



In 2017, the CARICOM Secretariat organised a Youth Essay Competition as part of its activities marking the CARICOM Energy Month. Wishing to involve the younger generation in energy-related issues and their fallout and thereby transform it into a channel for promoting awareness of clean and sustainable energy solutions, and with a view to giving a voice to Caribbean youth regarding their dreams of their future in a changing world, the Energy Unit of the CARICOM Secretariat invited participants to submit an essay about the need to advance the region's sustainable energy transition and their vision of how their country could support this move.



In this feature we present the Tertiary Education laureate: **Sasha Woodroffe**, from Guyana, currently a third-year student at the St. Augustine Campus of the University of the West Indies, who won both this category's Essay Award and the Golden Pen Award for the best overall entry within the Essay Competition.

Ms Woodroffe's interest in energy and more generally in sustainable development stems largely from her background in economics, which she has been studying since 6<sup>th</sup> Form, and her winning essay certainly demonstrates a good understanding of the links between economic growth, livelihoods and a necessary transition to sustainable, affordable and reliable energy. *"There are significant micro- and macro-economic benefits associated with the transition to sustainable energy,"* she states, citing the cost of energy prices and providing a well-structured and properly referenced reasoning for a shift towards renewable energy sources.



In her essay, Ms Woodroffe managed to capture the rationale for what she calls *"the drastic steps that are needed to transform the energy landscape"*. It is about *"fulfilling the demand for energy of the current population without negatively impacting future generations,"* she writes in her essay, and it is about responding to the challenges of climate change, but *"the Caribbean's incentives for transitioning to sustainable energy sources are not limited to simply concern for the planet and the livelihood of mankind,"* she states, ... [they] *"extend to concern for the countries' more immediate physical and economic welfare."*

It is, indeed, clear from her essay that, like many of the advocates of sustainable energy in the region, Ms Woodroffe sees the energy transition delivering much more than economic benefits and resilience. Renewable sources, she writes, *"provide the avenue to revolutionise not just the energy sectors, but the economies ... and quality of life offered in the region. [They] provide the fuel of the future and the Caribbean would benefit greatly from pursuing this transformative route"*.

Echoing the views expressed by regional experts and the positions articulated by the regional organisations involved in the sector, which have endorsed the ambitious regional target of 48% renewable energy generation by 2027, Ms Woodroffe feels that fulfilling *“the population’s energy needs via sustainable sources is not only the reality towards which Caribbean territories should strive – for environmental, micro-economic and macro-economic reasons – but is undoubtedly within their capability.”* She recalls that all countries and territories in the region – and in particular her native Guyana – have several renewable sources of energy, and yet households, businesses and governments still carry the burden of high energy costs and remain vulnerable to the volatility of energy prices on the global market.

How then can the necessary transformation happen? What are the obstacles to a faster and more effective transition to sustainable energy in the Caribbean? She laments that the region is *“comfortable where it is”* and she is well aware that *“the evolution of Caribbean energy sectors to include substantial sustainable sources is an on-going process. The evidence is available,”* she argues, *“but leaders are not always willing to take the risks. We need a big movement,”* she argues, referring to the change that is needed and to the *“need to shift the whole system.”*

Risk management is actually among Ms Woodroffe’s interests and skills (she is currently studying actuarial science at UWI) and it may well be where her future contribution to the region’s search for a sustainable energy future will lie. Talking about herself, the laureate says she is *“interested in applying theoretical knowledge to real-life problems in areas like insurance, pension and finance.”* So does she see herself being involved in energy in her future career? *“Maybe not,”* she says, *“at least not directly, but I think that my expertise can be useful in helping to manage risk.”*

Focusing part of her essay on her native Guyana, which she qualifies as a *“haven of natural resources”*, Ms Woodroffe identifies the various renewable sources available to that country and highlights their potential. Yet she is also well aware of the challenges arising from the *“promise of oil”*, Guyana having recently become one of the hottest oil spots in the hemisphere, with ExxonMobil alone accounting for seven hydrocarbon discoveries in one single exploration, and with the expectation that the first barrels of oil will be produced within two to three years, possibly leading to GDP growth of around 25-30 per cent per year

Reading her concise and well-documented essay, one can see Ms Woodroffe’s rigour and academic competencies. It is therefore not surprising that in 2013 she was recognised by the Caribbean Examinations Council (CXC) as the Most Outstanding Student in Business Studies in the Caribbean Secondary Education Certificate, and that she has excelled ever since. She likes challenges, and actually welcomed the challenge of writing this essay when she saw the competition advertised on social media.

Ms Woodroffe is a rigorous person who is very comfortable with numbers, but she is just as comfortable with people, being actively engaged in social activities on campus and similarly active outside the campus, where she has provided mentorship to young girls (ages 6-16) from broken families, and where she has tutored and provided help with homework to a group of girls in Grades 5 and 6.

The future of the Caribbean is in good hands when the concepts of sustainability and equity are embraced and eloquently advocated by its young professionals. To quote Albert Camus (1913-1960), *“the purpose of a writer is to keep civilisation from destroying itself”* and Ms Woodroffe’s clear message is that it is up to us to make the change and save ourselves from destruction.

**In this section, we offer three important excerpts from Ms Woodroffe's winning essay:**

*On the potential micro and macro-benefits associated with the transition to sustainable energy*

Furthermore, there are significant micro- and macro-economic benefits associated with the transition to sustainable energy. Electricity prices in the Caribbean are currently some of the highest in the world, averaging US\$0.34 per kWh whereas the United States averages US\$0.12 per kWh (Schmidt & Sangermano, 2017). Although the initial investment in sustainable energy processes requires large capital outlay, per unit costs would be considerably lower than these current prices. Additionally, according to a report by Bloomberg Energy Finance (2016), wind costs will fall by 41% and solar costs by 60% by 2040, becoming two of the cheapest sources of energy. These cost savings benefit households – especially those with lower incomes – businesses, particularly in the tourism industry (a major income earner for many Caribbean islands) which has significant operating costs for electricity, and manufacturing industries. Therefore, Caribbean firms can actually be competitive on the world market and expand operations further, benefitting from economies of scale. In addition, producing its own sustainable energy eliminates the need to spend foreign currency on oil; the Caribbean presently meets approximately 90% of its energy needs by importing oil (Schmidt & Sangermano, 2017). Moreover, the region would no longer be subject to the volatility of energy prices. A World Bank Report (2012) estimated that a mere 10% increase in the renewable potential capacity of the Caribbean has the ability to reduce current account deficits by approximately 1% of Gross Domestic Product. As such, the conversion to sustainable energy sources results in energy security and has notable benefits for the individual, firm and the economy as a whole.

Bloomberg New Energy Finance. (2016). New Energy Outlook 2016: Powering a Changing World.

Schmidt, P.L. & Sangermano, N. (2017). The Global Transition to Renewable Energy — Can the Caribbean Lead the Way? Part 1: The Potential. Part 2: The Challenges. Retrieved from <http://www.renewableenergyworld.com/articles/2017/06/the-global-transition-to-renewable-energy-can-the-caribbean-lead-the-way-part-1-the-potential.html> and <http://www.renewableenergyworld.com/articles/2017/06/the-global-transition-to-renewable-energy-can-the-caribbean-lead-the-way-part-2-the-challenges.html>

The World Bank. (2012). Central America/Caribbean Can Reduce their Oil Dependency, Says WB Report. Retrieved from <http://www.worldbank.org/en/news/press-release/2012/07/25/central-america-caribbean-can-reduce-oil-dependency-says-wb-report>

*On the link between energy and climate change*

The force of the need for the region's transition to sustainable energy sources is the issue of global warming. According to the CAIT Climate Explorer (2017), the energy sectors of Latin American and Caribbean countries over the years 1990 to 2014 were responsible for approximately 46.5% of all greenhouse gas emissions in the region. The global warming phenomenon should be a pressing concern to the Caribbean as it has especially significant environmental and economic impacts for the region. As stated in an article by the Inter-American Development Bank (2012), events such as floods, droughts and diminishing agricultural yields prompted by global warming could result in annual damages of \$100 billion to Latin America and the Caribbean by 2050. Countries that depend on natural resources prone to damage from global warming (such as coral reefs) for tourism income, as well as Guyana whose coastal plain is

below sea level, are also quite susceptible to physical and economic damage resulting from rising temperatures. Therefore, the Caribbean's incentives for transitioning to sustainable energy sources are not limited to simply concern for the planet and the livelihood of mankind – which is a significant reason alone – but extend to concern for the countries' more immediate physical and economic welfare.

CAIT Climate Data Explorer. (2017). Latin America & the Caribbean Historic: CAIT Historic – Explore Historic Greenhouse Gas Emissions. Retrieved from <http://cait.wri.org/profile/Latin%20America%20&%20the%20Caribbean>

Inter-American Development Bank. (2012). Latin America and the Caribbean face massive economic damages from global warming, report warns. Retrieved from <http://www.iadb.org/en/news/webstories/2012-06-05/latin-america-and-the-caribbean-global-warming,10011.html>

### *On Guyana's potential for sustainable energy*

Guyana is a haven of natural resources, which provides vast opportunities for the generation of renewable energy. As calculated by Ochs, A., Konold, M., Auth, K., Musolino, E., Killeen, P. (2015), Guyana has hydro-energy potential of 7 000 megawatts, solar energy potential of 575.8 million megawatt hours per year and biomass and waste-to-energy potential of 60.2 gigawatt hours. While solar energy has been implemented on a small scale, for example, in the interior and in domestic water heating, the climate of the country provides for execution to a much larger degree. In a similar way, biomass and waste-to-energy potential can be expanded to a larger scale.

Solar energy easily has the greatest potential in Guyana as compared to the other forms of renewable energy. While solar photovoltaic systems are gradually being introduced, a long-term solution could be to pursue the integration of solar energy into the model of the national utility company “Guyana Power and Light”. With large scale investment into solar energy, households, businesses and manufacturing companies across Guyana would be afforded access to efficient, renewable energy while gradually phasing out the use of fossil fuels. As Guyana may not have the economic resources to undertake such a substantial investment, in keeping with the fostering of one regional community, regional interconnections could be implemented. Schmidt & Sangermano (2017) assert that these would also “mitigate concerns over intermittency at a macro level” while improving efficiency and reducing the magnitude of required reserves. Presently, however, smaller-scale measures may be implemented such as the offering of grants and subsidies to firms which generate their own solar energy.

Furthermore, as Guyana is known as the “Land of Many Waters”, it seems obvious that there are many waterways which may facilitate hydro-systems. Even as plans to implement large hydropower systems may be undergoing extensive design to minimize negative environmental impacts, smaller hydro-systems can be installed. This would be especially beneficial in remote areas in the Hinterland which are disconnected from the national grid. Such systems would provide cheap, clean sources of energy to persons who would not otherwise have access to electricity.

Already in existence is a 30 megawatt biomass plant (using bagasse) and an ethanol plant (which uses molasses) operated by the Guyana Sugar Corporation (GUYSUCO) (Climatescope, 2017).

Wilburg (2016) also noted that “in exploring the use of rice husk biomass to generate electricity, a 400kW/hr gasification system was installed in Region 2 (Pomeroon – Supenaam) by a private rice miller”. However, these systems using readily available by-products of the country’s agriculture industry are not being utilised to their full potential. Therefore, a readily available solution is to expand already existing biomass and biofuel systems. For example, these gasification systems could be implemented in rice mills all across Guyana. In order to encourage the investment in renewable energy processes by private owners, the Government can grant tax credits, as well as provide grants and/or subsidies to those mills which seek to undertake it. In addition, the biomass and biofuel plants operated by GUYSUCO could be expanded and operated at full capacity, and excess energy placed on the national grid.

Climatescope 2017. (2017). Guyana – Climatescope 2017. Retrieved from <http://global-climatescope.org/en/country/guyana/#/enabling-framework>.

Ochs, A., Konold, M., Auth, K., Musolino, E., Killeen, P. (2015). Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS): Baseline Report and Assessment. Washington, DC: Worldwatch Institute.

Schmidt, P.L. & Sangermano, N. (2017). The Global Transition to Renewable Energy — Can the Caribbean Lead the Way? Part 1: The Potential. Part 2: The Challenges. Retrieved from <http://www.renewableenergyworld.com/articles/2017/06/the-global-transition-to-renewable-energy-can-the-caribbean-lead-the-way-part-1-the-potential.html> and <http://www.renewableenergyworld.com/articles/2017/06/the-global-transition-to-renewable-energy-can-the-caribbean-lead-the-way-part-2-the-challenges.html>

Wilburg, K. (2016). Guyana’s Energy Sector — Part One. Kaieteur News. Retrieved from <https://www.kaieteurnews.com/2016/06/12/guyanas-energy-sector-part-one/>.