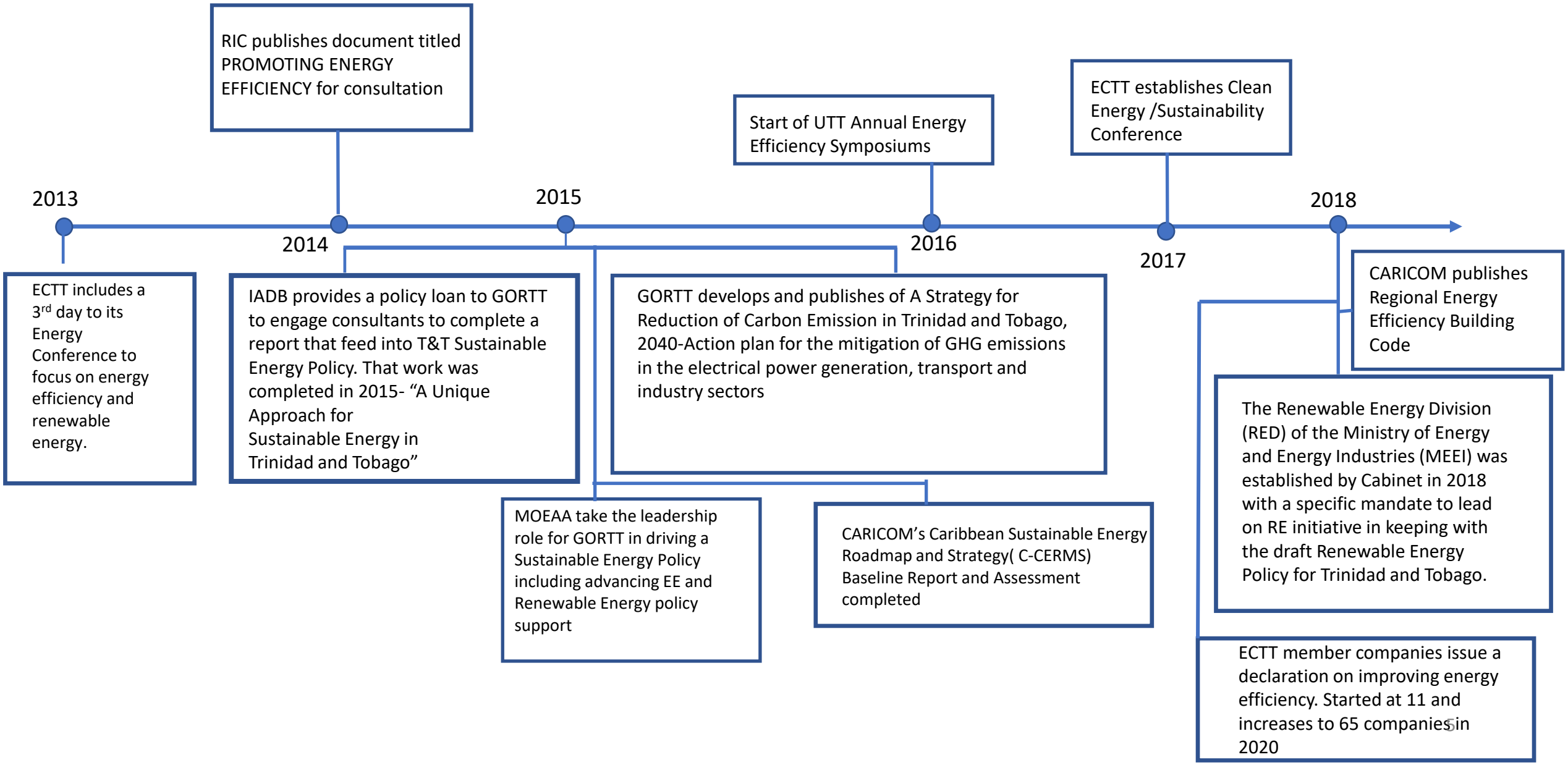
- Increase energy efficiency in commercial and residential buildings by:
  a. Developing a Green Building Code that will seek to maximize renewable energy and energy efficiency
  b. Formulating and adopting energy efficiency standards through the Trinidad and Tobago Bureau of Standards
- Increase the use of renewable energy by:
  a. Developing a renewable energy policy and standards
  b. Developing suitable fiscal incentives for domestic use and sale to the national grid.
- Developing initiatives such as replacing conventional street lighting with solar powered Light Emitting Diodes (LEDs) utilizing a phased approach through routine maintenance programs.

ECTT establishes its Energy Efficiency and Alternative Energy Committee

Ministry of Energy and Energy Affairs Renewable Energy Committee issues a paper entitled- " Framework for The Development of A Renewable Energy Policy for T&T

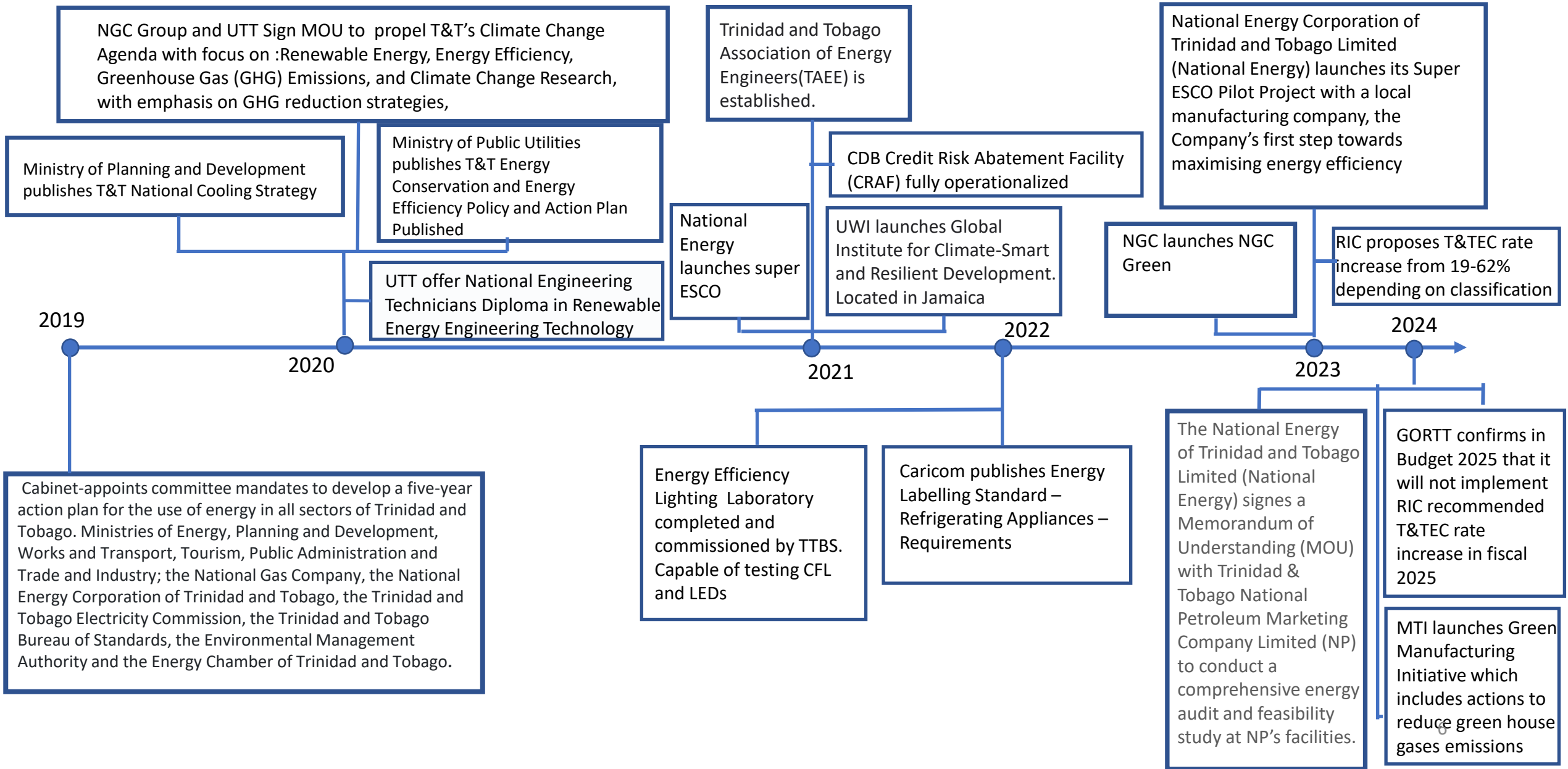
Initiatives/Developments to Drive T&T Electrical Energy Efficiency

(Highlights -Not exhaustive)



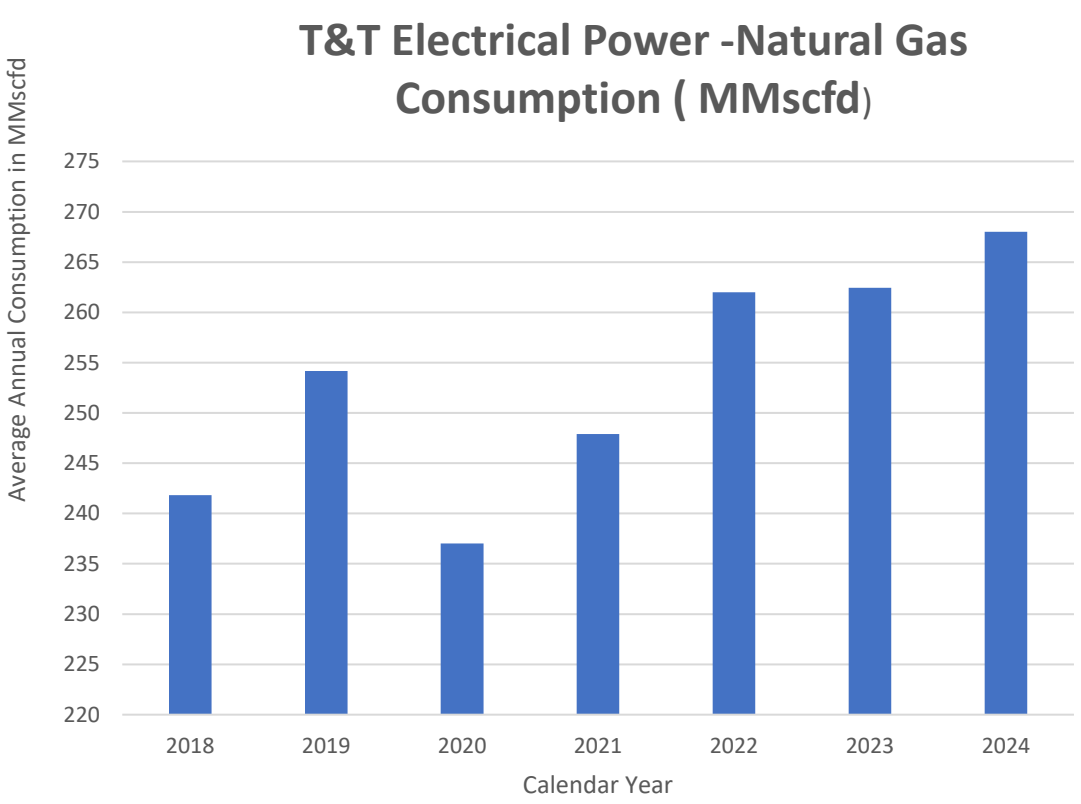
Initiatives/Developments to Drive T&T Electrical Energy Efficiency

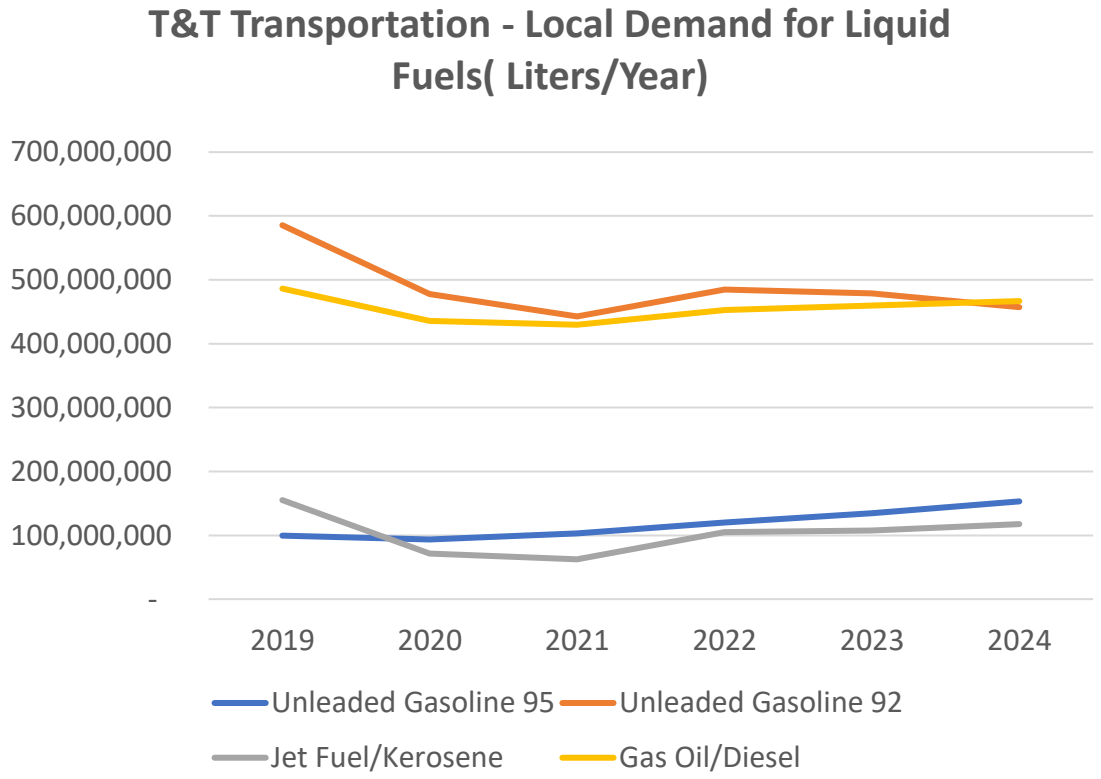
(Highlights -Not exhaustive)



What Have We Achieved?

EC and EE Aggregate Impacts from (2018-2024)





Source : MEEI Monthly Bulletins

T&T Electricity -Supply Side Energy Efficiency

Power Generation in Trinidad and Tobago

	Ownership	PPA end dates[5] (All PPA have a take or pay provision)	Capacity MW[1]	Configuration	Heat Rate(KJ/KWhr)[2,3]
Power Gen	T&TEC(51%),MaruEnergy Caribbean LLC, a subsidiary of the Marubeni(39%), NEL(10%)	Power Gen 1- 2029 Power Gen 2-2037			
Point Lisas			553	Simple Cycle	17,122
Point Lisa (New)			210	Simple Cycle	13,093
Penal			234	Combined Cycle	9,240
Trinity Power	100% Contour Global, UK Based	2029	225	Simple Cycle	13,500
TGU	GORTT	2041	720	Combined Cycle	~8,800
T&TEC					
Cove	100% T&TEC		65.6	High Efficiency Gas Engines	9,508
Scarborough (standby)	100% T&TEC		11	Diesel powered turbine	9,604
	Total Installed Generating Capacity (MW)		2018.6	Average T&T heat rate 2017 [4]	10,797
	T&TEC Contracted Supply[5]		1754	Jamaica heat rate 2023	9,379
	Peak Demand [5]		1317		

Notes -

1- RIC 2021 Review of the Status of the Trinidad & Tobago Electricity Commission 2016-2019

2. THE TREATMENT OF UNCONTROLLABLE COSTS IN INCENTIVE REGULATION- The Case of The Trinidad AndTobago Electricity Commission- RIC 2005

3. TRINIDAD GENERATION UNLIMITED (TGU) RESULTS OF OPERATION FOR THIRD QUARTERJULY 2023 – SEPTEMBER 2023

4. Quality of Service Scheme for Electricity Generating Entities in Trinidad and Tobago- RIC Aug 2018

5. The 2nd report on the management of T&TEC to the Join Select Committee of Parliament of T&T- Dec 2021

6. JPS 2023 Annual

T&T Electricity -Supply Side Energy Efficiency

Total Transmission and Distribution Losses For T&TEC[1]

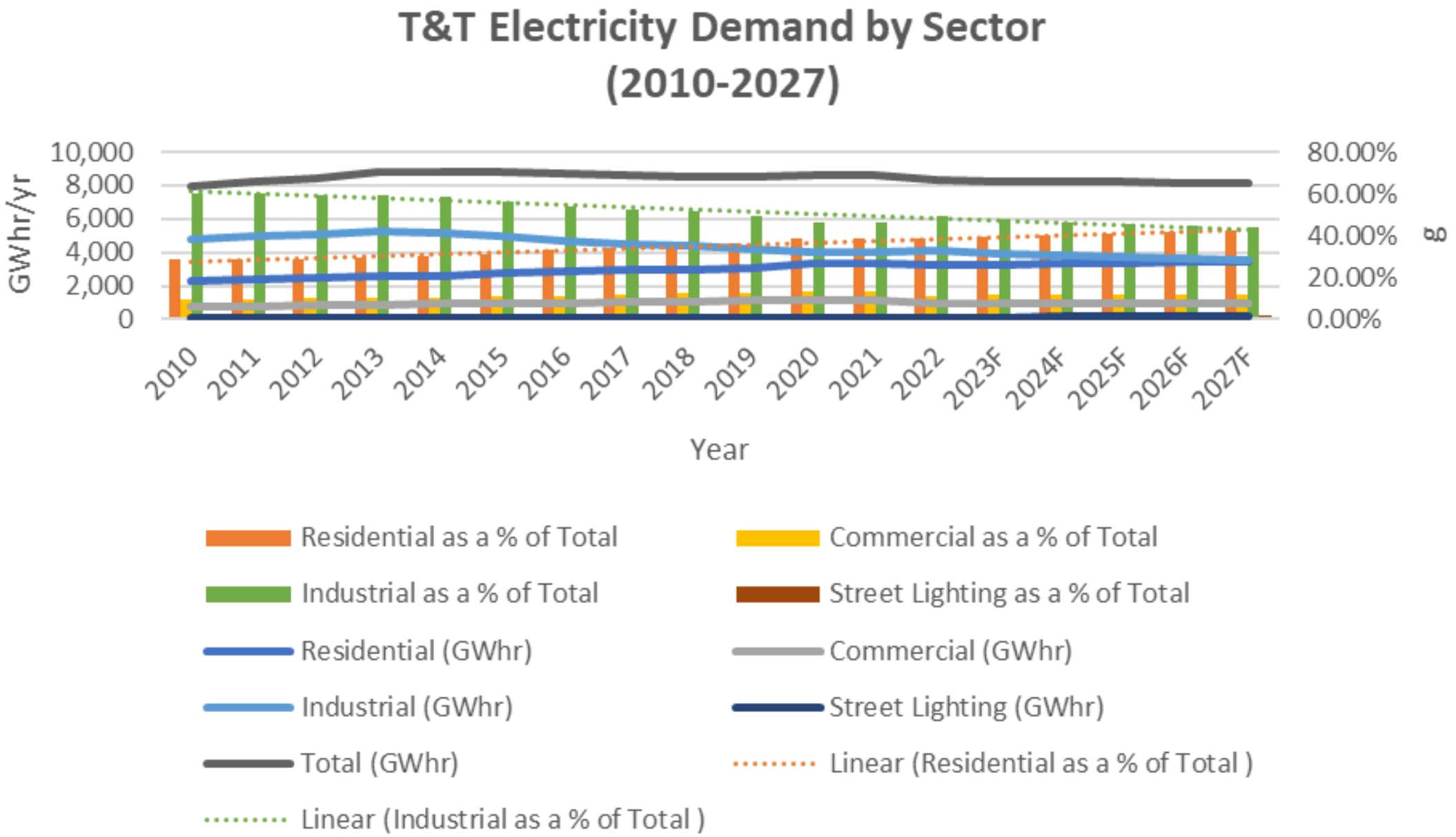
Year	2016	2017	2018	2019
Total System Losses	7.99%	8.08%	8.26%	9.22%
Benchmark US	5%			
Jamaica [2]	28%			

Losses are the difference between what is purchased from generators and what is sole to customers. Losses are made up of two (2) categories, technical (heat etc.) and non-technical losses (stolen electricity) which accounts for .025% of losses. The majority of losses are technical losses, and this represent approximately nine percent (9%).

1- RIC 2021 Review of the Status of the Trinidad & Tobago Electricity Commission 2016-2019

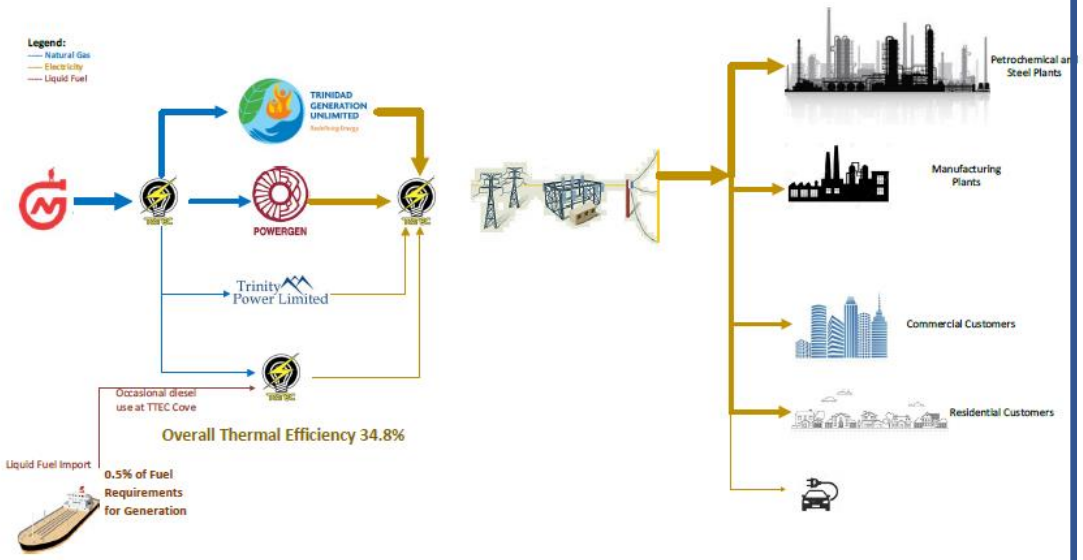
2- JPS 2023 Annual Report

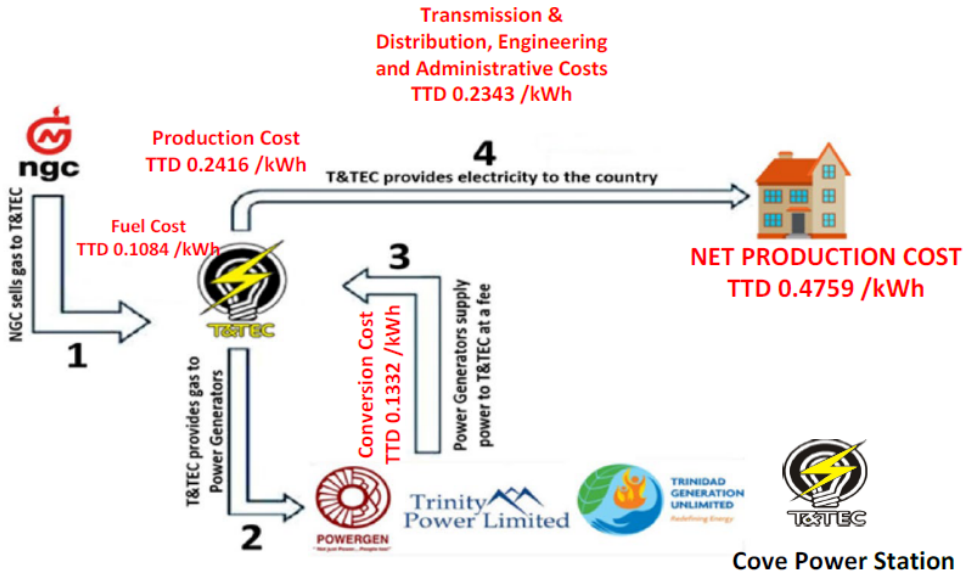
T&T Electricity Demand Side



Natural Gas Value Impacts of EC and EE

Electricity Value Chain





TGU's PPA ends in 2041, Powergen in 2029 and 2037 and Trinity in 2029.
All agreements have 'take or pay' provisions

Impact of a 10% reduction in electricity demand from EC&EE

T&TEC		Notes
Total Energy Reduction (GWh)	2,954	Total Expected annual energy saved through Energy efficiency initiatives over 5 years. This is found by multiplying the Energy Sales by the annual percentage energy reduction
Net Present Value (NPV) of Loss of Revenue to T&TEC (Mn USD)	118.4	
NPV of avoided natural gas by T&TEC (Mn USD)	44.5	Net Present value of annual gas cost avoided by T&TEC
Net negative financial effect on T&TEC (USD)	73.9	Loss of Revenue to T&TEC, less the avoided cost of natural gas cost not purchased from NGC

Net negative impact on T&TEC - $NPV_{10\%}$ over 5 Year Period – (74M USD)

Net Positive Impact to NGC - $NPV_{10\%}$ over 5 Year Period – 52-159M USD

Sale of available natural gas no longer required by T&TEC

Est. available natural gas 25MMscfd

At an improved value of 1.5 USD/MMBTU $NPV_{10\%}$ over 5 Years – 52M USD
At an improved value of 3. 5 USD/MMBTU $NPV_{10\%}$ over 5 Years- 159 M USD

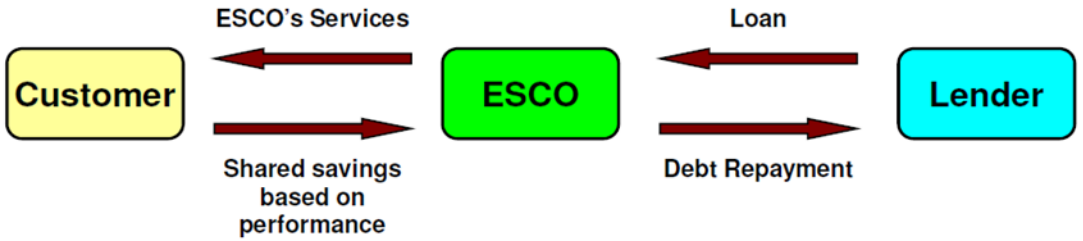
Net Positive Impact to T&T - $NPV_{10\%}$ over 5 Years – (22 M) - 85M USD

Source : Energy Conservation and Energy Efficiency Policy and Action Plan 2020-2024- MoPU

Conclusions

Actions Being Advanced to Get Tangible Results

- Unlocking the power of ESCOs /Super ESCO



- Unlocking incentives
- Access to attractive financing
- Building ESCO capacity in T&T and across the region
- More aligned and effective communications

Thank You