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October—December 2020

Energy Buzzz

Produced by the Energy Unit

Ministry of Communication, Works, Energy and Labour, Brades, MSR1110, Montserrat

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We welcome comments, feedback, suggestions, and/or article contributions.

These can be submitted to Farrells@gov.ms

TOPICS

FROM THE MINISTER

Hon. Dr. Samuel Joseph

Minster of Communication, Works, Labour and Energy

Securing Montserrat's Resilience through Renewable Energy

The Power to Change, that is the title of Montserrat National Energy Policy.

We have the power to change and we must believe that we have that power.

The policy is structured and designed to ensure that by 2030, Montserrat has "Reliable, low-cost, sustainable provision of energy services matched to the societal and development needs of Montserrat over time, equitably provided to all sectors of the society, and based on robust, diverse energy sources and distribution systems that utilize appropriate generation technologies." There is growing concerns regarding the dependence of the country on imported fossil fuels for its energy needs. We must transition. This transition can be achieved with by maximizing the use of indigenous resources into the island's energy mix. We as a nation are blessed with various resources to build a resilient energy sector.

Montserrat must transition to a new resilient economy that is anchored in sustainable development. The foundation of this, is clean renewable energy. On this foundation will be placed the pillars of new and diverse industries such as modern agriculture, information technology, financial services and manufacturing. And we as a country, citizens and leaders alike must participate.

Investing in renewable energy will reduce operating costs and lower the cost of electricity for households and business. It will also help create the foundation for a new, sustainable, resilient, prosperous, and equitable economy.

- It will stabilize energy prices
- Create urgently required new jobs
- Enhance resiliency
- Shrink the region's carbon footprint and fast-track commitments to the Paris Climate Agreement
- Decrease leakage of foreign exchange, and
- Diminish dependence on imported fuels.

Montserrat will demonstrate a new vision for the region's climate future and become an example for the world – transforming its citizens into controllers of their destiny and leaders of the clean energy era. Now is not the time for small thinking. We have to think global and act local.

The Ministry of Communications, Works, Energy and Labor and this administration is committed to its motto of Green, Connected and Thriving. Together we can secure Montserrat's resilience through renewable energy.

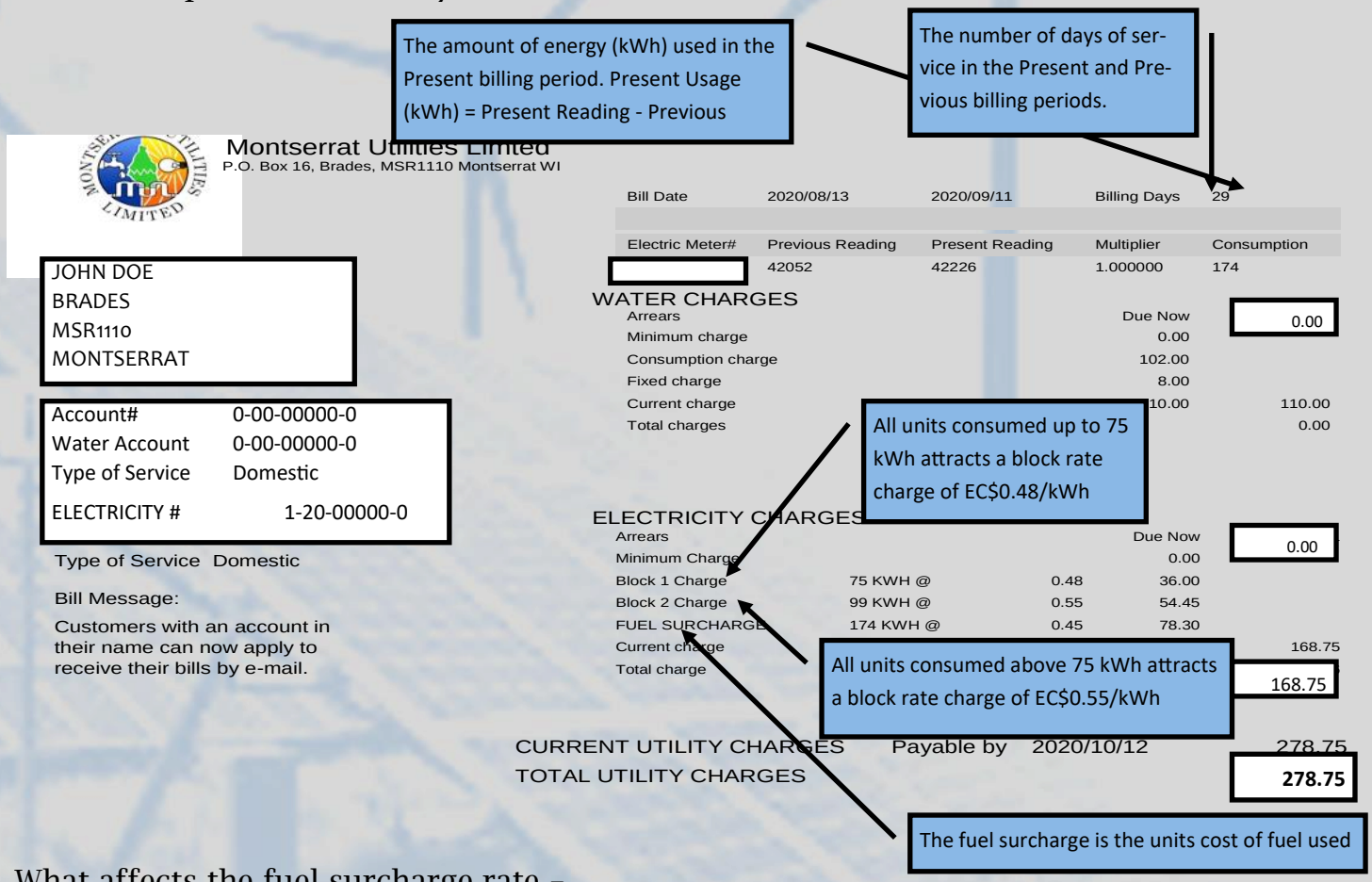
As we celebrate CARICOM energy month, as a region let us strive to use the resources we are blessed with to build our economies and create a better society for our citizens.

Cont'd on page 11

Understanding your Electricity Bill

Below is a sample electricity bill and a guide to understanding your bill. "How can I reduce my electricity bill?" is the number one question posed by consumers. Implementing Energy Saving tips indicated in this month's issue is a sure way of reducing your electricity bill. The main thing to keep in mind is reducing your energy consumption (kWh).

The fuel surcharge mechanism was established so that the electricity utilities would not need to apply to local government frequently for rate changes. It allows for the utility to have a constant energy rate for an extended period with the variation in the fuel cost passed on directly to the customer.



What affects the fuel surcharge rate –

1) Fuel Price

- The international price of fuel which is dictated by global demand and supply.
- The unit cost for shipping fuel to the inland is slightly higher than our regional counterparts because of the relatively small volume of fuel that in imported locally.

2) Engine Efficiency

- Due to the low level of electricity demand on island, smaller generators are required to meet this demand. The smaller the generator, the lower the efficiency.
- Generators operate at higher efficiency when loaded closer to 100%, hence the dispatch priority sequence can impact on the overall plant efficiency.

Hybrid vs. Electric Vehicle (EV)

Currently there are four (4) Electric Vehicles and five (5) Hybrids Vehicles on Montserrat. You might ask yourself the question, should I make a switch as well? What are the benefits? Or even may say, I like my gasoline engine roar!!! Additionally, in purchasing a vehicle you would consider the upfront cost of the vehicle, maintenance cost, operating cost and local capacity to service vehicle.

So let's break it down, a hybrid has an internal combustion engine and an electric motor that generates electricity from the rotating wheels while braking, transferring that energy back to the traction battery pack. Using power from the traction battery pack, the electric traction motor drives the vehicle's wheels. The hybrid uses both engine and electric motor to power the vehicle. Based on the power demand of the vehicle, the energy from the battery is first dispense. Hence, while driving on a roadway with an extensive decline, the combustion engine would switch off and the car would be operated by the electric motor. The combustion engine would switch back ON if the power demand of the car is greater than what can be delivered by the traction motor. This interaction between the combustion energy, motors and battery allows the hybrid vehicle to consume less fuel per distance covered when compared to convention internal combustion vehicle (ICV).

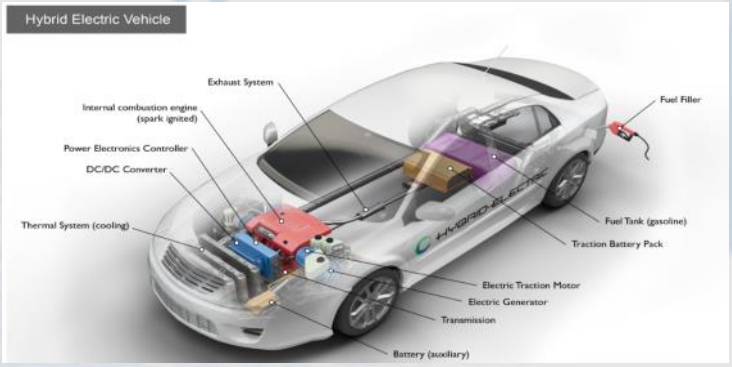


Figure 1 Standard Hybrid

Let me tell you more!

There are two kinds of hybrids: the standard hybrid and the Plug-in Hybrid (PHEV). The standard hybrid uses regenerative braking and the combustion engine to charge the battery pack, providing supplemental electric power. The standard hybrid cannot be charged at an electric car charging station or plug-in into the electricity at home. However, the PHEV is similar to the full electric vehicle, meaning that it has the ability to drive only on electric power. The PHEV has a larger electric battery compared to the standard and would need to be charged at an electric car charging station or plug-in into the electricity at home.

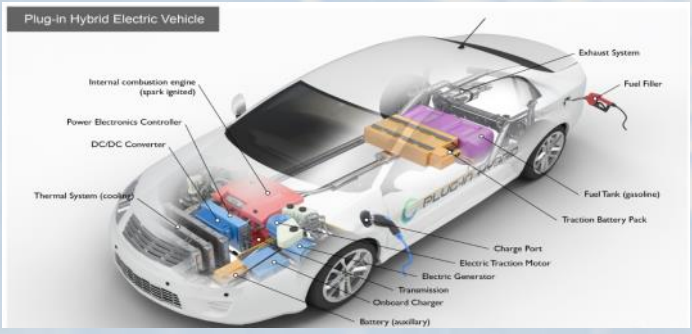


Figure 2 Plug-in Hybrid Vehicle

The hybrid would need similar maintenance as your internal combustion engine such as engine oil, transmission fluid, coolant, spark plugs and belt replacements. However, bear in mind that your trips at the pump would be reduced. And yes, it does depend on your driving habits, so save here for maintenance cost later. Hybrid cars are typically 20%-35% more efficient than a regular car.

I know your saying get to it, let us hear about this great Electric Vehicle. What's the hype? Is it really worth it? The Electric Vehicle (EV) is a full-electric power vehicle, so you can say goodbye to the gas station but be courteous and honk your horn while you pass by. In an electric drive vehicle, the auxiliary battery provides electricity to power vehicle accessories. The DC/DC converter converts higher-voltage DC power from the traction battery pack to the lower-voltage DC power needed to run vehicle accessories and recharge the auxiliary battery. The traction battery can be charged from 20% to 80% is one hour using a charge port or fully charge in 7.5 hour using the trickle charge (7 kW Wall plug similar to you 220V washing machine wall plug). Using power from the traction battery pack, electric traction motor drives the vehicle's wheels.

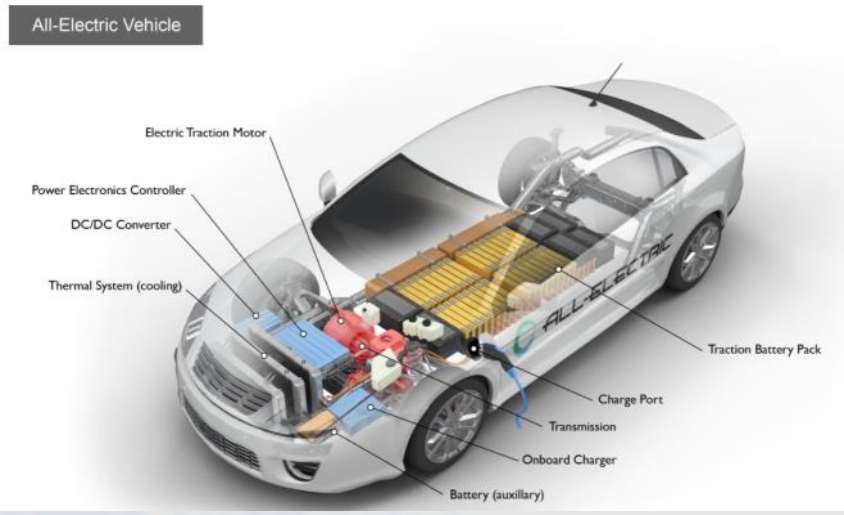


Figure 3 Standard Hybrid

You do not need to charge every day, just about once a week for 8 hours or so. And yes, it does depend on your driving style and distance. Maintenance of the EV is a minimal cost, just your tires change, this is the great saver. However, similar to cellular phone battery, the battery degrades and would need to be replaced in 12-18 years.

Preliminary results from a study conducted by the Montserrat Energy Unit, found that the energy cost for operating an electric vehicle was EC$0.25/Km while the operating cost for the internal combustion engine of equivalent capacity was EC$0.40/Km. This represent a 37.5% reduction in the cost of energy for operating the electric vehicle.

Although close to 100% of the electricity generated on the island is generated from fossil fuel generators, the proliferation of electric vehicles can create the much needed growth in the electricity sector and provide a viable option to transitioning the transportation sector. As the penetration of renewable energy and the share of electric car increases on the island, transportation sector can be transformed to a low emission sector. Remember, one less vehicle at the pump means a few gallons less imported.

Now with all that said, the boom shocking moment, reduced customs charges on these vehicles. BOOM!!! I couldn't believe it either, until I read the SRO 29 of 2019.

It states that:

Electric and Hybrid Vehicles imported into Montserrat are exempted from taxes, as follow:

i. 100% Electric Vehicle (EV) imported should be exempted from Customs Duties and Consumption Tax for five years (2019—2024) - The Processing Fee of 5% will be payable in all cases

ii. All Plug-In Hybrid Vehicles should be exempt from Customs Duties for two years (2019—2021)

iii. All other Hybrid Vehicles (other than the Plug-in Hybrid) imported are to be exempt from Consumption Tax only (2019—2021)

iv. All charging stations to be imported should be exempt from Customs Duties and Consumptions Tax for a period of five years. The Processing Fee of 5% will be payable in all cases.

v. All replacement batteries should be exempted from Customs Duties and Consumption tax for a period of five years (2019—2024). The Processing Fee of 5% will be payable in all cases.

We also ran some figures for you so you can calculate the cost of the vehicle. Let's assume the cost of a vehicle is US$8,000 Cost Insurance Freight which is equivalent to EC$21,735

Vehicle Type	Total Cost (EC$)	Cost Savings (EC$)
Internal Combustion Vehicle (ICV)	31,329	Nil
100% Electric	22,702	8,627
All Plug-in hybrid vehicles	26,108	5,221
All other hybrid vehicles	27,243	4,086

All in all, we are thriving towards a RE (Renewable Energy) future, and the first step is always the hardest. With either of these vehicles it is a way of reducing emissions into the atmosphere and a transition towards renewable energy sources. We can get there with your assistance.

COMMUNITY CORNER

Let us hear your views!

In this issue of the Energy Buzzz, we would be introducing the Community Corner, where the views of the community would be expressed on the different matters involving the varied Energy Efficiency items. This issue is about the 2019 Nissan Leaf Electric Vehicle. We had two ladies test drive the Electric Vehicle and they were asked:

1) After driving the Electric Vehicle what is your view on it?
2) Do you see yourself owning an Electric Vehicle in the future?

Tamisha Hazel

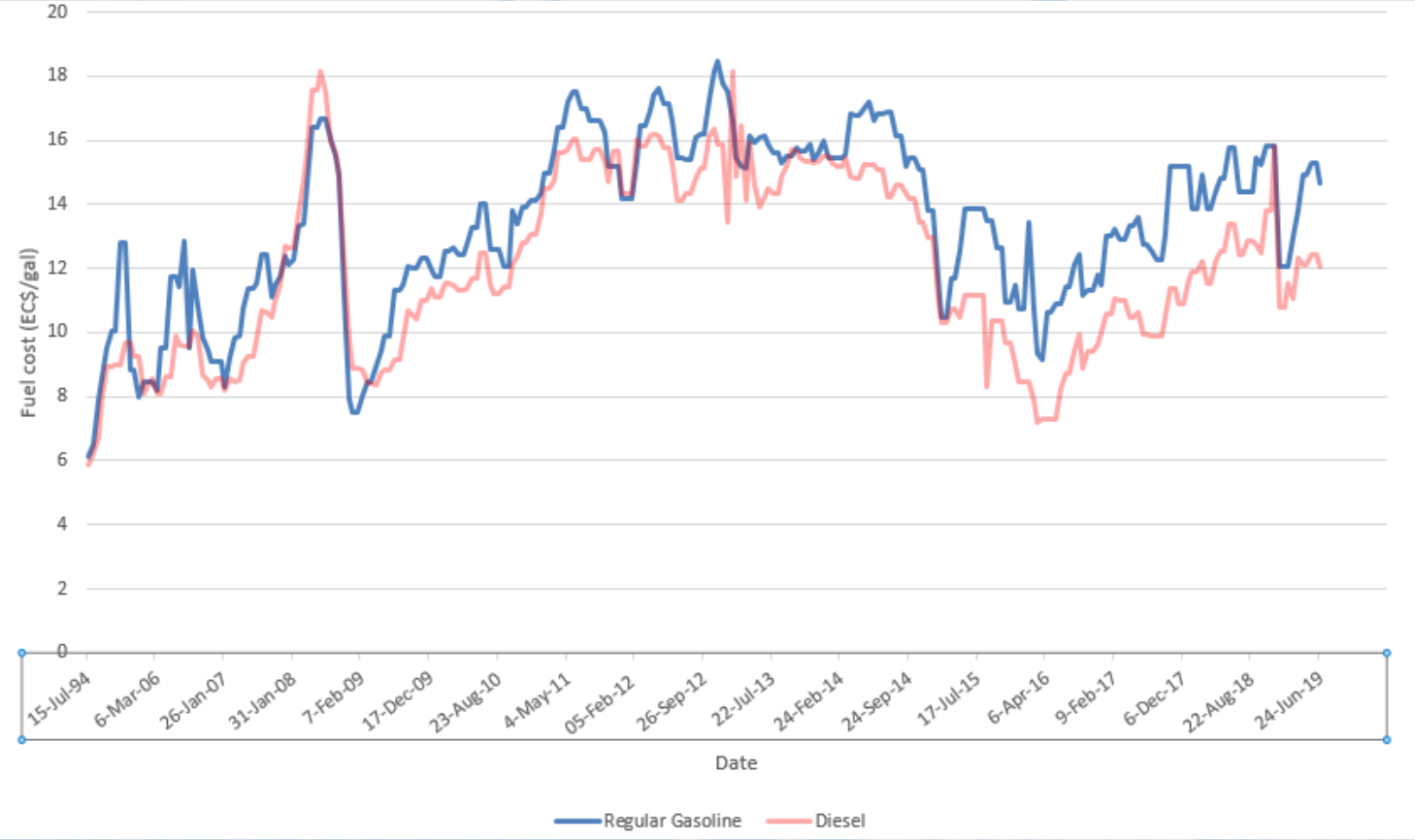
"*Driving the Electric Vehicle was quite a delight. Was very impressed with all of the features, most impressive was the fact that it acts as a small generator. I was completely blown away. Yes, I do see myself owning one in the future.*"

Wendy Matthew

"It was definitely a smooth ride, it felt comfortable driving it. If I would own one, maybe."

LOCAL ENERGY TRENDS

Looking over the years at the price of gasoline, there have been major fluctuation in prices. The graph below shows that the price of gasoline has spiked to as high as $18.48/gal during the period Nov—Dec 2012 while the lowest cost at the pumps was EC$6.11 during 1994. The price of diesel is not far in comparison with its rising prices. Diesel has risen to the price of $18.13/gal during July 2008 and has dipped to as low as $5.88/gal during the period 1994. The price at the pumps on 3rd November, 2020 was $12.70/gal and $9.85/gal for premium gasoline and diesel respectively.



SAVINGS TIPS

1. Adjust day-to-day behaviours, such as turning off lights or appliances when not needed or in use.
2. Replace traditional incandescent bulbs with more energy efficient alternatives such as LEDs, compact fluorescent lights (CFLs) or halogen incandescent bulbs.
3. Purchase energy efficient appliances that have an energy star label and a low operating cost.
4. Reduce your water heating expense by using less hot water or replacing your current system with a more efficient model.
5. Wash clothes in tap-temperature water when possible.
6. Defrost your refrigerator and freezer before the ice build-up becomes ¼ inch thick to improve efficiency of the appliance.
7. Do not open the oven excessively while baking as this reduces the temperature and causes the oven to use more energy to bring the temperature back up.
8. Use natural light when possible.
9. Leave adequate time for defrosting food by placing food in the refrigerator overnight or while at work.
10. Use glass or ceramic dishes in the oven when possible as they retain heat better than the metal alternatives.
11. Utilize the correct size pan for the amount of food you are cooking to reduce energy wasted heating a bigger area than needed.
12. Use the correct size burner to match the pot being used.
13. Iron all items of clothing needed in one sitting instead of every day.
14. Invest in smart power strips, which turn off during a period of inactivity and stop 'phantom load'. This is electricity used by appliances when it has been turned off or in standby mode.
15. Do not boil excessive amounts of water if not needed.
16. Cover liquids and foods stores in the refrigerator as uncovered items can release moisture and force the compressor to work harder.

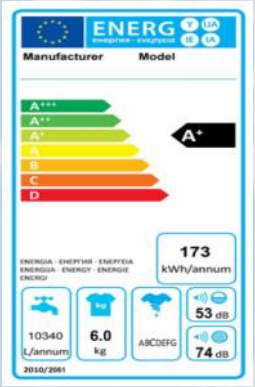
Know Your Labels

When purchasing appliances look for the ENERGY RATING label.

Make sure you keep abreast with your Energy Standards and Labels that meet the energy efficiency requirements

The EnergyGuide provides consumers with information about the energy consumption, efficiency, and operating costs of appliances and consumer products

ENERGY STAR is the trusted, government-backed symbol for energy efficiency helping us all save money and protect the environment through energy-efficient products and practices.



Energy labels show how the appliances sold or manufactured rank on a scale from A to G according to its energy consumption. Class A (green) is the most energy efficient and Class G (red) the least. Currently - once most appliances of a given type reach Class A - up to 3 further classes can be added to the scale; A+, A++ and A+++.

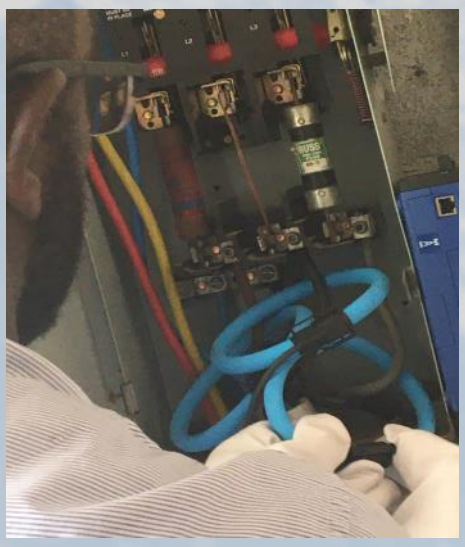
THE ENERGY UNIT AND YOU

Energy Audit

An Energy Audit is an inspection survey and an analysis of energy flows geared at improving energy efficiency in a building. The audit is conducted to help put systems in place to reduce the amount of energy consumption with the facility.

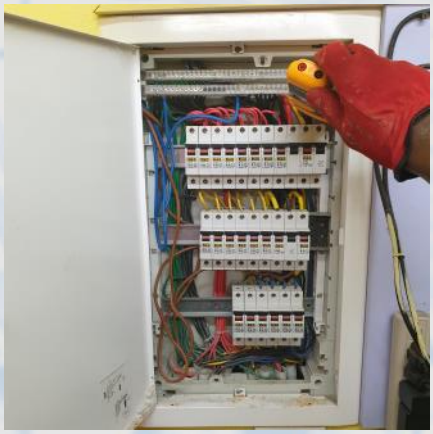
Special Equipment such as current transformers, data loggers, thermal cameras and light meters, power analysers amongst other devices are used to conduct these audits. A preliminary walkthrough is done before carrying out a detailed work plan. The walkthrough allows for the collection of information to be used when compiling the audit report.

The Energy Unit has completed its first Energy Audit for the St. John's Health Centre. In conducting this Audit we took an inventory of all the equipment and lighting on the compound. We installed the analytical tools indicated previously for record information of the energy flows in the building. The data collected was analysed and used to complied a comprehensive report outlining measures to improve the efficiency of energy consumption at the health center.

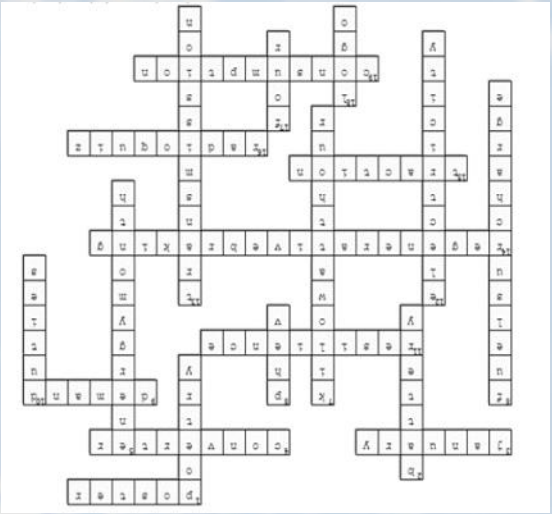


THE ENERGY UNIT AND YOU

The Energy Audits conducted thus far form part of a more comprehensive program dubbed "Own Use Reduction Program" (OUR Program). The OUR Program is geared at reducing the consumption of fossil fuels on the island. In the first phase of the Program, energy audits will be conducted on Government occupied buildings. The recommendation coming out of these audits will be implemented in the second phase. The impact of this intervention will be shared with the public to highlight the cost-effective affect of implementing energy efficiency strategies. We hope this Program would highlight the practicality of energy efficiency and provide a convincing argument for persuading a make-similar decision.



Crossword Puzzle Answers



FROM THE MINISTER

CONTINUED

Public Lighting Improvement Project

This project has met the first part of the EU Variable Tranche Indicator, that is, to install at least 50% of the 2006 total street lighting count of 782 LED street lights by the end of March 2020. Although we had the disruption of COVID-19 which resulted in delays in the supply chain, MUL was still able to install 426 LED street lights by 31st March 2020. The remaining street lights to be installed are those at the Sports Field and the Tunnel Lighting which would be completed by the end of the year.

750kW Solar PV and Storage Project

The 750 kW Solar PV and Storage Project has experienced two main risks in ensuring that it would meet the EU Variable Tranche Indicator completion date of 31st March 2021. Namely, the level of excavation required at the preferred site at the John A. Osborne Airport, and delays due to supply chain and travel restrictions of COVID-19. To mitigate these risks, the project team has determined that a change of site would be ideal. Supported by GOM, MUL and the Engineering, Procurement and Construction (EPC) Contractor, the project team, development and engineering works will be continuing at the proposed alternative site in Lookout. It is expected that the start date for excavation works would begin shortly. In addition, the travel protocols for Montserrat does not present undue issues for the Engineering, Procurement, Construction (EPC) Contractor. The solar panels, racking system, batteries and battery storage container are all on island and the remaining balance of the system materials are all expected on island by year end.

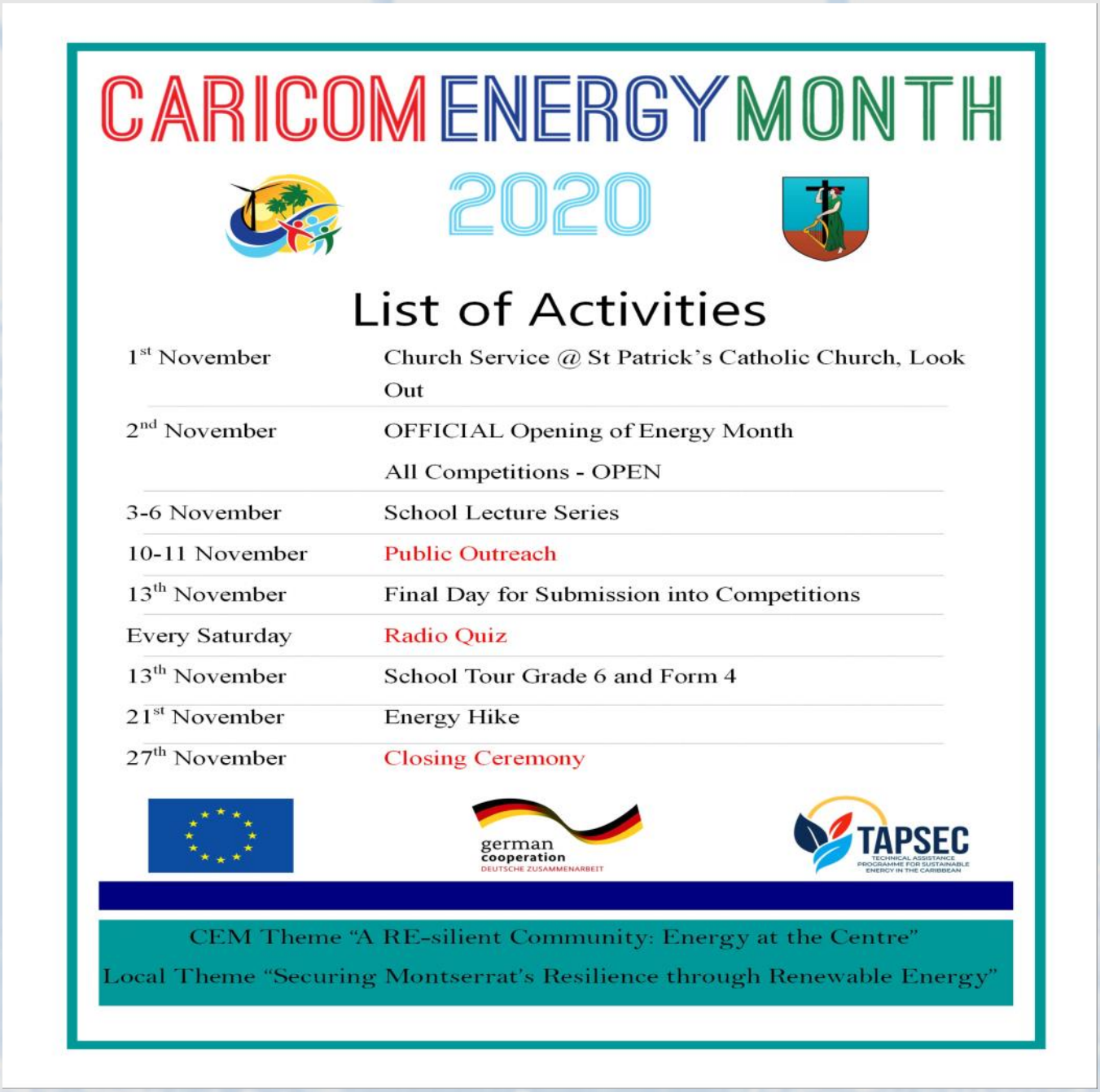
Energy Month 2020

CARICOM Energy 2020 Theme

"A RE-silient Community: Energy at the Centre"

The Energy Unit will be hosting its activities throughout the month of November 2020, which will showcase Energy at the Centre. The calendar is fully packed with activities and awareness programmes to capture the entire community.

We have instituted a local theme, "Securing our Resilience through Renewable Energy." This captures the essence of the CARICOM theme while bringing it right at home. We are securing Montserrat's resilience in taking that thrust into Renewable Energy, which will be Energy at the Centre. Let's make an effort and to self-awareness.



Energy Month 2020

ENERGY MONTH COMPETITIONS

Energy Unit Logo Competition (Due: 13th Nov)

This competition aims to seek public assistance (secondary school and college students, as well as the general public) in developing a logo for the Unit. **Once submitted, the logo becomes the property of MCWEL.** The Unit will not be bound to using the winning logo but can choose the best features from the submissions to be incorporated into the Unit's final logo.

Logos are to be submitted via email to Miss Marissa Allen at the Energy Unit (allenml@gov.ms) with your name, address and telephone number. The closing date for submission of these logos is **13th November 2020.** The Logo will be judged using the scoring criteria highlighted in the Table 1.

Table 1 Scoring Scheme

Criteria	Score
Required Elements	15%
Message/Creativity/ Originality	20%
Art Design	30%
Construction	15%
Effort	10%

The proposed prizes are indicated in the Table 2.

Table 2 Essay Prize

Position	Prize Money (Gift vouchers)
1st	EC$ 750.00
2nd	EC$ 500.00
3rd	EC$ 250.00

Poster competition (13th Nov)

This competition will be conducted in two categories, primary school and secondary school. Students will be required to create a poster depicting the theme "***Securing Montserrat's resilience through Renewable Energy***", *accompanied with* a brief explanation of what is depicted in their posters. Submissions will be made to the Principal at the schools. The scoring criteria is indicated in Table 3. The closing date for the poster competition is set for 13th November 2020.

Table 3 Poster Scoring Scheme

Criteria	Score
Message/Creativity	40%
Art Design	25%
Construction	20%
Effort	15%

The winning posters will be announced at the end of the month and the proposed prizes are indicated in the Table 4.

Table 4 Poster Prize

Position	Primary - Prize Money (Gift vouchers)	Secondary - Prize Money (Gift vouchers)
1st	EC$ 300.00	EC$ 500.00
2nd	EC$ 200.00	EC$ 300.00
3rd	EC$ 100.00	EC$ 200.00

Facebook Video Competition (13th Nov)

This competition will be open to schools and the general public, where persons will be encouraged to record a two-minute video centered around the theme ***"Securing Montserrat's resilience through Renewable Energy"****. Schools can undertake this task as a class project. The winning video will be select based on two criteria; 40% from Facebook likes & views, and 60% from the scores of three (3) appointed judges. The Facebook likes and views will be recorded at* ***3:00pm Friday 13th November, 2020****. The winner will be announced at the of the month.*

NB *- The participants will be required to post their video on their Facebook page and tag the Ministry of Communication, Works, Energy and Labour - Montserrat page (@MCWELMontserrat). The propose prizes for this competition is indicated in the table below.*

Table 5 Video Completion Venue

Position	Prize (gift voucher)
1st	EC$750.00
2nd	EC$500.00
3rd	EC$250.00

ENERGY MONTH COMPETITIONS

Poetry Competition (13th Nov)

*This competition will be open to the secondary school and the general public, where persons will be encouraged to write a poem with no more than five (5) stanzas centered around the theme "**Securing Montserrat's resilience through Renewable Energy**". The winning poem will be select based on the criteria indicated in Table 6. The closing date for the poetry competition is set for 13th November 2020.*

Table 6 Poem Rubric

Criteria	Score
Cohesiveness	25%
Use of poetic elements	25%
Rhythm	25%
Creativity	25%

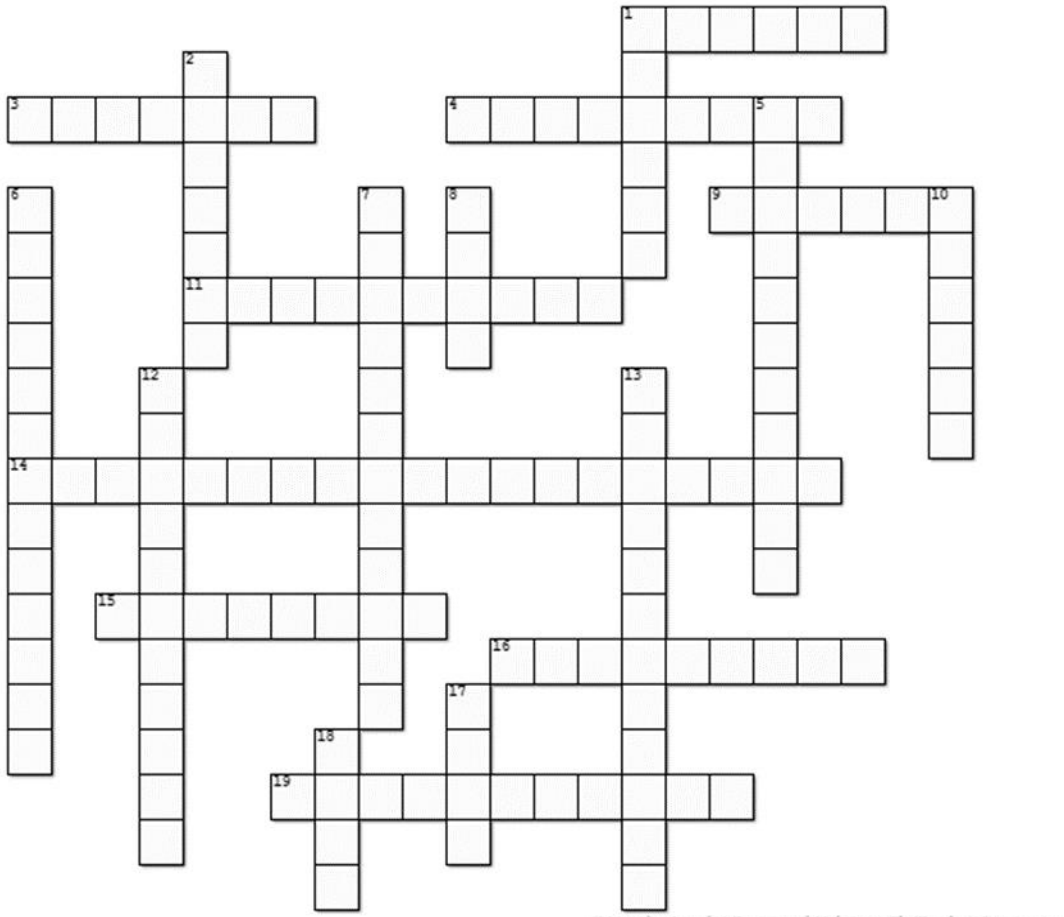
The winning poem will be announced at the end of the month and the proposed prizes are indicated in the Table 7.

Table 7 Poetry Prizes

Position	Prize (gift voucher)
1st	EC$500.00
2nd	EC$300.00
3rd	EC$200.00

Radio Quiz

There will be a weekly quiz, geared at giving students another opportunity to participate in the month's activities. Two questions will be asked every Saturday, one geared towards primary school students and the other towards secondary/ college students. The proposed prizes are $100.00 per question to be deposited into an account for the winner at St. Patrick's Co-operative Credit Union.



Created using the Crossword Maker on TheTeachersCorner.net

Across

1. Large printed picture
3. Next Buzz issue
4. Converts higher-voltage DC power
9. The real-time amount of electricity measured in megawatts
11. Capacity to recover quickly from difficulties
14. Energy recovery mechanism that slows down a moving vehicle
15. This motor drives the electric vehicle's wheels
16. Every Saturday in November
19. Tax exemption for hybrid

Down

1. Literary work that expresses feelings and ideas
2. Stores electricity
5. Observed in November
6. Fuel price variation pass-through
7. One unit of electrical energy
8. Plug-in-Hybrid Electric Vehicle
10. Exemption for Plug-in-Hybrid Electric Vehicle
12. Flow of electrical power or charge
13. Transfers mechanical power to drive the wheels.
17. Number of Electric Cars on Montserrat
18. Asymbol or other small design adopted by an organization

Next Issue on January 25th