



Electric Farm Equipment and GHG Emissions

Key Takeaways

- While there are very few electric farm vehicles in use today, much of the research and development for farm equipment is pursuing this technology.
- Major food companies have marketing initiatives to distinguish their products from competition by their carbon footprint. This will impact their demand on their supply chain, including farmers.
- The Inflation Reduction Act made changes to the Clean Air Act (CAA) indicating greenhouse gas emissions (GHGs) are considered a form of air pollution.

Questions

1. **Is the electric grid, including on-farm electricity, prepared for more farm equipment to be electric?**
2. **Considering GHG emissions are being treated as a pollutant, what are ways agriculture can lower GHG emissions?**
3. **What approaches should the federal government take to assist farmers in lowering GHG emissions?**

Background

While there are very few electric farm vehicles in use today, much of the research and development for farm equipment is pursuing this technology. According to Farm Journal, within the past year several manufacturers have released prototypes and plans for industrial-sized electric farm equipment, including CNH, Caterpillar, Doosan Bobcat, John Deere, Komatsu, Volvo, and Yanmar. Furthermore, Monarch Tractor has a fully electric and autonomous tractor which features 10 hours of runtime, 40 horsepower (HP) continuous, and 70 peak HP. These tractors have been used in the viticulture industry since 2020. Experts indicate these early prototypes appear to compete well with conventional equipment under 100 HP, while the technology is not ready to compete with higher HP equipment.

Many food companies are seeking to market their products as carbon-neutral and some believe electrification of farm vehicles is a step in this direction. Some argue market demand, not just government requirements, is leading to this trend. Major food companies have marketing initiatives to distinguish their products from competition by their carbon footprint. This will impact their demand on their supply chain, including farmers.

From a government perspective, the Inflation Reduction Act (IRA) passed by Congress and signed by President Biden in 2022 made changes to the Clean Air Act (CAA) indicating greenhouse gas emissions (GHGs) are considered a form of air pollution. Specifically, carbon dioxide, hydrofluorocarbons, methane, nitrous oxide, perfluorocarbons, and sulfur hexafluoride are defined as GHG pollutants subject

to the CAA. It is expected for future Environmental Protection Agency rules to regulate methane emissions from oil and gas operations, decrease tailpipe emissions, and increase fuel economy standards. Reports suggest in the future USDA could condition the use of the grants, loans, and other forms of financial assistance it oversees to require agricultural practices to reduce emissions. Many argue the agricultural industry must prepare for the changes which could be coming considering the potential for future GHG regulations, and one opportunity could be the use of electric equipment.

Policy

Tennessee Farm Bureau

Energy (Partial)

We support upgrading the electric grid infrastructure to ensure security, reliability, and survivability.

Litter and Waste (Partial)

The prevalence of electric vehicles continues to increase. The state of Tennessee should implement a plan for disposal of the batteries used in those vehicles safely, with an emphasis being placed on recycling.

Farm Input Costs (Partial)

We are concerned about consolidation by agricultural equipment dealers at the direction of equipment manufacturers. The loss of competitiveness among dealers severely restricts farmers' rights to find the best available price and is contrary to a competitive retail market.

Equipment manufacturers should be held to a high standard for product quality. We believe state laws should provide consumer protection for farmers that experience chronic maintenance problems on new equipment. We believe property rights should extend to every component of farm machinery. We support farm equipment owners and individual service technicians having access to diagnostic tools, equipment, procedures, service, and technical information necessary at a fair and reasonable price.

Renewable Fuels (Partial)

We oppose any effort to ban the use of internal combustion engines.

Air

Agriculture's contribution to air quality is incalculable. Clean air and filtration of the atmosphere by vast acres of crops, pastures and forests on private land mitigate impurities placed into the air by the infrastructure that provides a higher standard of living for each citizen of this state. Farmers should be rewarded for their role in protecting and enhancing our air resources and not penalized through costly and restrictive regulations.

Federal implementation of the Clean Air Act should be based on sound science. We support increased agriculture air quality research to establish accurate and reliable data on agricultural emissions. Agricultural emissions reductions should be accomplished through voluntary, incentive based programs. EPA should seek the direction and guidance of USDA on issues and policies regarding agricultural air quality.

We recognize the debate over climate change and policies to address it are complex and controversial. The economic effects of reducing greenhouse gas emissions (GHGs) are relatively unknown; however, strong evidence suggests participating countries would sacrifice production and industrial growth. Climate change is a global issue, not just a domestic issue. We believe the U.S. should not take action to curb GHGs until all nations adopt the same standards. We oppose regulating GHGs under the Clean Air Act. Congress did not design or envision the Clean Air Act to address climate change. We oppose legislation to address climate change that could increase costs in agriculture and reduce agricultural production. We believe the task of feeding a growing world population supersedes the consequences of reducing GHGs from agriculture.

American agriculture continues to be a positive influence on the environment. We support the education of and full inclusion of agriculture producers as the leaders in the evidence-based research, development, and education regarding the tools and resources related to carbon sequestration measurement, management, and implementation in production agriculture.

Carbon markets in agriculture should be thoroughly studied to ensure the long-term viability of soil carbon offsets. Transitioning production practices and land use decisions to accommodate soil carbon offsets will require farmers to make an enduring commitment. These markets should be financially sound and based on field relevant scientific data. Participation in these markets should be voluntary. We also believe they should be an additional income opportunity and have no penalties for lack of participation.

The benefits of any clean air regulations placed on farm operations should exceed the costs placed on the agriculture industry. State and federal agencies should perform a cost benefit analysis on any air quality mandates, not just for agriculture but all types of affected businesses.

We oppose mandatory air quality standards for ozone and particulate matter on farmers and agricultural businesses. We oppose emission control standards being placed on farming practices, farm equipment, cotton gins, grain handling facilities or other businesses directly involved at the farm level in the production and marketing of agricultural products. Farm machinery that predates these standards should be grandfathered.

We support exemptions in the state's open burning regulations that allow for burning of wood waste and crop residue grown on the property of the burn site. However, this exemption should be broadened to allow for open burning of minor amounts of paper and other non-hazardous materials on farms where no other practical disposal alternative exists.

American Farm Bureau

404 / Renewable Fuels (Partial)

6. Engines and Vehicles

6.1. We support:

- 6.1.1. Research for better performing engines that run on renewable fuels;
- 6.1.2. Legislation to require all new gasoline-powered vehicles be flex-fuel;

6.1.3. Industry standards that would require all vehicles capable of burning E85 fuel to be equipped with a yellow gas cap to distinguish this capability; and

6.1.4. Using renewable fuels in all federal vehicles where available.

6.2. We oppose efforts to ban internal combustion engines.

503 / Climate Change (Partial)

1. Market-based incentives, such as carbon credit trading, are preferable to government mandates.

2.8. (We support) Market-based solutions, rather than federal or state emission limits, being used to achieve a reduction in greenhouse gas (GHG) emissions from any sources;

2.9. (We support) EPA's re-evaluation of burdensome emission control rules for farming practices, farm equipment, cotton gins, grain handling facilities, etc.;

2.17. (We support) Incentivizing farmers to voluntarily improve on-farm energy efficiency;

2.18. (We support) Incentivizing improvements to the current electric grid;

3.7. (We oppose) Any regulation of GHG by EPA;

3.8. (We oppose) Any attempt to regulate methane emissions from livestock under the Clean Air Act or any other legislative vehicle;

3.9. (We oppose) The imposition of standards on farm and ranch equipment and other non-highway use machinery;

3.10. (We oppose) Inclusion of the carbon impacts resulting from indirect land use changes in other countries in the carbon life cycle analysis of biofuels;

3.11. (We oppose) Taxes or fees on carbon uses or emissions;

3.12. (We oppose) Any and all emissions taxes on livestock;

3.13. (We oppose) Any laws or policies that implicate agricultural activity of any kind as a cause for climate change without empirical evidence;

506 / Waste Disposal and Recycling (Partial)

1.18. (We support) Proper disposal practices of electric motor vehicles and electric vehicle batteries. The manufacturers of electric vehicles should be held responsible for the payment of disposal fees related to electric vehicles.