



Impact of COVID Pandemic to the Ethanol Industry

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DATAGRO

IICA Seminar

May 28th, 2020

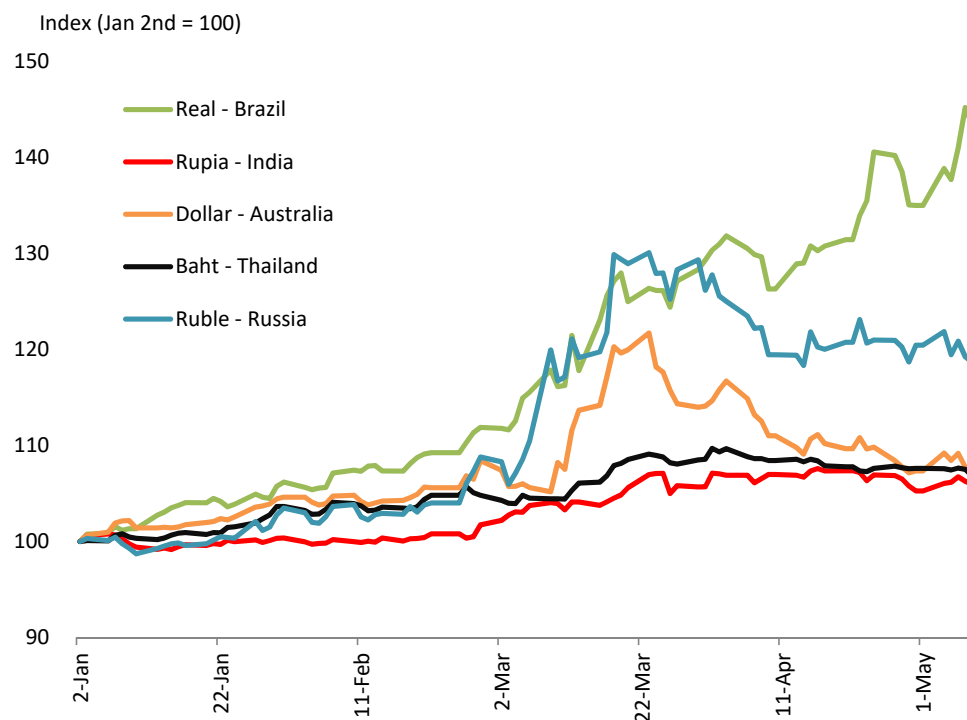
Digital Format



Brazilian Real at record low

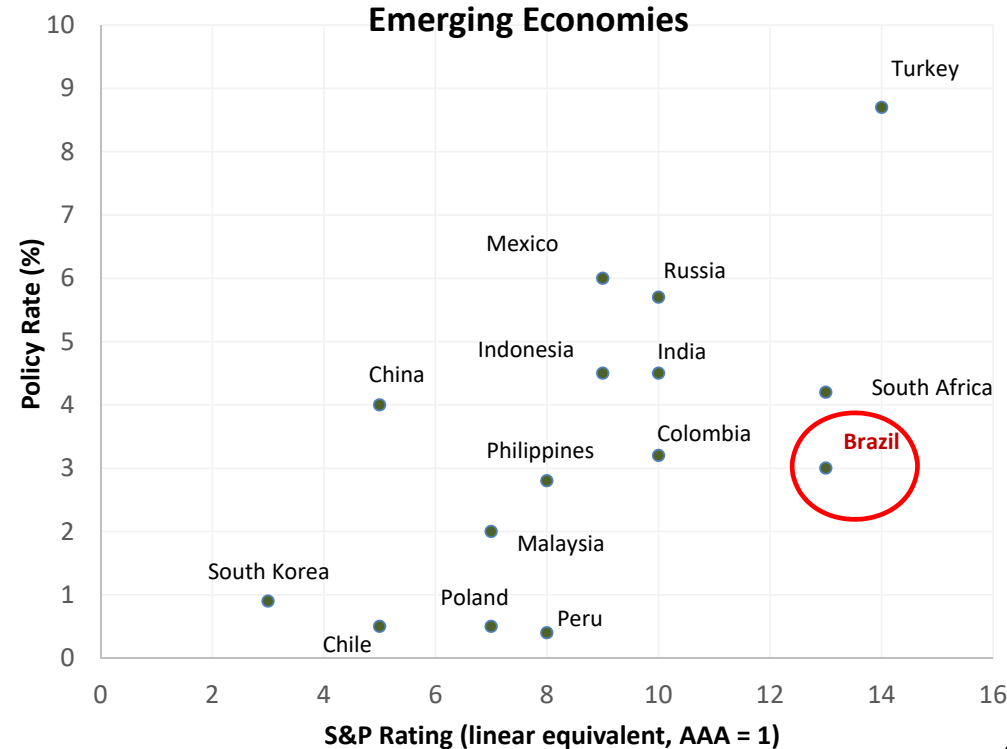
- Brazilian Real sunk to record lows of R\$ 5.90/US\$ as Brazil's Central Bank cut benchmark interest rate.
- Brazilian Real is the most devaluated currency among main world economies, with a 44.8% drop year-to-date, followed by Mexican Peso (-26.9%) and Russian Rublo (-18.5%).
- The risk of holding BRL is getting worse, with several other countries in the BBB (investment grade) zone paying better for their bonds. During week of May 28th 2020 it is back to R\$ 5.35/US\$.

U.S. Dollar versus selected currencies



Source: Brazil's Central Bank, elaborated by DATAGRO

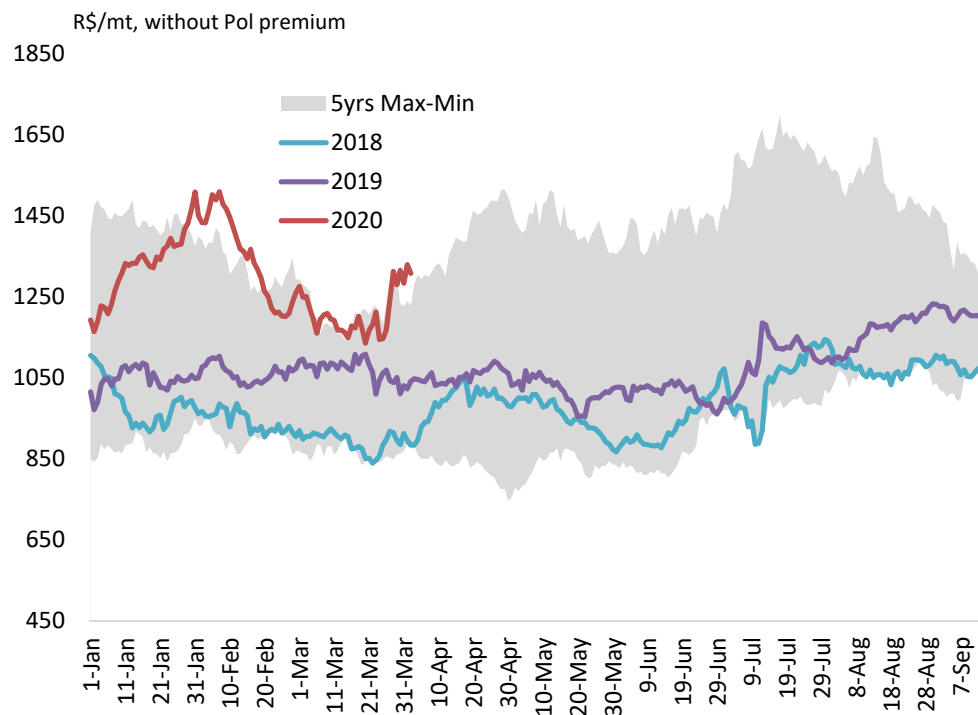
Policy Rates vs Sovereign Credit Rating – Emerging Economies



NY 11 sugar price in Reais is sustained, as Brazilian Real sinks

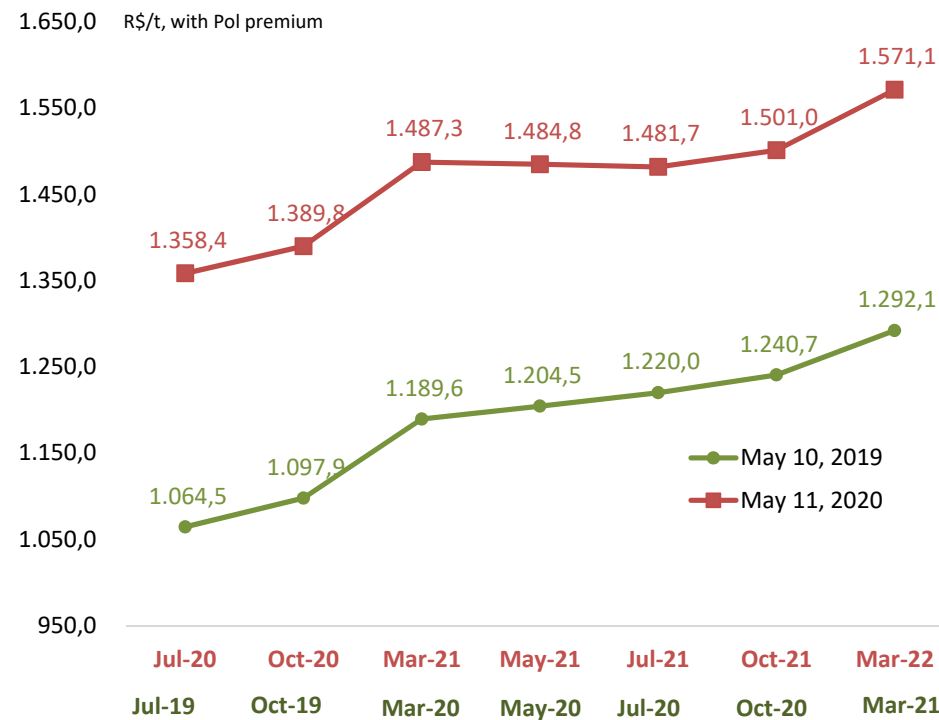
- Producers see opportunity to hedge against July 2020 with an export price at around R\$ 1,390/mt, while March 2021 is around R\$ 1,500/mt.
- Sugar prices in Reais are very attractive hedge for the 2021/22 and 2022/23 seasons as well.
- Current sugar price in Reais is 30.0% higher than a year ago, and 6.5% higher than the upper range of previous 5 years.

Sugar #11 Price in Reais



Source: ICE Futures, elaborated by DATAGRIO

Sugar #11 Price Forward Curve in Reais

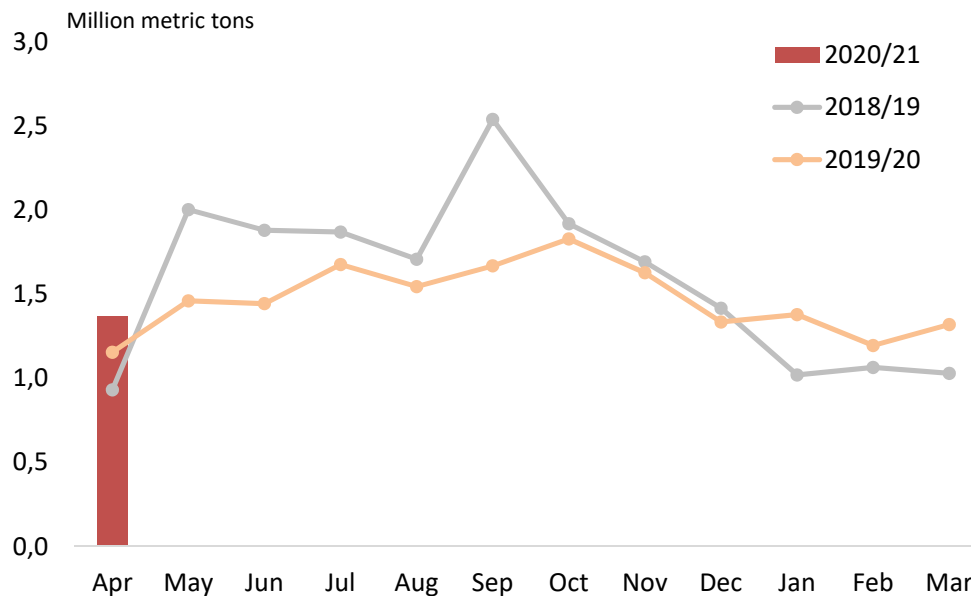


Brazil's sugar shipments more than double amid improved demand DATAGRO MARKETS

- As a sign of higher demand for Brazilian sugar, the queue for sugar shipments more than doubled on a weekly basis, from 27 to 67 vessels scheduled to load 3.20 mmt, volume over four times higher than a year ago.
- Last time that weekly nominations for sugar shipments reached this mark was in September 2017, when sugar exports reached an all-time high for a month with 3.502 mmt.
- Backed by strengthening of the U.S. Dollar, many vessels are linked to the May 2020 delivery, which means that much of the sugar delivered at ICE Futures have already found destinations.

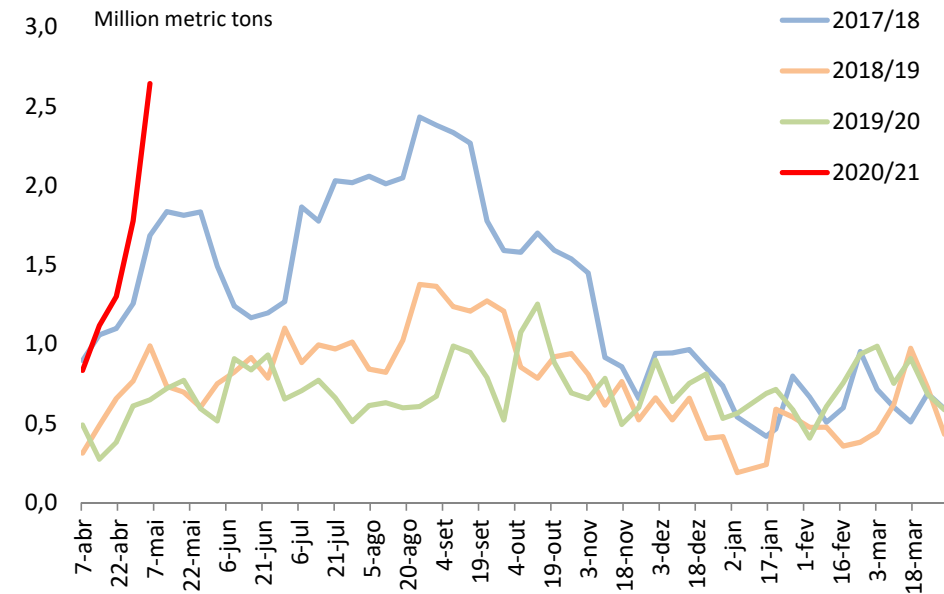
CROP SURVEY + WORLD VIEW

CS Brazil's Sugar Exports



Source: SECEX, elaborated by DATAGRO

Brazil's Weekly Sugar Shipment Nomination

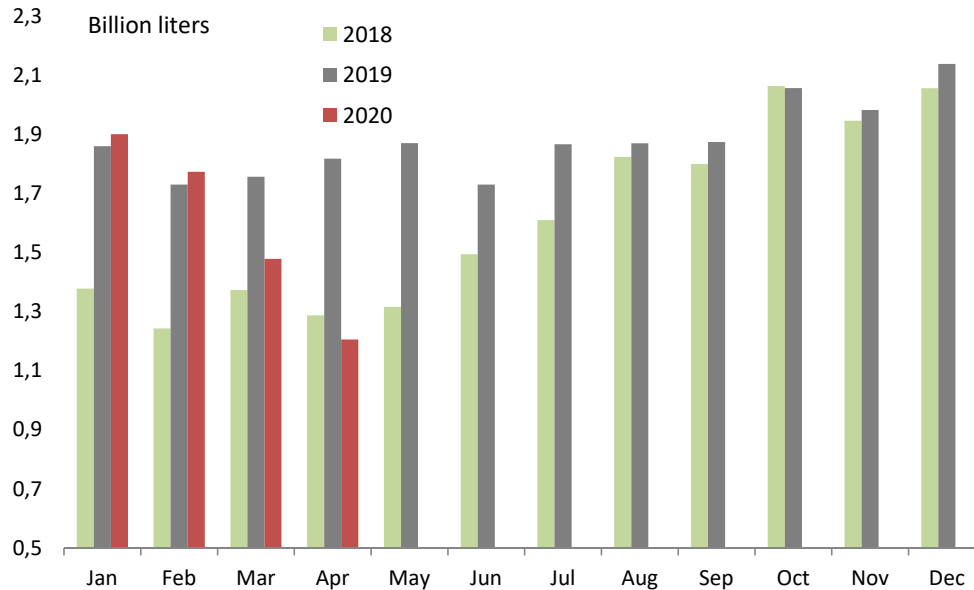


Source: DATAGRO Line-up

Fall in fuel consumption in Brazil

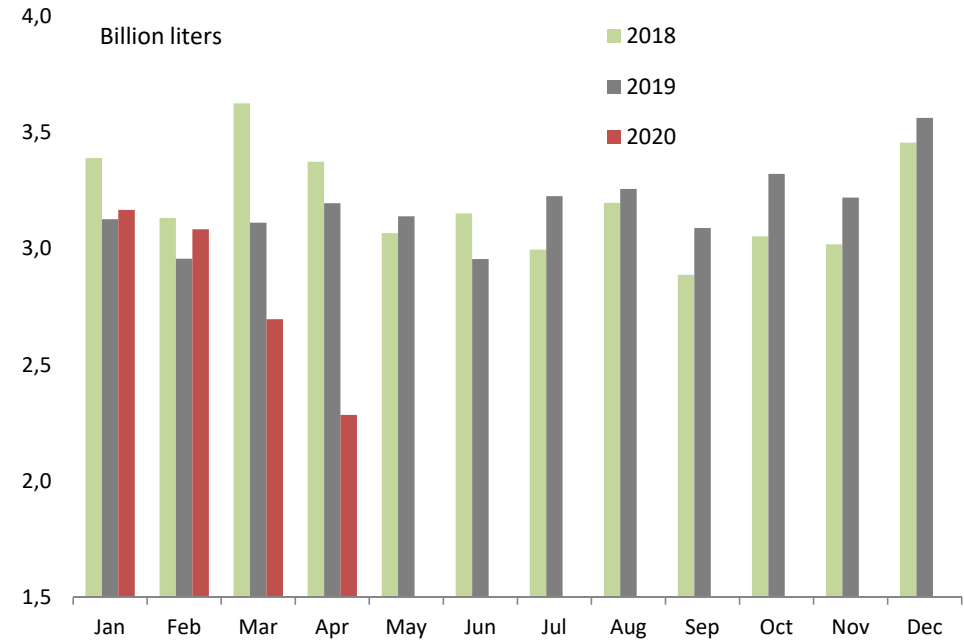
- Hydrous ethanol consumption in Brazil reached 1.205 bi liters in April, down 33.7% YoY, the largest drop since the start of Covid-19 outbreak.
- YTD, from Jan-Apr, hydrous ethanol consumption totaled 6.356 bi liters, 11.2% lower YoY.
- Gasoline C (gasoline blended with 27% anhydrous ethanol) consumption dropped 28.5% YoY, to 2.285 bi liters in April, totaling 11.233 bi liters since January, down 9.4% YoY.

Hydrous Ethanol Consumption in Brazil



Source: ANP, elaborated by DATAGRO

Gasoline C Consumption in Brazil

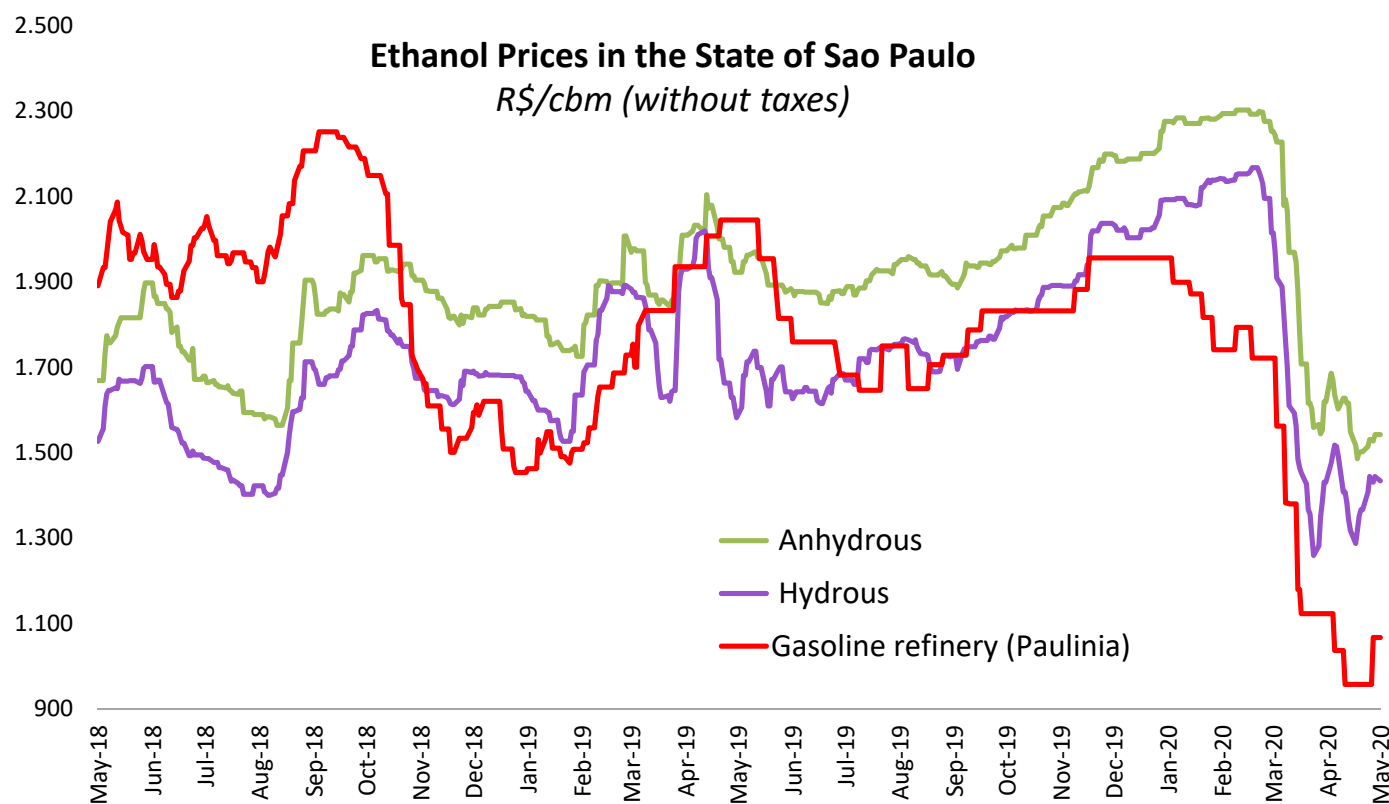


Source: ANP, elaborated by DATAGRO



Ethanol prices sink amid Price and Consumption Crisis

- Price meltdown has halted in the ethanol market of Sao Paulo amid consolidation of ethanol as a more attractive fuel from the consumer's point of view.
- Hydrous ethanol price in São Paulo fell from R\$ 2.16/liter on March 2nd, to R\$ 1.28/liter on April 06th, and is now back to R\$ 1.4340/liter on May 21st. Anhydrous ethanol price is at R\$ 1.6475/liter on May 21st.

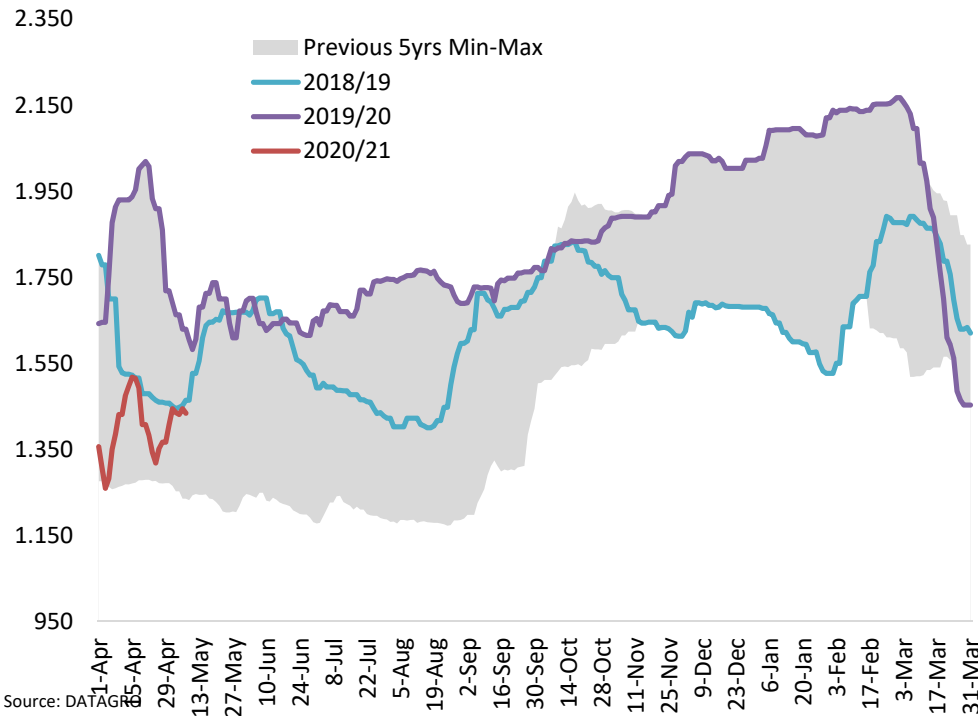


Source: DATAGRO

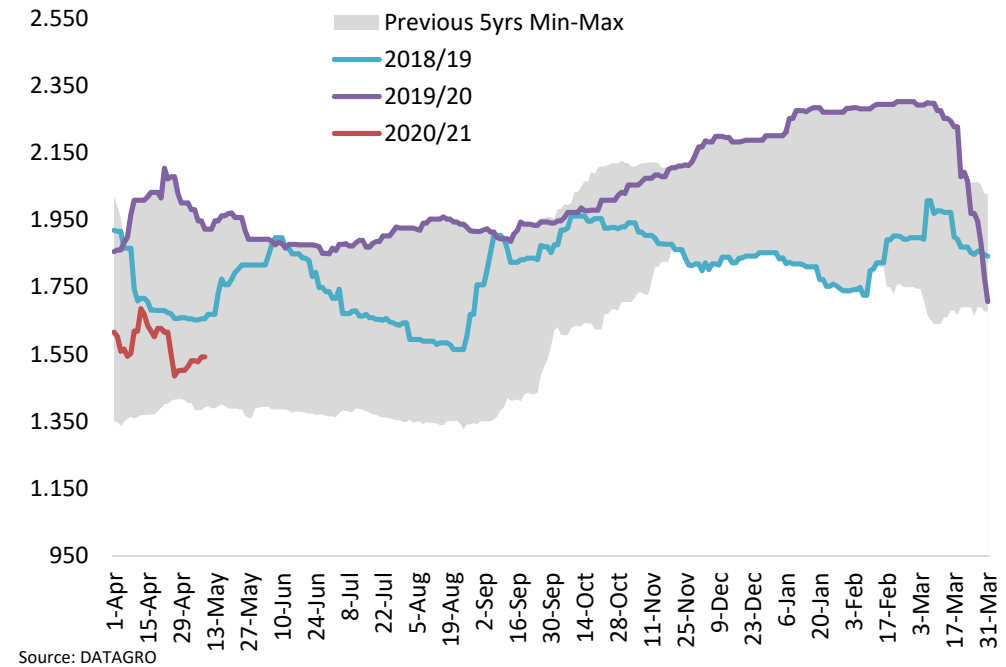
Yet, Ethanol Price for producers in Sao Paulo is still above 5-year min-max range

- Anhydrous ethanol price is 19.8% lower YoY, although still 10.8% higher than lower range of previous 5 yrs.
- Hydrous ethanol price is 9.4% lower YoY, but 16.1% above the lower range of previous 5 years.
- All prices in nominal terms.

Hydrous Ehanol Price in Sao Paulo
R\$/cbm, ex-mill, net of taxes



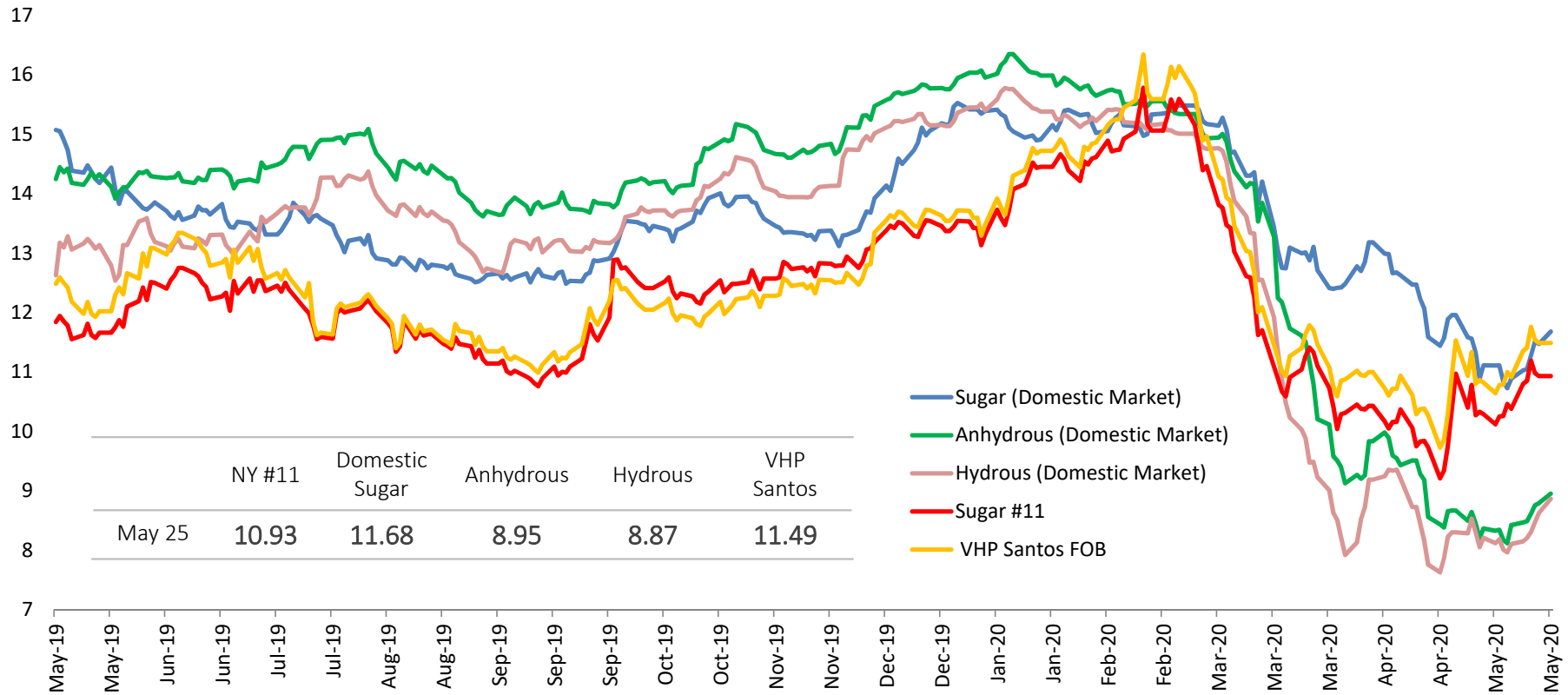
Anhydrous Ehanol Price in Sao Paulo
R\$/cbm, ex-mill, net of taxes



Sugar remains much more attractive

- Brazil domestic hydrous ethanol value has improved to US\$ 8.87 c/lb in sugar equivalent terms.
- Still, premium of VHP raw sugar for exports over Brazilian domestic hydrous ethanol remains high, at 262 pts.

Price Equivalency - Center-South region
Basis Ribeirao Preto, Brazil (US\$ c/lb FOB Santos)

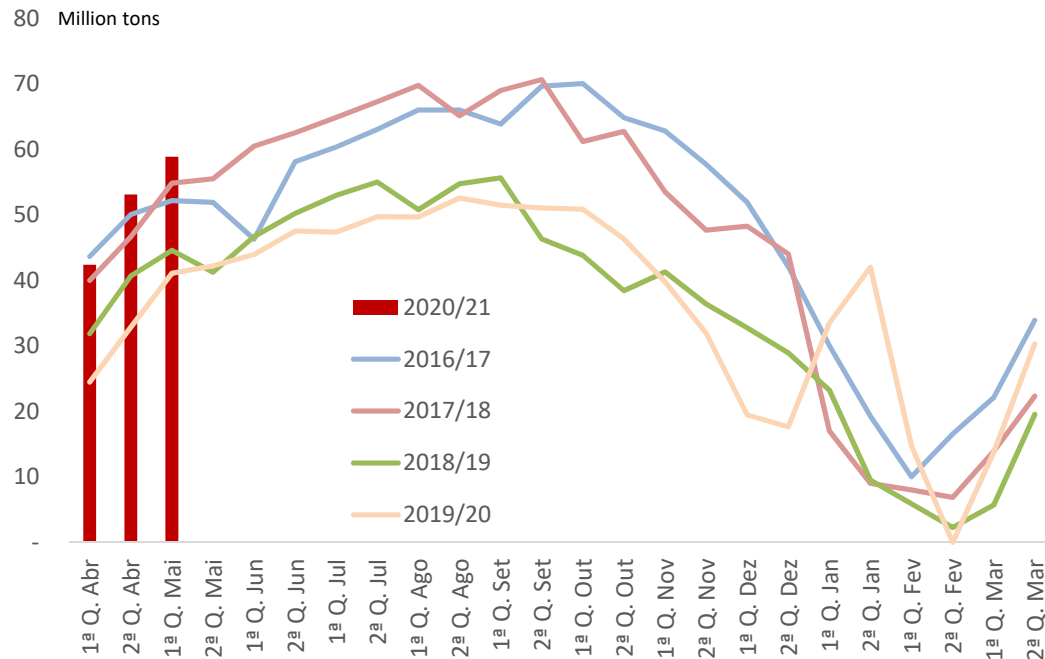


Source: DATAGRO

CS Brazil speeds up cane crushing with strong sugar mix

- As a result of drier weather, 42.46 million tons of cane were processed in 1H May20, 8.76% more than in the same fortnight of 2019.
- 54.77% of the total supply of TRS were diverted to ethanol production, a sharp drop of 11.21 p.p. YoY.

Cane Crushing in CS Brazil



Source: Elaborated by DATAGRO

Produção Centro-Sul 2020/21
Acumulada até 16 de maio

Produto / Safra	2019/20	2020/21	Var.
Cana (mil toneladas)	84.668,6	103.019,0	21,7%
Açúcar (mil toneladas)	2.986,8	5.492,3	83,9%
Etanol total (milhões de litros)	4.051,9	4.399,0	8,6%
Anidro	954,9	1.119,9	17,3%
Hidratado	3.097,0	3.279,1	5,9%
ATR (mil toneladas)*	9.737,5	12.721,1	30,6%
% cana para etanol*	67,81%	54,69%	-13,1%
Rend.Industrial (kg ATR/tc)*	115,01	123,48	7,4%

Quinzenal

Cana (mil toneladas)	39.040,312	42.460,322	8,76%
Açúcar (mil toneladas)	1.604,551	2.499,950	55,80%
Etanol total (milhões de litros)	1.812,7	1.822,7	0,55%
Anidro	561,24	503,95	-10,21%
Hidratado	1.251,5	1.318,7	5,37%
ATR (mil toneladas)*	4.675,0	5.554,6	18,82%
% cana para etanol*	63,98%	52,77%	-11,21%
Rend.Industrial (kg ATR/tc)*	119,75	130,82	9,25%

Fonte: UNICA/Sindicatos.

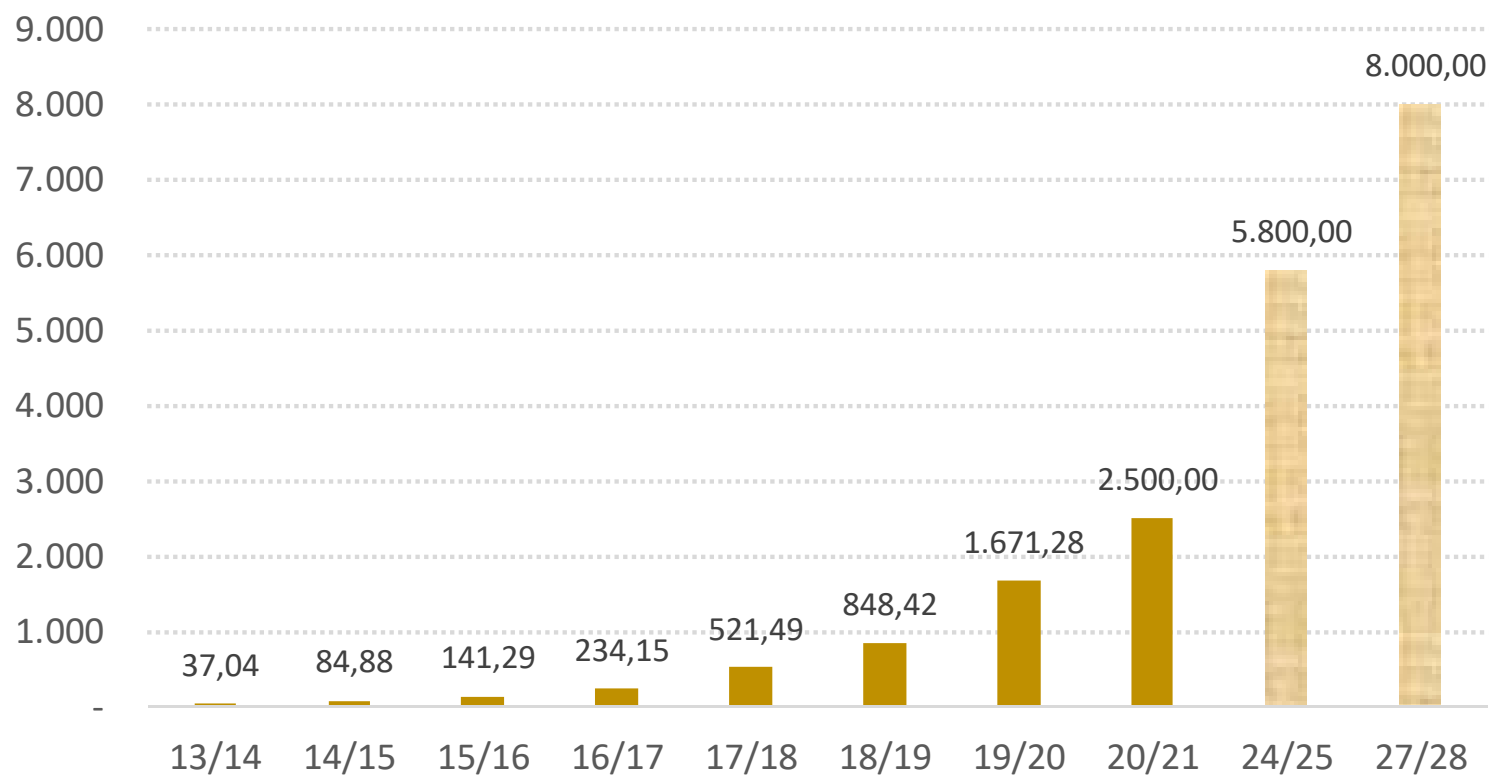
* Cálculo não leva em consideração etanol a partir do milho.



In the meantime, Corn Ethanol Production continues to rise

Corn ethanol production multiplied 20 times in the past 5 years

Corn Ethanol Production in Brazil (in million liters)



Source: DATAGRO



Biofuels are at the forefront of Sustainable Mobility through Electrification with Biofuels

New technologies allow higher energy efficiency and very low carbon footprint under **Well-to-Wheel** or **Cradle-to-Tomb** assessments using ethanol



Toyota Corolla Hybrid Flex Using Ethanol, launched in Brazil, Sept/2019

Hybrid in parallel



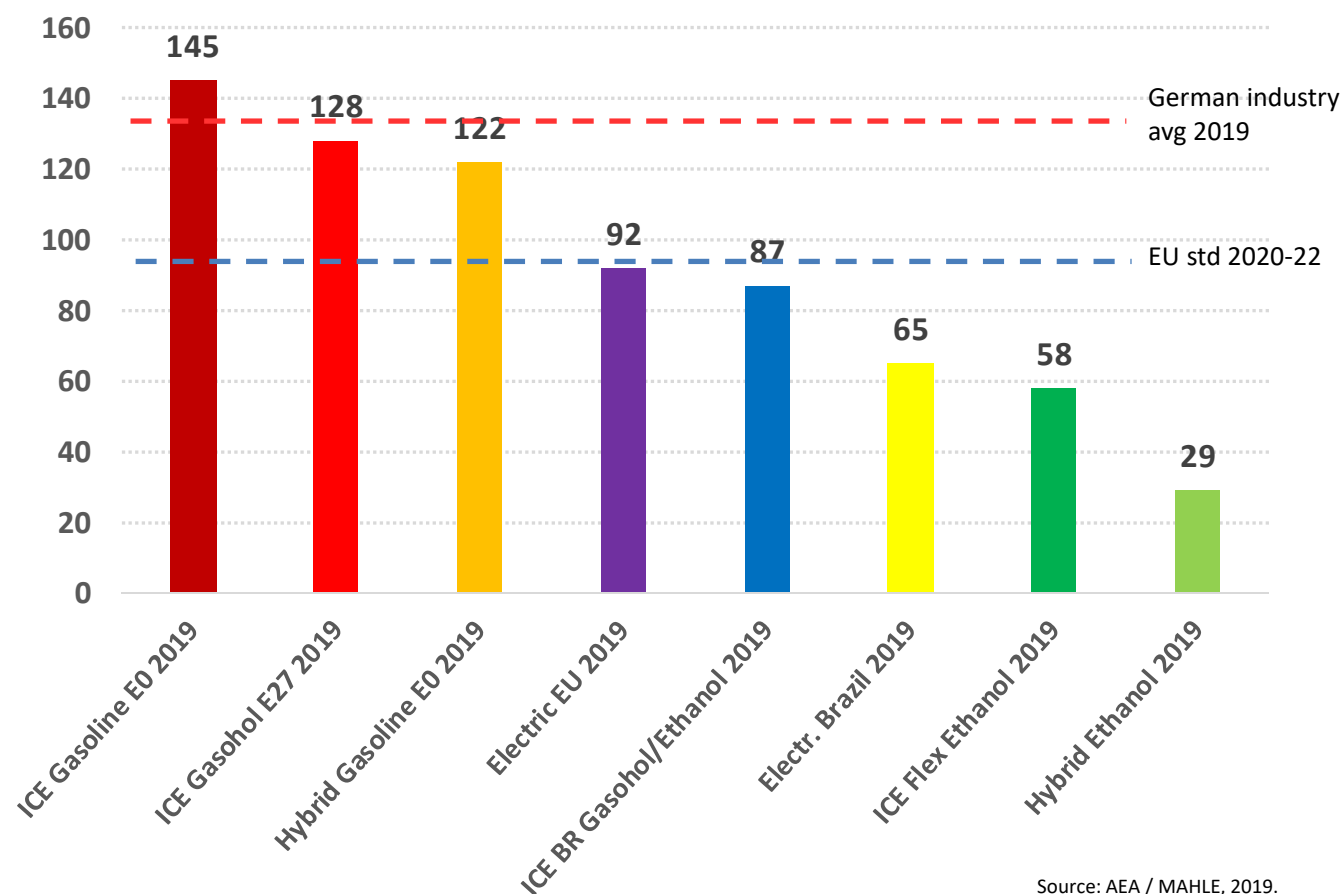
Nissan Kicks e-Power, launched in Thailand in 2020, and to be launched in Brazil Flex-version using ethanol in 2021

Hybrid in series



Comparison of GHG Emissions under WtW - 2019

Total GHG Emissions in gCO₂e/km - 2019



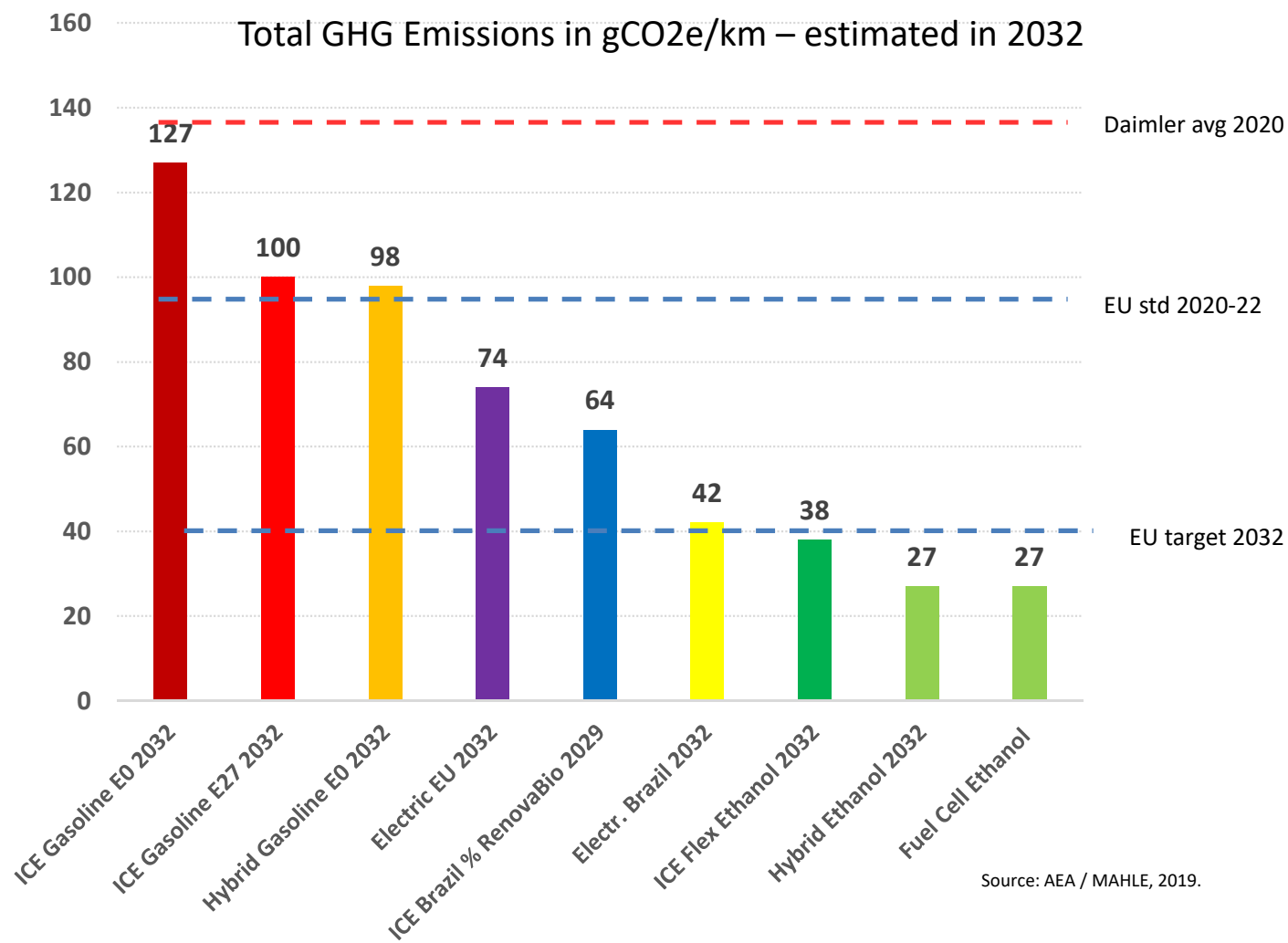
Source: AEA / MAHLE, 2019.



And will continue so,
after 2032 ...



Comparison of GHG Emissions under WtW - 2032

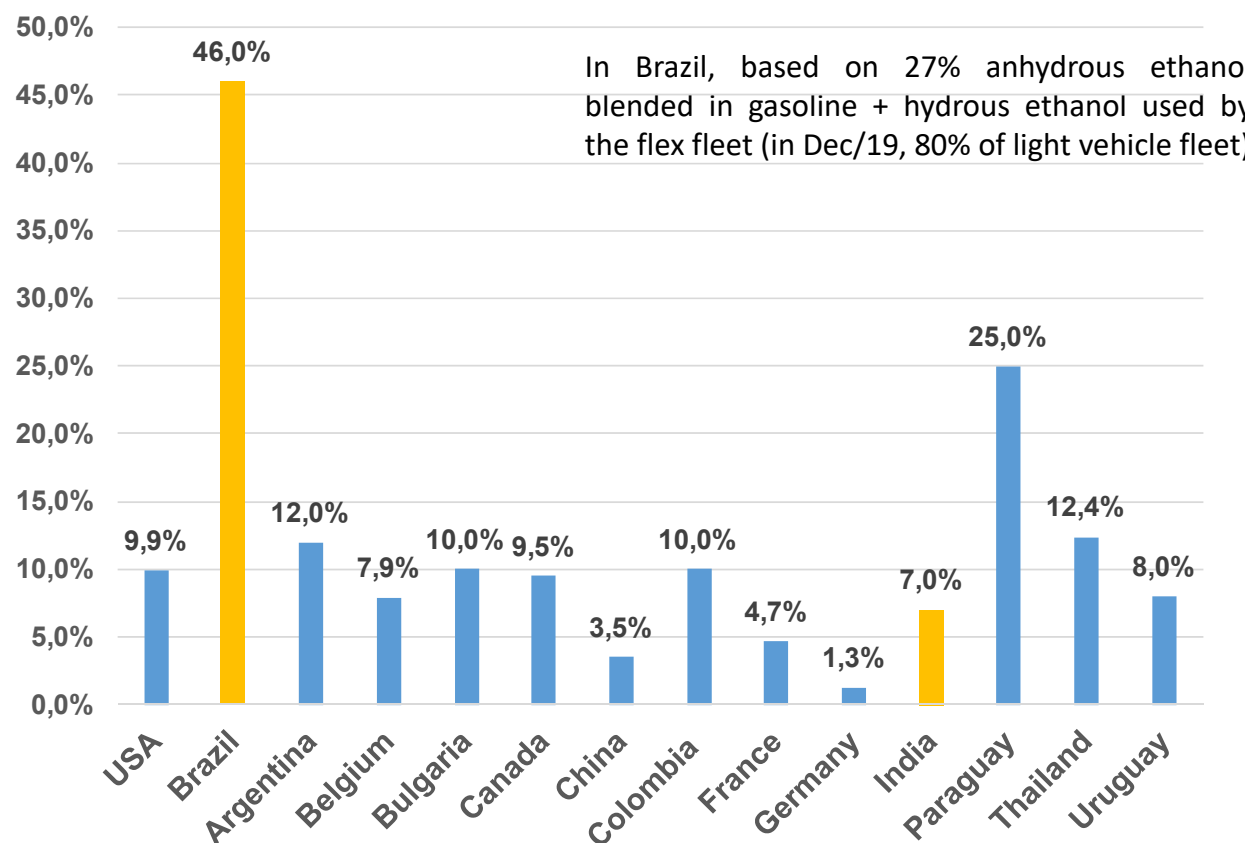


Brazil is already substituting 46.0% (2019)
of its gasoline with bioethanol,
& other countries are in pursue of
increased levels as well

Brazil's Otto cycle fuel consumption in 2019: 51.5 billion liters gasoline equivalent
CAGR (2019): +3.9% p.a.



% of Ethanol in Consumption of Otto Cycle Fuels, 2019



Source: DATAGRO, in gasoline equivalent.



RenovaBio

- Innovation and efficiency in biofuel production and use is at center of Brazil's strategy for the use of low carbon sources of energy.
- RenovaBio is not subsidy, nor carbon tax.
- RenovaBio is a regulation based on 2 pillars:
 - Induction of energy efficiency in production and use of biofuels;
 - Recognition of the capacity of each biofuel to promote carbon reduction.



Mechanism:

- Voluntary certification of biofuel producers for their energy-environmental efficiency, based on life-cycle assessment (LCA), which will determine ability to request issuance of Decarbonization Credits (CBios);
- Definition of long term country carbon reduction target for the fuel sector, leading to individual fuel distributor carbon reduction targets, to be met with acquisition of CBios.
- Market-driven carbon pricing mechanism (endogenous, not exogenous determination), rewarding achievement of individual efficiency, not a common or equal coverage.
- Unleash market forces to implement and drive innovation for increased competitiveness in biofuel/bioenergy production.



Strategic Vision for the Future of Mobility

- It is possible to enlarge the use of high-density low-carbon liquid fuels (biofuels, such as Ethanol) stimulating higher energy efficiency and lower environmental footprint,
- Complementing in a virtuous way renewable and traditional fuels,
- Using the existing infrastructure, and
- Promoting local technologies in fuel production and in automobile technology for local use and exports.

Plinio Nastari

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Event calendar

October 26-27th, 2020

20th International DATAGRO Conference on Sugar & Ethanol

Grand Hyatt Sao Paulo

Sao Paulo, Brazil

www.datagroconferences.com