Biofuels and Carbon Neutrality

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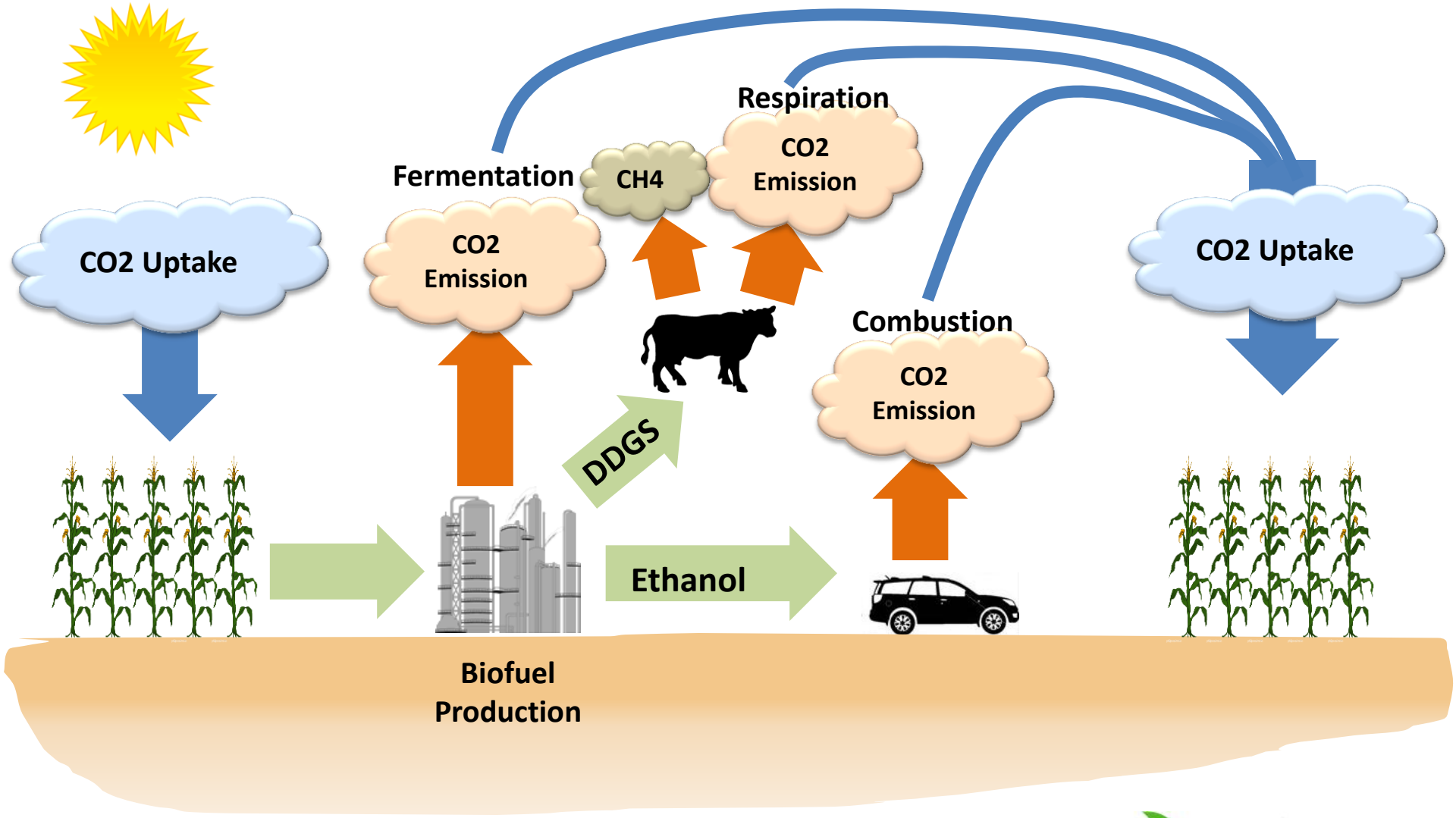
Biomass and Biofuels Are Carbon Neutral

- Plants (biomass) remove CO2 from the atmosphere during growth through photosynthesis.
- The CO2 is converted to organic carbon and stored in the biomass.
- Combustion, fermentation, and/or decay of the biomass releases the stored C back to the atmosphere in the form of CO2.
- Thus, use of biomass for energy neither increases nor decreases atmospheric carbon. Rather, atmospheric carbon is simply being recycled.
- For annual bioenergy crops, this process is *very rapid*.

Corn Grain Ethanol Carbon Cycle



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Treatment of Biogenic Emissions

- In established accounting frameworks, biogenic carbon emissions have traditionally been counted as zero or equivalently offset by a CO2 uptake credit
  - U.N. Intl. Panel on Climate Change
  - EPA: Natl. GHG Inventory, RFS, GHG Reporting Rule
  - WRI GHG Reporting Protocol
  - DOE GREET Model
- Conversely, fossil fuel combustion emissions are counted as additive releases to the atmosphere
- The carbon neutrality of biomass has been the main factor driving its use as a tool to fight climate change
- The established treatment of biogenic carbon is being vehemently challenged (Searchinger, Manomet, etc.)

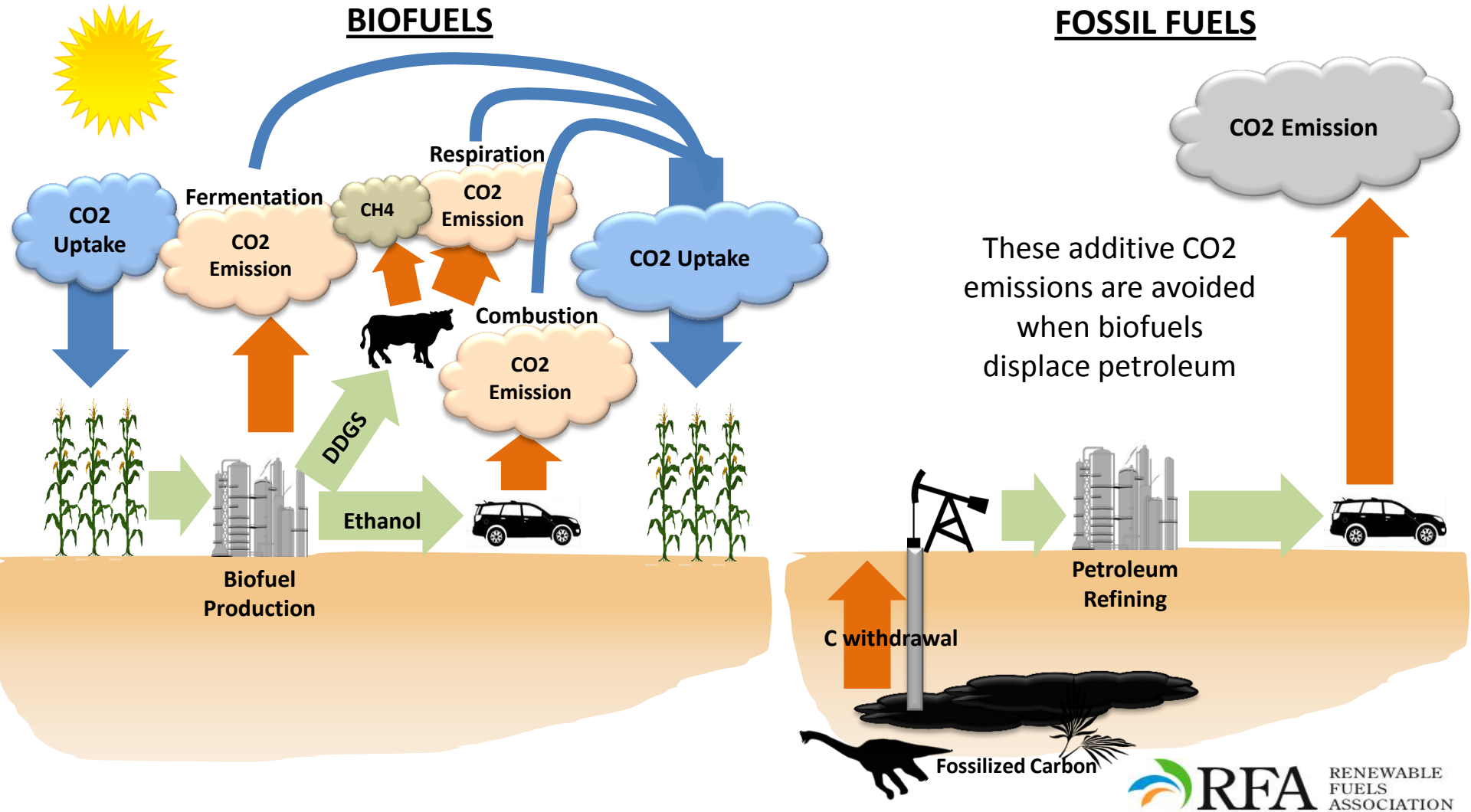
Challenge 1: What About Indirect Emissions?

- ***Argument****: Using biomass quantity X for bioenergy leads to displacement and land conversion for cultivation of biomass quantity Y. LUC emissions cancel out the carbon neutrality of biomass X.*
- The desire to account for indirect emissions DOES NOT obfuscate the fact that biomass absorbs CO2 during growth
- Accounting of indirect emissions (such as LUC) should be separate from and independent of biomass carbon accounting

Challenge 2: What About "Additionality"?

- ***Argument**: CO2 uptake by plants on existing cropland is not additional and would have happened anyway. Thus, CO2 reduction benefits cannot be attributed to biomass from existing cropland.*
- "…the automatic assumption of an offset by plant growth is incorrect and there are no direct reductions in greenhouse gases." (Searchinger 2010)
- This argument ignores the fundamental fact that bioenergy replaces fossil energy (and recycled emissions from bioenergy displace additive emissions from fossil energy).

When biofuels displace fossil fuels, additive CO_2 emissions are avoided



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EPA GHG Tailoring Rule and Biogenic CO_2

- EPA's *proposed* "Tailoring Rule" did not address biogenic CO_2 emissions sources in determining applicability of Title V and PSD permitting requirements

- However, EPA's *final* rule determined there is not "…sufficient basis to exclude emissions of CO_2 from biogenic sources in determining permitting applicability provisions at this time."

EPA May Reconsider Failure to Exempt Biogenic CO_2

- EPA's final rule suggested the agency could revisit treatment of biogenic emissions at a later date
  - "…the decision not to provide this type of an exclusion at this time does not foreclose EPA's ability to (1) provide this type of an exclusion at a later time…, or (2) provide another type of exclusion or other treatment based on some other rationale."

- EPA issued a "Call for Information" July 10, 2010
  - "EPA requests public comment and information…on approaches to accounting for greenhouse gas emissions from bioenergy and other biogenic sources. This information will be used to develop an approach for such emissions under the GHG Tailoring Rule."

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Impact on Ethanol Producers of Failing to Exclude Biogenic Emissions

- **Inclusion of biogenic emissions from fermentation would trigger PSD/Title V permit requirements for nearly *all* ethanol plants**
  - Only the smallest plants (<21 MGY) will not be subject
  - These small plants make up only 7% of plants in operation today
- Plants larger than 21 MGY but smaller than 60 MGY will be subject to PSD/Title V under final Tailoring Rule. These facilities would not otherwise be subject to these requirements if biogenic emissions were exempted
  - ~90 plants are larger than 21 MGY but smaller than 60 MGY
  - This represents about 43% of total plants operating today
  - Most plants of this size are farmer/local-owned

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Some Implications of Reversing Biomass Carbon Neutrality Treatment

- *Failure to exempt biogenic emissions in the tailoring rule sets a dangerous precedent*
- Renders bioenergy worse (or no better) for climate than petroleum & other fossil fuels
- Would force rewrite of cap-and-trade program
- Would threaten efficacy of RFS and RES programs
- Destroys any incentive for biofuel producers to displace natural gas/coal boilers with biomass gasification
- **Significantly undermines national transition to renewable energy**

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