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**IN THE TANK:
GRADING STATE BIOFUEL
INCENTIVES AND MANDATES**

locke 

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Executive Summary

The increased interest in renewable energy has led to the implementation of biofuel incentives and mandates by many state governments in the United States. Production of biofuels using edible crops, however, has resulted in higher food prices, impacting low-income households and food-insecure populations.

The market distortions from these mandates and incentives artificially constrain food supplies by reallocating edible crops — especially such staples as corn, wheat, and soybeans — to power civilian and government vehicles. Nearly half of the soybeans (46 percent) and corn (45 percent) produced in the United States are used for biofuels. This paper aims to discuss the negative impacts of using edible crops for fuel and question the role of state government policies in this matter.

Biofuel incentives and mandates are driven by the belief that transitioning to biofuels can reduce greenhouse gas emissions and promote rural development. Nevertheless, diverting crops to biofuel production can conflict with food production, leading to social conflicts and environmental degradation. The demand for biofuels increases the demand

for crops, resulting in higher prices, reduced affordability for low-income consumers, and food insecurity. Also, because the crops primarily used for biofuels are staple food crops, biofuel production further reduces the supply of these crops available for food production and exacerbates food price increases.

Incentives result in several negative unintended consequences, including distorting market prices, misallocating resources, making inefficient use of taxpayer money, and creating dependency on government. Mandates create economic inefficiencies by forbidding or penalizing certain

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economic choices, increasing regulatory compliance costs, restricting consumer choice, reducing competition, and driving up the prices of the remaining options.

This paper provides a report card examining the biofuel incentives and mandates of all 50 states and the District of Columbia. The scoring and grading are based on the number and extent of these state government interventions. They include grants, subsidies, tax incentives, loans, rebates, purchase mandates, fuel blend or use man-

dates, mandates on government agencies, and so on. The more interventions a state employs, the higher its score — and the lower its grade.

North Carolina tied with Kansas for fourth-worst among the states and worst among Southeastern states. Only three states had worse scores than North Carolina. With a grade of D-, North Carolina combined a higher-than-average amount of incentives for biofuel production and consumption with a higher-than-average number of mandates. Among them are three different funds for alternative fuels and alternative fuel vehicles (AFVs) and four mandates concerning AFV purchases by state

government agencies and school boards, as well as some exemptions favoring alternative fuels and an ethanol blend mandate.

For North Carolina policymakers, this paper makes the following recommendations:

- ▶ Eliminate the grants and special funding for alternative fuels and AFVs
- ▶ Remove mandates on government vehicles
- ▶ Avoid imposing more government favoritism of biofuels

Overall, this paper highlights the detrimental effects of biofuel incentives and mandates on food prices, particularly for low-income households. It emphasizes the need for a more careful approach by state policymakers that considers the potential negative consequences of these interventions on food prices, food security, and the overall economy.

Introduction

Increased interest in renewable energy has led many state governments to implement biofuel incentives and mandates. The production of biofuels competes, however, with the production of food, causing an increase in food prices, which can negatively impact low-income households and food-insecure populations.¹ The issue of biofuel incentives and mandates and their impact on food prices has gained significant attention in recent years, prompting experts to investigate the issue further.

At a time when food prices are at an all-time high,² states and the federal government have continued to issue biofuel mandates and incentives. The market distortions from these mandates and incentives artificially constrain food supplies by reallocating edible crops — especially such staples as corn, wheat, and soybeans — to the gas tanks of civilian and government vehicles. Nearly half of the soybeans (46 percent)³ and corn (45 percent)⁴ produced in the United States are used for biofuels, a fact that has undoubtedly contributed to the Consumer Price Index for Food increasing by 10.4 percent from December 2021 to December 2022.⁵ There is reason to believe that if these resources were to reenter the

food market, as opposed to being “burned” for fuel, critical food supplies would increase dramatically, placing downward pressure on food prices.

The purpose of this paper is not to discuss the efficacy of biofuels nor the morality or practicality of biofuel usage. Rather, the purpose of this paper is to discuss the negative impact on food prices from using edible

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crops as fuel and question the role of state government policies in this endeavor. Government should not be used directly or indirectly to allocate resources in the private sector — i.e., to “pick winners and losers” outside of market competition. This principle is all the more important when the resources affected are of such vital importance to families as their food. For that reason, this report culminates in a report card for all 50 states (and the District of Columbia) that reviews and grades

their respective mandates and incentives for biofuel production and consumption.

Ideally, this research paper will contribute to a better understanding of the relationship between biofuel policies and food prices. The findings of this study will illustrate the wide range of biofuel policies among the states. This paper will also inform policymakers about the tradeoffs surrounding biofuel incentives and mandates and ultimately highlight the need for a more circumspect approach by state policymakers that takes into account the potential negative consequences on food prices and the economy.



FOOD VS. FUEL

Using crops for biofuel production may lead to an increase in food prices, and it may also negatively impact food security in developing countries. Proponents of using crops for biofuels contend that doing so can reduce reliance on fossil fuels, promote rural development, and contribute to efforts they believe would mitigate climate change. Opponents argue that diverting crops to biofuels can conflict with food production, lead to social conflict, and even degrade the environment.⁶

The demand for biofuels increases the demand for crops, which itself causes the prices of crops to be higher than they otherwise would be, making food less affordable for low-income consumers and thereby contributing to food insecurity. Furthermore, the crops primarily used for biofuels are staple food crops: corn, wheat, and soybeans. Diverting staple food crops for fuel production reduces the supply available for food production, also leading to higher prices.⁷

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As discussed below, while most biofuels currently rely on staple food sources, not all do. Emerging sources are made from other, nonedible cellulosic biomass. Policymakers considering promoting biofuels through state policy must carefully weigh potential benefits and costs, including the impacts on food security, environmental stability, innovation, and competition, as well as other unforeseen, unintended consequences.



KINDS OF BIOFUELS

Biofuels are fuels that are derived from living matter. According to the U.S. Energy Information Agency (EIA), biofuels are “usually liquid fuels and blending components produced from biomass materials called feedstocks.”⁸ Most biofuels are used for transportation purposes, but they can also be used in heating and electricity generation. Most commonly, biofuels are blended with petroleum-based products such as gasoline, diesel, or kerosene. In some instances, however, unadulterated biofuels that are not blended with a petroleum-based product are used; those are referred to as drop-in biofuels.

Biofuels can be broken down into four generations based on the type of feedstock that is used:

- ▶ First-generation biofuels are derived from food crops that are high in starch or sugar, such as corn, soybeans, wheat, potatoes, and sugarcane. In order to convert these crops into biofuels, biochemical methods such as fermentation or hydrolysis are used. Because the food industry has already developed these techniques, no additional research is required to obtain them. The various crops

needed, however, are agriculturally intensive (requiring more fertilizer and input) and are the main focus in the food vs. fuel debate.

- ▶ Second-generation biofuels are derived from nonedible cellulosic biomass such as dried plant matter, wood, agriculture residues, and forestry wastes. Various biochemical and thermochemical processes are used to convert these biomasses into biofuel. While these particular sources of biomass require minimum initial input, there is a higher financial and logistical cost on the backend.
- ▶ Third-generation biofuels are derived almost exclusively from algae, but other microbes are sometimes used. It is the fastest-growing feedstock among all other types, and it does not require cultivatable land. As with second-generation biofuels, biochemical and thermochemical processes are employed to convert the microbes into biofuel. The downside to this generation of biofuel is twofold: it is newer, so it is still in the early stages of development, and the entire process — from maintaining the optimal environment for growth to the equipment and facilities used — is expensive.
- ▶ Fourth-generation biofuels are an offshoot of third-generation biofuels. Both use algae or other microbes. Where they differ, however, is that fourth-generation biofuels use genetically modified microorganisms that increase lipid availability, yield, and production rate. This generation of biofuels has a high initial investment, but experts expect it to become more economical in the long run.⁹



INCENTIVES AND MANDATES

Why do some state governments resort to extramarket means to promote biofuel usage? The answer is environmentalism. Governments use incentives and mandates to promote biofuel usage out of two beliefs: one, that transitioning to biofuels is necessary to reduce greenhouse gas emissions thought to lead to worsening climate events; and two, that people and businesses wouldn't voluntarily seek and adopt biofuels on their own. Instead of allowing the "invisible hand"¹⁰ of the market — the unseen process of millions upon millions of individual choices being made in the expected best interests of each decisionmaker — to determine what fuels and fuel blends to use, government officials hand out incentives and mandates in an attempt to produce the results they want.

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Nevertheless, government policies adopted to thwart market choices (or cause them to conform with the preferred outcomes of politicians) typically result in unintended negative consequences, as Henry Hazlitt

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discussed in *Economics in One Lesson*.¹¹ With biofuel incentives and mandates, the higher food prices from distorted market signals are an obvious consequence. But the policies can even frustrate biofuel advocates' ostensible policy goals. For example, since biofuels often have lower energy density than conventional fossil fuels, producing and

transporting them can require more energy than they ultimately offset, leading to increased emissions. If government interventions make biofuels more price-competitive with fossil fuels, it could lead to people using more fuel overall, causing an increase in total emissions.¹² Artificially increased demand for biofuels could lead to deforestation or land-use changes to pursue expanded cultivation of crops used for biofuels — and it could lead to increased use of fertilizers and pesticides.¹³

The Different Incentives and Mandates for Biofuels

Incentives

This paper identifies seven different kinds of government incentives for biofuels. They can be found in the U.S. Department of Energy's Alternative Fuels Data Center.¹⁴ Here are those different kinds of incentives followed by an example of each:

- ▶ **Grants and special funds:** awarding a sum to an individual or a company to facilitate a goal, production, etc.

- ▶ **Tax and other incentives:** e.g., providing a credit to be used to reduce a taxpayer's income tax liability (some can be refundable, meaning that if the credit were greater than the total tax liability, the individual or corporation would receive a check from the state treasury for the difference)
- ▶ **Exemptions:** e.g., waiving taxes that otherwise would be imposed on alternative fuels or exempting clean fuel vehicles from time-of-use restrictions
- ▶ **Favorable loans and leases:** providing low-interest loans or interest rate buydown for qualifying projects
- ▶ **Rebates:** providing a retrospective payment after purchase that results in a practical reduction of the overall cost of a product or service to consumers
- ▶ **Time-of-use rates:** giving a lower electricity rate outside of peak demand hours to shift when electricity is consumed¹⁵
- ▶ **Other:** providing any other extramarket form of encouraging bio-fuel use that does not fit into an above category, including disincentives and penalties placed against competitors and competing activities that government officials seek to suppress¹⁶

Mandates

If incentives are a “carrot” approach by government officials to produce certain desired market behaviors, then mandates are the “stick.” A mandate is a command from government to individuals and businesses to behave in certain ways. Mandates can be either laws or regulations, which are rules created by state agencies within the executive branch. While laws are enacted via the legislative process by lawmakers directly elected by — and accountable to — the voters, regulations are made by unelected bureaucrats. This insulation from answering to voters makes regulation the arguably easier means of expanding government control over private market choices.¹⁷

The Problems with Mandates and Incentives

Mandates

Beyond the obvious fact that they are coercive, mandates have other drawbacks. By forbidding or penalizing certain economic choices, they can result in inefficiencies within an economy. For example, if regula-

"Mandates restricting consumer choice limit the availability of goods and services, reduce competition, and drive up the prices of the remaining options."

tions impose higher costs on businesses or hinder their ability to operate effectively, they cause reduced productivity and increased costs and prices. Mandates increase regulatory compliance costs, which result in a deadweight loss from having to devote labor and capital to nonproductive activities. They also reduce competitiveness, leading to lesser economic vitality than otherwise.

Mandates restricting consumer choice limit the availability of goods and services, reduce competition, and drive up the prices of the remaining options. The result is that consumers' purchasing power and standard of living are lower than what they would otherwise be.

Incentives

Likewise, economic incentives can also be unfavorable for several reasons. While the recipients of the incentives receive a measurable benefit, the costs are dispersed among taxpayers and consumers, and the opportunity costs of such policies are never considered. Nevertheless, incentives result in several negative unintended consequences from distorting market prices, misallocating resources, making inefficient use of taxpayer money, and creating dependency on government. Let's take a closer look at each.

- ▶ Incentives artificially lower the cost of production (via targeted tax breaks) or increase the revenue of certain industries (via government handouts), which can lead to distorted prices. The price and availability of finished goods will be different than if the market was producing them free from such government interference.
- ▶ Incentives can encourage businesses to allocate resources towards industries and products that may not be economically viable in the absence of government support. It results in a misallocation of resources, as businesses invest in industries and products that are not sustainable on their own in the long run, while other industries and products that could be more productive may be left behind.¹⁸
- ▶ Incentives, especially subsidies and grants, are paid for with taxpayer money, and when directed to inefficient or unproductive industries represent a particularly haphazard use of taxpayer money.
- ▶ Incentives can reduce competition in the market by giving government-aided businesses an unfair advantage over unassisted competitors. Among other things, it can lead to reduced efficiency and innovation. Subsidized businesses may lack the drive to innovate and improve their products and services in the absence of competition.
- ▶ Companies that receive subsidies may become reliant on them, which could not only lead to decreased innovation and competition but also cause them to devote more capital and labor into

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capturing and keeping more government assistance (what economists call “rent-seeking” behavior).¹⁹

In sum, while incentives may be intended to support certain industries or groups, they have ripple effects on the market as a whole, even on

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other industries as a byproduct of misallocation of resources. Incentives reduce the overall efficiency of the economy, lead to higher costs for consumers, misuse taxpayer money, create government dependency, and reduce competition, thereby reducing innovation.



**REPORT CARD ON STATE BIOFUEL
INCENTIVES AND MANDATES**

Having discussed the negative impacts on food prices from biofuels and the negative unintended consequences of state government interventions in biofuels, let us now consider the respective mandates and incentives in the 50 states and D.C. for biofuel production and consumption. Using the state biofuel incentives and mandates from the U.S. Department of Energy's Alternative Fuels Data Center, this paper scores each state and assigns it a letter grade based on its policies regarding biofuel production and consumption. The more incentives and mandates a state employs, the higher its score — and the lower its grade — will be.

This section explains the methodology for formulating the scores and grades. It includes a table listing the states in alphabetical order and including their scores and grades. It then highlights the top five states and the bottom five states. Finally, it takes a closer look at North Carolina. For a full breakdown of data, ranked scores, and state-by-state breakdowns, please see the Appendix.

Methodology

Any undertaking of this kind will necessarily be subjective and consist of multiple judgment calls. This paper readily acknowledges that other approaches toward determining how to score, let alone assign grades, may differ and would result in different outcomes. In so doing, this paper considers the discussion of these issues is worthwhile and could be helped by the framework adopted here.

All data pertaining to state biofuel incentives and mandates are from the Alternative Fuel Data Center (AFDC). Nevertheless, not all state policies and laws listed by the AFDC are considered here, only government incentives and mandates for biofuels. Statutory definitions, biofuels regulations and standards, labeling requirements, alternative fuel vehicle registration, and certain other policies are excluded. State excise tax laws for fuels are included only if they give favorable treatment to biofuels in relation to gasoline or diesel fuel.

Each qualifying individual state intervention was worth a point on its own, plus an additional fraction of a point was given based on the extent of the intervention. Below are the points assigned by kind of intervention, along with the reasoning for the fractional points awarded:

Points Awarded to Different Incentives and Mandates

Kind of Intervention	Points	Reason for Fractional Points
<i>Incentives</i>		
Grant or special fund	1.5	Directly moving resources from one group of taxpayers to another
Tax or other incentive	1.3	Indirectly moving resources from one group of taxpayers to another via one having higher relative tax liability
Tax or other exemption	1.3	Indirectly moving resources from one group of taxpayers to another via one having higher relative tax liability or other government-imposed cost

Kind of Intervention	Points	Reason for Fractional Points
Loan	1.2	Privileging behavior
Rebate	1.2	Privileging behavior
Time-of-use rate	1.2	Privileging behavior
<i>Mandates</i>		
Purchase mandate	1.4	Direct intervention in the market
Fuel blend/use mandate	1.4	Direct intervention in the market
Other mandate	1.4	Direct intervention in the market
Mandate on government actors	1.1	While government can direct its own actions, boutique purchases are more expensive and reflect poor tax stewardship

A state’s score is the sum total of points given to all of its state incentives and mandates for biofuels. For the purpose of this paper, neither local nor federal interventions were considered. The fewer qualifying interventions, the lower the state score; therefore, the lower the score, the better the grade. For a full breakdown of scores by state, please see the Appendix.

In determining the grades, this paper opted for a plus/minus letter grade system (A+, A, A-, B+, down to F). For a state to record an A+, it would need to have little to no state government interventions in biofuels (fewer than 1.3 points). On the opposite end of the scale, states that scored over 16.5 points or higher would receive a failing grade (F). Following is the grading scale used:

Grading Scale

Letter Grade	Scale
A+	0 – <1.2
A	1.2 – < 2.4
A-	2.4– <3.6
B+	3.6 – <4.8
B	4.8 – <6.0
B-	6.0 – <7.2

Letter Grade	Scale
C+	7.2 – <8.4
C	8.4 – <9.6
C-	9.6 – <10.8
D+	10.8 – <12.0
D	12.0 – <13.2
D-	13.2 – <14.4
F	>14.4

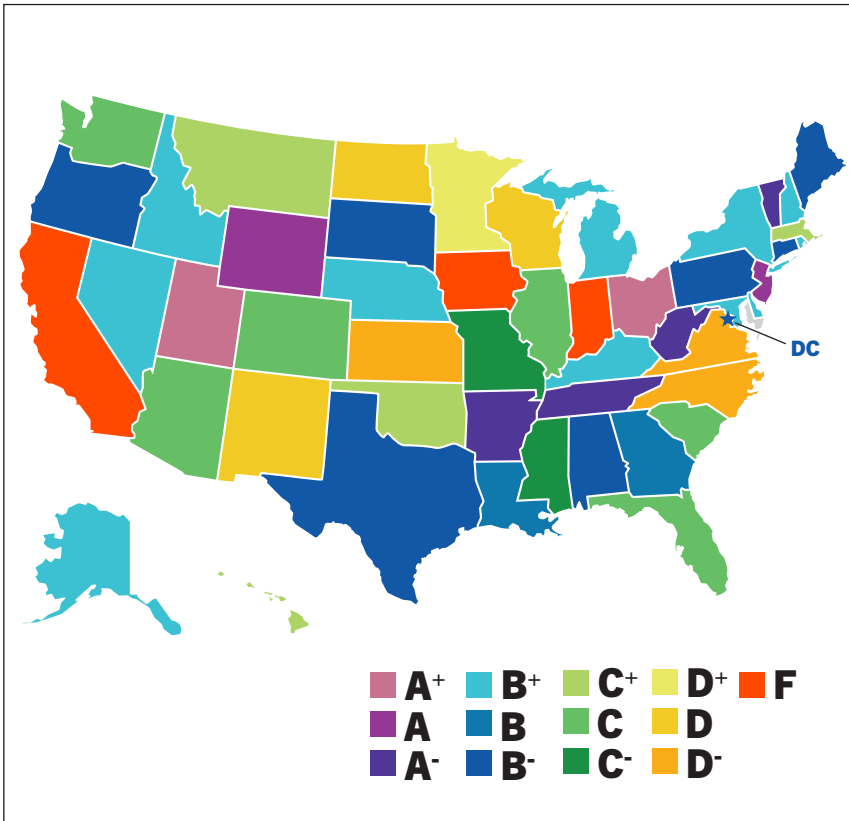
State Scores and Grades

Rank	State	Incentive Score	Mandate Score	Composite Score	Grade
23	AL	5.2	1.1	6.3	B-
10 (tie)	AK	0	3.8	3.8	B+
39	AZ	3.9	5.3	9.2	C
6	AR	0	2.4	2.4	A-
51	CA	27.1	11.6	38.7	F
40	CO	7.1	2.2	9.3	C
25 (tie)	CT	1.5	5	6.5	B-
13 (tie)	DE	2.5	1.4	3.9	B+
27	DC	2.6	4	6.6	B-
37 (tie)	FL	5.4	3.7	9.1	C
22	GA	3.9	1.4	5.3	B
31 (tie)	HI	2.6	5	7.6	C+
10 (tie)	ID	3.8	0	3.8	B+
35	IL	4	4.4	8.4	C
49	IN	10.9	5	15.9	F
50	IA	12.5	5	17.5	F
47 (tie)	KS	12	2.2	14.2	D-
16 (tie)	KY	4.1	0	4.1	B+
21	LA	1.3	3.9	5.2	B

Rank	State	Incentive Score	Mandate Score	Composite Score	Grade
24	ME	5	1.4	6.4	B-
16 (tie)	MD	3	1.1	4.1	B+
31 (tie)	MA	1.5	6.1	7.6	C+
16 (tie)	MI	4.1	0	4.1	B+
42	MN	4.1	6.7	10.8	D+
5	MS	1.2	1.1	2.3	A
41	MO	5.4	5	10.4	C-
31 (tie)	MT	6.5	1.1	7.6	C+
10 (tie)	NE	3.8	0	3.8	B+
16 (tie)	NV	3	1.1	4.1	B+
15	NH	1.5	2.5	4.0	B+
4	NJ	0	2.2	2.2	A
45	NM	9.3	3.6	12.9	D
16 (tie)	NY	4.1	0	4.1	B+
47 (tie)	NC	8.4	5.8	14.2	D-
44	ND	12.1	0	12.1	D
1 (tie)	OH	0	1.1	1.1	A+
34	OK	5.2	2.5	7.7	C+
25 (tie)	OR	2.6	3.9	6.5	B-
30	PA	5.7	1.4	7.1	B-
13 (tie)	RI	2.8	1.1	3.9	B+
36	SC	3.9	5	8.9	C
28	SD	6.7	0	6.7	B-
7 (tie)	TN	0	2.5	2.5	A-
29	TX	5.8	1.1	6.9	B-
1 (tie)	UT	0	1.1	1.1	A+
9	VT	3	0	3.0	A-
46	VA	12.2	1.4	13.6	D-
37 (tie)	WA	1.3	7.8	9.1	C

Rank	State	Incentive Score	Mandate Score	Composite Score	Grade
7 (tie)	WV	0	2.5	2.5	A-
43	WI	8.4	3.6	12.0	D
3	WY	1.3	0	1.3	A
	Average			7.5	C+
	Median			6.5	B-

Letter Grade by State



Top Five States

Rank	State	Incentive Score	Mandate Score	Composite Score	Grade
1 (tie)	OH	0	1.1	1.1	A+
1 (tie)	UT	0	1.1	1.1	A+
3	WY	1.3	0	1.3	A
4	NJ	0	2.2	2.2	A
5	MS	1.2	1.1	2.3	A

Bottom Five States

Rank	State	Incentive Score	Mandate Score	Composite Score	Grade
47 (tie)	KS	12.0	2.2	14.2	D-
47 (tie)	NC	8.4	5.8	14.2	D-
49	IN	10.9	5.0	15.9	F
50	IA	12.5	5.0	17.5	F
51	CA	27.1	11.6	38.7	F

The scoring and grading system developed for state-based policies regarding biofuel production and consumption offers insight into the landscape of these incentives and mandates across the United States and allows for a comparable assessment of each state's policies. This endeavor reveals significant variation among states in this arena, with some states offering numerous incentives and mandates for biofuel production and consumption and others offering very few.

The top five states with the lowest composite scores (i.e., the lowest levels of incentives and mandates) were Ohio, Utah, Wyoming, New Jersey, and Mississippi.

- Top-ranked **Ohio** and **Utah** (1.1 points, A+) both feature only a mandate on state agency vehicles. Ohio's requires all new state vehicles (with some exceptions for law enforcement and emergency rescue) to be able to use an alternative fuel and do so when feasible, while Utah's requires at least 50 percent of newly purchased

government fleet vehicles to accept biofuels.

- ▶ **Wyoming** (1.3, A) has one incentive in place, which exempts alternative motor vehicle fuel from the alternative-fuel license tax.
- ▶ **New Jersey** (2.2, A) has two mandates in place. The first mandate requires that all new buses purchased by the New Jersey Transit Corporation either be equipped with pollution-control mechanisms or be powered by “a fuel other than conventional diesel,” and the second mandate requires that all New Jersey state departments, agencies, offices, universities, and colleges purchase biofuels for use in motor vehicles if the cost of biofuel is the same or less than the cost of gasoline or diesel.
- ▶ **Mississippi** (2.3, A) has one mandate promoting state agencies’ purchase, use, and management of fuel-efficient and hybrid-electric vehicles and encouraging adoption of alternative fuel vehicles. The state also has an incentive policy giving zero-interest loans to cities, towns, and public school districts for the purchase, conversion, and upkeep of alternative fuel vehicles and buses.

On the other end, the bottom five states — which have the highest composite scores and highest levels of incentives and mandates for biofuel production and consumption — were California, Iowa, Indiana, Kansas, and North Carolina.

- ▶ **North Carolina** tied with Kansas for fourth-worst score (14.2, D-). The following section will discuss North Carolina’s incentives and mandates in more detail.
- ▶ **Kansas** (14.2, D-) has 11 incentives and mandates, including tax exemptions for biofuel blending equipment and facilities, tax credits for alternative fuel vehicles and alternative fueling infrastructure, a lower tax rate on E85 motor vehicle fuel, a quarterly tax incentive for renewable-fuel retailers, a rebate for using biodiesel blends in diesel vehicles, and grants for fuel retailers to upfit their refueling facilities with flex-fuel dispensers. They also include special financing available for constructing or expanding biomass-to-energy

facilities and requirements for biodiesel use by state-owned diesel vehicles and equipment and flex-fuel vehicle purchase mandates for state agencies.

- ▶ **Indiana** (15.9, F) wields 12 incentives and mandates for biofuel production and consumption. They include grants to replace eligible on- and off-road vehicles with alternative fuel vehicles, grants to replace diesel vehicles or convert them to use alternative fuel, grants and loans to support alternative vehicle research and development, tax exemptions for biodiesel blends and alternative fuels, exemptions for alternative fuel vehicles from state inspection and maintenance requirements, government promotion of E85 fueling stations, price preferences for government entities purchasing biodiesel and some other alternative fuels, and mandates that state entities and agencies purchase or lease clean-energy vehicles and that they use alternative fuel blends whenever feasible.
- ▶ **Iowa** (17.5, F) combines 13 mandates and incentives, especially in the form of grants and tax incentives. For example, Iowa offers various grants to buy more alternative fuel vehicles (for both civilian and government agencies) and to build out infrastructure to support those vehicles; numerous incentives to produce, blend, and use E85; and special tax credits for various ethanol blends. They also include a mandate that by 2026 all fuel retailers offer E15 for sale from at least one fuel dispenser, as well as purchase mandates on state entities for alternative fuel vehicles and for alternative fuel blends.
- ▶ **California** (38.7, F) had by far the worst score among the states, featuring not only the highest score for mandates (11.6) but also the highest — and much larger — score for incentives (27.1). California's incentives are disproportionately made up of grants, which are mainly geared towards emissions reduction and air quality metrics, alternative fuel vehicle acquisitions (both for civilians and government agencies), and building out infrastructure to support

biofuel production and consumption. They also include several alternative fuel vehicle adoption and replacement incentives and rebates, preferential tax treatment for alternative fuel vehicles and fuels, and even preferential parking incentives for alternative fuel vehicle owners. Mandates range from alternative fuel vehicle purchase mandates on state entities and on government contractors, as well as tightening emissions standards on various vehicles.

North Carolina's Incentives and Mandates

North Carolina tied with Kansas for fourth-worst among the states. Only three states had higher scores than North Carolina. North Carolina's score was the worst among Southeastern states. North Carolina's composite score of 14.2 combined a higher-than-average level of incentives for biofuel production and consumption with a higher-than-average level of mandates.

The following table contains North Carolina's incentives and mandates with their descriptions from the Alternative Fuels Data Center.

Alternative Fuels Incentives and Mandates in North Carolina

Program (Type)	AFDC Description
Alternative Fuel and Idle Reduction Grants (Grant or special fund)	The North Carolina Department of Environment Quality (DEQ) provides grants to repower, replace, and convert eligible on- and off-road vehicles and equipment to alternative fuels and fuel-efficient technology. Equipment must be U.S. Environmental Protection Agency or California Air Resources Board verified. ²⁰

Program (Type)	AFDC Description
<p>Alternative Fuel and Alternative Fuel Vehicle (AFV) Fund (Grant or special fund)</p>	<p>The North Carolina State Energy Office administers the Energy Policy Act (EPA) Credit Banking and Selling Program, which enables the state to generate funds from the sale of EPA 1992 credits. The funds that EPA credit sales generate are deposited into the Alternative Fuel Revolving Fund (Fund) for state agencies to offset the incremental costs of purchasing biodiesel blends of at least 20% (B20) or ethanol blends of at least 85% (E85), developing alternative fueling infrastructure, and purchasing AFVs and hybrid electric vehicles. Funds are distributed to state departments, institutions, and agencies in proportion to the number of EPA credits generated by each. For the purposes of this program, alternative fuels include 100% biodiesel (B100), biodiesel blends of at least B20, ethanol blends of at least E85, compressed natural gas, propane, and electricity. The Fund also covers additional projects approved by the Energy Policy Council.²¹</p>
<p>Alternative Fuel Vehicle (AFV), Idle Reduction Technologies, and Diesel Retrofits Funding (Grant or special fund)</p>	<p>The Clean Fuel Advanced Technology (CFAT) project provides grant funding to reduce transportation-related emissions for areas in nonattainment with the National Ambient Air Quality Standards. A project that is adjacent to these areas may also be eligible for funding if the project will reduce emissions in eligible counties.²²</p>
<p>Bond Exemption for Small Biofuels Suppliers (Tax or other exemption)</p>	<p>Fuel blenders or suppliers of ethanol or biodiesel are not required to file a bond with the North Carolina Department of Revenue when the expected motor fuel tax liability is less than \$2,000.²³</p>
<p>Alternative Fuel Tax Exemption (Tax or other exemption)</p>	<p>The retail sale, use, storage, and consumption of alternative fuels is exempt from the state retail sales and use tax.²⁴</p>
<p>Biodiesel Tax Exemption (Tax or other exemption)</p>	<p>An individual who produces biodiesel for use in that individual's private passenger vehicle is exempt from the state motor fuel excise tax.²⁵</p>
<p>Ethanol Blend Requirement (Fuel blend/use mandate)</p>	<p>Suppliers that import gasoline for sale in North Carolina must offer fuel that is not pre-blended with fuel alcohol but that is suitable for future blending. Future contract provisions that restrict distributors or retailers from blending gasoline with fuel alcohol are void.²⁶</p>

Program (Type)	AFDC Description
Alternative Fuel Vehicle (AFV) Acquisition Goal (Mandate on government actors)	North Carolina established a goal that at least 75% of new or replacement state government light-duty cars and trucks with a gross vehicle weight rating of 8,500 pounds or less must be AFVs or low emission vehicles. ²⁷
Alternative Fuel Use and Fuel-Efficient Vehicle Requirements (Mandate on government actors)	State-owned vehicle fleets must implement petroleum displacement plans to increase the use of alternative fuels and fuel-efficient vehicles. Reductions may be met by petroleum displaced through the use of biodiesel, ethanol, other alternative fuels, the use of hybrid electric vehicles, other fuel-efficient or low emission vehicles, or additional methods the North Carolina Division of Energy, Mineral and Land Resources approves. ²⁸
Biodiesel Warranty Requirement (Mandate on government actors)	All new state government diesel vehicles must have a manufacturer's warranty that allows the use of biodiesel blends of 20% (B20) in the vehicle. This requirement does not apply if the North Carolina Department of Administration determines that there is no vehicle available that is suited for the intended use and that has a manufacturer's warranty allowing the use of B20. ²⁹
Biodiesel Requirement for School Buses (Mandate on government actors)	Every school bus capable of operating on diesel fuel must be capable of operating using blends of at least 20% biodiesel (B20). At least 2% of the total volume of fuel purchased annually by local school districts statewide for use in diesel school buses must be a minimum of B20, to the extent that biodiesel blends are available and compatible with the technology of the vehicles and the equipment used. ³⁰

SOURCE: ALTERNATIVE FUELS DATA CENTER

North Carolina's 11 qualifying incentives and mandates earned the state a D- grade.

Overall, this grading system should provide a useful tool for policymakers, researchers, and stakeholders to assess and compare the policies of different states regarding biofuel production and consumption.

Policy Recommendations

Biofuels are a still-emerging industry that proponents believe can help society reduce reliance on fossil fuels, promote rural development, and even mitigate climate change. Nevertheless, first-generation biofuels rely on edible crops, specifically staple crops. As discussed above, biofuel production requires a steep tradeoff of food cultivation and even risks unintended negative consequences of higher food prices, unforeseen impacts on the economy, and environmental degradation. Those are difficult choices for market actors to weigh.

When state governments use extramarket policies — incentives and mandates — to promote biofuel production and consumption, however, they make those choices for people instead, leaving them worse off. They artificially redirect productive resources into biofuels and away from food production and other uses. They also relieve the recipients of competitive pressures to innovate and get better, making them more inclined to compete for more government assistance instead.

For those reasons, and because of the impact of these policies on food, this report recommends that North Carolina do the following:

- ▶ **Eliminate the grants and special funding for alternative fuels and AFVs.** North Carolina sports three such funds: Alternative Fuel and Idle Reduction Grants, the Alternative Fuel and Alternative Fuel Vehicle (AFV) Grant Fund, and AFV, Idle Reduction Technologies, and Diesel Retrofits Funding. Eliminating these programs would cease preferential treatment for costlier biofuels and their infrastructure and stop the visible hand of government from funding costly upgrades or retrofits available only to wealthier citizens and that could provide only dubious returns on the spending.
- ▶ **Remove mandates on government vehicles.** Four mandates affect vehicle purchases by state government agencies and public school boards. Government vehicle purchases are ultimately funded by taxpayers, however, as are the fuels they require. From the Alternative Fuel Use and Fuel-Efficient Vehicle Requirements or even the AFV Acquisition Goal and Biodiesel Warranty Requirement, these mandates prioritize more expensive vehicles using more expensive biofuels over better stewardship of taxpayer funding. The Biodiesel Requirement for School Buses imposes greater expenses on school boards. Furthermore, biofuels are less energy dense than their unadulterated petroleum counterparts and can result in more fuel needing to be purchased and consumed.
- ▶ **Avoid imposing more government favoritism of biofuels.** This paper discusses the many unintended negative consequences that arise when state governments directly or indirectly affect resource allocation in the private sector, rather than allowing market competition. In this instance, the resources affected are staple food crops, the prices of which are vitally important to everyone, but especially low-income families.

Conclusion

The issue of biofuel incentives and mandates and their impact on food prices, the economy, and environment is complex and multifaceted. Regardless of intent, these government policies introduce market distortions affecting food supplies and cause other negative unintended consequences. The assessments and grades assigned by this paper to the policies of each state regarding biofuel production and consumption highlight the need for a more circumspect approach by state policymakers that takes into account these potential negative consequences.

This paper finds a significant range in biofuel incentives and mandates across the different states. Some states have extensive regulations, while others have minimal intervention. The top states, such as Ohio and Utah, have relatively low levels of government intervention in the biofuel market, while states such as California, Iowa, and Indiana feature extensive intervention on behalf of biofuels. While not as heavy-handed as California's, North Carolina's biofuel policies are among the most extensive in the nation — and worst in the Southeast.

With food prices increasing at record levels even as almost one-half of

the corn (45 percent) and soybeans (46 percent) produced in the United States are diverted into biofuels, policymakers should carefully weigh the tradeoffs between expensive biofuels goals and the affordability and accessibility of food for low-income households and food-insecure populations, as well as other economic effects. Further research and analysis are needed to better understand the relationship between biofuel policies and food prices, while competitive pressures — not protection and assistance from government at the expense of other needs — are what the biofuel industry needs to boost its innovation and evolution into a sustainable, stand-alone industry that doesn't threaten affordable and accessible food.

Appendix

State	Title	Type	Incentive Score	Mandate Score
Alabama				
AL	Fuel-Efficient Green Fleets Policy and Fleet Management Program Development	Mandate on government actors		1.1
AL	Alternative Fuel and Idle Reduction Revolving Loan Program for Public Entities	Loan	1.2	
AL	Biofuel Production Jobs Tax Credit	Tax or other incentive	1.3	
AL	Electric Vehicle (EV) Charging Station and Medium- and Heavy-Duty Diesel Vehicle Replacement Rebates	Rebate	1.2	
AL	Biofuel Research and Development Funding	Grant or special fund	1.5	
		Subtotal	5.2	1.1
		Score	6.3	
Alaska				
AK	Alternative Fuel Vehicle Acquisition Requirement	Mandate on government actors		1.1
AK	Ethanol Fuel Blend Tax Rate	Tax or other incentive		1.3
AK	State Energy Policy	Other mandate		1.4
		Subtotal	0	3.8
		Score	3.8	

State	Title	Type	Incentive Score	Mandate Score
Arizona				
AZ	Reduced Alternative Fuel Vehicle (AFV) License Tax	Tax or other incentive	1.3	
AZ	Alternative Fuel Vehicle (AFV) Parking Incentive	Tax or other incentive	1.3	
AZ	Alternative Fuel Vehicle (AFV) Dealer Information Dissemination Requirement	Other mandate		1.4
AZ	Alternative Fuel and Alternative Fuel Vehicle (AFV) Use Tax Exemption	Tax or other exemption	1.3	
AZ	Joint Use of Government Fueling Infrastructure	Mandate on government actors		1.1
AZ	Municipal Alternative Fuel Vehicle (AFV) Acquisition Requirements	Purchase mandate		1.4
AZ	Federal Fleet Operation Regulations	Purchase mandate		1.4
		Subtotal	3.9	5.3
		Score	9.2	
Arkansas				
AR	Alternative Fuels Tax and Reporting	Tax or other incentive		1.3
AR	Biodiesel Use Requirement	Mandate on government actors		1.1
		Subtotal	0	2.4
		Score	2.4	

State	Title	Type	Incentive Score	Mandate Score
California				
CA	Employer Invested Emissions Reduction Funding - South Coast	Grant or special fund	1.5	
CA	Alternative Fuel Tax	Tax or other incentive		1.3
CA	Fleet Emissions Reduction Requirements - South Coast	Mandate on government actors		1.1
CA	Alternative Fuel and Vehicle Policy Development	Other mandate		1.4
CA	Mobile Source Emissions Reduction Requirements	Other mandate		1.4
CA	Fleet Vehicle Procurement Requirements	Mandate on government actors		1.1
CA	Emissions Reductions Grants	Grant or special fund	1.5	
CA	Alternative Fuel Vehicle (AFV) and Fueling Infrastructure Grants	Grant or special fund	1.5	
CA	Heavy-Duty Vehicle Emissions Reduction Grants	Grant or special fund	1.5	
CA	Alternative Fuel and Vehicle Incentives	Grant or special fund	1.5	
CA	Low Carbon Fuel Standard	Other mandate		1.4
CA	Vehicle Acquisition and Petroleum Reduction Requirements	Mandate on government actors		1.1
CA	Low Emission Vehicle (LEV) Standards	Other mandate		1.4

State	Title	Type	Incentive Score	Mandate Score
CA	State Transportation Plan	Other mandate		1.4
CA	Advanced Transportation Tax Exclusion	Tax or other exemption	1.3	
CA	Ethanol and Renewable Diesel Volume Rebate Program - Propel Fuels	Rebate	1.2	
CA	Alternative Fuel Vehicle (AFV) Incentives - San Joaquin Valley	Grant or special fund	1.5	
CA	Alternative Fuel and Advanced Vehicle Rebate - San Joaquin Valley	Rebate	1.2	
CA	Alternative Fuel Vehicle (AFV) Parking Incentive Programs	Tax or other incentive	1.3	
CA	Voluntary Vehicle Retirement and Replacement Incentives	Tax or other incentive	1.3	
CA	Voluntary Vehicle Retirement Incentives - San Joaquin Valley and South Coast	Grant or special fund	1.5	
CA	Heavy-Duty Truck Emission Reduction Grants - San Joaquin Valley	Grant or special fund	1.5	
CA	Alternative Fuel Mechanic Technical Training - San Joaquin Valley	Grant or special fund	1.5	
CA	Air Quality Improvement Program Funding - San Luis Obispo County	Grant or special fund	1.5	

State	Title	Type	Incentive Score	Mandate Score
CA	Alternative Fuel Infrastructure Grant - Santa Barbara County	Grant or special fund	1.5	
CA	Bus Replacement Grant	Grant or special fund	1.5	
CA	Vehicle Replacement Program - Bay Area	Grant or special fund	1.5	
CA	Fuel-Efficient Vehicle Tax Exemption	Tax or other incentive	1.3	
		Subtotal	27.1	11.6
		Score	38.7	
Colorado				
CO	Low Emission Vehicle (LEV) Sales Tax Exemption	Tax or other exemption	1.3	
CO	Alternative Fuel Vehicle (AFV) Weight Exemption	Tax or other exemption	1.3	
CO	State Agency Alternative Fuel Use and Vehicle Acquisition Requirement	Mandate on government actors		1.1
CO	Vehicle Fleet Maintenance and Fuel Cost-Savings Contracts	Mandate on government actors		1.1
CO	Advanced Industries (AI) Accelerator Program Grants	Grant or special fund	1.5	
CO	Impact Assistance Program for Public Fleets	Grant or special fund	1.5	
CO	Fleet Alternative Fuel Vehicle (AFV) and Technology Grants	Grant or special fund	1.5	

State	Title	Type	Incentive Score	Mandate Score
		Subtotal	7.1	2.2
		Score	9.3	
Connecticut				
CT	Emissions Reduction Credits	Tax or other incentive		1.4
CT	Alternative Fuel and Fuel-Efficient Vehicle Acquisition and Emissions Reduction Requirements	Mandate on government actors		1.1
CT	Alternative Fuel Vehicle (AFV) Procurement Preference	Other mandate		1.4
CT	School Bus Emissions Reduction	Mandate on government actors		1.1
CT	Diesel Emissions Reductions Grants	Grant or special fund	1.5	
		Subtotal	1.5	5
		Score	6.5	
Delaware				
DE	Alternative Fuel Tax Exemption	Tax or other exemption	1.3	
DE	Low Emission Vehicle (LEV) Standards	Other mandate		1.4
DE	Alternative Fuel Vehicle (AFV) Rebates	Rebate	1.2	
		Subtotal	2.5	1.4
		Score	3.9	

State	Title	Type	Incentive Score	Mandate Score
District of Columbia				
DC	Alternative Fuel Vehicle Acquisition Requirements	Other mandate		1.4
DC	Alternative Fuel Vehicle Exemption from Driving Restrictions	Tax or other exemption	1.3	
DC	Low Emission Vehicle (LEV) Standards	Other mandate		1.4
DC	Alternative Fuel Vehicle (AFV) Conversion and Infrastructure Tax Credit	Tax or other incentive	1.3	
DC	Alternative Fuel Vehicle and Infrastructure Support	Loan		1.2
		Subtotal	2.6	4
		Score	6.6	
Florida				
FL	Fuel-Efficient Vehicle Acquisition and Alternative Fuel Use Requirements	Mandate on government actors		1.1
FL	Biofuels Promotion	Mandate on government actors		1.1
FL	Provision for Renewable Fuels Investment	Grant or special fund	1.5	
FL	Alternative Fuel Economic Development	Tax or other incentive	1.3	

State	Title	Type	Incentive Score	Mandate Score
FL	Excise Tax Exemption for Biodiesel Produced by Schools	Tax or other exemption	1.3	
FL	Authorization for Alternative Fuel Infrastructure Incentives	Grant or special fund		1.5
FL	Biodiesel Producer Fuel Tax	Tax or other incentive	1.3	
		Subtotal	5.4	3.7
		Score	9.1	
Georgia				
GA	High Occupancy Vehicle (HOV) and High Occupancy Toll (HOT) Lane Exemption	Tax or other exemption	1.3	
GA	Ethanol Blending Regulation	Fuel blend/ use mandate		1.4
GA	Alternative Fuel and Advanced Vehicle Job Creation Tax Credit	Tax or other incentive	1.3	
GA	Biofuel Production Tax Exemption	Tax or other exemption	1.3	
		Subtotal	3.9	1.4
		Score	5.3	
Hawaii				
HI	Alternative Fuel Tax Rate	Tax or other incentive	1.3	
HI	Biofuels Procurement Preference	Mandate on government actors		1.1
HI	Alternative Fuel Standard Development	Other mandate		1.4

State	Title	Type	Incentive Score	Mandate Score
HI	Energy Feedstock Program	Tax or other incentive	1.3	
HI	Clean Transportation Promotion	Other mandate		1.4
HI	Alternative Fuel and Advanced Vehicle Acquisition and Rental Requirements	Mandate on government actors		1.1
		Subtotal	2.6	5
		Score	7.6	
Idaho				
ID	License Exemptions for Biodiesel Production for Personal Use	Tax or other exemption	1.3	
ID	Alternative Fuels Tax Exemption and Refund for Government Fleet Vehicles	Tax or other exemption	1.3	
ID	Medium- and Heavy-Duty Diesel Vehicle Replacement Rebates	Rebate	1.2	
		Subtotal	3.8	0
		Score	3.8	
Illinois				
IL	Biofuels Tax Exemption	Tax or other exemption	1.3	
IL	Biofuels Preference for State Vehicle Procurement	Mandate on government actors		1.1
IL	Biodiesel Blend Use Requirement	Mandate on government actors		1.1

State	Title	Type	Incentive Score	Mandate Score
IL	Advanced Vehicle Acquisition and Biodiesel Fuel Use Requirement	Mandate on government actors		1.1
IL	Biofuels Education and Promotion	Mandate on government actors		1.1
IL	School Bus Retrofit Reimbursement	Rebate	1.2	
IL	Diesel Emission Reduction Grants	Grant or special fund	1.5	
		Subtotal	4	4.4
		Score	8.4	
Indiana				
IN	Biodiesel Price Preference	Rebate	1.2	
IN	Certified Technology Park Designation	Other mandate		1.4
IN	Biofuels Blend Use Requirement	Mandate on government actors		1.1
IN	E85 Promotion and Education	Other mandate		1.4
IN	Vehicle Research and Development Grants	Grant or special fund	1.5	
IN	Biodiesel Blend Tax Exemption	Tax or other exemption	1.3	
IN	Clean Vehicle Acquisition Requirements	Mandate on government actors		1.1
IN	Diesel Vehicle Retrofit and Improvement Grants	Grant or special fund	1.5	
IN	Alternative Fuel Vehicle (AFV) Inspection and Maintenance Exemption	Tax or other exemption	1.3	

State	Title	Type	Incentive Score	Mandate Score
IN	Special Fuel License Tax	Tax or other exemption	1.3	
IN	Special Fuel Tax Exemption	Tax or other exemption	1.3	
IN	Medium- and Heavy-Duty Grant Program	Grant or special fund	1.5	
		Subtotal	10.9	5
		Score	15.9	
Iowa				
IA	Alternative Fuel Vehicle Acquisition Requirements	Mandate on government actors		1.1
IA	Biodiesel Fuel Use	Mandate on government actors		1.1
IA	Alternative Fuel Vehicle (AFV) Demonstration Grant Authorization	Grant or special fund	1.5	
IA	Biofuel Infrastructure Grants	Grant or special fund	1.5	
IA	Biodiesel Blend Retailer Tax Credit	Tax or other incentive	1.3	
IA	E85 Fuel Exclusivity Contract Regulations	Other mandate		1.4
IA	Alternative Fuel Production Tax Credits	Tax or other incentive	1.3	
IA	E85 Retailer Tax Credit	Tax or other incentive	1.3	
IA	Mid-Level Ethanol Blend Retailer Tax Credit	Tax or other incentive	1.3	
IA	Alternative Fuel Tax	Tax or other incentive	1.3	

State	Title	Type	Incentive Score	Mandate Score
IA	Diesel Emission Reduction Project Funding	Grant or special fund	1.5	
IA	Retail E15 Access Requirements	Other mandate		1.4
IA	Alternative Fuel Vehicle (AFV) Grants	Grant or special fund	1.5	
		Subtotal	12.5	5
		Score	17.5	
Kansas				
KS	Alternative Fuel Vehicle (AFV) Tax Credit	Tax or other incentive	1.3	
KS	Alternative Fueling Infrastructure Tax Credit	Tax or other incentive	1.3	
KS	Biofuels Use Requirement	Mandate on government actors		1.1
KS	Renewable Fuel Retailer Tax Incentive	Tax or other incentive	1.3	
KS	E85 Tax Rate and Definition	Tax or other incentive	1.3	
KS	Cellulosic Ethanol Production Financing	Loan	1.2	
KS	Flexible Fuel Vehicle (FFV) Acquisition Requirements	Mandate on government actors		1.1
KS	Biofuel Blending Equipment Tax Exemption	Tax or other exemption	1.3	
KS	Biofuel Production Facility Tax Exemption	Tax or other exemption	1.3	
KS	Biodiesel Rebates - Kansas Soybean Commission	Rebate	1.5	

State	Title	Type	Incentive Score	Mandate Score
KS	Flex Fuel Grant Program - Kansas Corn Commission (KCC)	Grant or special fund	1.5	
		Subtotal	12	2.2
		Score	14.2	
Kentucky				
KY	Biodiesel Production and Blending Tax Credit	Tax or other incentive	1.3	
KY	Ethanol Production Tax Credit	Tax or other incentive	1.3	
KY	On-Farm Biofuel Production Grants	Grant or special fund	1.5	
		Subtotal	4.1	0
		Score	4.1	
Louisiana				
LA	Renewable Fuel Standard	Other mandate		1.4
LA	Biofuels Feedstock Requirements	Other mandate		1.4
LA	Alternative Fuel and Advanced Vehicle Acquisition Requirements	Mandate on government actors		1.1
LA	Provision for Green Jobs Tax Credit	Tax or other incentive	1.3	
		Subtotal	1.3	3.9
		Score	5.2	
Maine				
ME	Alternative Fuel Tax Rates	Tax or other incentive	1.3	

State	Title	Type	Incentive Score	Mandate Score
ME	Provision for Establishment of Clean Fuel Vehicle Insurance Incentives	Rebate	1.2	
ME	Biodiesel Fuel Tax Exemption	Tax or other incentive	1.3	
ME	Prohibition of the Sale of Ethanol-Blended Gasoline	Other mandate		1.4
ME	Clean Transportation and Infrastructure Loans	Loan	1.2	
		Subtotal	5	1.4
		Score	6.4	
Maryland				
MD	Alternative Fuel Use Requirement	Mandate on government actors		1.1
MD	Alternative Fuel Vehicle (AFV) Grants	Grant or special fund	1.5	
MD	Clean Energy Grants	Grant or special fund	1.5	
		Subtotal	3	1.1
		Score	4.1	
Massachusetts				
MA	State Agency Alternative Fuel Use Requirement	Mandate on government actors		1.1
MA	State Hybrid Electric Vehicle (HEV) Alternative Fuel Vehicle (AFV) Acquisition Requirements	Mandate on government actors		1.1
MA	Alternative Fuel Offering Requirement	Other mandate		1.4

State	Title	Type	Incentive Score	Mandate Score
MA	State Energy Policy	Other mandate		1.4
MA	Biodiesel Use Requirement	Mandate on government actors		1.1
MA	Diesel Emissions Reductions Grants	Grant or special fund	1.5	
		Subtotal	1.5	6.1
		Score	7.6	
Michigan				
MI	Alternative Fuel Vehicle (AFV) Emissions Inspection Exemption	Tax or other exemption	1.3	
MI	Alternative Fuel Development Property Tax Exemption	Tax or other exemption	1.3	
MI	Medium- and Heavy-Duty Grant Program	Grant or special fund	1.5	
		Subtotal	4.1	0
		Score	4.1	
Minnesota				
MN	Alternative Fuel Tax	Tax or other incentive	1.3	
MN	Biodiesel Blend Mandate	Fuel blend/use mandate		1.4
MN	Biofuel Blend Mandate	Fuel blend/use mandate		1.4
MN	Ethanol Production Facility Environmental Assessment Exemption	Tax or other exemption	1.3	

State	Title	Type	Incentive Score	Mandate Score
MN	State Agency Sustainability Plan and Requirements	Mandate on government actors		1.1
MN	Biofuel Incentive Authorization	Other mandate		1.4
MN	Minnesota Biofuels Replacement Goals	Other mandate		1.4
MN	Biofuel Production Grant Program	Grant or special fund	1.5	
		Subtotal	4.1	6.7
		Score	10.8	
Mississippi				
MS	Fuel-Efficient and Alternative Fuel Vehicle Use	Mandate on government actors		1.1
MS	Alternative Fuel Vehicle (AFV) Revolving Loan Program	Loan	1.2	
		Subtotal	1.2	1.1
		Score	2.3	
Missouri				
MO	Alternative Fuel Promotion	Other mandate		1.4
MO	Alternative Fuel Vehicle (AFV) Acquisition and Alternative Fuel Use Requirements	Mandate on government actors		1.1
MO	Biodiesel Use Requirement	Mandate on government actors		1.1
MO	Alternative Fuel Vehicle (AFV) Decal	Tax or other incentive	1.3	
MO	Ethanol Blend Mandate	Fuel blend/ use mandate		1.4

State	Title	Type	Incentive Score	Mandate Score
MO	Biodiesel and Ethanol Infrastructure Grants	Grant or special fund	1.5	
MO	Biodiesel Retailer Tax Credit	Tax or other incentive	1.3	
MO	Ethanol Retailer Tax Credit	Tax or other incentive	1.3	
		Subtotal	5.4	5
		Score	10.4	
Montana				
MT	Ethanol Production Incentive	Tax or other incentive	1.3	
MT	Alternative Fuel and Vehicle Production Property Tax Incentive	Tax or other incentive	1.3	
MT	Ethanol Fuel Blend Use Requirement	Mandate on government actors		1.1
MT	Biodiesel Tax Refund	Tax or other incentive	1.3	
MT	Biodiesel Tax Exemption	Tax or other exemption	1.3	
MT	Ethanol Production Facility Property Tax Exemption	Tax or other exemption	1.3	
		Subtotal	6.5	1.1
		Score	7.6	
Nebraska				
NE	Ethanol and Biodiesel Tax Exemption	Tax or other exemption	1.3	
NE	Alternative Fuel Vehicle (AFV) and Fueling Infrastructure Loans	Loan	1.2	

State	Title	Type	Incentive Score	Mandate Score
NE	Ethanol Blending Tax Credit	Tax or other incentive	1.3	
		Subtotal	3.8	0
		Score	3.8	
Nevada				
NV	Funds for School District Alternative Fuel Use	Mandate on government actors		1.1
NV	Alternative Fuel Vehicle (AFV) and Infrastructure Grants Authorization	Grant or special fund	1.5	
NV	Heavy-Duty Vehicle Emissions Reduction Grants	Grant or special fund	1.5	
		Subtotal	3	1.1
		Score	4.1	
New Hampshire				
NH	Biodiesel Blend Purchase Requirement	Mandate on government actors		1.1
NH	Diesel Emissions Reduction Grants	Grant or special fund	1.5	
NH	Fossil Fuel Use Reduction	Other mandate		1.4
		Subtotal	1.5	2.5
		Score	4	
New Jersey				
NJ	Low Emission or Alternative Fuel Bus Acquisition Requirement	Mandate on government actors		1.1

State	Title	Type	Incentive Score	Mandate Score
NJ	Biofuel Use Requirements	Mandate on government actors		1.1
		Subtotal	0	2.2
		Score	2.2	
New Mexico				
NM	Alternative Fuel Vehicle (AFV) and Hybrid Electric Vehicle (HEV) Acquisition Requirements	Mandate on government actors		1.1
NM	Biofuels Production Tax Deduction	Tax or other incentive	1.3	
NM	Alternative Fuel and Advanced Vehicle System Manufacturing Incentive	Tax or other incentive	1.3	
NM	Biodiesel Blend Mandate	Fuel blend/use mandate		1.4
NM	Biodiesel Blending Facility Tax Credit	Tax or other incentive	1.3	
NM	Alternative Fuel Tax Exemption	Tax or other exemption	1.3	
NM	Biodiesel Tax Deduction	Tax or other incentive	1.3	
NM	Biodiesel Blending Facility Loading Fee Deduction	Tax or other incentive	1.3	
NM	Energy and Fuel Cost Savings Contracts	Mandate on government actors		1.1
NM	Diesel Emission Reduction Funding	Grant or special fund	1.5	
		Subtotal	9.3	3.6
		Score	12.9	

State	Title	Type	Incentive Score	Mandate Score
New York				
NY	Alternative Fuel Vehicle Research and Development Funding	Grant or special fund	1.5	
NY	Heavy-Duty Alternative Fuel and Advanced Vehicle Purchase Vouchers	Rebate	1.3	
NY	Alternative Fueling Infrastructure Tax Credit	Tax or other incentive	1.3	
		Subtotal	4.1	0
		Score	4.1	
North Carolina				
NC	Alternative Fuel and Idle Reduction Grants	Grant or special fund	1.5	
NC	Alternative Fuel Vehicle (AFV) Acquisition Goal	Mandate on government actors		1.1
NC	Alternative Fuel Tax Exemption	Tax or other exemption	1.3	
NC	Alternative Fuel and Alternative Fuel Vehicle (AFV) Fund	Grant or special fund	1.5	
NC	Alternative Fuel Use and Fuel-Efficient Vehicle Requirements	Mandate on government actors		1.1
NC	Alternative Fuel Vehicle (AFV), Idle Reduction Technologies, and Diesel Retrofits Funding	Grant or special fund	1.5	
NC	Bond Exemption for Small Biofuels Suppliers	Tax or other exemption	1.3	

State	Title	Type	Incentive Score	Mandate Score
NC	Biodiesel Warranty Requirement	Mandate on government actors		1.1
NC	Biodiesel Requirement for School Buses	Mandate on government actors		1.1
NC	Biodiesel Tax Exemption	Tax or other exemption	1.3	
NC	Ethanol Blend Requirement	Fuel blend/use requirement		1.4
		Subtotal	8.4	5.8
		Score	14.2	
North Dakota				
ND	Ethanol Production Incentive	Tax or other incentive	1.3	
ND	Biodiesel and Renewable Diesel Sales Equipment Tax Credit	Tax or other incentive	1.3	
ND	Biodiesel and Renewable Diesel Blender Tax Credit	Tax or other incentive	1.3	
ND	Biofuel Loan Program	Loan	1.2	
ND	Biodiesel and Renewable Production and Blending Equipment Tax Credit	Tax or other incentive	1.3	
ND	Renewable Fuels Promotion	Grant or special fund	1.5	
ND	Advanced Biofuel Incentives	Grant or special fund	1.5	
ND	Agriculturally Derived Fuel Production Facility Loan Guarantees	Loan	1.2	

State	Title	Type	Incentive Score	Mandate Score
ND	Low-Emission Technology Grants	Grant or special fund	1.5	
		Subtotal	12.1	0
		Score	12.1	
Ohio				
OH	Alternative Fuel Vehicle Acquisition and Fuel Use Requirements	Mandate on government actors		1.1
		Subtotal	0	1.1
		Score	1.1	
Oklahoma				
OK	Alternative Fuel Vehicle (AFV) Acquisition Requirements	Mandate on government actors		1.1
OK	Ethanol Fuel Retailer Tax Credit	Tax or other incentive	1.3	
OK	Biofuels Tax Exemption	Tax or other exemption	1.3	
OK	Access to State Alternative Fueling Stations	Other mandate		1.4
OK	Ethanol Sales Tax Exemption	Tax or other exemption	1.3	
OK	Biofuels Construction and Permitting Assistance	Tax or other incentive	1.3	
		Subtotal	5.2	2.5
		Score	7.7	
Oregon				
OR	Alternative Fuel Loans	Loan	1.3	

State	Title	Type	Incentive Score	Mandate Score
OR	Alternative Fuel Vehicle Acquisition and Fuel Use Requirements	Mandate on government actors		1.1
OR	Biofuels Production Property Tax Exemption	Tax or other exemption	1.3	
OR	Renewable Fuels Mandate	Fuel blend/use mandate		1.4
OR	Clean Transportation Fuel Standards	Other mandate		1.4
		Subtotal	2.6	3.9
		Score	6.5	
Pennsylvania				
PA	Renewable Fuels Mandate	Fuel blend/use mandate		1.4
PA	Medium- and Heavy-Duty Vehicle Rebates	Rebate	1.2	
PA	Alternative Fuels Incentive Grant (AFIG) Program	Grant or special fund	1.5	
PA	Diesel Emission Reduction Grants	Grant or special fund	1.5	
PA	Heavy-Duty Emission Reduction Grants	Grant or special fund	1.5	
		Subtotal	5.7	1.4
		Score	7.1	
Rhode Island				
RI	Biodiesel Tax Exemption	Tax or other exemption	1.3	

State	Title	Type	Incentive Score	Mandate Score
RI	Alternative Fuel Vehicle (AFV) and Zero Emission Vehicle (ZEV) Acquisition Requirements	Mandate on government actors		1.1
RI	Clean Diesel Grant	Grant or special fund	1.5	
		Subtotal	2.8	1.1
		Score	3.9	
South Carolina				
SC	Biodiesel Blend Distribution Mandate	Fuel blend/ use mandate		1.4
SC	Biodiesel Use in School Buses	Mandate on government actors		1.1
SC	State Agency Preference for Alternative Fuel and Advanced Vehicles	Mandate on government actors		1.1
SC	Biofuel Blending Capability Requirements and Liability	Fuel blend/ use mandate		1.4
SC	Alternative Fuel Vehicle (AFV) Revolving Loan Program for Public Entities	Loan	1.2	
SC	Alternative Fuel Vehicle (AFV) Revolving Loan Program for Private Entities	Loan	1.2	
SC	Alternative Fuel Project Grants	Grant or special fund	1.5	
		Subtotal	3.9	5
		Score	8.9	

State	Title	Type	Incentive Score	Mandate Score
South Dakota				
SD	Biodiesel Tax	Tax or other incentive	1.3	
SD	Biodiesel Blend Tax Credit	Tax or other incentive	1.3	
SD	Tax Refund for Methanol Used in Biodiesel Production	Tax or other incentive	1.3	
SD	Alternative Fuel Tax	Tax or other incentive	1.3	
SD	Diesel Emission Reduction Grants	Grant or special fund	1.5	
		Subtotal	6.7	0
		Score	6.7	
Tennessee				
TN	Alternative Fuel and Fuel-Efficient Vehicle Acquisition and Use Requirements	Mandate on government actors		1.1
TN	Supply of Petroleum Products for Blending with Biofuels	Fuel blend/ use mandate		1.4
		Subtotal	0	2.5
		Score	2.5	
Texas				
TX	Clean Vehicle and Infrastructure Grants	Grant or special fund	1.5	
TX	Diesel Fuel Blend Tax Exemption	Tax or other exemption	1.3	
TX	Clean Fleet Grants	Grant or special fund	1.5	

State	Title	Type	Incentive Score	Mandate Score
TX	Alternative Fuel Use and Vehicle Acquisition Requirements	Mandate on government actors		1.1
TX	Clean School Bus Grants	Grant or special fund	1.5	
		Subtotal	5.8	1.1
		Score	6.9	
Utah				
UT	Alternative Fuel Use and Vehicle Acquisition Requirement	Mandate on government actors		1.1
		Subtotal	0	1.1
		Score	1.1	
Vermont				
VT	Heavy-Duty Vehicle Emissions Reduction Grants	Grant or special fund	1.5	
VT	Fuel-Efficient Vehicle and Emission Reduction Incentives	Grant or special fund	1.5	
		Subtotal	3	0
		Score	3	
Virginia				
VA	Alternative Fuel School Bus and Fueling Infrastructure Loans	Loan	1.2	
VA	State Energy Plan	Other mandate		1.4
VA	Biodiesel Production Tax Credit	Tax or other incentive	1.3	

State	Title	Type	Incentive Score	Mandate Score
VA	Green Jobs Tax Credit	Tax or other incentive		
VA	Biofuel Feedstock Registration Exemption	Tax or other exemption	1.3	
VA	Ethanol Production Equipment Tax Exemption Authorization	Tax or other incentive	1.3	
VA	Alternative Fuel and Hybrid Electric Vehicle (HEV) Emissions Testing Exemption	Tax or other exemption	1.3	
VA	Agriculture and Forestry Biofuel Production Grants	Grant or special fund	1.5	
VA	Alternative Fuel Tax Exemption	Tax or other exemption	1.3	
VA	Government Alternative Fuel Vehicle (AFV) Incentive	Grant or special fund	1.5	
VA	Alternative Fuel Vehicle (AFV) Grant Authorization	Grant or special fund	1.5	
		Subtotal	12.2	1.4
		Score	13.6	
Washington				
WA	Renewable Fuel Standard	Fuel blend/ use mandate		1.4
WA	Biodiesel Use Requirement	Mandate on government actors		1.1
WA	Alternative Fuel Use Requirement	Mandate on government actors		1.1
WA	State Emissions Reductions Requirements	Other mandate		1.4

State	Title	Type	Incentive Score	Mandate Score
WA	Biofuel Quality Program	Other mandate		1.4
WA	Biodiesel Feedstock Tax Exemption	Tax or other exemption	1.3	
WA	Low Carbon Fuel Standard	Other mandate		1.4
		Subtotal	1.3	7.8
		Score	9.1	
West Virginia				
WV	Alternative Fuel Use Requirement	Mandate on government actors		1.1
WV	Alternative Fuels Tax	Tax or other incentive		1.4
		Subtotal	0	2.5
		Score	2.5	
Wisconsin				
WI	Alternative Fuel Vehicle and Alternative Fuel Use Policy	Mandate on government actors		1.1
WI	Alternative Fuel Tax Exemption	Tax or other exemption	1.3	
WI	Biodiesel Fuel Use Incentive for Schools	Grant or special fund	1.5	1.1
WI	Alternative Fuel Tax Refund for Taxis	Tax or other incentive	1.3	
WI	Renewable Fuel Producer Excise Tax and Inspection Exemption	Tax or other exemption	1.3	
WI	Renewable Fuel Sales Volume Goals	Other mandate		1.4
WI	Heavy-Duty Transit Bus Grants	Grant or special fund	1.5	

State	Title	Type	Incentive Score	Mandate Score
WI	Clean Diesel Grant Program	Grant or special fund	1.5	
		Subtotal	8.4	3.6
		Score	12	
Wyoming				
WY	Alternative Fuel Export Tax Exemption	Tax or other exemption	1.3	
		Subtotal	1.3	0
		Score	1.3	

Endnotes

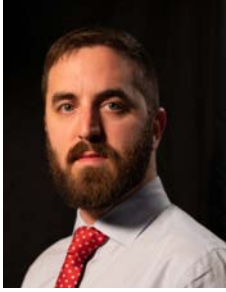
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About the Author



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The John Locke Foundation was created in 1990 as an independent, nonprofit think tank that would work “for truth, for freedom, for the future of North Carolina.” The Foundation is named for John Locke (1632-1704), an English philosopher whose writings inspired Thomas Jefferson and the other Founders. The John Locke Foundation is a 501(c)(3) research institute and is funded by thousands of individuals, foundations and corporations. The Foundation does not accept government funds or contributions to influence its work or the outcomes of its research.

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Locke envisions a North Carolina in which liberty and limited, constitutional government are the cornerstones of society so that individuals, families, and institutions can freely shape their own destinies.

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Locke’s mission is to be North Carolina’s most influential force driving public policy so North Carolinians flourish in a free and prosperous society.



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