

Solutions that reduces carbon emissions, increases
resiliency and accelerates the electric vehicle charging infrastructure with Mobile DC Fast electrifus EVSE Charging

(Reuters) - "During several days of brutal cold in Texas, the cily of Austin saw its fleet of 12 new electric buses rendered inoperative by a statewide power outage...
That problem will be magnified next year, when officials plan to start purchasing electric-powered vehicles exclusively."
(Nichola Groom, Tina Bellon; 3.05.2021)
2022 IS THE YEAR that will see the acceleration of investment in and deployment of Electric Vehicle Fleets. Fleet managers are being tasked by leaders in every sector: business, government, utilities, first responders, and many others to beginning deployment of electric vehicles.






Municipalities


Healthcare


Service \& Utility


School Districts


Package Delivery


Paratransit





ELECTRICAL GRID
Along with emissions, the U.S. electrical grid can also lead to higher NOx and particulate matter emissions than the regulated internal combustion engine vehicles tail-pipe productive. Hence, full electrification is not correlative to decarbonization.

## 167 gcozeo/mJ <br> AVERAGE GRID ELECTRICITY

## CONVENTIONAL PROPANE

Because of propane's low-carbon, high-energy output, it's a perfect fuel for residential and commercial applications such as vehicle fleets, agriculture and industrial work, and landscape management, just to name a few.

## RENEWABLE PROPANE (rP)

$50 / 50$ blend of propane and renewable propane (rp)
Currently, renewable propane provides a lower carbon footprint solution in all 50 U.S. states except Vermont when compared EVs that are charged using the electrical grid. The entire U.S. propane industry is targeting at least a 50 percent replacement of conventional propane with renewable propane by 2050 .

## 47 gco2eq/MJ

## AVERAGE FOOTPRINT



## RHD FEEDSTOCKS [FATS AND OILS]

HYDROTREATING EKAMPLE

Saturated fat


Glycerol to Renewable Propane


| Feedstock | Structure | Sources |
| :--- | :--- | :--- |
| Bio-oils | Triglyceride - the propyl <br> backbone can be converted to <br> propane | Algae <br> Animal fats/tallow <br> Plant oils: Jatropha, Palm, Peanut, Rapeseed <br> (Canola), Soybean, Sunflower. |
| Bio $C_{3}$ or $C_{4}$ | Propyl and butyl | Bio-propylene (3) <br> Glycerine (3) <br> Bio-butylene (4) <br> Butyric acid (4) |
| Bio $C_{5}$ or $C_{6}$ |  | Sugars and starches |



If one gallon of propane is equal to 27 kWh of electricity, then we can compare the costs of these fuels directly by looking at the price per unit (propane gallons or kilowatt hours) and finding the price difference. This can easily be done by looking at your electric bill and multiplying the price per kWh by 27. The resulting number will be a dollar figure that will be either greater than or less than the price of a gallon of propane. For example, if you are paying 12ל per kWh, the electrical cost comparison figure to a gallon of propane will be $\$ 3.24(.12 \times 27=3.24)$. Electricity is cheaper than propane if propane is selling for $\$ 3.24$ per gallon and propane is cheaper than electricity if it is selling for less than $\$ 3.24$ per gallon.

