

POLICY NOTE

Mandating electric tractors will harm food supplies and will do almost nothing for the environment

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Key Findings

1. Electric tractors do not meet the horsepower needs of commercial farming and ranching in Washington state.
2. Electric tractors are not currently available for purchase.
3. A 2021 Honda Civic has more horsepower than either of the prospective electric tractors that will be potentially available to consumers.
4. Lawmakers who champion electric tractor legislation are championing increased food production costs.
5. Organic market development, not a government mandate, will drive when the agricultural community adopts new tractor technology.
6. Many parts of the agricultural sector have begun to shift their focus to greater efficiency and are exploring methods to lessen their effects on the natural world.
7. State mandates for electric tractors which cannot currently be purchased is not the answer to fixing climate change problems.

Introduction

The farmers and ranchers of Washington state rely upon their experience living with seasonal changes to grow their crops and care for their livestock. They fight hunger every day by providing nutritious food to people in Washington state and around the world.

The agricultural community is well versed in the needs of their natural environment and has worked successfully to enhance soil quality, preserve water resources, reduce carbon emissions, and improve best farming practices, all to safeguard the land from which they derive their livelihood. From an agricultural perspective, a primary benefit of these activities is climate change mitigation.

In the recent legislative session, however, state lawmakers passed E2SHB 1287 which sought to ban efficient fossil fuel vehicles.

This harmful legislation was vetoed by Governor Inslee, but it would have been the gateway for similar legislation to be enacted for other fossil fuel-powered machinery – including farm equipment – in subsequent legislative sessions. These pieces of legislation are short-sighted and do nothing to counteract climate change.

This study reviews the importance of efficient machinery and energy sources in food production and shows how legislative efforts to ban modern farming practices would harm the people of our state while doing little or nothing for the environment.

Farming and ranching in our state are a \$20 billion industry making it the third highest income earner in Washington state. However, the two real problems with “aspirational” legislation as it relates to agriculture are electric-only powered tractors are not currently available on the market and the models that can be pre-ordered for eventual delivery are not suitable for commercial agriculture.

The problems with mandated electric tractors

The major manufacturers of farm equipment for farmers and ranchers in the United States are John Deere, New Holland, Case IH, Fendt, Massey Ferguson, and Case IH. Farm equipment is offered in a range of equipment sizes including various horsepower options to meet the needs of farm operations of varying sizes. More importantly, manufacturers of farm equipment in the United States currently have tractors for sale at

dealerships all over the country. All these companies provide fossil fuel-powered tractors and other farm equipment that are fuel-efficient, powerful, and well-designed.

Electric tractor designs, by contrast, have so far proven impractical and are not available.

There are two manufacturers of electric tractors in the race for delivery in the United States: Monarch and Solectrac.^{1 2} Both have one significant problem: neither tractor is available on the market. Monarch claims its all-electric tractor will be ready for delivery in the fall of 2021, while Solectrac has no product and requires a deposit to hold a place in the manufacturing line for when its tractor may be built. Both companies require advance deposits – \$500 non-refundable and \$1,000 refundable respectively – to hold the purchaser’s place in line.

As new technologies emerge, the agricultural community will adopt them when the timing, pricing, and practical application of these technologies is right for their operations. This has always been the case in American farming.

However, mandating the adoption of these technologies before they are readily available or field-proven puts undue burden on the manufacturer to produce a product without proper testing and risks the livelihoods of the 36,000 agricultural families in our state.

Mule-powered or electric?

Food production in Washington state is a family operation, with some 28,800 farms and ranches meeting the classification of “family farm” under the U.S. Department of Agriculture definition.³ That does not mean farms and ranches in our state are small in acres. The average size of farms in Washington state are 411 acres and the tractors needed to farm those acres are large in size.⁴

In fact, the casual rule for commercial farming and ranching of field areas of that size requires a tractor of at least 100 to 150 horsepower. The Monarch and Solectrac tractors have horsepowers of only 70 and 40 respectively, making them less than half as powerful as a 2021 Honda Civic.⁵

When conventional tractors were introduced in the 1920s to displace the use of horses and mules in farming, they were a marvel of modern ingenuity. The resulting increase in food production increased yields, cut prices and reduced hunger rates around the world.

1 Monarch Tractor. Reservation Page. Accessed July 7, 2021. <https://www.monarchtractor.com/checkout.html>

2 Solectrac Tractor. Reservation Page. Accessed July 7, 2021. <https://solectrac.com/order-your-tractor>

3 U.S. Department of Agriculture. National Institute of Food and Agriculture. Family and Small Farm Program: Family Farms. Accessed July 8, 2021. <https://nifa.usda.gov/family-farms>

4 U.S. Department of Agriculture. National Agricultural Statistics Service. Farms and Land in Farms 2020 Summary. Published February 2021. Accessed July 8, 2021. <https://downloads.usda.library.cornell.edu/usda-esmis/files/5712m6524/tq57pj927/rx914h75j/fnl00221.pdf>

5 Car and Driver. 2021 Honda Civic Review. Accessed July 8, 2021. <https://www.caranddriver.com/honda/civic-2021>



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The current effort to mandate introduction of electric farm tractors represents a return to the limited effectiveness and horsepower of livestock-pulling farm equipment in terms of their capacity to complete work effectively and efficiently. The roll-back in farm technology would set food production back more than a century.

Greater waste and environmental impact

In addition to their inability to provide enough power for the working needs of modern farms and ranches, electric tractors do not have the longevity necessary to make them a worthwhile investment. The battery life of both the Monarch and Solectrac models is estimated to be 10 years, while the retail cost of tractors themselves start at \$56,000 and \$46,000 respectively. There is no mention from the manufacturer of replacement parts should either tractor need repairs. Comparatively, conventional tractors have a much higher starting price, approximately \$1,000 per horse for a new machine, meaning a new 150-horsepower tractor will likely cost approximately \$150,000 before sales tax, but a much longer lifespan with replacement parts readily available should repairs be necessary. With regular maintenance, a modern farm tractor has a working life measured in decades, reducing waste and environmental impact. In contrast, electric tractors will regularly require replacement of a complete set of acid-and-lead-based batteries, creating an environmental impact of its own.

Conclusion

Government-mandated innovation rarely works. The agricultural community in our state has been attuned to the needs of the environment for generations. Farmers and ranchers have opted to adapt to more efficient means of food production over time as their budgets and land have allowed.

There will certainly be a time when electric tractors will be one part of the agricultural landscape in our state, as the market adopts them voluntarily, on occasions when they make economic and environmental sense. However, the adoption of electric tractors, like all new technology, needs to occur organically and only after the technology has been field-proven and become an equal to its conventional counterpart.

Agriculture produces the lowest level of greenhouse gases of any economic sector identified by the Environmental Protection Agency and offsets portions of its emissions by sequestering carbon. Moreover, many parts of the agricultural sector have begun to shift their focus to greater efficiency and are exploring methods to lessen their effects on the natural world. Our state mandating electric tractors which cannot be purchased today is not the answer to fixing climate change problems tomorrow.