



# A Review of Trinidad and Tobago's Electricity Sector and PPA Process

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*[The Energy for Growth Hub](#) is a global think tank advancing data-driven solutions to end energy poverty. [PPA Watch](#) is a Hub project focused on power purchase agreements in emerging markets. These complex contracts are the foundation for most power projects and have major consequences on everything from sovereign debt sustainability to energy security. This country summary was prepared based on the Hub's independent research and consultation with key market actors.*

## Summary

Trinidad and Tobago has one of the lowest electricity tariff rates in the Caribbean and Latin America. This has contributed to the inertia in its power sector's development and transition away from dependence on natural gas. Power generation in Trinidad and Tobago is entirely dependent on natural gas as a fuel source. Natural gas has however become increasingly expensive over time, leading to the subsidization of natural gas for power generation. The country's over-dependence on natural gas for power generation is a cause for concern, as is the centralization of generation in two large power plants located at Point Lisas (Central Trinidad) and Union Estate (South Trinidad). Two national blackouts in 2022 caused by failure of transmission infrastructure have raised energy security concerns and the need to diversify the generation mix.

Trinidad and Tobago's renewable energy policy is rooted in its COP21 Paris Agreement commitments, which include a target for sourcing 20% of its electricity from renewables by 2030. Renewable energy investments will allow Trinidad and Tobago to redirect its natural gas to higher-value commercial activities such as ammonia and methanol production while meeting its climate commitments. Although the government has made some efforts to realize this target, it is unlikely to be met — especially with a lack of public pressure on the government.

However, there has been some progress. In 2022, a consortium of Lightsource BP, Shell, and BP signed a power purchase agreement — the only one of five existing PPAs that was competitively procured — for the construction of two solar farms. Additional renewable energy investment beyond these installations will be dependent on policy and legislative changes to ensure competitive procurement of future PPAs and enhance transparency throughout the PPA procurement process. This could improve cost-competitiveness, and encourage price reductions and broader sector reforms.

## Background

Electricity generation in Trinidad and Tobago began in 1895, when the capital city, Port of Spain, started generating electricity for its own use.<sup>1</sup> Over 50 years later, in 1946, the government created the Trinidad and Tobago Electricity Company (T&TEC) which was responsible for generation, transmission, and distribution. The country first began using natural gas for power generation in 1953 when a gas-fired power plant was commissioned in South Trinidad, with the gas supplied by Shell.

Despite its importance to the power sector and the economy at large, natural gas production has been on the decline, averaging around 2.7 billion cubic feet per day in 2022 from a peak of 4.3 billion cubic feet per day in 2010.<sup>2</sup> This decline can be attributed to factors such as a

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<sup>1</sup> Trinidad and Tobago Electricity Commission, *Electricity in Trinidad and Tobago 1895 to 2006, 2007*.

<sup>2</sup> Ministry of Energy and Energy Industries of Trinidad and Tobago, *Consolidated Energy Bulletin for 2022, August 2022*.

decline in levels of investment in exploration drilling, unsuccessful bid rounds, and maturing natural gas reservoirs.

In 1994, the government restructured the electricity sector by unbundling power generation from T&TEC's portfolio. T&TEC's generation assets were divested to a newly created independent company, PowerGen. PowerGen's ownership included the Amoco Business Development Company (10%), the US-based Southern Electric International (later sold to Mirant of the US and later sold to Marubeni of Japan) with 39%, and the remaining 51% retained by the state-owned T&TEC. In 2014, Amoco Business Development Company sold its 10% to National Enterprises Limited (NEL).

Since the restructuring, independent power producers (IPPs) generate electricity for sale to T&TEC, which then sells electricity to residential, commercial, and industrial customers. Two IPPs have since entered the market: Trinity Power (formerly Inncogen) in 1999 and Trinidad Generation Unlimited (TGU) in 2012, owned by AES of the US. In 2013, AES exited TGU and sold its shares to the Union Estate Electricity Generation Company Limited (UEEGCL). In December 2022, T&TEC signed a power purchase agreement (PPA) with BP Alternative Energy Trinidad and Tobago, Shell Renewables Caribbean, and Lightsource BP.

## Overview of Trinidad and Tobago's electricity system

### Electricity sector overview

TABLE 1: Electricity sector overview

Market Structure	Total Installed Capacity	Installed Capacity Generation Mix	Total PPAs
Single buyer market	2.1 GW	Natural Gas: 100%	5

### Key players in the power sector

- Trinidad and Tobago Electricity Company (T&TEC):** T&TEC is the state-owned electricity transmission and distribution company. It acts as a single buyer for all generated power. The utility procures natural gas from the national gas company of Trinidad and Tobago and makes the gas available to the IPPs at no cost to them. T&TEC also owns and operates power plants.
- PowerGen:** The government of Trinidad and Tobago created the Power Generation Company (PowerGen) after generation was unbundled from transmission and distribution in 1994. It is jointly owned by T&TEC (51%) and private investors (49%).

- **National Gas Company (NGC):** The state-owned national gas company buys natural gas from offshore oil & gas companies and sells it to T&TEC. NGC was established in 1975 with one of its mandates being to supply natural gas to T&TEC.
- **Ministry of Energy and Energy Industries:** This ministry oversees the policy direction of the power generation sector.
- **Ministry of Public Utilities:** This ministry is in charge of the management of all national utilities including T&TEC.
- **Independent power producers (IPPs):** IPPs generate electricity for sale to T&TEC which then sells electricity to residential, commercial and industrial customers.

## Legal & policy framework

The electricity sector is governed by:

- **The Trinidad and Tobago Electricity Commission Act Chapter 54:70:** This Act governs the operations of T&TEC and defines an “approved generator” as a body corporate or firm approved to generate electricity. This Act was amended by the Parliament via Act 32 of 1994 and section 33A which provides government guarantees with regard to “*the discharge of the obligations and liabilities of T&TEC under any PPA entered into with an approved generator of electricity*”. However, no contingent obligations of past PPAs have ever been transferred to the public sector debt.
- **Framework for Development of a Renewable Energy Policy for Trinidad and Tobago (2011):**<sup>3</sup> This framework emphasizes the development of renewable energy for power generation and also recommends waste-to-energy facilities.
- **Feed in Tariff policy (2015):** The FIT policy recognized that the legislative framework (i.e., the T&TEC and Regulated Industries Commission Acts) did not facilitate the establishment of small-scale generation to supply electricity to the national grid. Therefore, Parliament amended these two Acts to enable small-scale renewable electricity generators to access the T&TEC grid.
- **Public Procurement and Disposal of Public Property Act (2015)**<sup>4</sup>: This Act aims to promote:
  - (a) the principles of accountability, integrity, transparency, and value for money,
  - (b) efficiency, fairness, equity, and public confidence; and
  - (c) local industry development, sustainable procurement, and sustainable development, in public procurement and the disposal of public property.

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<sup>3</sup> Ministry of Energy and Energy Industries of Trinidad and Tobago, [framework for development of a renewable energy policy for Trinidad and Tobago](#).

<sup>4</sup> [The Public Procurement and Disposal of Public Property Act, 2015](#)

## State of the power sector

With a 100% electrification rate,<sup>5</sup> all of Trinidad and Tobago's electricity comes from natural gas,<sup>6</sup> most of which is produced offshore by BP, Shell, EOG Resources, and Woodside. The National Gas Company purchases the gas from these companies and sells it to T&TEC, which then makes it available to IPPs (Figure 2).

T&TEC electricity sales to its customers have dipped from 8,716 GWh in 2015 to 8,268 GWh in 2021. This decline is due to the closure of major industrial plants in Trinidad and Tobago and the impact of Covid 19 lockdowns in 2020 and 2021. It is worth noting that the real GDP in Trinidad and Tobago contracted by 19.3% from 2015 to 2021.<sup>7</sup> Data for real GDP and electricity sales are illustrated in figure 1. Electricity rates are generally very low and competitive with other countries in the region (Tables 2 & 3).

**TABLE 2: T&TEC Electricity Rates<sup>8</sup>**

Sector	Rate (TT\$/kWh)	Rate (US\$/kWh)
Residential	0.26-0.37	0.39-0.55
Commercial	0.42-0.61	0.62-0.92
Industrial	0.15-0.22	0.22-0.33

<sup>5</sup> <https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=TT>

<sup>6</sup> The Lightsource BPconsortium solar plant is expected to start operation in 2024

<sup>7</sup> Central Statistical Office of Trinidad and Tobago, Gross Domestic Product by Economic Activity 2012 to 2021.

<sup>8</sup> Source: Trinidad and Tobago Electricity Commission

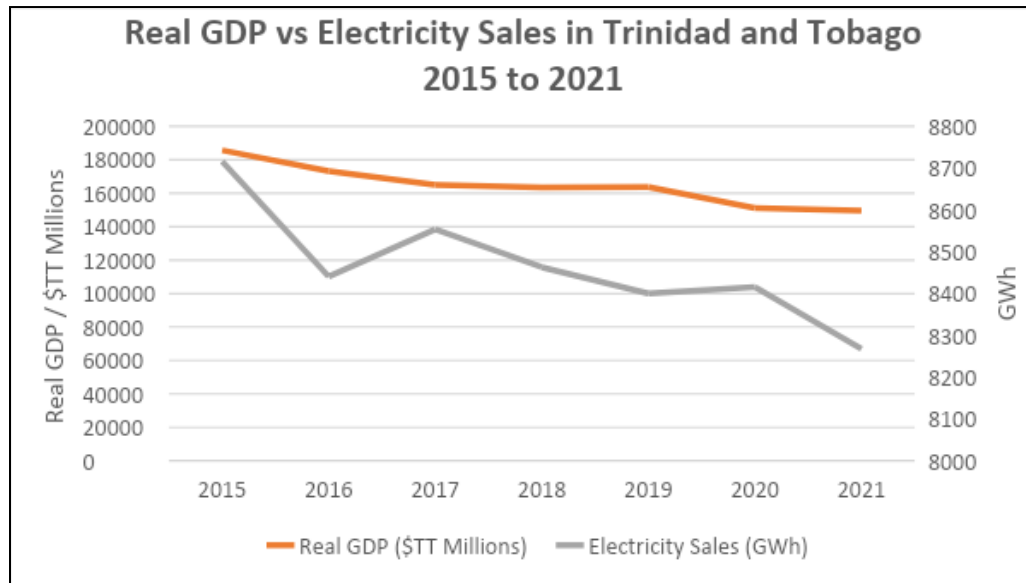
**TABLE 3:** Total Average Cost for Consumer using 200kWh and 5kVA<sup>9</sup>

Country	Electricity Tariff (US\$)
Barbados	0.28
Belize	0.21
British Virgin Islands	0.33
Curacao	0.40
Dominica	0.43
Grenada	0.34
Guyana	0.27
Jamaica	0.39
Suriname	0.05
Trinidad and Tobago	0.06

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<sup>9</sup> Source: Regulated Industries Commission of Trinidad and Tobago

FIGURE 1: Real GDP and electricity sales



## Power procurement in Trinidad and Tobago

The process commences with T&TEC inviting proposals for new power generation facilities. However, a competitive bidding process was used to approve the construction of new solar farms, and a consortium of Lightsource BP and Shell emerged as the successful bidder. In December 2022, the consortium signed a PPA with T&TEC for 112 MW of electricity from two locations.

Once T&TEC selects a bid, negotiations between T&TEC and the IPP commence. T&TEC procures natural gas from the National Gas Company and makes the gas available to IPPs at no cost to them. The IPPs convert natural gas to electricity and sell it back to T&TEC, functioning akin to a tolling facility, with T&TEC on both ends of the value chain.

The commercial relationship between T&TEC and each IPP is governed by the PPA which stipulates the capacity and energy charges. Additionally, T&TEC has a take or pay offtaker arrangement with IPPs that guarantees the IPP a steady cash flow and a return on their investment.

Nearly half (48%) of T&TEC's costs go toward purchasing natural gas from the National Gas Company and electricity from IPPs.<sup>10</sup> The take or pay arrangement protects the IPP investor who assumes the risk of investing significant capital. If T&TEC cannot take the contracted amount of electricity it committed to take, it is left with the burden of paying for electricity it

<sup>10</sup> Regulated Industries Commission of Trinidad and Tobago, Draft Determination, Regulation of Electricity, Transmission and Distribution, 2023 to 2027. [Draft Determination for the Electricity Transmission and Distribution Sector 2023-2027 – Regulated Industries Commission.](#)

did not use. This has led to T&TEC owing TGU significant monies. As of 2018, T&TEC owed TGU \$TT 1.6 billion (approximately \$230,000,000), which was converted into a loan.

## Role of independent power producers

Since PowerGen took over T&TEC’s generation assets, government policy has been the IPP model, allowing T&TEC to focus on transmission and distribution and IPPs to focus on generation. This strategy has been successful, improving the reliability of electricity supply in Trinidad and Tobago compared to what prevailed prior to the unbundling.

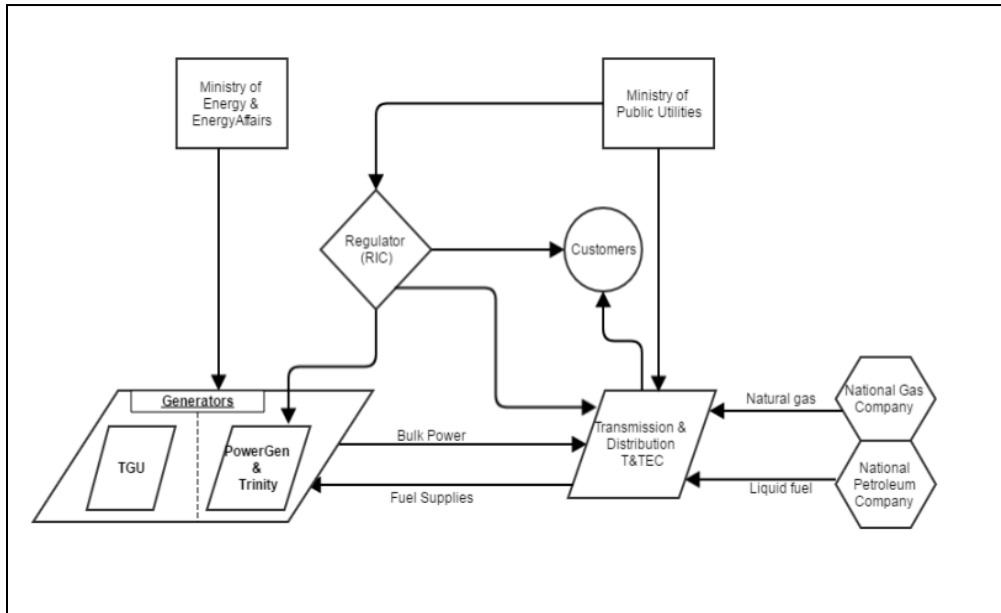
**TABLE 4:** IPP ownership (local & international)

Company (IPP)	Local Ownership	International Owners
PowerGen (Both Penal and Point Lisas Plants)	51% T&TEC 10% National Enterprises Limited (NEL)	39% Marubeni of Japan
Trinidad Generation Unlimited (TGU)	100% Union Estate Electricity Generation Company Limited (UEEGCL)	none
Trinity Power	none	100% Contour Global, UK Based
Lightsource BP (consortium)	none	100% (BP Alternative Energy Trinidad and Tobago (bpATT), Shell Renewables Caribbean (Shell), and Lightsource BP)

Government policy of supplying natural gas to the IPP at no cost to them is also rooted in T&TEC status as a 100% state-owned company and their ability to purchase gas from the National Gas Company, also 100% state-owned. The IPPs function as tolling plants, converting natural gas to electricity as their core business. This enables the government to subsidize the price of electricity for consumers.



FIGURE 2: Power generation and electricity in Trinidad and Tobago



Source: Regulated Industries Commission of Trinidad and Tobago

## State of PPA transparency

T&TEC currently has 5 PPAs. Two of these are with PowerGen, one with TGU, one with Trinity Power, and one with the Lighsource bp for the two solar farms. These agreements are not available to the public. However, general information about the content of a PPA may be provided at meetings of Joint Select Committees of Parliament dealing with T&TEC, which occur approximately every two years. PPAs are signed publicly, and at the signing ceremonies general information, including generation capacity and some terms of the PPA, is made available to the media and public. Information on pricing formulae and heat rates is kept confidential. Consequently, the price at which IPPs sell electricity to T&TEC is confidential and has not been made public.

Industry sources indicate that T&TEC pays around US\$0.02 per kilowatt-hour for the electricity it buys from the TGU power plant (see Annex). T&TEC's board and management have appeared before Joint Select Committees of Parliament, and meetings are broadcasted live on the Parliament Channel.<sup>11</sup> At these meetings, the price T&TEC pays the National Gas Company has been disclosed.<sup>12</sup>

<sup>11</sup> Parliament Channel of the Parliament of Trinidad and Tobago, <https://www.youtube.com/watch?v=9feHToD49l8>, 2018

<sup>12</sup> Parliament Channel of the Parliament of Trinidad and Tobago, <https://www.youtube.com/watch?v=MEfbo-l23rl>, 2021

## Key considerations impacting PPA contracting and IPP participation

- **Tariff pricing and political implications:** Trinidad and Tobago's electricity sector is at a critical moment where its financial sustainability is under threat. Despite rising costs, T&TEC has not increased rates since 2009, which threatens the viability of T&TEC and limits its ability to invest in transmission and distribution infrastructure maintenance. Such decisions are politically sensitive and successive governments have deferred it due to fear of political fallout; however, it is only a matter of time before the electricity rates are increased.
- **Non-payment of electricity bills by customers impacting T&TEC's financial viability:** At the end of 2021, T&TEC's customers owed the company \$TT 1.6 billion (approximately US\$ 230 million), of which nearly 82% was attributable to the government and its agencies.
- **High utility debt:** T&TEC also has problems paying for the natural gas it buys from the National Gas Company to supply to IPPs. In September 2022, the minister of finance revealed that T&TEC owed the National Gas Company \$TT 7 billion (approximately US\$ 1 billion).<sup>13</sup>
- **Excess capacity payments:** Trinidad and Tobago generates 1,417 MW (peak demand) from 270 million cubic feet of natural gas per day, resulting in excess power generation capacity. The conversion of natural gas to electricity accounts for 23% of T&TEC's total annual expenditure (T&TEC's total expenditure in 2021 was \$TT 4.32 billion). The excess capacity is due to the closure of two large electricity consumers, the Mittal Steel complex (closed in 2016) and the Petrotrin refinery (closed in 2018). In addition, the 2010 cancellation of the Alutrinc aluminum smelter project, which was intended to be powered by the TGU power plant in La Brea, resulted in additional excess capacity. The Alutrinc aluminum smelter project was canceled due to environmental and community protests and a court decision that struck down its environmental permit.
- **Corruption allegations:** In 1998, the Government approved the construction of a new power plant to be built by Inncogen, a subsidiary of York Research Corporation of the United States. However, the project was mired in controversy<sup>14</sup> and became a focal point for allegations of corruption against the first United National Congress Government (1995 to 2001). The controversy centered on the approval granted to Inncogen to construct a power plant, now known as Trinity Power, and to sell electricity to T&TEC. It was reported that the approval was granted via direct

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<sup>13</sup> Curtis Williams, Imbert reveals T&TEC owing NGC \$7B, <https://www.guardian.co.tt/business/imb-ert-reveals-ttec-owing-ngc-7b-6.2.1542944.2d5dc58eee>

<sup>14</sup> Ipsnews, <https://www.ipsnews.net/2001/11/politics-trinidad-electricity-deal-haunts-election-campaign/>, 2001

negotiations and contingent on the construction of other plants including glass, ethanol, paper and particle board plants. These plants never materialized.<sup>15</sup>

## Conclusion and Recommendations

Trinidad and Tobago will need to diversify its power generation mix and minimize total dependence on natural gas. Planned investment by Lightsource BP in two solar farms is a step in this direction. Repurposing natural gas from power generation to feedstock for ammonia, methanol, and LNG plants can help the country derive more value from its finite natural gas reserves.

Diversification will also enhance energy security, as the country experienced two nationwide blackouts in 2022 due to transmission line issues. To make PPAs with IPPs more transparent, legislative changes may be required given that the IPP regime is part of the T&TEC Act. The implementation of the Public Procurement and Disposal of Public Property Act (2015), which will apply to future electricity supply contracts between T&TEC and IPPs, is expected to ensure fair and transparent power procurement and development.

T&TEC, the NGC, and the IPPs combine to provide Trinidad and Tobago with low cost and reliable electricity which underpin its high standard of living compared to other countries in the Caribbean and Latin America. It is however debatable how long these benefits could last considering the increasing pressures on T&TEC of having to survive on tariffs that have not been increased in fourteen years.

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<sup>15</sup> Raffique Shah, That's Insulting, Mr Prime Minister, <http://www.trinicenter.com/Raffique/2001/Nov/>, 2001.

## Annex: Available PPA information in Trinidad and Tobago

#	Name of IPP/ Company	Location	Project Status	Commissioning Date	Installed Capacity (MW)	Contracted Supply	Duration (years)	Technology	Mode of procurement for PPA
1	PowerGen	Point Lisas	Operating	1977	818	832 (supplied by both PowerGen plants)	624 MW until 2029 and 208 MW until 2037	Point Lisas -Simple Cycle	Competitive procurement
2	PowerGen	Penal	Operating	1953	236			Penal - Combined Cycle	Information not available
3	Trinity Power	Brechin Castle	Operating	1999	225	210	2029	Simple Cycle	Direct Negotiations
4	Trinidad Generation Unlimited (TGU)	Union Estate, La Brea	Operating	2011	765	720	2041	Combined Cycle	Information not available
5	Lightsource BP (consortium)	Orange Grove (East Trinidad); Brechin Castle (Central Trinidad)	Under development	Est 2024	112	112	unknown	Solar	Competitive procurement