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CARIBBEAN ENERGY UPDATE

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UPCOMING ENERGY EVENTS



Electric Cars vs. Conventional Vehicles

Regardless of the type of vehicle you are looking to purchase, there are several costs associated with car ownership. Choosing an EV over a conventional, internal combustion engine (ICE) vehicle can result in significant long-term savings. If you are considering purchasing a new car and are also looking at an electric vehicle as a serious option, it is important to understand where your costs will come from, and how an electric vehicle can lead to different sources of spending and saving when compared to conventional ICEs.

An immediately apparent difference between EVs and ICEs is their fuel source, and consequently what you as a consumer use to power your vehicle. ICEs run on gasoline which is burned internally to power the car, while EVs run on electricity. Electricity can come from many sources, including from the burning of coal or gas, or from renewable sources such as solar, wind, and hydropower.

A 2018 study from the University of Michigan's Transportation Research Institute found that electric vehicles cost less than half as much to operate as gas-powered cars. The average cost to operate an EV in the United States is $485 per year, while the average for a gasoline-powered vehicle is $1,117.

The exact price difference depends on gas and electric rates where you live, plus the type of car you drive. Depending on your vehicle's fuel efficiency rating, the money you spend to fill up your gas tank will translate to varying travel ranges. "Fuel-efficient" conventional cars are designed to maximize their miles per gallon (mpg) rating, thus costing the least amount of money per mile travelled. A car rated at 30 mpg will cost less money in fuel over time than a car rated at 20 mpg. The cost to run an electric vehicle is slightly more complicated. Although you don't pay a gas pump-type fee every time you charge your EV battery, the

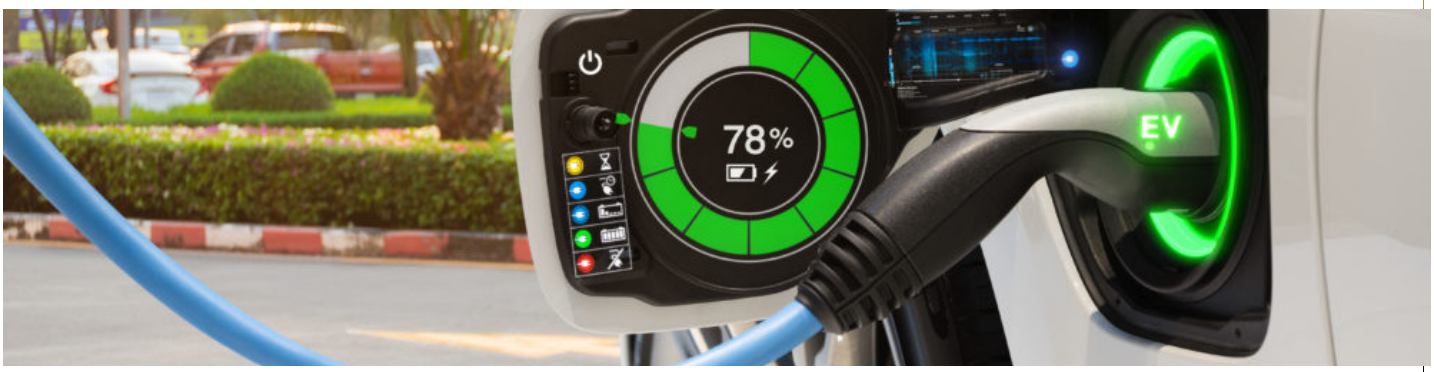
electricity being used to charge your battery counts towards your home electric bill. You can directly compare electricity and gas costs when running an electric car vs. a conventional gas-powered car with the Department of Energy's eGallon tool. This calculator is updated regularly, and compares the cost of driving a mile on gasoline vs. a mile on electricity, depending on where you live and energy prices at the time.

Generally, the cost of electricity is decreasing in price, as renewable power generation costs fall lower and lower with advancements in technology and policy. The fuel used to power your car is only one factor in the cost of car ownership. In particular, vehicle maintenance costs can stack up over time.

READ MORE

Source: Energy Sage, Smarter energy decisions

Pros and Cons of Electric Cars



Electric vehicles offer many benefits, but they also have some disadvantages when compared to conventional gasoline-powered cars. One of the biggest questions prospective electric car buyers face is whether to purchase an all-electric vehicle (AEV), plug-in hybrid electric vehicle (PHEV), or a gasoline-powered car. All-electric vehicles offer many benefits, including high energy efficiency, reduced emissions, and strong performance. Electric cars are energy efficient. Energy efficiency refers to the amount of energy from the fuel source that is converted into actual energy for powering the wheels of a vehicle. AEVs are far more efficient than conventional gas-powered vehicles: AEV batteries convert 59 to 62 percent of energy into vehicle movement while gas powered vehicles only convert between 17 and 21 percent. This means that charging an AEV's battery puts more towards actually powering the vehicle than filling up at a gas pump.

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Source: Energy Sage, Smarter energy decisions

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Petroleum Energy Highlights

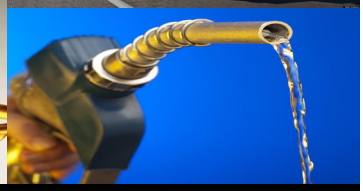
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Regular Unleaded Gasoline Average Retail Price (US$/Litre) Jan/Feb 2020



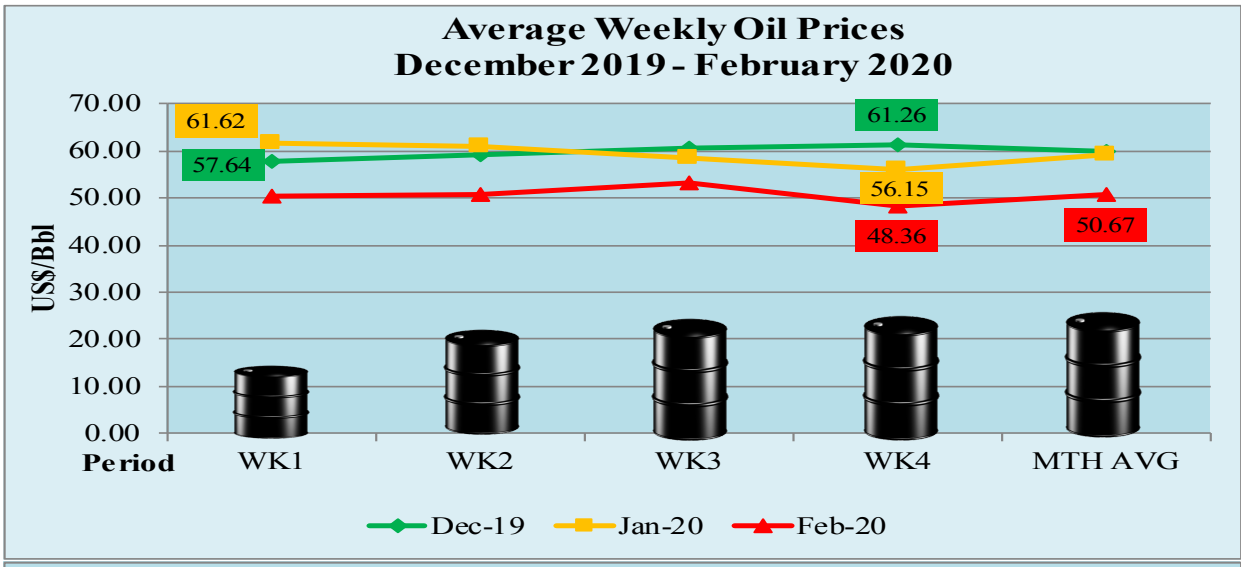


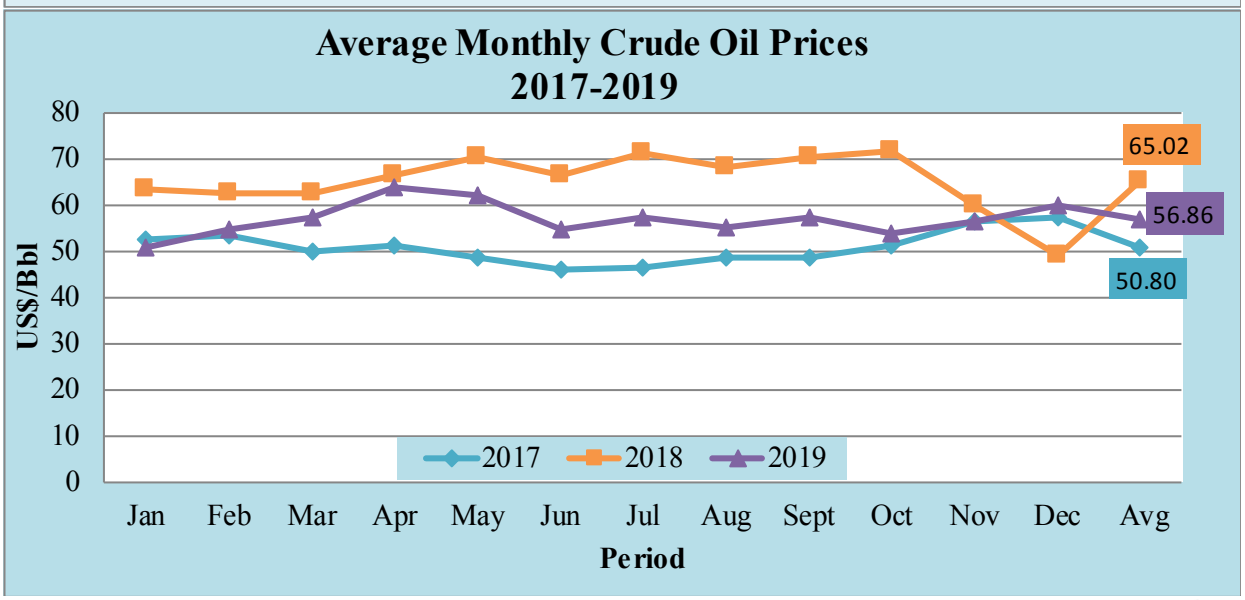
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$1.79	Barbados	$1.79
$1.37	Belize	$1.31
$1.23	Cayman Islands	$1.23
$1.20	Grenada	$1.19
$1.01	Guyana	$1.01
$1.09	Jamaica	$1.10
$1.09	St. Lucia	$1.09
$0.74	Trinidad & Tobago	$0.74

At the end of February 2020, retail prices for Regular Unleaded Gasoline decreased in Belize, Cayman Islands and Grenada between 0.9% and 4.7% with the highest price increase in Belize. Prices increased in Jamaica by 1.4% while prices remained stable in Barbados, Guyana, St. Lucia and Trinidad and Tobago.



International Crude Oil Prices from December 2019 to February 2020 decreased over the three months period. The average price recorded in February 2020 was US$50.67/bbl. This average price was 15.2% lower than the average price seen in December 2019 and 14.4% lower than the average price reflected in January 2020. The lowest price recorded for the commodity over the period was US$48.36/bbl-reflected in week four of February 2020. The highest price recorded was US$61.26 /bbl recorded in week four of December 2019.





CARIBBEAN ENERGY MINISTERS' Bulletin

Renewable Resources



Scientific Developments





BREAKTHROUGH TECHNOLOGY

Researchers Make Solar Efficiency Breakthrough

Fast conversion makes technology more viable, they say.

Australian researchers have set a new world record for the conversion of solar energy to electricity using quantum dots, which pass electrons between one another and generate electrical current when exposed to solar energy in a solar cell device.

After independent testing, the National Renewable Energy Laboratory (NREL) in the US found that a team from the University of Queensland in Australia led by Lianzhou Wang had achieved 16.6% efficiency; the previous record in quantum dot solar cell category was 13.4%. The development, which is described in a paper in the journal Nature Energy, represents a significant step towards making the technology commercially viable and supporting global renewable energy targets, the researchers say. Unlike conventional solar technologies, which use rigid, expensive materials, the new class of quantum dots are flexible and printable, notes Wang. "This opens up a huge range of potential applications, including the possibility to use it as a transparent skin to power cars, planes, homes and

wearable technology." The secret to success was developing a unique surface engineering strategy. The surface of quantum dots tends to be rough and unstable – making them less efficient at converting solar into electrical current. "This new generation of quantum dots is compatible with more affordable and large-scale printable technologies," Wang says.

"The near 25% improvement in efficiency we have achieved over the previous world record is important. "It is effectively the difference between quantum dot solar cell technology being an exciting prospect and being commercially viable."

Source: Cosmos, The Science of Everything

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Oil and gas firms 'have had far worse climate impact than thought'

Study indicates human fossil methane emissions have been underestimated by up to 40%

The oil and gas industry has had a far worse impact on the climate than previously believed, according to a study indicating that human emissions of fossil methane have been underestimated by up to 40%.

Although the research will add to pressure on fossil fuel companies, scientists said there was cause for hope because it showed a big extra benefit could come from tighter regulation of the industry and a faster shift towards renewable energy.

Methane has a greenhouse effect that is about 80 times more potent than carbon dioxide over a 20-year period and is responsible for at least 25% of global heating, according to the UN Environment Programme. In the past two centuries, the amount of methane in the atmosphere has more than doubled, though there has long been uncertainty about whether the source was biological – from agriculture, livestock or landfills – or from fossil fuels. There were also doubts about what share of fossil methane was naturally released and what share was from industry.

Earlier estimates were based on intermittent, bottom-up monitoring of oil and gas companies and comparisons with geological evidence from the end of the Pleistocene epoch, about 11,600 years ago.

For a more accurate comparison, a team at the University of Rochester in the US examined levels of methane in the pre-industrial era about 300 years ago. This was achieved by analysing air from that period trapped in glaciers in Greenland.

Source: Jonathan Watts, The Guardian

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Country Happenings

St.VINCENT/GRENADINES

SVG To Benefit From US$ 15M In Renewable Energy Financing

The Abu Dhabi Fund for Development (ADFD) confirmed the allocation for eight renewable energy projects, four of which are in the Caribbean region. In St. Vincent and the Grenadines, an ADFD loan of US$10 million will support the installation of a 7 MW solar PV project and benefit 2,444 households. The renewable energy venture aims to reduce carbon emissions, fossil fuel consumption and operating costs. READ MORE

CAYMAN ISLANDS

Sun sets on subsidised solar

The Caribbean Utilities Company has halted its residential renewable energy programme, which allowed customers to sell solar-generated energy back to the power company at a subsidised rate. There is currently no space left on the grid to allocate new capacity for renewable energy sources of any kind, according to utilities regulator OfReg. That will change once plans for a large battery system, capable of storing 20 megawatts of electricity, are implemented by CUC. READ MORE

CREF2020

12th Caribbean Renewable Energy Forum

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March 28, 2020
Maracaibo, Guyana

*3rd Puerto Rico Grid Revitalization Forum
July 14-15, 2020
Intercontinental Hotel
San Juan, Puerto Rico

*CARILLEC Renewable Energy and Smart Grid Conference
September 15-19, 2020
Miami, Florida






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PETSTATS - the Caribbean Energy Information System (CEIS) primary report of historical (annual) petroleum energy statistics.
Included are data on petroleum energy production, consumption and trade; overviews of natural gas, electricity as well as financial and environmental indicators.

CEMB - The Caribbean Energy Ministers' Bulletin - Sustainable Energy, Renewable and Breakthrough Technology.

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