Biofuels/Biomass

By: Jake, Yusuf, Bennett

THE THREE MOST COMMON BIOFUELS

Ethanol

Ethanol is a liquid alcohol made of oxygen, hydrogen and carbon. It is made by various agricultural feedstocks.

Biodiesel

Biodiesel is a renewable, biodegradable fuel derived from plants or animals.

Biobutanol

Biobutanol is a biofuel that is derived by fermentation of sugars in organic feedstocks. That is the most common method of producing this fuel.

1 Origin and history of Biofuels

2 How Biofuels are Obtained

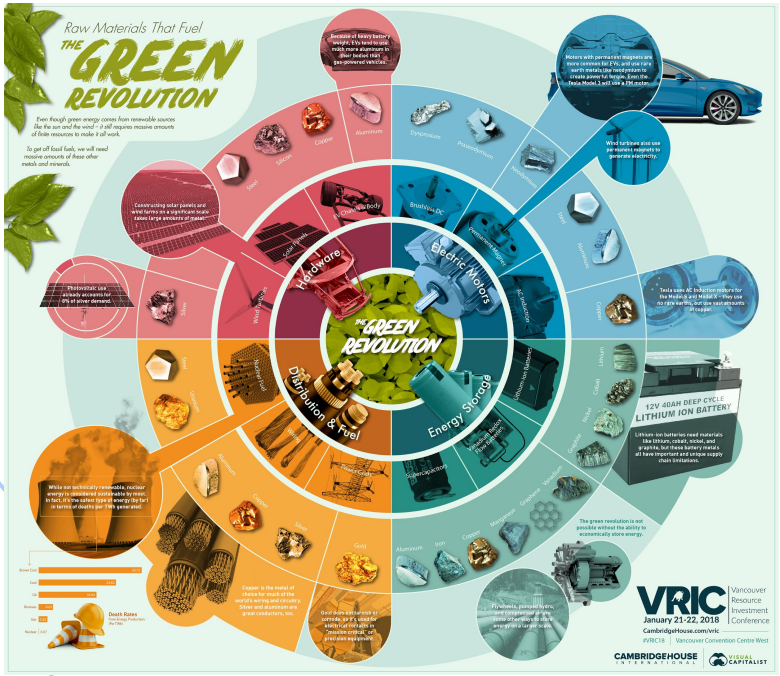
3 How Biomass is Converted into Energy

4 Pros and Cons of Biofuels

5 How are Biofuels used in Canada

6 How do biofuels affect our Future

Biofuels Origin + history



- Solid biomass like wood, dung and charcoal have been used ever since man discovered fire

- All of the listed Biomass can be turned into Biofuels

- biofuels are as old as civilization itself

- Scientists discovered that straight up vegetable oils could run diesel engines

- scientists were experimenting with vegetable oils and made the first ever biodiesel

- biofuels became popular in the 1930 in europe

How are biofuels obtained

- Algae: Algae is a protist that comes from ponds and is used to create biofuels.

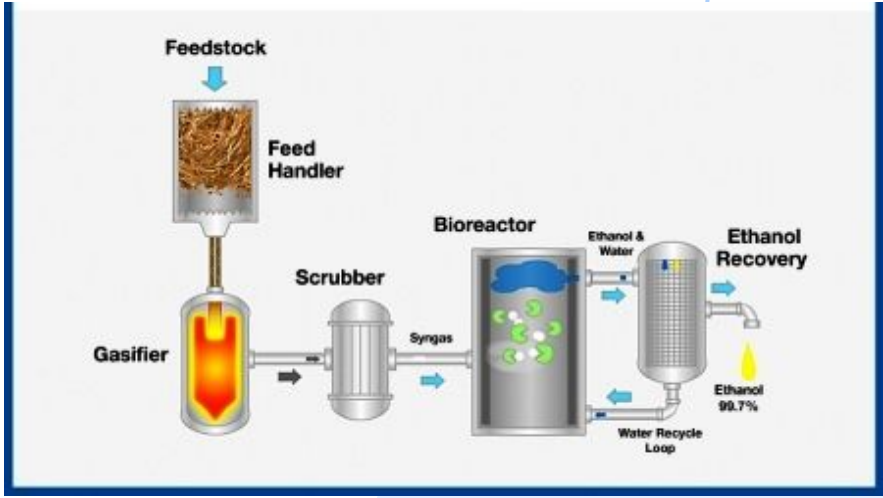
- dung: Dung is basically another word for poop and is used to create biofuels.

- Sugar cane: Sugar cane is a plant and based off its name, has sugar in it. Just like dung and algae, it is used to create biofuels.

- Various plants and crops such as corn and wheat.

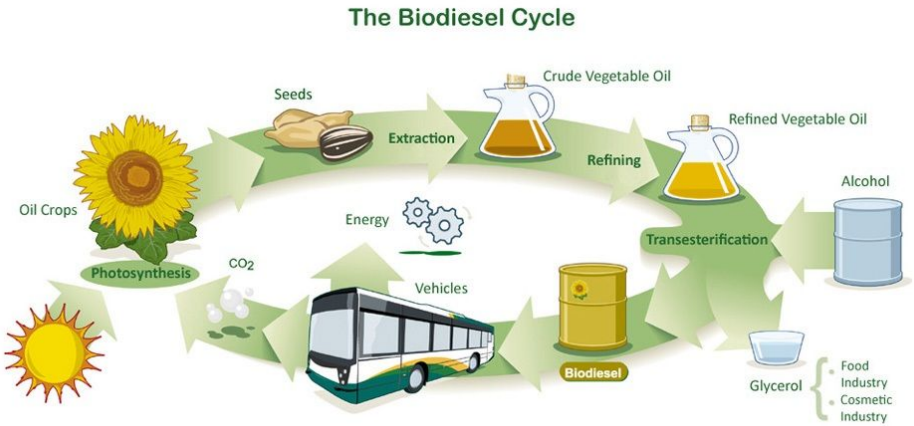
How Biomass is Converted into Ethanol

- Feedstock is unprocessed/raw materials.
- Biomass is put into a Feed handler
- A gasifier converts biomass into gases.
- Scrubbers are air pollution control devices that use liquid to separate matter or gases from an industrial exhaust or flue gas stream.
- A bioreactor is used to convert raw materials into useful byproducts such as the bioconversion of corn into yeast, bacteria, or animal cells.
- Water is then pumped into the gasses to refine and finish
- Water is recycled through a secondary pipe

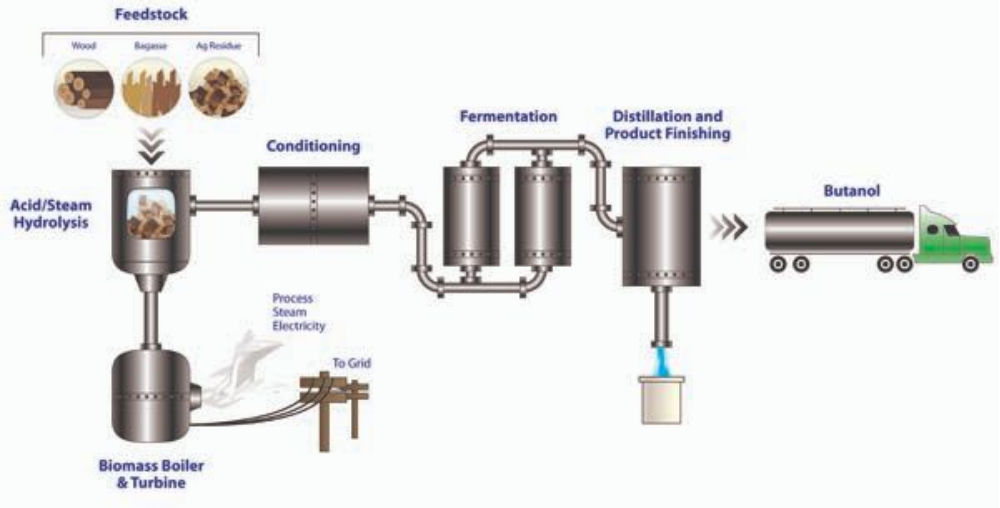


How is Biomass Converted into Biodiesel

- Photosynthesis causes the growth of the plant
- The seeds of the plant create oils
- The crude oils are then turned into refined vegetable oil
- Alcohol is introduced making biodiesel to power vehicles
- The carbon emissions then feed the plant causing the whole cycle to repeat



How is Biomass Converted into Biobutanol



- Feedstock is unprocessed/raw materials.
- Biomass is put into a Feed handler
- A gasifier converts biomass into gases.
- Scrubbers are air pollution control devices that use liquid to separate matter or gases from an industrial exhaust or flue gas stream.
- A bioreactor is used to convert raw materials into useful byproducts such as the bioconversion of corn into yeast, bacteria, or animal cells.
- Water is then pumped into the gasses to refine and finish
- Water is recycled through a secondary pipe

Pros and Cons Of Biofuels

PROS	CONS
A new eco friendly resources	Uses large amounts of raw materials
Easy to obtain	Inefficient fuel source
Can be a sustainable replacements for diesel	Raises food prices
Use of raw materials	High water demand
More jobs	Highly scep seized
Safer than most fuels	Only so much usable land

How Are Biofuels used in Canada

-ninth leading country to use biofuels
-2 point 6 percent of diesel in biodiesel
-uses 750 million liters of biofuel
-used as backup power for public facilities like school
-also all the coventanal uses like wood or oils

Future of Biofuels

- Possibly a replacement for fossil fuels
- Could possibly power whole cities and/or regions
- A cheap easy to get resource
- A good way to recycle expired bioproducts
- Great for hipsters on scooters
- Not dependant on another country
- Hightly

Bibliography

26 main pros & cons of biofuels. (2020, May 21). *E&C*. https://environmental-conscience.com/biofuels-pros-cons/

A brief history of biofuels. (n.d.). http://www.biofuelnet.ca/nce/2013/07/31/a-brief-history-of-biofuels-from-ancient-history-to-today/

Biofuel. (2021). In *Wikipedia*. https://en.wikipedia.org/w/index.php?title=Biofuel&oldid=1005028506

Biofuel | definition, types, & pros and cons. (n.d.). Encyclopedia Britannica. Retrieved February 11, 2021, from https://www.britannica.com/technology/biofuel

Biomass explained—U. S. Energy information administration(Eia). (n.d.). Retrieved February 11, 2021, from https://www.eia.gov/energyexplained/biomass/

Bibliography cont.

Tyner, W. E. (2008). The us ethanol and biofuels boom: Its origins, current status, and future prospects. *BioScience*, *58*(7), 646–653. https://doi.org/10.1641/B58071

Krivoruchko, A., Serrano-Amatriain, C., Chen, Y., Siewers, V., & Nielsen, J. (2013). Improving biobutanol production in engineered Saccharomyces cerevisiae by manipulation of acetyl-CoA metabolism. *Journal of Industrial Microbiology & Biotechnology*, *40*(9), 1051–1056. https://doi.org/10.1007/s10295-013-1296-0

Why are biofuels bad for rainforests? (n.d.). Mongabay. Retrieved February 11, 2021, from https://rainforests.mongabay.com/kids/elementary/biofuels.html

Thanks!

Do you have any questions?
Follow the project updates
your email@freepik.com
+91 620 421 838
yourcompany.com

CREDITS: This presentation template was created by Slideshow, including icons by Flaticon, and infographics & images by Freepik.

Please keep this slide for attribution.