

Energy Efficiency - The Untapped Resource (Part 1)

A societal paradigm shift is required if our hydrocarbon economy is to move towards a 'greener' Trinidad and Tobago. As we pursue our renewable energy power generation ambitions, it is understood that renewables will require the appropriate legislative framework to support implementation, regulation, and standardisation for accelerated national uptake. Additionally, commercial and domestic applications need suitable infrastructure to facilitate energy capture, storage and distribution. These changes will undoubtedly challenge some of our cultural norms, as citizens and firms will be forced to adopt a more responsible approach to energy usage.

According to DNV GL's Energy Transition Outlook 2021, global warming is likely to reach 2.30C by the end of the century in the absence of any immediate and substantial interventions. However, DNV states that there is a small window of opportunity to close this gap through energy efficiency (EE), which remains the greatest untapped resource against climate change.

With these factors in mind and aligned with UN Sustainable Development Goal # 7 - to ensure access to affordable, reliable, sustainable, and modern energy for all - National Energy recognises the key role for EE in our country's transition towards developing the platform for alternative energy being fully integrated into this country's energy mix.

Benefits of Energy Efficiency

Based on National Energy's continuous research and findings, the benefits of energy efficiency to the local market are extensive (See Figure 1).

Figure 1: Benefits of Energy Efficiency

Environmental & Social	Economic	Utility Systems	Risk Management
<ul style="list-style-type: none"> Reduce greenhouse gas (GHG) emissions and other pollutants Lead to decreased water usage Improve comfort/well-being 	<ul style="list-style-type: none"> Lower individual utility bills Create jobs Improved efficiency reduces total energy demand, allowing the share of renewables in the energy mix to grow faster 	<ul style="list-style-type: none"> Over the long-term, can lower overall electricity demand and potentially limit investment in new electricity generation & transmission infrastructure 	<ul style="list-style-type: none"> Aids diversification of utility resource portfolios Used as a hedge against uncertainty associated with rate increases

Source: Adapted from US EPA - Local Energy Efficiency Benefits and Opportunities

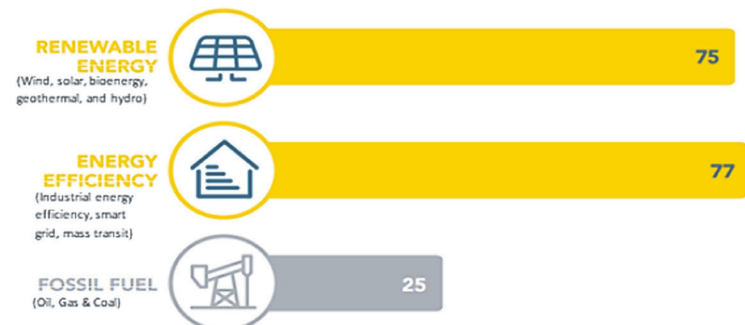
Energy efficiency initiatives are the faster and less expensive option compared with renewable energy systems, for reducing energy costs. According to the International Energy Agency (IEA), energy efficiency is a low-hanging fruit in that it can require relatively little upfront capital outlay in domestic and small business applications, and what is expended can be amortised with savings from energy consumption. However, keep in mind that while energy efficiency technologies tend to be more cost-competitive than renewable energy options, both are required to realise long-term climate change mitigation goals.

Energy Efficiency and Renewable Energy Synergies

Energy efficiency and renewable energy will bolster the broader transition needed in Trinidad and Tobago's energy sector. Renewable energy and energy efficiency work in synergy and if pursued together, can bring faster reductions in energy intensity and lower energy costs, according to a working paper from the International Renewable Energy Agency (IRENA), Synergies between renewable energy and energy efficiency. If Governments around the world were to build this synergy into policy and decision making, global energy-related CO2 emissions could be reduced by 70% by 2050 (IRENA, 2017).

Bringing into focus the benefit of job creation, many measures taken to improve the efficiency of cities, industrial plants, commercial buildings, and transport systems are labour intensive. Energy efficiency investments create opportunities for workers and the energy bill savings that stem from the initial investment frees up funds to support additional employment throughout the economy. Additionally, according to IRENA (2018), energy efficiency will employ approximately 2% more people than renewable energy by 2030 in the global energy sector. Harnessing this win-win in Trinidad and Tobago is an effective way to rise to both challenges, while ensuring energy security (with depleting gas reserves) and local employment.

Figure 2: Jobs created directly and indirectly by investing in clean energy vs fossil fuels (Per US\$10 Million in Spending)



Source: Heidi Garrett-Peltier, "Green versus brown: Comparing the employment impacts of energy efficiency, renewable energy and fossil fuels using an input-output model," Economic Modelling, 2017 in The Recover Better With Sustainable Energy Guide For Caribbean Countries produced by Sustainable Energy for All (SEforALL) 2020

National Energy's Role in Driving Energy Efficiency

National Energy has been driving energy efficiency initiatives for several years and continues to deepen our commitment in this area. In 2019, National Energy, with support from IDB Invest, undertook a market study on the viability of establishing an energy services financing mechanism for local Energy Services Companies (ESCOs). Results showed promise, even within the current low tariff environment. For example, with a 20% participation rate across public and commercial sectors, the reduction in power consumption can lead to natural gas savings equal to circa 2.25 bcf annually. Similarly, energy upgrades to customers in the medium to large industrial classes would lead to both increased natural gas efficiencies and electricity efficiency improvements. The value of additional volumes will redound to the overall benefit of the country. For the next phase of the project, National Energy plans to undertake a pilot project for implementation of energy efficiency initiatives in the commercial and industrial sectors.

Figure 3: Get to Know: ESCO and Super ESCO

What is an ESCO

- ESCO is an organisation that:
 - conducts energy audits
 - enters into energy performance contracting
 - recommends energy efficiency solutions
 - installs energy efficiency systems and
 - monitors and verifies these systems to determine the savings realised in terms of both energy and cost.

What is a Super ESCO?

- A Super ESCO:
 - drives creation of an ESCO industry by lowering transaction costs and identifying energy saving opportunities for implementation by ESCOs
 - offers a model for accelerating the uptake of energy efficiency.

A feature on National Energy's Super ESCO programme will be presented in Part 2, so stay tuned!



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