

A photograph of a herd of black and white cows grazing in a lush green field under a bright blue sky with scattered white clouds. The cows are of various breeds, some with large black patches and others with smaller spots. They are spread across the field, with some in the foreground and others further back. The overall scene is peaceful and rural.

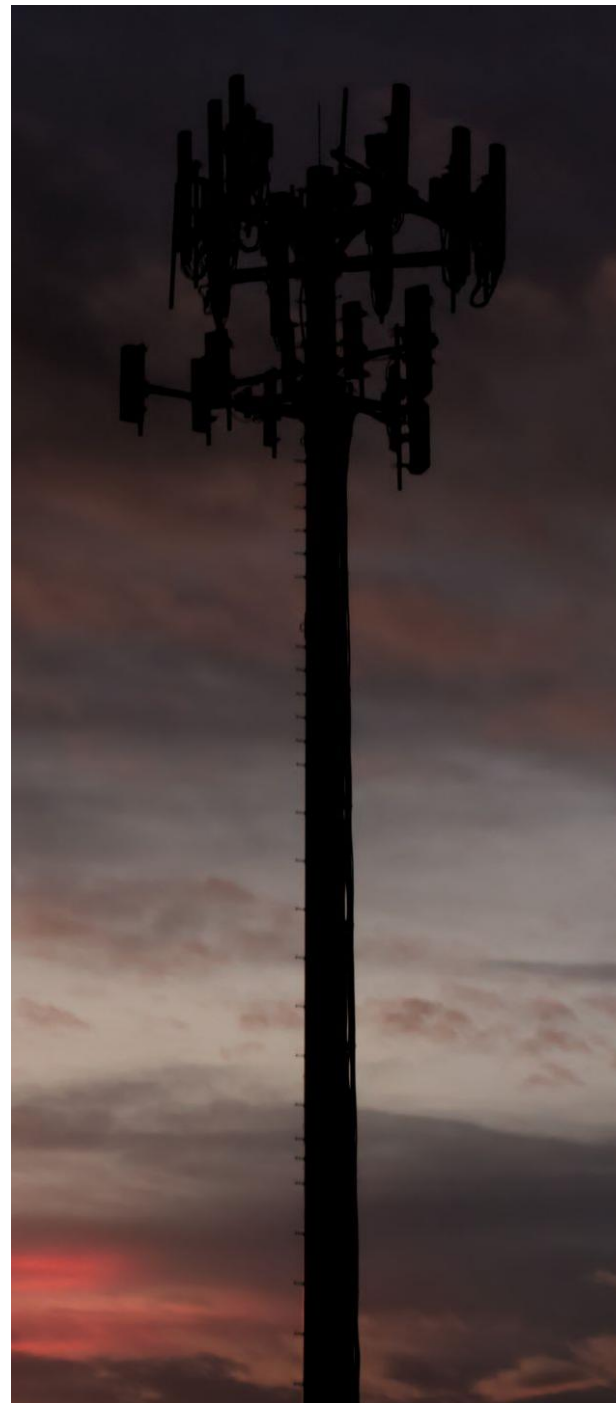
Resiliency & Sustainability with Propane

Joy Alafia





Backup Power





Renewable Propane

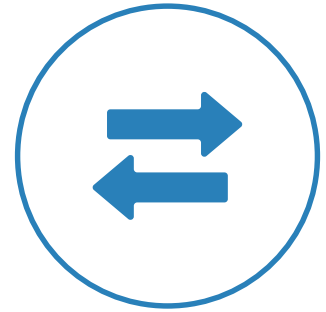
Why Renewable Propane?



Low NOx Engines



Ultra-low & Negative Carbon
Footprint



Fungibility



Economics



Environmental Steward

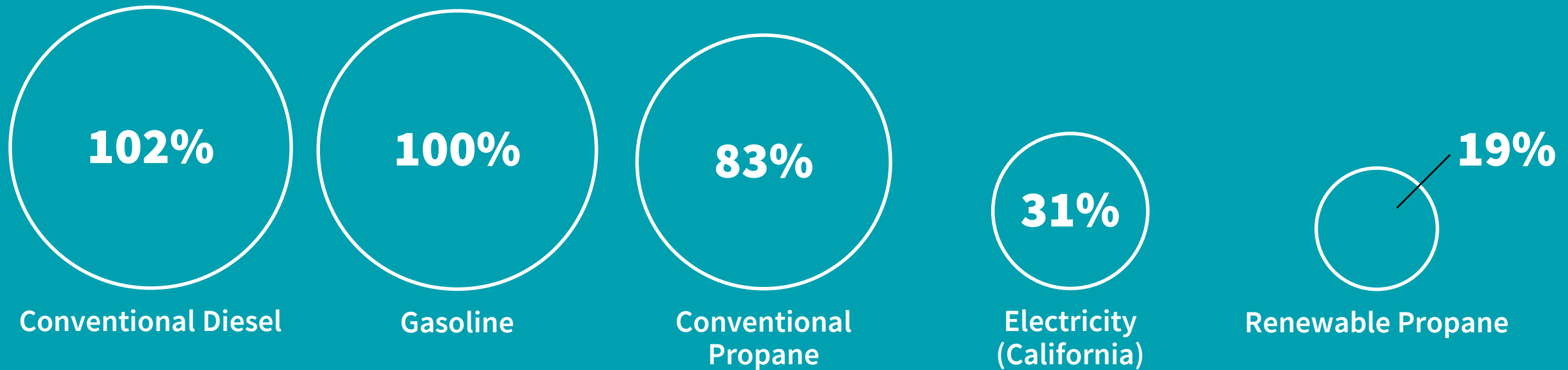
Where Does Renewable Propane Come From?





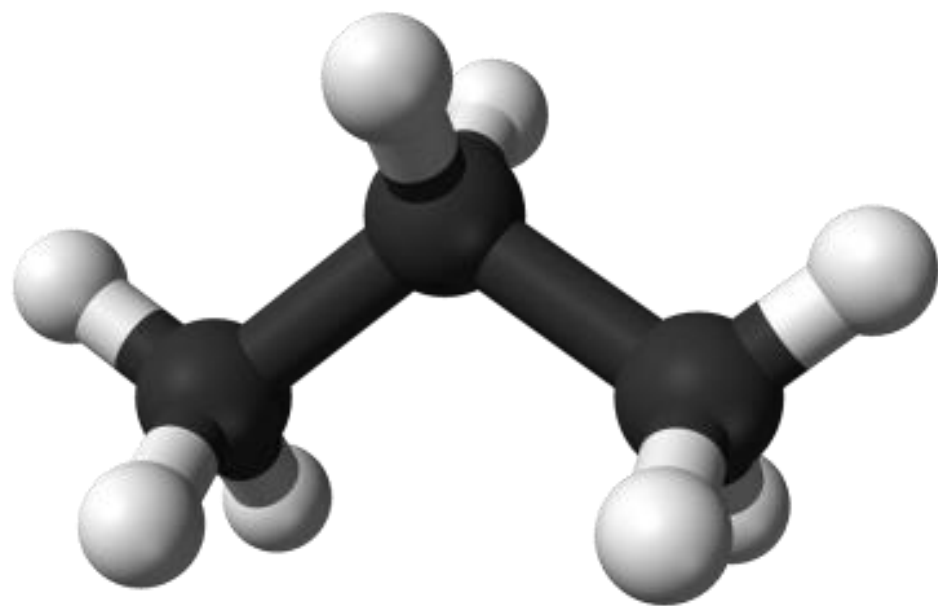
Life Cycle Emissions

Carbon Intensity



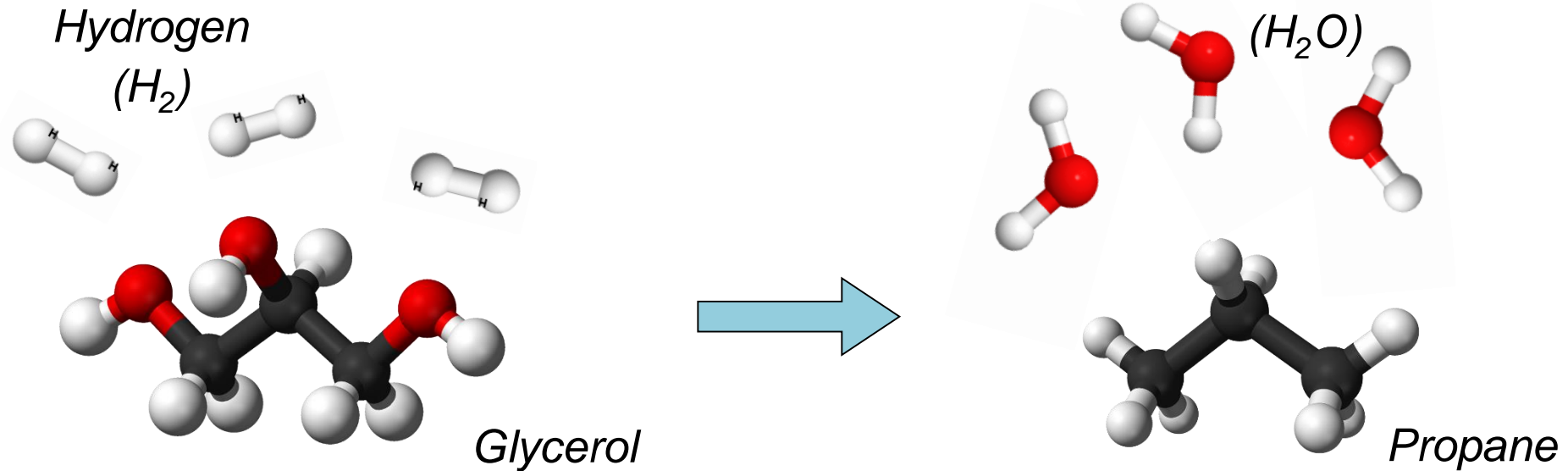
How is it produced?

(Quick org chem refresher)

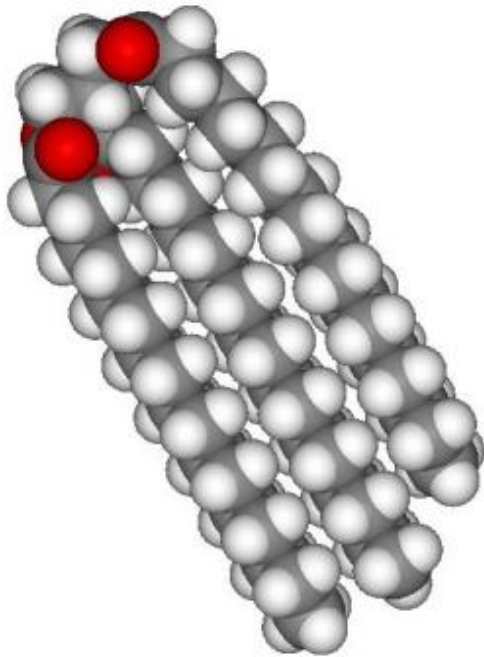


Hydrotreating Process -

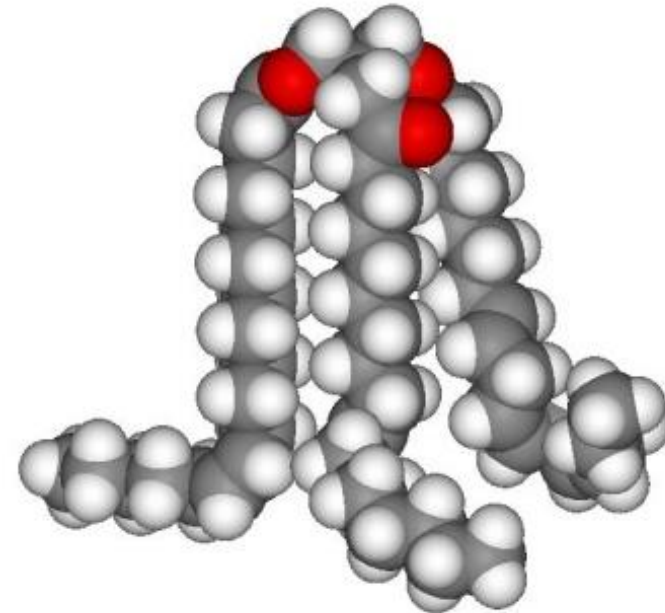
Glycerol to Renewable Propane

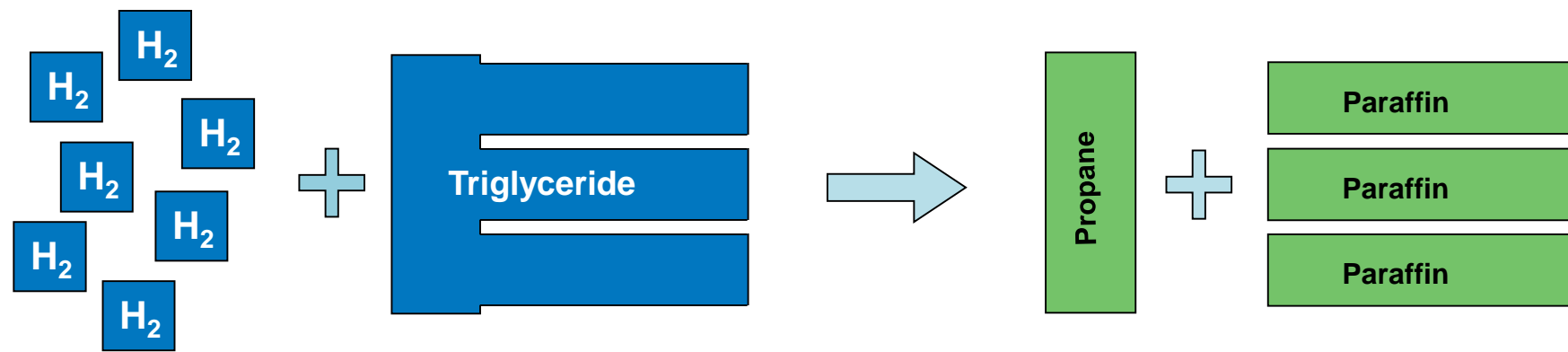


Animal Fat
(Saturated Fat)



Vegetable Oil
(Unsaturated Fat)





Animal/Vegetable fat

Hydrotreating reaction

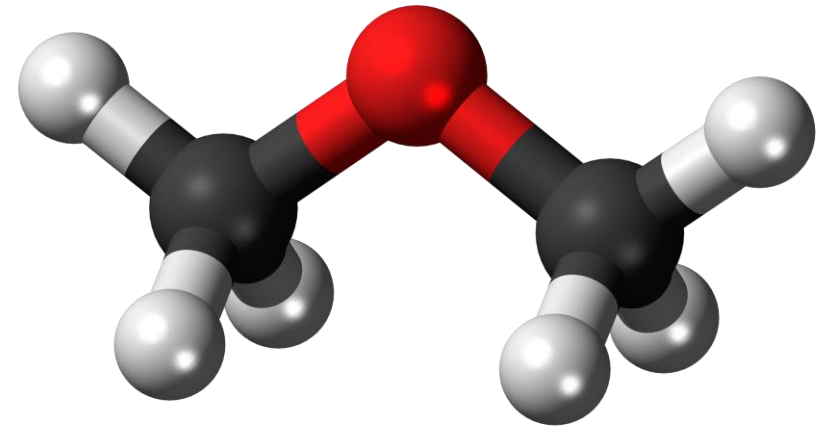
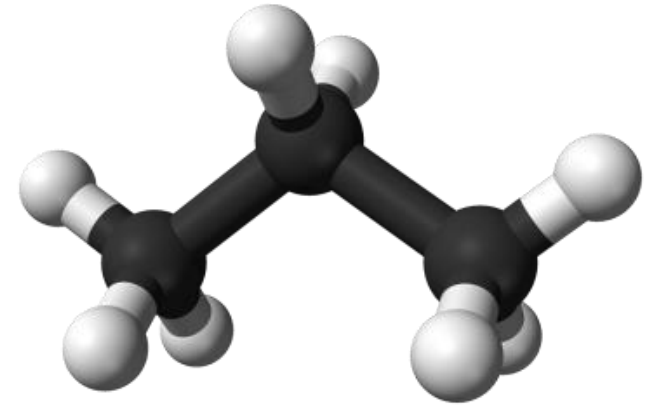
DME - The “Other” Renewable Propane?

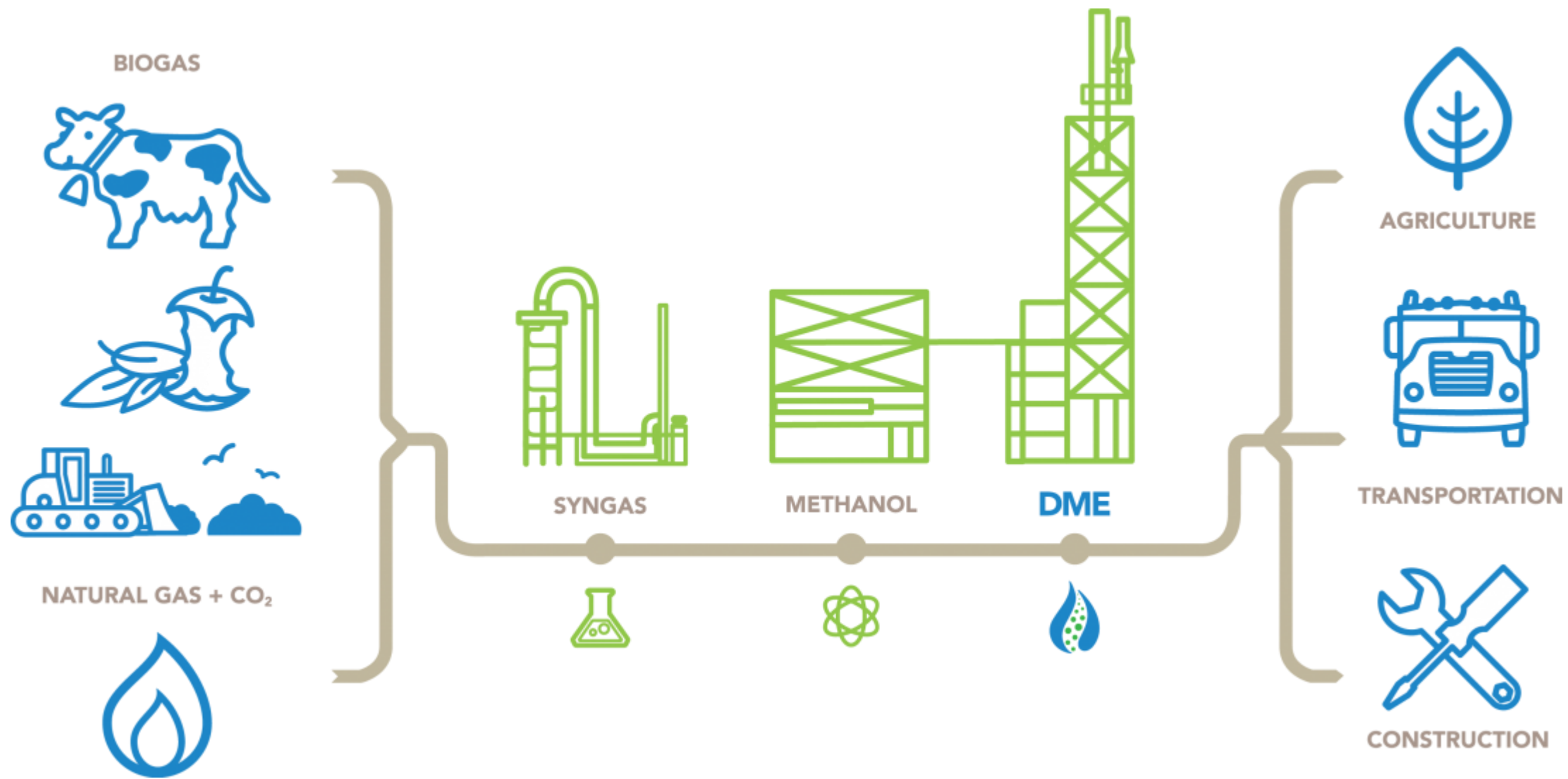






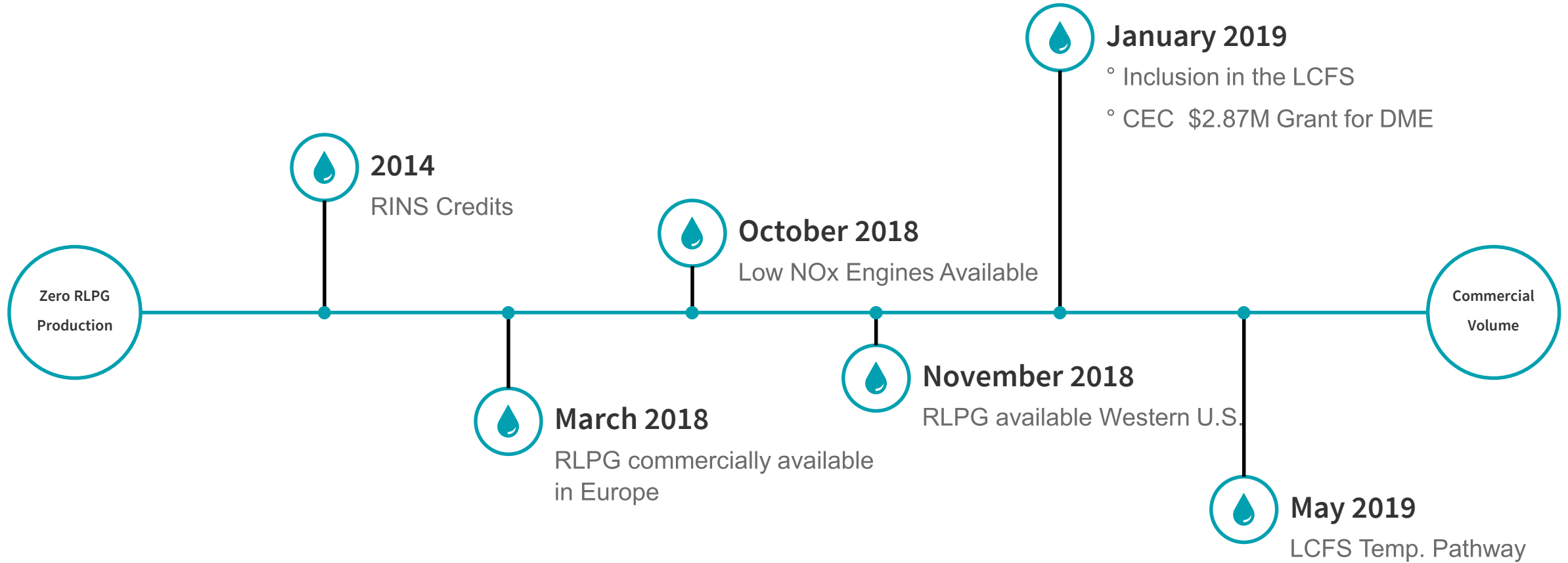
- Handles like propane
- No particulate matter
- Waste/other feedstocks to fuel







From Zero to Commercialization



Neste Oil - Rotterdam



**California Target
40% GHG Reduction
by 2030**

2030 = 520 Million Gallons

Regulation & Legislation Support Clean Fuel Diversity

OPPORTUNITIES



WPGA[®]

**WESTERN PROPANE
GAS ASSOCIATION**

Leading the way for renewable propane

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