

NATURAL GAS: A FUEL OF THE FUTURE





TARGET

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KEY TAKEAWAYS

Natural gas possesses certain merits that will prove valuable even after clean energy alternatives become predominant around the world.

These include its accessibility, availability, versatility and affordability.








Caribbean countries remain poised to use natural gas as the most pragmatic solution to meet their energy needs, in place of dirtier fossil fuels.

The importance of natural gas in today's world cannot be overstated, since it accounts for about 22.4% of electricity generation.¹ Its future importance as an energy source remains defined by its context, as it will remain a key fuel in the transition to renewables, as the cleanest fossil option available.

For most developed countries, natural gas is a compelling and clean medium-term solution to energy needs. Natural gas possesses certain merits that will prove valuable even after clean energy alternatives become predominant around the world:

- It is readily available and accessible as a fuel, with widespread existing infrastructure.
- It is easily stored and can be transported through pipelines or liquefied and sent by ship.
- Natural gas power plants can turn on and off quickly, ramping up supply in a short space of time, making it a convenient way to respond to both seasonal and short-term fluctuations in demand.
- Even after the transition to renewables, natural gas may still be needed as a backup energy source for variable renewables.
- For net gas exporters such as Trinidad and Tobago or for small energy markets in the Caribbean, it is the most pragmatic medium to long-term energy solution.

ARGUMENTS FOR NATURAL GAS

 Abundant and accessible	 Revenue source	 Fuel of the energy transition
 Reliable and rapidly scalable	 Infrastructure already exists	 Versatility in application
 Integration with hydrogen economy		






NATURAL GAS IN THE CARIBBEAN

The extent to which natural gas will feature in the energy mix of different countries moving forward will be determined by their:

- resource endowment
- level of income
- relative level of external debt
- access to low interest rate and grant financing (correlated with income)
- long-term growth rates
- availability of reliable and cost-effective alternative energy sources
- existence of existing fossil fuel infrastructure

¹<https://www.iea.org/energy-system/fossil-fuels/natural-gas>

Table 1 illustrates current and possible future roles for natural gas in the Caribbean.

	 Trinidad and Tobago	 Guyana	 ECCU countries	 Barbados	 Jamaica	 Suriname
POTENTIAL RESOURCE ENDOWMENT	Natural gas, solar, wind potential	Oil, gas, hydropower, solar	Solar, geothermal	Solar, wind, wave potential	Solar, wind	Gas, hydropower, solar
LEVEL OF INCOME	Upper middle income	Upper middle income	Upper middle income	Upper middle income	Upper middle income	Upper middle income
RELATIVE LEVEL OF EXTERNAL DEBT (%)	21	18.8	72.2	49.8	66.4	67
ACCESS TO LOW INTEREST RATES AND GRANT FINANCING (CORRELATED WITH INCOME)	Minimal	No	No	No	No	No
NET ENERGY EXPORTER	Yes	Yes (recent)	No	No	No	Yes
AVAILABILITY OF RELIABLE AND COST-EFFECTIVE ALTERNATIVE SOURCES OF ENERGY	No (low consumer cost of electricity)	Yes (hydropower)	Yes (renewables)	Yes (natural gas, solar)	Yes (natural gas, wind)	No (low cost of hydropower)
EXISTING ENERGY INFRASTRUCTURE FOR RENEWABLES/ NATURAL GAS	No (solar park under construction)/Yes	No/Under construction	Yes /No	Yes/Yes	Yes/Yes	Developing/No
NATURAL GAS A FUEL OF THE FUTURE?	Yes. Natural gas will continue to be used as engine of economic activity and in the long-term transition to hydrogen economy	Yes. A new natural gas to power project is under construction.	Limited. The long-term focus in the ECCU countries will be on renewable sources.	Yes. While the Barbados policy points to future renewables focus, this may not be achievable in the short term.	Yes. Natural gas used in electricity generation to replace diesel.	Yes. Gas reserves of approx. 12.5 tcf of gas to be exploited

ON THE GREEN AGENDA

Trinidad and Tobago has reaped the benefits of gas, both as an energy source and as an engine of revenue and economic growth. Despite the fact that in the last decade, our comparative advantage in gas exports has been dampened by the increasing availability of cheap export gas from the USA, the commodity will remain important as part of our long-term transition to hydrogen, as a low-carbon fuel, and as a source of foreign exchange.

For other Caribbean countries, however, the arguments are different because of their unique circumstances and renewable energy targets. That said, there are economic, physical, and structural limitations that could slow the adoption of renewables in the region:



- **Marginal growth rates**
- **Overall small size of the economy**
- **High existing debt burdens in most Caribbean states**
- **High susceptibility to the effects of climate change**
- **Need for investment in capability enhancement, capacity building and adaptation, as most Caribbean countries face constraints to implementation and execution arising from existing governance arrangements, institutional and legal systems, and human resource capacity.**



As a result, many of the countries remain inadequately prepared for managing the interactions between legacy fossil fuels and future-facing renewable systems. While development aid and technical assistance programmes have gone some way towards mitigating these issues, they are still present.

Energy-wise, absent significant grid-level investment in costly energy storage, renewables are yet to solve the “spinning reserve” issue, or the need for reserve power for on-tap availability. Issues around energy storage infrastructure in the Caribbean persist. While there are several promising initiatives, the technology is not yet ready and seems most likely to be used alongside decentralised electricity microgrids. Although current infrastructure is aged and, in most cases, based on diesel/heavy fuel oil, it is still cheaper to retrofit these installations to use natural gas as fuel than build out new infrastructure. For countries such as these, natural gas is a pragmatic solution.

THE OUTLOOK FOR GAS

Over time, the global picture regarding natural gas is dynamic. Countries with commercial gas resources — with encouragement from fossil fuel producers — will

continue to exploit these resources, even as these same countries declare new climate targets and other countries try to wean themselves from a reliance on fossil fuels. Additionally, divergent geopolitical and resource availability realities may lead to a “two-path” world where countries do what is most pragmatic for them to do - whether pursuing fossil fuel development, renewables, or some combination of the two.

ACCORDINGLY, FOR THE FORESEEABLE FUTURE, NATURAL GAS WILL CONTINUE TO BE AN INTEGRAL PART OF THE GLOBAL ENERGY MIX. IT WILL CONTINUE TO PLAY A CRUCIAL ROLE IN THE TRANSITION AWAY FROM MORE POLLUTING ENERGY SOURCES AND WILL ALSO PROVIDE AN IMPORTANT BACKUP TO VARIABLE RENEWABLE ENERGY SOURCES — UNTIL GRID-SCALE ENERGY STORAGE TECHNOLOGIES MATURE AND BECOME A VIABLE ALTERNATIVE. CARIBBEAN COUNTRIES REMAIN POISED TO USE NATURAL GAS AS THE MOST PRAGMATIC SOLUTION TO MEET THEIR ENERGY NEEDS, IN PLACE OF DIRTIER FOSSIL FUELS. FOR THE REGION, IT WILL CERTAINLY BE A FUEL OF THE FUTURE. ■