Green Plains

CARBON CAPTURE & SEQUESTRATION

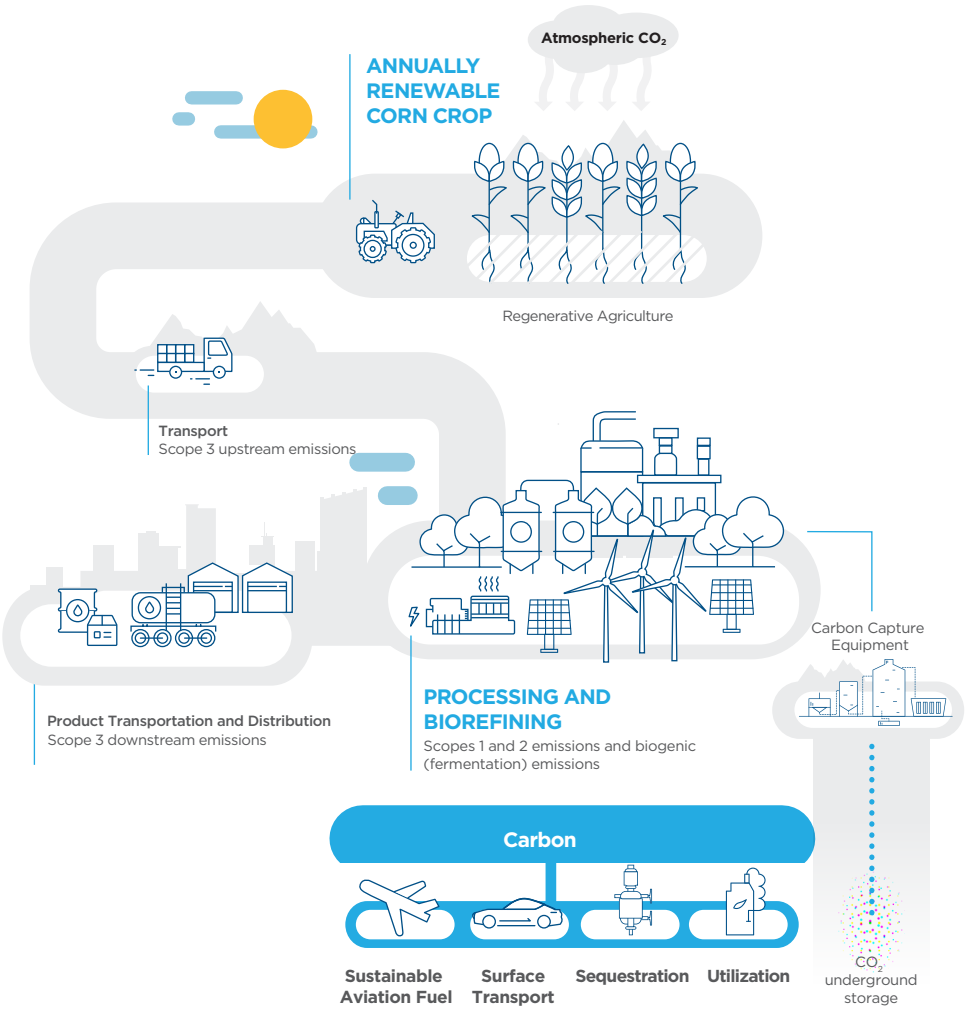
Carbon across our platform

- The low carbon-intensity biofuels we produce have always been renewable. The corn we purchase from our farmer customers absorbs CO2 from the atmosphere as it grows, some of which is sequestered in the soil, with the majority concentrated in the kernels.

- Today, when we ferment corn into ethanol, this biogenic CO2, which represents approximately one third of the kernel, is released to be re-absorbed by the corn crop. Even before carbon capture, ethanol has a 46% lower carbon intensity (CI) than petroleum-based gasoline because the carbon comes from the atmosphere, not fossil hydrocarbons.

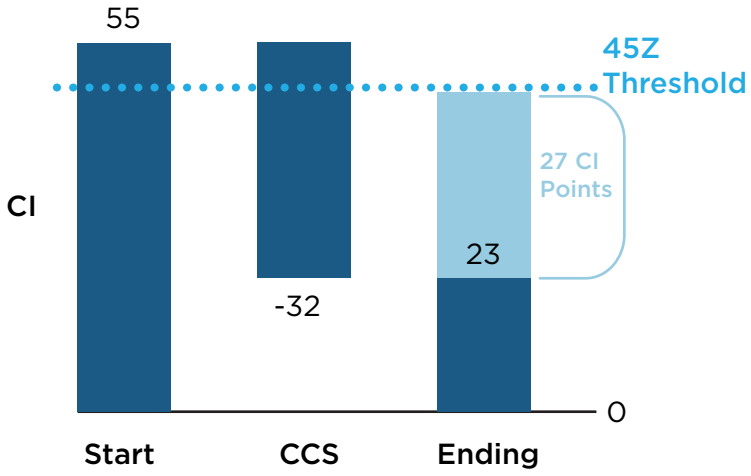
- Once we have carbon capture in place, the biogenic CO2 from fermentation will be captured, compressed and shipped on a pipeline to permanent underground geological storage sites.

- We are also exploring opportunities to capture post-combustion fossil CO2 from the manufacturing process.

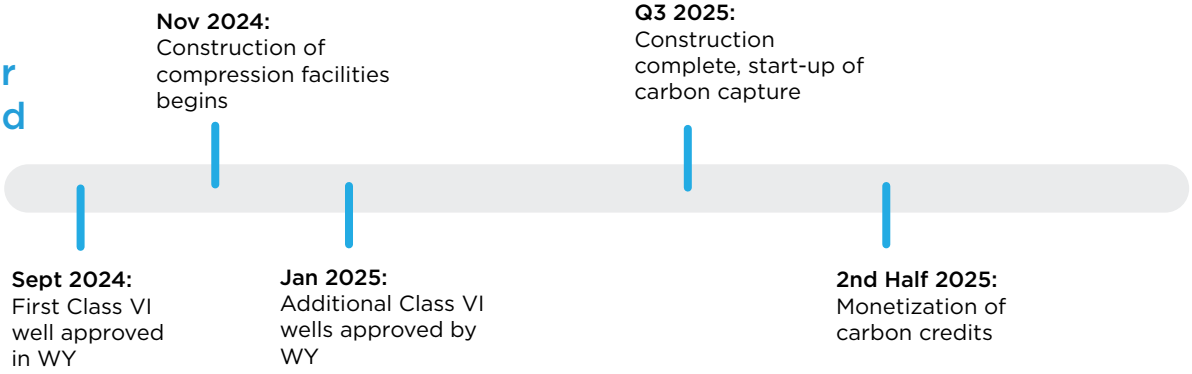


Investing to decarbonize

- "Advantage Nebraska" - Not all ethanol producers will have access to CCS at the same time. Nebraska producers could be at a distinct advantage with the first mover status of the Tallgrass Trailblazer project, which already has a trunk line in the ground as a repurposed natural gas pipeline.
- Central City, Wood River and York Nebraska facilities represent 287 million gallons of capacity, which is the equivalent of 800,000 tons of biogenic carbon per year. Compression equipment has been sized for 1.2M tons to accommodate expansion of production capacity and post-combustion capture.



Upcoming milestones for Trailblazer and Green Plains



- This low-CI ethanol is well positioned to benefit from state and federal incentives, including the 45Z Clean Fuel Production Credit and state LCFS markets, in addition to the Canadian CFR or private carbon market programs.

45Z

- 2025 – 2027 incentive to produce lower CI liquid fuels below 50 CI
- Incentives effectively fund $0.02 / gallon per CI point below 50

45Q

- Long term incentive to capture CO2 emissions
- 12 year program with 5 year direct pay based at $85 per ton of carbon sequestered, equivalent to ~ $0.24 per gallon of ethanol

LCFS or Carbon Credit Programs

- Low-CI biofuels can be utilized in state level incentives such as from CA, WA, OR
- Could provide carbon credits to private sector based on reduction of CO2 emission