FOR PUBLICATION

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

ROCKY MOUNTAIN FARMERS UNION; REDWOOD COUNTY MINNESOTA CORN AND SOYBEAN GROWERS; PENNY NEWMAN GRAIN, INC.; REX NEDEREND; FRESNO COUNTY FARM BUREAU; NISEI FARMERS LEAGUE; CALIFORNIA DAIRY CAMPAIGN; GROWTH ENERGY; RENEWABLE FUELS ASSOCIATION; AMERICAN FUEL & PETROCHEMICAL MANUFACTURERS ASSOCIATION, FKA National Petrochemical & Refiners Association; AMERICAN TRUCKINGS ASSOCIATIONS; CENTER FOR NORTH AMERICAN ENERGY SECURITY; THE CONSUMER ENERGY ALLIANCE, *Plaintiffs-Appellees*, v. RICHARD W. COREY, in his official capacity as Executive Officer of the California Air Resources Board; MARY D. NICHOLS; DANIEL SPERLING; KEN YEAGER; DORENE D'ADAMO; BARBARA RIORDAN; JOHN R. BALMES; LYDIA H. KENNARD; SANDRA BERG; RON	No. 12-15131 D.C. Nos. 1:09-cv-02234-LJO-GSA 1:10-cv-00163-LJO-DLB

ROBERTS; JOHN G. TELLES, in his official capacity as member of the California Air Resources Board; RONALD O. LOVERIDGE, in his official capacity as member of the California Air Resources Board; EDMUND G. BROWN, JR., in his official capacity as Governor of the State of California; KAMALA D. HARRIS, Attorney General, in her official capacity as Attorney General of the State of California,
Defendants-Appellants,

ENVIRONMENTAL DEFENSE FUND; NATURAL RESOURCES DEFENSE COUNCIL; SIERRA CLUB; CONSERVATION LAW FOUNDATION,
Intervenor-Defendants-Appellants.

ROCKY MOUNTAIN FARMERS UNION; REDWOOD COUNTY MINNESOTA CORN AND SOYBEAN GROWERS; PENNY NEWMAN GRAIN, INC.; REX NEDEREND; FRESNO COUNTY FARM BUREAU; NISEI FARMERS LEAGUE; CALIFORNIA DAIRY CAMPAIGN; GROWTH ENERGY; RENEWABLE FUELS ASSOCIATION; AMERICAN FUEL & PETROCHEMICAL MANUFACTURERS ASSOCIATION, FKA National Petrochemical &

No. 12-15135

D.C. Nos. 1:09-cv-02234-LJO-GSA 1:10-cv-00163-LJO-DLB

OPINION

Refiners Association; AMERICAN TRUCKINGS ASSOCIATIONS; CENTER FOR NORTH AMERICAN ENERGY SECURITY; THE CONSUMER ENERGY ALLIANCE,

Plaintiffs-Appellees,

v.

RICHARD W. COREY, in his official capacity as Executive Officer of the California Air Resources Board; MARY D. NICHOLS; DANIEL SPERLING; KEN YEAGER; DORENE D'ADAMO; BARBARA RIORDAN; JOHN R. BALMES; LYDIA H. KENNARD; SANDRA BERG; RON ROBERTS; JOHN G. TELLES, in his official capacity as member of the California Air Resources Board; RONALD O. LOVERIDGE, in his official capacity as member of the California Air Resources Board; EDMUND G. BROWN, JR., in his official capacity as Governor of the State of California; KAMALA D. HARRIS, Attorney General, in her official capacity as Attorney General of the State of California,

Defendants-Appellants,

ENVIRONMENTAL DEFENSE FUND; NATURAL RESOURCES DEFENSE

COUNCIL; SIERRA CLUB;
CONSERVATION LAW FOUNDATION,
Intervenor-Defendants-Appellants.

Appeal from the United States District Court
for the Eastern District of California
Lawrence J. O'Neill, District Judge, Presiding

Argued and Submitted
October 16, 2012—San Francisco, California

Filed September 18, 2013

Before: Dorothy W. Nelson, Ronald M. Gould,[*]
and Mary H. Murguia, Circuit Judges.

Opinion by Judge Gould;
Partial Concurrence and Partial Dissent by Judge Murguia

[*] Judge Betty B. Fletcher was a member of the panel but passed away after oral argument. Judge Gould was drawn to replace her. He has read the briefs, reviewed the record, and listened to the tape of oral argument held on October 16, 2012.

SUMMARY[**]

Fuel Standards/Commerce Clause

The panel affirmed in part and reversed in part the district court's summary judgment, and vacated the district court's preliminary injunction and remanded in an action which alleged that California's Low Carbon Fuel Standard, Cal. Code Regs. tit. 17, §§ 95480–90 (2011), violated the dormant Commerce Clause and was preempted by Section 211(o) of the Clean Air Act, 42 U.S.C. § 7545(o).

The panel held that the Fuel Standard's ethanol provisions were not facially discriminatory, and reversed that portion of the district court's decision and remanded for entry of partial summary judgment in favor of California Air Resources Board ("CARB"). The panel also reversed the district court's decision that the Fuel Standard was an impermissible extraterritorial regulation and the panel directed that an order of partial summary judgment be entered in favor of CARB on those grounds. The panel remanded the case for the district court to determine whether the ethanol provisions discriminate in purpose or effect and, if not, to apply the balancing test established in *Pike v. Bruce Church, Inc.*, 397 U.S. 137 (1970).

The panel affirmed the district court's conclusion that the Fuel Standard's crude oil provisions (the 2011 Provisions), were not facially discriminatory, but reversed the district court's holding that the 2011 Provisions were discriminatory

[**] This summary constitutes no part of the opinion of the court. It has been prepared by court staff for the convenience of the reader.

in purpose and effect. The panel directed the district court to enter an order of partial summary judgment in favor of CARB on those issues. The panel remanded to the district court to apply the *Pike* balancing test to the 2011 Provisions.

The panel affirmed the district court's conclusion that Section 211(c)(4)(b) of the Clean Air Act does not insulate California from scrutiny under the dormant Commerce Clause.

The panel remanded to the district court with instructions to vacate the preliminary injunction. The panel expressed no opinion on plaintiffs' claim that the Fuel Standard is preempted by the federal Renewable Fuel Standard (RFS). The panel also expressed no opinion on CARB's claim that the savings clause in the Energy Independence and Security Act of 2007 precludes implied preemption by the RFS.

Concurring in part and dissenting in part, Judge Murguia agreed with the majority's conclusions concerning the crude oil regulations and preemption under the Clean Air Act. She dissented from the majority's conclusion that ethanol regulations do not facially discriminate against interstate commerce.

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OPINION

GOULD, Circuit Judge:

Whether global warming is caused by carbon emissions from our industrialized societies is a question for scientists to ponder. Whether, if such a causal relationship exists, the world can fight or retard global warming by implementing taxes or regulations that deter carbon emissions is a question for economists and politicians to decide. Whether one such regulatory scheme, implemented by the State of California, is constitutional under the United States Constitution's Commerce Clause is the question that we consider in this opinion.

Plaintiffs-Appellees Rocky Mountain Farmers' Union et al. ("Rocky Mountain") and American Fuels & Petrochemical Manufacturers Association et al. ("American Fuels") separately sued Defendant-Appellant California Air Resources Board ("CARB"), contending that the Low Carbon Fuel Standard ("Fuel Standard"), Cal. Code Regs. tit. 17, §§ 95480–90 (2011), violated the dormant Commerce Clause and was preempted by Section 211(o) of the Clean Air Act, 42 U.S.C. § 7545(o), known as the federal Renewable Fuel Standard ("RFS"). In three rulings issued in December 2011, the district court held that the Fuel Standard (1) facially discriminated against out-of-state ethanol; (2) impermissibly engaged in the extraterritorial regulation of ethanol production; (3) discriminated against out-of-state crude oil in purpose and effect; and (4) was not saved by California's preemption waiver in the Clean Air Act. *See Rocky Mountain Farmers Union v. Goldstene* ("*Rocky Mountain Ethanol*"), 843 F. Supp. 2d 1071, 1090, 1093 (E.D. Cal. 2011); *Rocky Mountain Farmers Union v. Goldstene* ("*Rocky Mountain*

Preemption"), 843 F. Supp. 2d 1042, 1070 (E.D. Cal. 2011); *Rocky Mountain Farmers Union v. Goldstene* ("*Rocky Mountain Crude*"), Nos. CV-F-09-2234 LJO DLB, CV-F-10-163 LJO DLB, 2011 WL 6936368, at *12–14 (E.D. Cal. Dec. 29, 2011). The district court applied strict scrutiny, and although it reasoned that the Fuel Standard served a legitimate state purpose, it concluded that CARB had not shown that its purpose could not be achieved in a nondiscriminatory way. *Rocky Mountain Ethanol*, 843 F. Supp. 2d at 1093–94; *Rocky Mountain Crude*, 2011 WL 6936368 at *15–16. The district court granted American Fuels's motions for summary judgment on its Commerce Clause claims, and it granted Rocky Mountain's request for a preliminary injunction, finding that Rocky Mountain was likely to succeed on the merits of its Commerce Clause challenge and raised "serious questions" about whether the Fuel Standard was preempted by the RFS. *Rocky Mountain Ethanol*, 843 F. Supp. 2d at 1103. The appeals of the orders were consolidated.

We hold that the Fuel Standard's regulation of ethanol does not facially discriminate against out-of-state commerce, and its initial crude-oil provisions (the "2011 Provisions") did not discriminate against out-of-state crude oil in purpose or practical effect. Further, the Fuel Standard does not violate the dormant Commerce Clause's prohibition on extraterritorial regulation. We vacate the preliminary injunction and remand to the district court to consider whether the Fuel Standard's ethanol provisions discriminate in purpose or in practical effect. If so, then the district court should apply strict scrutiny to those provisions. If not, then the district court should apply the balancing test established in *Pike v. Bruce Church, Inc.*, 397 U.S. 137 (1970), to the Fuel Standard's ethanol provisions. The district court is

directed to apply the *Pike* balancing test to the 2011 Provisions for crude oil. *Id*. To prevail under that test, Plaintiffs-Appellees must show that the Fuel Standard imposes a burden on interstate commerce that is "clearly excessive" in relation to its local benefits. *Id*. at 142.

I

A

California has long been in the vanguard of efforts to protect the environment, with a particular concern for emissions from the transportation sector. Since 1957, California has acted at the state level to regulate air pollution from motor vehicles. *Motor & Equip. Mfrs. Ass'n v. EPA* ("*MEMA*"), 627 F.2d 1095, 1109 n.26 (D.C. Cir. 1979) (citing 1957 Cal. Stats., chap. 239, § 1). Based on this expertise, "[t]he first federal emission standards were largely borrowed from California." *Id*. at 1110 & n.34.

When instituting uniform federal regulations for air pollution in the Clean Air Act, "Congress consciously chose to permit California to blaze its own trail with a minimum of federal oversight." *Ford Motor Co. v. EPA*, 606 F.2d 1293, 1297 (D.C. Cir. 1979). Section 209(a) of the Clean Air Act expressly prohibited state regulation of emissions from motor vehicles. 42 U.S.C. § 7543(a). But the same section allowed California to adopt its own standards if it "determine[d] that the State standards will be, in the aggregate, at least as protective of public health and welfare as applicable Federal standards." *Id*. § 7543(b). Other states could choose to follow either the federal or the California standards, but they could not adopt standards of their own. *Id*. § 7507. The auto industry strenuously objected to this waiver provision and

was "adamant that the nature of [its] manufacturing mechanism required a single national standard in order to eliminate undue economic strain on the industry." *MEMA*, 627 F.2d at 1109 (quoting S. Rep. No. 403, at 33 (1967)). But Congress decided to encourage California "to continue and expand its pioneering efforts at adopting and enforcing motor vehicle emission standards different from and in large measure more advanced than the corresponding federal program; in short, to act as a kind of laboratory for innovation." *Id*. at 1111. So California's role as a leader in developing air-quality standards has been explicitly endorsed by Congress in the face of warnings about a fragmented national market.

Continuing its tradition of leadership, the California legislature enacted Assembly Bill 32, the Global Warming Solutions Act of 2006. The legislature found that "[g]lobal warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." Cal. Health & Safety Code § 38501(a). These threats included "exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, [and] a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences." *Id*. This environmental damage would have "detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing and forestry" and would "increase the strain on electricity supplies." *Id*. § 38501(b).

Faced with these threats, California resolved to reduce its greenhouse gas ("GHG") emissions to their 1990 level by the year 2020, and it empowered CARB to design emissions-reduction measures to meet this goal. *Id*. § 38501(e), (g). In

Assembly Bill 32, the legislature told CARB to issue regulations, including scoping and reporting requirements to achieve maximum technologically and economically feasible reductions, *see, e.g.*, *id.* § 38561(a), a cap and trade program to enforce limits on carbon emissions from a variety of domestic sources, *id*. § 38562(c), and regulations seeking to reduce GHG emissions from the transportation sector, *see, e.g.*, *id.* § 38562(a); Cal. Code Regs. tit. 13, § 1961.1.

The Assembly Bill 32 scoping plan required CARB to consider "the relative contribution of each source or source category to statewide greenhouse gas emissions." Cal. Health & Safety Code § 38561(e). In California, transportation emissions account for more than 40% of GHG emissions—the state's largest single source. Cal. Exec. Order No. S-01-07 (January 18, 2007). Given the relative import of these emissions, CARB adopted a three-part approach designed to lower GHG emissions from the transportation sector: (1) reducing emissions at the tailpipe by establishing progressively stricter emissions limits for new vehicles ("Tailpipe Standards"), Cal. Code Regs. tit. 13, § 1961.1 (2001); (2) integrating regional land use, housing, and transportation planning to reduce the number of "vehicle miles traveled" each year ("VMT Standards"), *see* Cal. Gov't Code § 65080; and (3) lowering the embedded GHGs in transportation fuel by adopting the Fuel Standard to reduce the quantity of GHGs emitted in the production of transportation fuel, Cal. Code Regs. tit. 17, §§ 95480–90.

The Tailpipe and VMT Standards work on the demand side: they aim to lower the consumption of GHG-generating transportation fuels. The Fuel Standard, by contrast, is directed at the supply side, creating an alternate path to

emissions reduction by reducing the carbon intensity[1] of transportation fuels that are burned in California.

B

On January 18, 2007, the California governor issued Executive Order S-01-07, which directed CARB to adopt regulations that would reduce the average GHG emissions attributable to California's fuel market by ten percent by 2020. The Fuel Standard, developed in response, applies to nearly all transportation fuels currently consumed in California and any fuels developed in the future. *Id.* § 95480.1(a). In 2010, regulated parties were required to meet the Fuel Standard's reporting requirements but were not bound by a carbon intensity cap. *Id.* § 95482(a).[2] Beginning in 2011, the Fuel Standard established a declining annual cap on the average carbon intensity of California's transportation-fuel market. *Id.* § 95482(b). By setting a predictable path for

[1] A fuel's carbon intensity is the amount of lifecycle greenhouse gas emissions caused by production and transportation of the fuel, per unit of energy of fuel delivered, expressed in grams of carbon dioxide equivalent per megajoule (gCO_2e/MJ). *See* Cal. Code Regs. tit. 17, § 95481(16). Carbon dioxide is the namesake gas of carbon intensity values, but it is not the only GHG. Others, such as methane, exert a more potent greenhouse effect than carbon dioxide. A fuel's "carbon dioxide equivalent" refers to the total greenhouse potency of all the GHG emissions attributable to a fuel, expressed in terms of the amount of carbon dioxide that would exert the same greenhouse effect in the atmosphere. *See* CARB's Initial Statement of Reasons for the Fuel Standard ("ISOR") IV-1 (2009).

[2] A regulated party is the entity, generally a fuel blender or distributor, that must meet the carbon intensity reporting requirements. Cal. Code Regs. tit. 17, § 95484. A fuel producer may assume a Fuel Standard reporting and compliance obligation if the producer sells fuel to another regulated party. *Id.* § 95484(b).

emissions reduction, the Fuel Standard is intended to spur the development and production of low-carbon fuels, reducing overall emissions from transportation.

To comply with the Fuel Standard, a fuel blender must keep the average carbon intensity of its total volume of fuel below the Fuel Standard's annual limit. *Id.* § 95482(a). Fuels generate credits or deficits, depending on whether their carbon intensity is higher or lower than the annual cap. *Id.* § 95485(a). Credits may be used to offset deficits, may be sold to other blenders, or may be carried forward to comply with the carbon intensity cap in later years. *Id.* § 95485. With these offsets, a blender selling high carbon intensity fuels can comply with the Fuel Standard by purchasing credits from other regulated parties; no regulated party is required to sell any particular fuel or blend of fuels with a certain carbon intensity or origin. To build a durable and effective marketplace to stimulate the development of alternative fuels, the Fuel Standard created a market for trading, banking, and borrowing Fuel Standard credits. *Id.*; *see also* ISOR ES-1. CARB expects that the demand for credits will encourage producers, wherever they are located, to develop fuels with lower carbon intensities for use within the California market.

i

The Fuel Standard uses a "lifecycle analysis" to determine the total carbon intensity of a given transportation fuel. Because GHGs mix in the atmosphere, all emissions related to transportation fuels used in California pose the same local risk to California citizens. "'That these climate change risks are widely-shared does not minimize [California's] interest' in reducing them." *Rocky Mountain Ethanol*, 843 F. Supp. 2d

at 1093 (quoting *Massachusetts v. EPA*, 549 U.S. 497, 522 (2007)) (alteration in original) (internal quotation marks omitted). One ton of carbon dioxide emitted when fuel is produced in Iowa or Brazil harms Californians as much as one emitted when fuel is consumed in Sacramento. The Tailpipe Standards control only emissions within California. Without lifecycle analysis, all GHGs emitted before the fuel enters a vehicle's gas tank would be excluded from California's regulation. Similarly, the climate-change benefits of biofuels such as ethanol, which mostly come before combustion, would be ignored if CARB's regulatory focus were limited to emissions produced when fuels are consumed in California.

With a one-sided focus on consumption, even strong tailpipe-emissions standards would let GHG emissions rise during fuel production. Tailpipe standards could sharply reduce emissions from each individual vehicle without reducing net GHG emissions. In the extreme, rising emissions from production could raise total GHG emissions, completely subverting tailpipe-emissions limits. As an example, CARB analyzed the carbon intensity of ethanol produced in the Midwest using coal for electricity and heat. That method of production yields a carbon intensity more than twenty-percent higher than gasoline. *See* Cal. Code Regs. tit. 17, § 95486(b)(1), tbl.6 ("Table 6"). No tailpipe standard could capture that difference. If the ethanol were credited for the carbon dioxide absorbed during cultivation of the corn feedstock, it would look superior to gasoline from a GHG perspective at the tailpipe. But any shift from gasoline to that form of ethanol would increase net GHG emissions and subject California to greater risk.

To avoid these perverse shifts, CARB designed the Fuel Standard to account for emissions associated with all aspects of the production, refining, and transportation of a fuel, with the aim of reducing total, well-to-wheel GHG emissions. *See id*. § 95481(a)(38). When these emissions are measured, CARB assigns a cumulative carbon intensity value to an individual fuel lifecycle, which is called a "pathway." *Id*. § 95481(a)(14).

The importance of lifecycle analysis is shown clearly by the diversity of the California fuel market, which includes fuels made with many different source materials, called "feedstocks," and production processes. As of June 2011, CARB has performed lifecycle analyses of fuels made from petroleum, natural gas, hydrogen, electricity, corn, sugarcane, used cooking oil, and tallow. *Id*. § 95486(b)(1). Fuels made from these feedstocks generate or avoid emissions at different stages of their production, transportation, and use, depending on when the conversion to fuel requires or displaces energy. An accurate comparison is possible only when it is based on the entire lifecycle emissions of each fuel pathway.

Recognizing the need for a reliable method to compare the lifecycle emissions of diverse fuels, the Argonne National Laboratory developed the Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model ("GREET").[3] GREET, first published in 1996 and revised and peer reviewed several times since, incorporates comprehensive data on the lifecycle emissions of various

[3] *See generally* M.Q. Wang, Ctr. for Transp. Research, Argonne Nat'l Lab., U.S. Dep't of Energy, *GREET 1.0 — Transportation Fuel Cycles Model: Methodology and Use* 1–2 (1996), *available at* http://www.transportation.anl.gov/pdfs/TA/500.pdf.

fuels. The Environmental Protection Agency ("EPA") uses GREET for lifecycle analysis in the RFS, which mandates the use of low-carbon-intensity biofuels in the United States fuel supply. *See* 78 Fed. Reg. 14190, 14209 (Mar. 5, 2013). State agencies in Oregon, Minnesota, and New York have also used GREET to estimate emissions from the production of alternative fuels. In designing the Fuel Standard, CARB used GREET as the basis for its lifecycle-emissions model for fuels used in California. That peer-reviewed model, called CA-GREET, incorporates detailed information about local conditions, including California's stringent environmental regulations and low-carbon electricity supply.

To provide a baseline against which to compare future reductions, CARB measured the average carbon intensity of the 2010 gasoline market at 95.86 grams of carbon-dioxide equivalent per mega joule ("gCO_2e/MJ") of energy. Cal. Code Regs. tit. 17, § 95486(b). In 2011, the carbon intensity cap was set 0.25% below the 2010 average. *Id*. § 95482. From 2011 to 2020, each annual limit will be a further reduction from that baseline. *Id*. § 95482(b). After reviewing ethanol sales in different markets during 2011, the Oil Price Information Service reported that fuels with lower carbon intensities received a price premium in California. So this program is starting to work as intended.

The Fuel Standard gives regulated parties two methods to comply with its reporting requirements. First, CARB issued a schedule of "default pathways" for a range of fuels that it anticipated would appear in the California market. These default pathways provided average values for the CA-GREET factors for these anticipated fuels. The resulting default pathways for ethanol appear in Table 6, which we attach as Appendix One. Under Method 1, regulated parties who sell

fuel under a default pathway may rely on that pathway in reporting the carbon intensity of the conforming fuel. *Id.* § 95486(b).

Second, the Fuel Standard allows regulated parties to register individualized pathways using Method 2A or 2B. *Id.* § 95486(c), (d). Under Method 2A, a regulated party relies in part on a default pathway but proposes a replacement for one or more of the pathway's average values. *Id.* § 95486(c). Under Method 2B, a regulated party proposes a new, individualized pathway. *Id.* § 95486(d). To qualify for Method 2A, the proposed pathway must have a carbon intensity at least 5 gCO_2e/MJ less than the default pathway it seeks to replace, and it must be expected to supply more than 10 million gasoline-equivalent gallons per year in California. *Id.* § 95486(e)(2). There is no such threshold for Method 2B. *Id.* § 95486(e). Once CARB approves a Method 2A or 2B pathway, the pathway remains available for use without further documentation unless there is a material change. *Id.* § 95484(c)(2)(D). Thus fuel producers can take advantage of default and individualized carbon intensity values, and choose what is most advantageous.

ii

Ethanol is an alcohol produced through fermentation and distillation of a variety of organic feedstocks. Most domestic ethanol comes from corn. Brazilian sugarcane dominates the import market. *See* 75 Fed. Reg. 14670, 14743, 14746–47 (Mar. 26, 2010). Ethanol production is a resource-intensive process, requiring electricity and steam. *Id.* at 14745. Steam is usually produced on site with coal or natural gas in dedicated boilers. *Id.* The choices of type of feedstock, source of electricity, and source of thermal energy affect the

carbon intensity of the fuel pathway. To illustrate, ethanol made with sugarcane, hydroelectricity, and natural gas would produce lower emissions than ethanol made from corn and coal. *Id*. To determine the total carbon intensity values for each ethanol pathway, the CA-GREET model considers the carbon intensity of factors including: (1) growth and transportation of the feedstock, with a credit for the GHGs absorbed during photosynthesis; (2) efficiency of production; (3) type of electricity used to power the plant; (4) fuel used for thermal energy; (5) milling process used; (6) offsetting value of an animal-feed co-product called distillers' grains, that displaces demand for feed that would generate its own emissions in production; (7) transportation of the fuel to the blender in California; and (8) conversion of land to agricultural use.

On Table 6, CARB separates these factors into those that are correlated with location and those that are not, using a regional identifier as a shorthand for the factors correlated with location. The milling process, co-product, and source of thermal energy are not correlated with region, so they are labeled individually. Factors related to transportation, efficiency, and electricity are correlated with a plant's location in the Midwest, Brazil, or California. For example, California ethanol plants are newer and more efficient on average than those in the Midwest, using less thermal energy and electricity in the production process. Also, the electricity available on the grid in the Midwest produces more emissions in generation than electricity in California or Brazil because much of the electricity in the Midwest is generated by coal-fired power plants. By contrast, California receives most of

its power from renewable sources and natural gas, and Brazil relies almost entirely on hydroelectricity.[4]

Emissions from transporting the feedstock and the refined fuel are related to location, but they are not directly proportionate to distance traveled. Transportation emissions reflect a combination of: (1) distance traveled, including distance traveled inside California to the fuel blender; (2) total mass and volume transported; and (3) efficiency of the method of transport. California ethanol produces the most transportation emissions because California grows no corn for ethanol, so its producers import raw corn, which is bulkier and heavier than the refined ethanol shipped by producers in Brazil and the Midwest. Brazilian ethanol produces fewer emissions than the 7,500 miles it travels would suggest because ocean tankers are very efficient.[5] Midwest ethanol, going one third of that distance, produces the least.[6] As a result, total transportation emissions for California ethanol are 8.1 gCO_2e/MJ, compared to 5.5 for Brazil and 4.8 for the

[4] According to CA-GREET, 78.7% of California's electricity was generated from natural gas and 21.3% from renewable energy. The Midwest received 51.6% of its electricity from coal, 33.5% from natural gas, and 14.9% from renewables. CARB's Final Statement of Reasons for the Fuel Standard ("FSOR") 579. More than 80% of Brazil's electricity was hydroelectric. FSOR 545.

[5] Shipping ethanol on an ocean tanker uses 29 to 43 BTUs per ton per mile, compared to 253 in a pipeline, 370 via rail, and 1,028 on a truck. CARB, *Detailed California-Modified GREET Pathways for Brazilian Sugarcane Ethanol: Average Brazilian Ethanol, With Mechanized Harvesting and Electricity Co-product Credit, With Electricity Co-product Credit* at 36 (Sept. 23, 2009), *available at* http://www.arb.ca.gov/fuels/lcfs/092309lcfs_cane_etoh.pdf (hereinafter *Brazilian GREET Pathways*).

[6] *Compare* Appendix Two, *with Brazilian GREET Pathways* at 6.

Midwest. *Brazilian GREET Pathways* 6. This advantage in transportation is reflected in the location of ethanol plants, which are mainly located in the Midwest near sources of corn. 75 Fed. Reg. at 14745. California producers gain a larger credit for distillers' grains because those grains are consumed in California, so they do not travel as far from the plant to the point of consumption.

We attach two excerpts from Table 6 as appendices. Appendix One reproduces the ethanol pathways from the Midwest, California, and Brazil in Table 6. Appendix Two breaks out two default corn ethanol pathways from Table 6, individually showing each of the regionally correlated factors that determine the carbon intensity values of those pathways. The ethanol pathways detailed in Appendix Two both use a dry-mill production process with natural gas as a heat source and produce dry distillers' grains as a co-product. As shown in these tables, California's combination of more efficient plants and greater access to low-carbon electricity outweighs Midwest ethanol's lower transportation emissions, leaving California ethanol with a 7.2 gCO_2e/MJ lower carbon intensity for the factors correlated with region. California ethanol producers import their corn from the Midwest, so the two regions have identical carbon intensity assessments for land-use changes. Those factors, combined with the feedstock, milling method, treatments of distillers' grains, and heat source, determine the carbon intensity of each default pathway.

Producers from all three regions have obtained individualized pathways under Methods 2A or 2B. Cal. Code Regs. tit. 17, § 95486(b). Most of the Midwest ethanol producers who have done so either co-generate heat and electricity or use a renewable source for thermal energy,

either of which can dramatically reduce GHG emissions. *Cf.* 75 Fed. Reg. at 14745. As of mid-2011, CARB had approved ethanol pathways with carbon intensities ranging from 56.56 to 120.99 gCO_2e/MJ. The individualized pathway with the lowest carbon intensity was achieved by a Midwest producer through Method 2A. The default pathway with the lowest carbon intensity is only slightly higher: 58.40 gCO_2e/MJ for Brazilian sugarcane ethanol made with electricity generated on site. The highest carbon intensity, 120.99 gCO_2e/MJ, is for Midwestern wet-mill ethanol, using 100% coal for thermal energy. That is significantly higher than the 95.86 gCO_2e/MJ average carbon intensity of gasoline in 2010.

iii

The Fuel Standard also regulates crude oil and derivatives sold in California. Like the ethanol provisions, the 2011 Provisions required compliance with carbon intensity caps starting in January 1, 2011. Cal. Code Regs. tit. 17, § 95482(a). The 2011 Provisions remained in effect until December 31, 2011, when they were replaced by amended regulations. The 2011 Provisions are the subject of American Fuels's challenge and the district court's decision, so we do not discuss the amended provisions in detail.

Crude oil presents different climate challenges from ethanol and other biofuels. Corn and sugarcane absorb carbon dioxide as they grow, offsetting emissions released when ethanol is burned. By contrast, the carbon in crude oil makes a one-way trip from the Earth's crust to the atmosphere. For crude oil and its derivatives, emissions from combustion are largely fixed, but emissions from production vary significantly. As older, easily accessible sources of crude are exhausted, they are replaced by newer sources that

require more energy to extract and refine, yielding a higher carbon intensity than conventional crude oil. As extraction becomes more difficult, emissions from crude oil will only increase, but CARB expects that fuels with carbon intensity values fifty to eighty percent lower than gasoline will be needed to meet its emissions-reduction targets. No matter how efficiently crude oil is extracted and refined, it cannot supply this level of reduction. To meet California's ambitious goals, the development and use of alternative fuels must be encouraged.

With that in mind, CARB designed the 2011 Provisions to promote the development of alternative fuels rather than to encourage marginal emissions reductions from crude oil. Under the 2011 Provisions, no crude oil could be assessed a carbon intensity below the market average, but newer sources causing higher emissions were assessed at their individual carbon intensity. By design, this system required regulated parties to meet the Fuel Standard's carbon-intensity-reduction targets by supplying alternative fuels or buying credits from the sellers of alternative fuels. This was intended to direct investment into low-carbon alternative fuels rather than into the most efficient sources of crude oil, which would still lag behind improvements from alternative fuels that decrease the harmful emissions of carbon dioxide and other GHGs. By distinguishing between existing and emerging sources, CARB also hoped to prevent the mere shift of high carbon intensity crude oils to other markets. This process, known as "fuel shuffling," would reduce the carbon intensity of the California market by altering the world-wide distribution of fuels, but it would neither promote alternative-fuel development nor reduce net global GHG emissions.

The 2011 Provisions categorized crude oil in two ways: (1) as "existing" or "emerging" crude sources; and (2) as high-carbon-intensity crude oil ("HCICO") or non-HCICO. "Existing" sources were those that made up at least two percent of California's crude-oil market in 2006. All others were "emerging" sources. HCICOs were sources that produced more than 15 gCO_2e/MJ of emissions in extraction, production, and transportation. All existing sources were assessed the average carbon intensity value of the 2006 California market—8.07 gCO_2e/MJ—regardless of their individual value. Emerging non-HCICOs were also assessed that average value no matter how low their actual carbon intensity values. Emerging HCICOs were assessed their individual values. This system of categories is illustrated in the table below:

	Existing	**Emerging**
Non-HCICO	2006 Average (8.07)	2006 Average
HCICO		Individual Carbon Intensity

In the benchmark year of 2006, California produced 38.7% of the oil it consumed. That 38.7% consisted of 6.10% oil recovered through gas-injection ("Gas Injection"), 1.3% oil recovered through water-flood methods ("Water Flood"), 16.5% light crude ("California Primary"), and 14.8% oil extracted using thermal-enhanced oil-recovery techniques ("California TEOR"). At 14.8% California TEOR was the only HCICO that made up more than two percent of the 2006 market. It had an individual carbon intensity of 18.89 gCO_2e/MJ, but as an existing source, it was assessed the market-average carbon intensity of 8.07 gCO_2e/MJ during

2011. Light crude from Alaska and abroad supplied most of the balance, but Venezuela heavy crude ("Venezuela Heavy"), which has a carbon intensity higher than California TEOR, filled 0.63% of the 2006 market.

In October 2011, CARB concluded that regulating crude oil by reference to the 2006 market was infeasible and issued new provisions. The new provisions pursued the same goals with similar logic, but they eliminated the categories in the 2011 Provisions. Under the new system, all crude oil is assessed the same carbon intensity value, either the average of the California market in the year of sale or the average from 2010, whichever is higher. These amended provisions took effect on January 1, 2012.

On July 24, 2013, CARB issued a regulatory advisory that altered the treatment of 2011 sales of crude oil that had not yet been subject to lifecycle analysis ("Potential HCICOs").[7] Low Carbon Fuel Standard Regulatory Advisory 13-01, *available at* http://www.arb.ca.gov/fuels/lcfs/072413lcfs-rep-adv.pdf. CARB had previously stated that credits related to those sales would be adjusted once lifecycle analysis was performed. *See* Low Carbon Fuel Standard Regulatory Advisory 10-04A, at 2–4 (June 22, 2011), *available at* http://www.arb.ca.gov/fuels/lcfs/070111lcfs-rep-adv.pdf. With Advisory 13-01, CARB instead told regulated parties that retroactive adjustment of credit balances would not be required. For sales during 2011,

[7] In 2011, CARB published a list of more than 160 verified non-HCICOs, Advisory 10-04B at 6–10, and produced nine default crude-oil pathways with carbon intensities in the HCICO range. *See* Cal. Code Regs. tit. 17, § 95486(b)(1), Table 8, Carbon Intensity Lookup Table for Crude Oil Production and Transport.

Potential HCICOs would be treated like non-HCICOs and assigned the average carbon intensity of the California market, essentially applying the amended provisions to Potential HCICOs one year earlier than planned. Advisory 13-01, at 2–3.

C

In December 2009, Rocky Mountain filed a complaint challenging the ethanol provisions of the Fuel Standard, alleging that they violated the dormant Commerce Clause and were preempted by the RFS. In February 2010, American Fuels challenged both the ethanol and the crude-oil provisions on similar grounds. Rocky Mountain sought a preliminary injunction on its Commerce Clause and preemption claims. American Fuels moved for summary judgment on its Commerce Clause claims. CARB filed cross-motions for summary judgment on all grounds.

On December 29, 2011, the district court granted Rocky Mountain's request for a preliminary injunction and American Fuels's partial motion for summary judgment, concluding that the Fuel Standard violated the dormant Commerce Clause by (1) engaging in extraterritorial regulation, (2) facially discriminating against out-of-state ethanol, and (3) discriminating against out-of-state crude oil in purpose and effect. The district court then determined that CARB did not show that the Fuel Standard could survive strict scrutiny.

The district court granted partial summary judgment in favor of CARB on its cross-motion, concluding that the Fuel Standard is a control or prohibition respecting a characteristic or component of a fuel under section 211(c)(4)(B) of the

Clean Air Act, but it denied summary judgment on whether that section prevents scrutiny of the Fuel Standard under the Commerce Clause. CARB timely appealed. We stayed the district court's judgments pending this appeal.

II

We review *de novo* a district court's rulings on cross-motions for summary judgment. *CRM Collateral II, Inc. v. Tricounty Metro. Transp. Dist. of Or.*, 669 F.3d 963, 968 (9th Cir. 2012). A grant of summary judgment is appropriate where "the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(a). A district court's resolution of federal constitutional claims is also reviewed *de novo*. *Black Star Farms LLC v. Oliver*, 600 F.3d 1225, 1229 (9th Cir. 2010).

We review an order granting a preliminary injunction for abuse of discretion. *Stormans Inc. v. Selecky*, 586 F.3d 1109, 1119 (9th Cir. 2009) (citation omitted). We will reverse if the order was based on clearly erroneous findings of fact or on an erroneous legal standard. *Id*.

III

Plaintiffs contend that the Fuel Standard's ethanol and crude-oil provisions discriminate against out-of-state commerce and regulate extraterritorial activity. CARB disagrees and, in the alternative, contends that Section 211(c)(4)(B) of the Clean Air Act authorizes the Fuel Standard under the Commerce Clause. We address each claim in turn.

The Commerce Clause provides that "Congress shall have Power . . . [t]o regulate Commerce . . . among the several States." U.S. Const., art. I, § 8, cl. 3. This affirmative grant of power does not explicitly control the several states, but it "has long been understood to have a 'negative' aspect that denies the States the power unjustifiably to discriminate against or burden the interstate flow of articles of commerce." *Or. Waste Sys., Inc. v. Dep't of Envtl. Quality of State of Or.*, 511 U.S. 93, 98 (1994) (citing *Wyoming v. Oklahoma*, 502 U.S. 437, 454 (1992)). Known as the "negative" or "dormant" Commerce Clause, this aspect is not a perfect negative, as "the Framers' distrust of economic Balkanization was limited by their federalism favoring a degree of local autonomy." *Dep't of Revenue of Ky. v. Davis*, 553 U.S. 328, 338 (2008) (citations omitted). Within the federal system, a "courageous state may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country." *New State Ice Co. v. Liebmann*, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting). If successful, those experiments may often be adopted by other states without Balkanizing the national market or by the federal government without infringing on state power.

"The modern law of what has come to be called the dormant Commerce Clause is driven by concern about 'economic protectionism—that is, regulatory measures designed to benefit in-state economic interests by burdening out-of-state competitors.'" *Davis*, 553 U.S. at 337–38 (quoting *New Energy Co. of Ind. v. Limbach*, 486 U.S. 269, 273–74 (1988)). For dormant Commerce Clause purposes, economic protectionism, or discrimination, "simply means differential treatment of in-state and out-of-state economic interests that benefits the former and burdens the latter." *Or.*

Waste Sys., Inc., 511 U.S. at 99. "[O]f course, any notion of discrimination assumes a comparison of substantially similar entities." *Gen. Motors Corp. v. Tracy*, 519 U.S. 278, 298 (1997). If a statute discriminates against out-of-state entities on its face, in its purpose, or in its practical effect, it is unconstitutional unless it "serves a legitimate local purpose, and this purpose could not be served as well by available nondiscriminatory means." *Maine v. Taylor*, 477 U.S. 131, 138 (1986) (internal quotation marks omitted). Absent discrimination, we will uphold the law "unless the burden imposed on [interstate] commerce is clearly excessive in relation to the putative local benefits." *Pike*, 397 U.S. at 142.

A

The district court concluded that the Fuel Standard facially discriminated against out-of-state corn ethanol by (1) differentiating between ethanol pathways based on origin and (2) discriminating against out-of-state ethanol based on factors within the CA-GREET formula that were "inextricably intertwined with origin." *Rocky Mountain Ethanol*, 843 F. Supp. 2d at 1087.

i

Before we consider whether the Fuel Standard discriminates against out-of-state ethanol, we must determine which ethanol pathways are suitable for comparison. *Tracy*, 519 U.S. at 298. Entities are similarly situated for constitutional purposes if their products compete against each other in a single market. *Id*. at 299. If they do, it is irrelevant whether they are made from different materials or if one poses a substantial competitive threat to another. *Bacchus Imports, Ltd. v. Dias*, 468 U.S. 263, 268–69 (1984).

The district court concluded that all Brazilian ethanol pathways and all CA-GREET factors correlated with origin were outside the bounds of comparison. The district court explained, "Because the [Fuel Standard] makes production process, feedstock and origin relevant, comparing pathways with different production processes or feedstocks is a red herring." *Rocky Mountain Ethanol*, 843 F. Supp. 2d at 1089. The district court defined "production processes" as only those factors not correlated with origin in the default pathways. *Id*. After excluding sugar cane ethanol and all GHG emissions related to transportation, electricity, and plant efficiency from comparison, the district court concluded that "the [Fuel Standard] discriminates on the basis of origin." *Id*. But this selective comparison, which excludes relevant fuel pathways and important contributors to GHG emissions, cannot support the district court's finding of discrimination.

As Plaintiffs strenuously maintain and all parties agree, ethanol from every source has "identical physical and chemical properties." *Rocky Mountain Ethanol*, 843 F. Supp. 2d at 1081 (quoting ISOR V-30). Indeed, the market relies on this undifferentiated structure because ethanol from different regions made with different feedstocks is regularly mixed together in the fuel supply. Ethanol from Brazil, the Midwest, and California may end up blended in the same gallon of fuel. Because of this close competition, all sources of ethanol in the California market should be compared, and the district court erred in excluding Brazilian ethanol from its analysis. *See Tracy*, 519 U.S. at 298–99.

The district court also erred by ignoring GHG emissions related to: (1) the electricity used to power the conversion process, (2) the efficiency of the ethanol plant, and (3) the transportation of the feedstock, ethanol, and co-products.

Those factors contribute to the actual GHG emissions from every ethanol pathway, even if the size of their contribution is correlated with their location. Instead of considering all sources of GHG emissions, the district court concluded that different pathways were equivalent if they used the same feedstock and what the court called the "production process"—the type of milling process, treatment of the co-product, and source of thermal energy—regardless of their carbon intensity values for the remaining factors.

But these pathways are not equivalent. As the district court concluded, their carbon intensities are "different according to lifecycle analysis." *Rocky Mountain Ethanol*, 843 F. Supp. 2d at 1088. Each factor in the default pathways is an average based on scientific data, not an ungrounded presumption that unfairly prejudices out-of-state ethanol, whether it is an average value for the use of coal in a boiler or for the shipment of raw corn from the Midwest to California. To the atmosphere, emissions related to an ethanol plant's source of electrical energy are no less important than those caused by a plant's source of thermal energy. If we ignore these real differences between ethanol pathways, we cannot understand whether the challenged regulation responds to genuine threats of harm or to the mere out-of-state status of an ethanol pathway. All factors that affect carbon intensity are critical to determining whether the Fuel Standard gives equal treatment to similarly situated fuels.

ii

Under the dormant Commerce Clause, distinctions that benefit in-state producers cannot be based on state boundaries alone. But a regulation is not facially discriminatory simply because it affects in-state and out-of-state interests unequally.

If California is to assign different carbon intensities to ethanol from different regions, there must be "some reason, apart from their origin, to treat them differently." *Philadelphia v. New Jersey*, 437 U.S. 617, 627 (1978).

Following this logic, the Supreme Court has consistently recognized facial discrimination where a statute or regulation distinguished between in-state and out-of-state products and no nondiscriminatory reason for the distinction was shown. For example, in *Oregon Waste*, the Supreme Court considered an Oregon statute that imposed a $2.25 per ton surcharge on out-of-state waste but charged in-state waste only 85 cents. 511 U.S. at 96. This fee differential was discriminatory because out-of-state waste was no more harmful or costly than waste generated within the state, leaving no basis for differential treatment other than the state of origin. *Id*. at 101. The Court explained, however, that "if out-of-state waste did impose higher costs on Oregon than in-state waste, Oregon could recover the increased cost through a differential charge on out-of-state waste." *Id*. at 101 n.5. In a similar case, the Court struck down as discriminatory an Alabama law that imposed a fee on imports of hazardous waste from out of state when there was no association between place of origin and risk to Alabama. *Chem. Waste v. Hunt*, 504 U.S. 334 (1992). Rather, Alabama admitted that "[t]he risk created by hazardous waste and other similarly dangerous waste materials [was] proportional to the *volume* of such waste." *Id*. at 344 n.7. As it did in *Oregon Waste*, the Court explained that a disposal fee calibrated to the actual risk imposed by hazardous waste, whether imported or domestic, would have been appropriate. *Id*. at 344.

Unlike these discriminatory statutes, the Fuel Standard does not base its treatment on a fuel's origin but on its carbon

intensity. The Fuel Standard performs lifecycle analysis to measure the carbon intensity of all fuel pathways. When it is relevant to that measurement, the Fuel Standard considers location, but only to the extent that location affects the actual GHG emissions attributable to a default pathway. Under dormant Commerce Clause precedent, if an out-of-state ethanol pathway does impose higher costs on California by virtue of its greater GHG emissions, there is a nondiscriminatory reason for its higher carbon intensity value. *See id*. Stated another way, if producers of out-of-state ethanol actually cause more GHG emissions for each unit produced, because they use dirtier electricity or less efficient plants, CARB can base its regulatory treatment on these emissions. If California is to successfully promote low-carbon-intensity fuels, countering a trend towards increased GHG output and rising world temperatures, it cannot ignore the real factors behind GHG emissions.

The Fuel Standard does not isolate California and protect its producers from competition. To date, the lowest ethanol carbon intensity values, providing the most beneficial market position, have been for pathways from the Midwest and Brazil. *See* Cal. Code Regs. tit. 17, § 95486(b)(1). Comparing all sources of ethanol and all factors that contribute to the carbon intensity of an ethanol pathway, it appears that CARB's method of lifecycle analysis treats ethanol the same regardless of origin, showing a nondiscriminatory reason for the unequal results of this analysis. Yet Plaintiffs contend (1) that certain factors in the CA-GREET analysis are inherently discriminatory against out-of-state ethanol and (2) that the regional categories and default pathways shown in Table 6 discriminate against out-of-state ethanol based on origin. We address these arguments at more length, as they are the crux of the challenges by

Rocky Mountain and American Fuels to CARB's regulatory scheme.

iii

The district court held that two of the CA-GREET factors, transportation and electricity source, were "inextricably intertwined with origin" and that CARB's use of those factors was impermissible under the dormant Commerce Clause. *Rocky Mountain Ethanol*, 843 F. Supp. 2d at 1088–89. To reach this conclusion, the district court reasoned first that any factor correlated with origin is "inextricably intertwined with geography" and second that any otherwise neutral factor becomes discriminatory if it is intertwined with geography, even if that factor measures real variations in emissions from different methods and locations of ethanol production. This reasoning is incorrect.

As explained above, these factors bear on the reality of GHG emissions, with resulting consequences for California.[8] Unless and until either the United States Supreme Court or

[8] There is growing scientific and public consensus that the climate is warming and that this warming is to some degree caused by anthropogenic GHG emissions. *See* EPA, Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act ("Endangerment Finding"), 74 Fed. Reg. 66496, 66499 (December 15, 2009) (finding that "emissions of well-mixed greenhouse gases . . . contribute to the total greenhouse gas air pollution, and thus to the climate change problem, which is reasonably anticipated to endanger public health and welfare"); *see Coal. for Responsible Regulation, Inc. v. EPA*, 684 F.3d 102, 114 (D.C. Cir. 2012) (upholding the Endangerment Finding); Intergovernmental Panel on Climate Change, Climate Change 2007: Synthesis Report, Summary of Policymakers 2 & 5 (2007) (explaining that "[w]arming of the climate system is unequivocal" and "very likely due to the observed increase in anthropogenic GHG concentrations").

the Congress forbids it, California is entitled to proceed on the understanding that global warming is being induced by rising carbon emissions and attempt to change that trend. California, if it is to have any chance to curtail GHG emissions, must be able to consider all factors that cause those emissions when it assesses alternative fuels.

Plaintiffs contend that any consideration of emissions from the transportation of feedstocks and fuels is forbidden. They cite *Fort Gratiot Sanitary Landfill, Inc. v. Michigan Department of Natural Resources*, 504 U.S. 353 (1992), and *Dean Milk Co. v. City of Madison*, 340 U.S. 349 (1951), but neither case stands for that proposition. In *Fort Gratiot*, a Michigan law allowed each county to refuse solid waste from another county, state, or country. 504 U.S. at 357. The Court held that the statute discriminated against interstate commerce by authorizing each county to isolate itself from the national economy, "afford[ing] local waste producers complete protection from out-of-state waste." *Id*. at 361. Michigan argued that the law did not discriminate because the county was also authorized to isolate itself from the rest of the state, but the Court explained that a state "may not avoid the strictures of the Commerce Clause by curtailing the movement of articles of commerce through subdivisions of the State, rather than through the State itself." *Id*. In *Dean Milk*, the Court struck down a Madison, Wisconsin, ordinance that prohibited the sale of milk unless the milk was bottled within five miles of the town central square. 340 U.S. at 350. The Court held that the regulation had the practical effect of "exclud[ing] from distribution in Madison wholesome milk produced and pasteurized in Illinois." *Id*. at 354. That Madison also excluded milk from Milwaukee was irrelevant. In both of these cases, the Supreme Court found discrimination based on the communities' decision to isolate

themselves and direct business to local processors, not based on the use of distance for sound reasons correlating with the purposes of the regulation.

CARB's attention to emissions from transportation has no such isolating effect. We "view[] with particular suspicion state statutes requiring business operations to be performed in the home State that could more efficiently be performed elsewhere." *Pike*, 397 U.S. at 145. But transporting raw corn produces more emissions than importing refined ethanol, driving up a fuel pathway's carbon intensity and making local processing less attractive. This is not a form of discrimination against out-of-state producers. Even if California were to someday produce significant amounts of corn for ethanol, the CA-GREET transportation factor would remain non-discriminatory to the extent it applies evenly to all pathways and measures real differences in the harmful effects of ethanol production. *See Or. Waste Sys., Inc.*, 511 U.S. at 101 n.5.

Plaintiffs also contend that the carbon intensity of electricity is "inextricably intertwined with geography." California's mix of electricity generation is weighted toward lower-carbon sources such as natural gas, nuclear, and hydroelectric, and California ethanol producers pay more for electricity with fewer emissions than the national average. By contrast, Midwest producers have largely located their plants near cheap and carbon-intensive sources of coal-fired electricity generation. The default pathways reflect the resulting difference in the average carbon intensity of electricity available in the region where producers are located. *See* Table 6.

But ethanol producers in the Midwest are not hostage to these regional electricity-generating portfolios. Many ethanol plants in the Midwest generate some or all of their own electricity and use the waste heat as a source of thermal energy, reducing emissions. *See* 75 Fed. Reg. at 14745. Drawing electricity from the coal-fired grid might be the easiest and cheapest way to power an ethanol plant. But the dormant Commerce Clause does not guarantee that ethanol producers may compete on the terms they find most convenient. *See Exxon Corp. v. Governor of Md.*, 437 U.S. 117, 127 (1978) (holding that the Commerce Clause does not protect "the particular structure or methods of operation in a retail market"). The Fuel Standard treats the electricity used by all producers the same way based on the real risks posed by different sources of generation. As with transportation, this is not a dormant Commerce Clause violation, even if the extent and carbon intensity of power on an electrical grid is related to the location of the grid.

Addressing both of these factors, American Fuels contends that by allocating credits in part based on emissions from transportation and electricity generation, the Fuel Standard "stri[ps] away from the [out-of-state] industry the competitive and economic advantages it has earned for itself." *See Hunt v. Wash. State Apple Adver. Comm'n*, 432 U.S. 333, 351 (1977). This "artificially encourage[es] in-state production even when the same goods could be produced at lower cost in other States." *W. Lynn Creamery, Inc. v. Healy*, 512 U.S. 186, 193 (1994). American Fuels reads these cases too broadly and understands "cost" too narrowly.

In *Hunt*, the Court invalidated a North Carolina statute requiring that all apples shipped into the state in closed

containers be labeled only with the applicable federal grade or standard of quality. 432 U.S. at 335. This affected Washington State apple growers, who had funded a program to inspect and grade apples for export. *Id*. at 336–38. Consumers and brokers across the country had come to prefer the Washington grades to USDA grades. *Id*. at 351. The Court held that the North Carolina statute discriminated against Washington apple growers because it "strip[ped] away from the Washington apple industry the competitive and economic advantages it ha[d] earned for itself through its expensive inspection and grading system." *Id*. at 351. According to American Fuels, Midwest ethanol producers earned a similar protected advantage for themselves by building facilities near corn feedstocks and cheap, coal-generated electricity.

To the extent American Fuels relies on Midwest producers' proximity to feedstocks, their comparison makes no sense. The Fuel Standard does not strip away but magnifies this advantage by measuring the significant emissions caused by transporting raw corn to California. Midwest producers' use of coal-fired electricity also does not merit respect under *Hunt*. Access to cheap electricity is an advantage, but it was not "earned" in the sense meant by *Hunt* simply because ethanol producers built their plants near coal-fired power plants and imposed the hidden costs of GHG emissions on others. If *Hunt* is relevant, it is because the low-carbon electricity generated in-house by some Midwest producers was expensively acquired and provides real benefits, valued by ethanol consumers, that can only be recognized through lifecycle analysis.

The Fuel Standard does not "artificially encourag[e] in-state production even when the same goods could be

produced at lower cost in other States." *See W. Lynn Creamery*, 512 U.S. at 193. It creates a market in which the monetary cost of ethanol better reflects the full costs of ethanol production, taking into account the harms from GHG emissions. After accounting for those costs, Midwest ethanol has attained both the highest and the lowest carbon intensity values, and Brazilian ethanol boasts the default pathway with the lowest carbon intensity. The dormant Commerce Clause does not require California to ignore the real differences in carbon intensity among out-of-state ethanol pathways, giving preferential treatment to those with a higher carbon intensity. These factors are not discriminatory because they reflect the reality of assessing and attempting to limit GHG emissions from ethanol production.

We conclude: (1) that all sources of ethanol compete in the California market and are therefore relevant to comparison; (2) that all of the factors included in CA-GREET's lifecycle analysis are relevant to determining which forms of ethanol are similarly situated—not just those factors that are uncorrelated with location; (3) that the CA-GREET lifecycle analysis used by CARB, including the specific factors to which Plaintiffs object, does not discriminate against out-of-state commerce. We next address Plaintiffs' challenge to the regional categories and average values that form the default pathways in Table 6.

iv

With Table 6, CARB provides a schedule of default pathways that regulated parties can use to meet the Fuel Standard's reporting requirements. Cal. Code Regs. tit. 17, § 95486(b)(1). As described, those default pathways are based on average values for each CA-GREET factor, and

some of those factors are correlated with location. For those, CARB aggregates producers within California, the Midwest, and Brazil to measure average values. On Table 6, CARB lists each pathway with its regional identifier rather than separately listing each factor that is correlated with origin. *Compare* Appendix One, *with* Appendix Two. Each source of ethanol may rely on a default pathway that incorporates average values for producers within its region that use the same mechanical methods and thermal-energy source and produce the same co-product.

Plaintiffs contend that CARB treats Midwest and California ethanol differently based solely on origin by using different regions to categorize and measure averages for its default pathways. This challenge presents two related questions, which we will consider in turn: (1) whether CARB treats all the default pathways the same within each regional category and (2) whether CARB discriminated against out-of-state ethanol by constructing the categories with reference to California's border. We first conclude that CARB treats all ethanol within each regional category the same.

CARB designed the default pathways to be appropriate for use by multiple ethanol producers, avoiding costly and unnecessary individualized determinations. Under this system, only those producers with a lower-than-average carbon intensity need apply for an individualized value. To be broadly suitable, the carbon intensity values in the default pathways are averages. Being averages, they cannot exactly match the individual carbon intensity values of every ethanol source that may rely on them. Not every ton of distillers' grains will require the same amount of heat to dry, and not every (probably no single) plant will be exactly as efficient as the category average. The district court concluded correctly

that "California applies the same CA-GREET formula to all pathways evenly." *Rocky Mountain Ethanol*, 843 F. Supp. at 1087. As a result, the effects of any inaccuracies in the categories will fall evenly on the various default pathways.

Some producers may be burdened by this system to the extent that their fuels have carbon intensities below the relevant default pathway. For those, whether a California producer that uses solar power or a Midwest producer that co-generates heat and electricity, the Fuel Standard allows an individualized assessment to obtain an individual carbon intensity value, wherever the producer is located. Plaintiffs contend that this system treats the regional categories unevenly, notwithstanding the opportunity to seek individualized values. They explain that Methods 2A and 2B are themselves discriminatory because a Midwest ethanol producer must undertake a burdensome process to qualify for the same carbon intensity value that a California producer using the same "nominal production process" may access through a default pathway.[9] With this argument, Plaintiffs make the same mistake the district court did when limiting its comparison of fuel pathways: asserting that emissions from transportation, electricity generation, and plant energy use do not count. Different ethanol pathways are entitled to equal treatment by CARB, but no ethanol producer is entitled to a particular carbon intensity value simply because another producer, using some but not all of the same processes and resources, qualifies for a default pathway with that value.

[9] Plaintiffs use "nominal process" the same way the district court used "production process"—to refer only to those CA-GREET factors not correlated with origin.

CARB gives the same treatment to each regional category, and it requires the same showing from anyone who seeks an individualized value under Methods 2A and 2B. Parties from all three regions have registered individualized pathways, showing that the categories do not uniformly benefit California producers. Cal. Code Regs. tit. 17, § 95486(b). Although this scheme will burden certain Midwest producers and benefit certain California producers, the reverse is also true. These burdens and benefits are attributable to the imprecision of averages rather than to discrimination. We conclude that CARB gives ethanol producers in each regional category "the substantially evenhanded treatment demanded by the Commerce Clause." *Bos. Stock Exch. v. State Tax Comm'n*, 429 U.S. 318, 332 (1977).

The question, then, is whether CARB's decision to draw one of the regional categories along its boundary was facially discriminatory. We conclude it was not. The Fuel Standard is novel in some ways, but it is not the first time that a state has faced harms from products made in its sister states, and it is not the first time that a state has defined categories for purposes of regulation with reference to state boundaries. *See, e.g.*, *Henneford v. Silas Mason Co.*, 300 U.S. 577, 584 (1937) (upholding a tax applied to out-of-state articles when "the stranger from afar is subject to no greater burdens . . . than the dweller within the gates"). States retain substantial regulatory authority, and the states have varied physical conditions. These differences reflect and cause differences in the carbon intensities of fuels produced within their borders. As noted, the Fuel Standard's categories cannot perfectly reflect every individual value. But "[p]erfection in making the necessary classification is neither possible nor necessary." *Mass. Bd. of Ret. v. Murgia*, 427 U.S. 307, 314 (1976)

(citation omitted). To call for individualized carbon intensity assessments in each case, rather than default pathways, would increase the costs of compliance with California's system and render it cumbersome.

The Fuel Standard's categories, though formed with reference to state boundaries, must treat ethanol from all sources evenhandedly. Like lifecycle analysis itself, they must show "some reason, apart from their origin," for their alignment. *Philadelphia*, 437 U.S. at 627. In *Chemical Waste*, the Court explained that a regulation setting its boundaries along state lines would not be considered a forbidden protectionist measure when its boundaries and the process setting them reflected genuine attention to the legitimate goals of regulation and not a mere hostility to trade. *Chem. Waste*, 504 U.S. at 347 & n.11 (citing *Or.-Wash. R.R. & Nav. Co. v. Washington* (*Oregon-Washington*), 270 U.S. 87, 96 (1926)).

As a basis for its holding in *Chemical Waste*, the Court cited *Oregon-Washington*, an older case rejecting a dormant Commerce Clause challenge to a Washington State regulation that blocked shipments of alfalfa, except in sealed containers, from neighboring states whose fields had been infested with alfalfa weevils. 270 U.S. at 87.[10] To set the boundaries of this quarantine, the Washington Director of Agriculture "investigated thoroughly the insect and the areas where such pests existed, and ascertained it to be in the whole of the state of Utah" and large portions of Idaho, Wyoming, Colorado, Oregon, and Nevada. *Id*. at 91. The Court held that the

[10] After rejecting the dormant Commerce Clause challenge, the Supreme Court invalidated the regulation because it conflicted with the Agricultural Appropriation Act of 1917. *Oregon-Washington*, 270 U.S. at 282.

dormant Commerce Clause did not prohibit the regulation because "the investigation required by the Washington law and the investigation actually made into the existence of this pest and its geographical location ma[de] the law a real quarantine law and not a mere inhibition against importation of alfalfa from a large part of the country without regard to the condition which might make its importation dangerous." *Id*. at 96.

The default pathways in Table 6 show that CARB's investigation in setting the bounds of the Fuel Standard's regional categories was more rigorous and that those categories are less burdensome to interstate commerce than the regulation in *Oregon-Washington*. Both regulations balance the desire for a precise assessment with the need to reduce the compliance costs of the system. Neither completely eliminated trade in the covered article. A system of individual inspection was considered unreasonably costly when it involved "the tearing open of every bale of hay and sack of meal," *id.* at 90, just as CARB judged universal individualized pathways to be unwarranted when many fuel producers prefer to rely on measured averages, *see, e.g.*, FSOR 113, 116, 117 (requesting that CARB issue more default pathways). Both regulations could provide an in-state entity with an unearned benefit: some California ethanol has an individual carbon intensity higher than its applicable default pathway; in *Oregon-Washington*, Washington was not entirely free of weevils, the weevils just were not "generally distributed." 270 U.S. at 90. And out-of-state entities faced some undeserved harms: the weevil quarantine applied to entire states, which almost certainly included individual fields that were not afflicted. Likewise, some Midwest ethanol will have a carbon intensity lower than its applicable default pathway. But unlike the Fuel Standard, Washington allowed

no in-state producer to suffer an unwarranted burden and gave no out-of-state farm an unearned benefit. Moreover, Washington provided no alternative mechanism for individual inspection. By contrast, the default pathways give symmetrical burdens and benefits, and the Fuel Standard allows for individual determinations under Methods 2A and 2B.

The Fuel Standard's regional categories for the default pathways show every sign that they were chosen to accurately measure and control GHGs and were not an attempt to protect California ethanol producers. For example, the two factors that the district court found were inextricably intertwined with origin support CARB's decision to set the boundaries of the regional categories as it did. Looking first at transportation emissions, we see that as of June 2011, there were no registered producers of corn ethanol from any state neighboring California. There was one in Idaho. Otherwise, every producer was located either in California, East of the Rocky Mountains, or in Brazil. Corn and ethanol from the Midwest must cross those mountains to reach California, raising emissions from transport and aggravating the difference between shipping raw corn and refined ethanol. This difference is enough to make transportation emissions for California even higher than those for Brazil, showing that it would make little sense to group California and the Midwest together. The three regions are distinct from each other, and within each region conditions are similar for each producer located there. From the perspective of transportation emissions, CARB's decision to align the regional categories as it did produced accurate carbon intensity values. This is the type of expert regulatory judgment that we expect state agencies to make in the public interest.

The regional electricity supplies provide a second nondiscriminatory reason for CARB's decision. As described, California's mix of electricity has a low carbon intensity, very different from the national average. This difference is likely to grow because California has instituted several measures to further decarbonize its electricity supply.[11] Brazil's power grid is almost entirely hydroelectric, giving it an even lower carbon intensity than California's. These differences in electricity directly affect the goods produced with that electricity, so as the GHG emissions from California's electricity supply continue to decline, the difference in emissions attributable to ethanol made with electricity from California and the Midwest will grow. As with transportation, drawing the regional categories otherwise might only make CARB's assessment less accurate to the detriment of the public.

The default pathways listed on Table 6 do categorize fuels by their origin, but the carbon intensity values on that table are not assigned based on the out-of-state character of fuels. Rather, the Fuel Standard uses these regional categories to calculate accurate and broadly applicable carbon intensity values in a way convenient for regulated parties. Recognizing that its default pathways might misrepresent

[11] The California Renewable Portfolio Standard ("RPS") requires that renewable sources account for 20% of California electricity by 2011 and 33% by December 31, 2020. Cal. Pub. Util. Code § 399.15(b)(2)(B). In the benchmark years of 2010 and 2020, this is the highest RPS in the United States. *See* United States Department of Energy Database of State Incentives for Renewables and Efficiency ("DSIRE"), DSIRE RPS Data Spreadsheet (Mar. 2013), *available at* http://www.dsireusa.org/rpsdata/RPSspread031813.xlsx. California's cap and trade law limits overall GHG emissions from electricity generators and importers, whatever the source of generation. Cal. Code Regs. tit. 17, § 95811(b).

some fuel producers, CARB gave a safety valve to permit individualized assessment. The district court concluded that "the carbon intensities of [California and Midwest Ethanol] are different according to lifecycle analysis." *Rocky Mountain Ethanol*, 843 F. Supp. 2d at 1087–88. Given that difference, equal treatment of diverse fuels cannot result in equal carbon intensity values. Artificially equalized values would neither accurately reflect real differences in carbon intensity nor allow California to protect its land and citizens based on a realistic assessment of threats.

Just as a state law need not "be drafted explicitly along state lines in order to demonstrate its discriminatory design," *Amerada Hess Corp. v. N.J. Dep't of Treasury*, 490 U.S. 66, 76 (1989), California's reasonable decision to use regional categories in its default pathways and in the text of Table 6 does not transform its evenhanded treatment of fuels based on their carbon intensities into forbidden discrimination. That decision does not empower out-of-state ethanol producers to eliminate the factors of lifecycle analysis that do not favor them while keeping those that do. We hold that CARB's use of categories in Table 6 does not facially discriminate against out-of-state ethanol.

Our conclusion is reinforced by the grave need in this context for state experimentation. Congress of course can act at any time to displace state laws that seek to regulate the carbon intensity of fuels, but Congress has expressly empowered California to take a leadership role as to air quality. If GHG emissions continue to increase, California may see its coastline crumble under rising seas, its labor force imperiled by rising temperatures, and its farms devastated by severe droughts. To be effective, California's effort to combat these harms must not be so complicated and costly as

to be unworkable. California's regulatory experiment seeking to decrease GHG emissions and create a market that recognizes the harmful costs of products with a high carbon intensity does not facially discriminate against out-of-state ethanol.

B

The district court concluded that the 2011 Provisions treated crude oil in a facially neutral manner but that these facially neutral provisions, taken as a whole, showed that the 2011 Provisions discriminated against out-of-state crude oil in purpose and effect. *Rocky Mountain Crude*, 2011 WL 6939368, at *13; *see W. Lynn Creamery*, 512 U.S. at 201. We disagree.[12]

"If a state law purporting to promote environmental purposes is in reality simple economic protectionism, we have applied a virtually *per se* rule of invalidity." *Minnesota*

[12] Although the 2011 Provisions have been amended, this does not render the challenge to them moot. "A case becomes moot only when it is impossible for a court to grant any effectual relief whatever to the prevailing party." *Decker v. Nw. Envtl. Def. Ctr.*, 133 S. Ct. 1326, 1335 (2013) (quotation marks and citation omitted). Here, the 2011 Provisions applied to crude oil delivered through December 31, 2011, so one year of Fuel Standard credits were allocated based on the distinction between emerging and existing sources and between HCICOs and non-HCICOs. Advisory 13-01 altered the treatment of Potential HCICOs to conform to the amended provisions, but sellers of verified HCICOs could have reported individual carbon intensity values during 2011. Credits awarded based on those values will carry forward to subsequent years and may be used by a regulated party to comply with the Fuel Standard mandates. Cal. Code Regs. tit. 17, §§ 95484(b), (c)(4), 95485(c). The propriety of the scheme under which those credits were distributed remains a live controversy.

v. Clover Leaf Creamery Co., 449 U.S. 456, 471 (1981) (internal quotation marks removed). The party challenging a regulation bears the burden of establishing that a challenged statute has a discriminatory purpose or effect under the Commerce Clause. *Hughes v. Oklahoma*, 441 U.S. 322, 336 (1979). We will "assume that the objectives articulated by the legislature are actual purposes of the statute, unless an examination of the circumstances forces us to conclude that they could not have been a goal of the legislation." *Clover Leaf Creamery*, 449 U.S. at 463 n.7 (internal quotation marks omitted). But we will not be bound by the stated purpose when determining the practical effect of a law. *Hughes*, 441 U.S. at 336.

Under the 2011 Provisions, CARB assessed a crude-oil pathway's carbon intensity based on two factors: (1) whether it was an HCICO and (2) whether it was an "emerging" or an "existing" source. If a crude oil was an HCICO (having a carbon intensity greater than 15 gCO_2e/MJ) and not an existing source (comprising more than two percent of California's market in 2006), then it was assessed its individual carbon intensity. All other crude oils used the 2006 baseline average of 8.07 gCO_2e/MJ. California TEOR was the only existing source that was also an HCICO. It used the baseline carbon intensity, which was less than half of its individual value. *See Rocky Mountain Crude*, 2011 WL 6936368, at *12. No out-of-state HCICO qualified for this treatment. *Id.* at *11–12. The district court concluded that the purpose and practical effect of the 2011 Provisions was to protect California TEOR against competition from both foreign HCICOs and out-of-state existing crude sources. *Id*. at *12.

CARB explains that its purposes in designing the 2011 Provisions were: (1) to prevent an increase in the carbon intensity of California's crude oil market; (2) to avoid fuel shuffling; and (3) to direct innovation toward the development of alternative fuels rather than the search for more efficient methods of crude-oil extraction. The distinction between HCICOs and non-HCICOs was intended to prevent an increase in carbon intensity, and the distinction between emerging and existing sources was designed to prevent fuel shuffling. By placing a floor for assessed carbon intensity at the average of California's 2006 market, CARB intended to direct development efforts toward alternative fuels by denying rewards for marginal decreases in emissions from crude-oil production.

The district court concluded that these asserted motivations disguised a discriminatory purpose based on the "[Fuel Standard's] favorable treatment of California's TEOR as compared to other HCICOs and other existing crude sources." *Rocky Mountain Crude*, 2011 WL 6936368, at *13. To illustrate the effect of these distinctions, the district court included two tables that showed some of the crude oils in the California market and compared their assessed carbon intensities with their individual carbon intensities. The first of these tables compared California TEOR to Venezuela Heavy, a foreign HCICO. *Id*. at *11 n.5.

	% of 2006 Market	Carbon Intensity	Assigned Carbon Intensity	Variance
California TEOR	14.8	18.89	8.07	-10.82
Venezuela Heavy	0.063	21.95	21.95	—

Venezuela Heavy contributed a trivial amount of oil to the 2006 California market, so it was not an existing source under the 2011 Provisions. Because it was an HCICO, Venezuela Heavy was assessed its individual carbon intensity in 2011.

The second table compared California TEOR with Alaskan and foreign light crudes, both non-HCICOs. *Id*. at *12 n.6. These light crudes were existing sources and non-HCICO's, so they were assessed the 2006 average, which was higher than their individual carbon intensities.

	% of 2006 Market	Carbon Intensity	Assigned Carbon Intensity	Variance
CA TEOR	14.8	18.89	8.07	-10.82
Alaska Light	14.8	4.36	8.07	+3.71
Imported Light	44.4	4.65	8.07	+3.42

As shown in these tables, California TEOR was treated favorably compared to out-of-state sources based on a comparison of a fuel's individual carbon intensity to its assigned carbon intensity. California TEOR also benefited compared to Venezuela Heavy from CARB's choice to define "existing sources" at two percent of the 2006 market.

But these tables left out several significant parts of the 2006 market. The remainder—almost one quarter of the market—alters the impression of the 2011 Provisions. Left out were three California non-HCICOs with individual carbon intensities ranging from 4.31 to 12.75. We include another table that shows the full California crude-oil market in 2006.

	% 2006 Market	Carbon Intensity	Assigned Carbon Intensity	Variance
CA TEOR	14.8	18.89	8.07	-10.82
Gas Injection	1.3	12.75	8.07	-4.68
Water Flood	6.10	5.57	8.07	+2.50
California Primary	16.5	4.31	8.07	+3.76
Alaska Light	14.8	4.36	8.07	+3.71
Imported Light	44.4	4.65	8.07	+3.42
Venezuela Heavy	0.063	21.95	21.95	—

Seen in context of the full market, the 2011 Provisions do not appear protectionist, though they do assess California TEOR a carbon intensity well below its individual value. California TEOR benefited from an assessed carbon intensity lower than its individual carbon intensity. But California Primary has the lowest individual carbon intensity in the market; it suffered more from the same arrangement than light crude from Alaska or abroad. Under the 2011 Provisions, California Primary and Water Flood were both assessed carbon intensity values higher than their individual values. Those burdened sources together made up 22.6% of the 2006 market; the benefited California sources formed only 16.1%. This burden on "major in-state interests . . . is a powerful safeguard against legislative abuse." *W. Lynn Creamery, Inc.*, 512 U.S. at 200 (quoting *Clover Leaf Creamery Co.*, 449 U.S. at 473 n.17).

American Fuels contends that this comparatively unfavorable treatment to California Primary and Water Flood is irrelevant, arguing that a state law that discriminates against interstate and foreign commerce is no less discriminatory because it may burden some in-state

competitors as well. *See C & A Carbone, Inc. v. Town of Clarkstown*, 511 U.S. 383, 391 (1994) (invalidating local-processing ordinance that burdened both out-of-town and out-of-state processors); *Fort Gratiot*, 504 U.S. at 353 (striking down ordinance that banned out-of-county waste in county landfills); *Dean Milk*, 340 U.S. at 349 (striking down ordinance that required milk to be processed within five miles of Madison, Wisconsin).

These cases are not applicable to the challenge here. As we noted in section III(A)(iii) above, they struck down local-processing requirements that privileged local entities over both state-wide and out-of-state interests. Where the challenged laws in those cases benefited peculiarly local concerns, the 2011 Provisions burdened and benefited in-state industries at the state level, and there is no reason to believe that CARB preferred California TEOR to California Primary. A similar case, *Bacchus Imports*, is also distinguishable. There, Hawaii exempted beverages produced exclusively within the state from its excise tax but did not provide the same treatment to other beverages made both in and out of state. 468 U.S. at 265–66. The legislature exempted the favored beverages with the explicit purpose of "encourag[ing] development of the Hawaiian liquor industry." *Id*. at 265. No equivalent statement is present here.[13] Leaving aside that explicit statement, Hawaii chose to support a uniquely local industry at the expense of one in which it held no particular advantage. There is no comparable distinction between

[13] American Fuels has pulled a few quotes from an expansive record that it contends show CARB's discriminatory purpose. These do not plausibly relate to a discriminatory design and are "easily understood, in context, as economic defense of a [regulation] genuinely proposed for environmental reasons." *Clover Leaf Creamery*, 449 U.S. at 463 n.7.

California TEOR and Primary. We conclude that CARB's stated purpose was genuine. There was no protectionist purpose, no aim to insulate California firms from out-of-state competition.

Having found a protectionist purpose, which we conclude was incorrect, the district court did not discuss evidence of an actual adverse effect created by the 2011 Provisions, though the district court did hold that the crude-oil provisions in design and practical effect favored California HCICO and discriminated against foreign HCICOs and out-of-state and foreign existing crude sources. When challenged by CARB to present such evidence in its brief, American Fuels instead relied on its claim that the 2011 Provisions had a discriminatory purpose, asking us "to speculate and to infer that this scheme necessarily has the effect it fears." *Black Star Farms LLC*, 600 F.3d at 1232. In cases such as this, where neither facial discrimination nor an improper purpose has been shown, the evidentiary burden to show a discriminatory effect is particularly high. *Id*. American Fuels has not presented the "'substantial evidence of an actual discriminatory effect'" necessary "'in order to take advantage of heightened scrutiny and shift the burden of proof to the State.'" *Id.* at 1233 (quoting *Black Star Farms, LLC v. Oliver,* 544 F. Supp. 2d 913, 928 (D. Ariz. 2008)). We reverse the district court's conclusion that the 2011 Provisions discriminated against out-of-state crude oil in practical effect, and we remand for the district court to consider whether the 2011 Provisions placed an undue burden on interstate commerce under *Pike*.

IV

In addition to discrimination based on origin, the dormant Commerce Clause holds that any "statute that directly controls commerce occurring wholly outside the boundaries of a State exceeds the inherent limits of the enacting State's authority." *Healy v. Beer Inst.*, 491 U.S. 324, 336 (1989). Under *Healy*, the "critical inquiry is whether the practical effect of the regulation is to control conduct beyond the boundary of the state." *Id*. (citing *Brown-Forman Distillers Corp. v. N.Y. State Liquor Auth*., 476 U.S. 573, 579 (1986)). To determine the practical effect of the regulation, we consider not only the direct consequences of the statute itself, but also "how the challenged statute may interact with the legitimate regulatory regimes of other States and what effect would arise if not one, but many or every, State adopted similar legislation." *Id*.

The district court held that the Fuel Standard regulated extraterritorial conduct because: (1) by treating fuels based on lifecycle emissions, it "attempts to control" out-of-state conduct, *Rocky Mountain Ethanol*, 843 F. Supp. 2d 1091 (internal quotation marks omitted); (2) California's attempt to take "legal and political responsibility" for worldwide carbon emissions caused by transportation fuels used in California was an improper extension of California's police power to other states, *id*. at 1091–92; (3) the Fuel Standard regulates the channels of interstate commerce by compelling producers to submit changes in their transportation routes to CARB to qualify for an altered pathway, *id*. at 1092; and (4) if each state enacted a regulation similar to the Fuel Standard, it would result in economic Balkanization. *Id*. at 1092–93. We disagree. The Fuel Standard regulates only the California market. Firms in any location may elect to respond to the

incentives provided by the Fuel Standard if they wish to gain market share in California, but no firm must meet a particular carbon intensity standard, and no jurisdiction need adopt a particular regulatory standard for its producers to gain access to California.

A

In the modern era, the Supreme Court has rarely held that statutes violate the extraterritoriality doctrine. The two most prominent cases where a violation did occur both involved similar price-affirmation statutes. In *Brown-Forman*, New York required distillers to file schedules of prices each month and barred them from selling liquor in other states for prices below those filed. 476 U.S. at 575–76. New York enforced this bar with the threat of revocation of the distiller's license and forfeiture of a bond. *Id*. at 576. Holding that such statutes "regulate[] out-of-state transactions in violation of the Commerce Clause," the Court explained that "[f]orcing a merchant to seek regulatory approval in one State before undertaking a transaction in another directly regulates interstate commerce." *Id*. at 582.

Soon after, the Court invalidated a similar statute that required beer distributors to affirm under oath that the prices they filed in Connecticut were as low as any they charged in neighboring states. *Healy*, 491 U.S. at 328. This conspired with laws in other states to prevent brewers from pricing products independently in neighboring states, so the Court concluded that the law "create[d] just the kind of competing and interlocking local economic regulation that the Commerce Clause was meant to preclude." *Healy*, 491 U.S. at 337.

These price-affirmation decisions relied on two earlier cases. The first was *Baldwin v. G.A.F. Seelig, Inc.*, a Depression-era case that enforced limits on a state's ability to control prices outside its borders. 294 U.S. 511 (1935). In *Baldwin*, New York extended its minimum milk prices beyond its borders by forbidding the sale in New York of milk that was purchased outside the state at a price below the minimum. *Id*. at 519. Writing for the Court, Justice Cardozo observed that "New York has no power to project its legislation into Vermont by regulating the price to be paid in that state for milk acquired there." *Id*. at 521. He explained, however, that New York could ensure the purity of its milk supply by requiring dairy farmers to maintain certificates showing compliance with health safeguards. *Id*. at 524.

The second was *Edgar v. MITE Corp*, in which Illinois required companies with certain minimal ties to Illinois to submit all tender offers for approval by Illinois officials, even when the offers were made by a foreign company to shareholders entirely outside of state. 457 U.S. 624, 642 (1982). An unapproved tender offer between out-of-state entities could give rise to civil penalties and criminal prosecution. *Id*. at 630 n.5. To the Court, this imposed an unjustified burden on interstate commerce. *Id*. at 643 (citing *Pike*, 397 U.S. at 142). A plurality also concluded that the law "ha[d] a sweeping extraterritorial effect" because it applied to transactions that "would not affect a single Illinois shareholder." *Id.* at 642.

Courts have extended the rule from *Healy* and *Brown-Forman* to cases where the "price" floor being imposed on another jurisdiction was not monetary but rather a minimum standard of environmental protection. Plaintiffs contend that the Fuel Standard is forbidden by the Supreme Court's

statement in *Carbone* that "[s]tates and localities may not attach restrictions to exports or imports in order to control commerce in other States." 511 U.S. at 393 (citing *Baldwin*, 294 U.S. at 511). In *Carbone*, the Court invalidated a flow-control ordinance that required waste to be processed at the town's privately operated transfer station. *Id*. at 386–87. The *Carbone* Court based its decision on a finding of facial discrimination, but it explained in the alternative that the town could not justify the ordinance as "a way to steer solid waste away from out-of-town disposal sites that it might deem harmful to the environment. To do so would extend the town's police power beyond its jurisdictional bounds." *Id*. at 393. Soon after, the Seventh Circuit addressed a similar but inverted regulation, striking down a Wisconsin statute that conditioned imports of waste on the exporting jurisdiction's adoption of Wisconsin's recycling standards. *Nat'l Solid Wastes Mgmt. Ass'n v. Meyer*, 63 F.3d 652, 653–54 (7th Cir. 1995). Because the statute sought to impose Wisconsin's standards on another jurisdiction rather than just regulate the effects of waste brought into Wisconsin, the Seventh Circuit concluded that the statute mandated that "all persons in that non-Wisconsin community must adhere to the Wisconsin standards whether or not they dump their waste in Wisconsin." *Id*. at 658. This was the kind of regulatory control forbidden by *Carbone*. *See* 511 U.S. at 393.

The Fuel Standard imposes no analogous conditions on the importation of ethanol. It says nothing at all about ethanol produced, sold, and used outside California, it does not require other jurisdictions to adopt reciprocal standards before their ethanol can be sold in California, it makes no effort to ensure the price of ethanol is lower in California than in other states, and it imposes no civil or criminal penalties on non-compliant transactions completed wholly out of state.

The district court identified several factors that might encourage ethanol producers to adopt less carbon-intensive policies. *Rocky Mountain Ethanol*, 843 F. Supp. 2d at 1091 (citing transportation, farming practices, and land use factors). For lifecycle analysis to be effective, it must consider all these factors and more. But California does not control these factors—directly or in practical effect—simply because it factors them into the lifecycle analysis. As the district court explained in a different order, the Fuel Standard "has no threshold [carbon intensity] requirement." *Rocky Mountain Preemption*, 843 F. Supp. 2d at 1065. It instead "encourages the use of cleaner fuels through a market system of credits and caps." *Id*. These credits and caps apply only to the portfolios of fuel blenders in California and the producers who contract with them. *Id*. When presented with similar rules in the past, we have distinguished statutes "that regulate out-of-state parties directly" from those that "regulate[] contractual relationships in which at least one party is located in [the regulating state]." *Gravquick A/S v. Trimble Navigation Int'l Ltd.*, 323 F.3d 1219, 1224 (9th Cir. 2003) (citing *Healy*, 491 U.S. at 343).

These credits and caps instead resemble the incentives in a more recent case in which the "alleged harm to interstate commerce would be the same regardless of whether manufacturer compliance is completely voluntary or the product of coercion." *Pharm. Research & Mfrs. of Am. v. Walsh*, 538 U.S. 644, 669 (2003). In that case, Maine had encouraged drug companies to enter into rebate agreements favorable to Maine consumers. *Id.* at 653–54. If a company refused, Maine subjected that company's Medicaid sales to "prior authorization," reducing the company's sales and market share in Maine. *Id*. at 655–56. The drug companies argued that the rebate provision controlled the terms of their

sales to distributors entirely outside the state. *Id.* at 669–70. The Court declined to extend the doctrine, noting that Maine "d[id] not regulate the price of any out-of-state transaction" or "t[ie] the price of its in-state products to out-of-state prices," as New York and Connecticut did in *Baldwin*, *Brown-Forman*, and *Healy*. *Id*. at 669. Maine's hope to alter the decisions of the drug companies was permissible because Maine did not seek to control them. *Id*. at 679. States may not mandate compliance with their preferred policies in wholly out-of-state transactions, but they are free to regulate commerce and contracts within their boundaries with the goal of influencing the out-of-state choices of market participants. *Id*.

Plaintiffs attempt to distinguish the Fuel Standard from cases such as *Pharmaceutical Research* by contending that the identical chemical and physical structure of ethanol prevents California from acknowledging the out-of-state emissions from the production of ethanol consumed in California, but their only support comes from broad quotes in inapposite cases. *See, e.g.*, *Bonaparte v. Tax Court*, 104 U.S. 592, 594 (1881) (holding that under the Full Faith and Credit clause, "[n]o state can legislate except with reference to its own jurisdiction"). Plaintiffs are right that—like any government—California cannot exceed its powers. California's police power does not allow it to "invade [another state] to force reductions in greenhouse gas emissions." *Massachusetts*, 549 U.S. at 519. It cannot peacefully impose its own regulatory standards on another jurisdiction. *Nat'l Solid Wastes Mgmt. Ass'n*, 63 F.3d at 658–62. But California may regulate with reference to local harms, structuring its internal markets to set incentives for firms to produce less harmful products for sale in California. Plaintiffs point to no extraterritoriality cases where

differences in the physical structure of a product was a prerequisite to regulation. In non-extraterritoriality cases where physical properties were relevant, it was because those properties determined the degree of harm inflicted on the regulating state. *See, e.g.*, *Chem. Waste* 504 U.S. at 344 n.7. Here, California properly based its regulation on the harmful properties of fuel. It does not control the production or sale of ethanol wholly outside California.

B

The district court next concluded that by requiring blenders to report any material change to a pathway's production and transportation process before it can generate Fuel Standard credits, CARB "forc[es] a merchant to seek regulatory approval in one State before undertaking a transaction in another." *Rocky Mountain Ethanol*, 843 F. Supp. 2d at 1092 (quoting *Brown-Forman*, 476 U.S. at 582) (internal quotation marks omitted). But the Fuel Standard requires fuel distributors to seek regulatory approval in California before undertaking a transaction also in California—the sale of fuel that generates Fuel Standard credits. States do not regulate transactions occurring wholly out of state when they impose reporting requirements that out-of-state producers must meet before making in-state sales. *See Baldwin*, 294 U.S. at 524 (holding that states may exact certificates from out-of-state producers).

C

As an alternative basis for invalidating the Fuel Standard as an extraterritorial regulation, the district court concluded that widespread adoption of comparable legislation by other states would Balkanize the fuels market in two ways. First,

the district court explained that the Fuel Standard encourages a producer to "either relocate its operations in the State of largest use, or sell only locally to avoid transportation and other penalties." *Id*. at 1093. This, the district court warned, would "interfere with the 'maintenance of a national economic union unfettered by state-imposed limitations on interstate commerce.'" *Id*. (quoting *Healy*, 491 U.S. at 335–36). Again, this misunderstands the effects of the CA-GREET transportation factor. Transportation emissions are lowest for ethanol producers who locate close to feedstocks, not consumers, so California producers face larger carbon intensities for transportation than do Midwestern or Brazilian producers. Widespread adoption of similar standards would further encourage ethanol producers to locate—as they already have—near feedstocks instead of consumers.

Second, the district court concluded that the Fuel Standard raised the danger of inconsistent regulation, warning that ethanol producers would "be hard-pressed to satisfy the requirements of 50 different [Fuel Standards]." *Id*. at 1093–94. A few jurisdictions are considering legislation similar to the Fuel Standard, but these would be complementary, encouraging similar reductions in carbon intensity across the board.[14] To show the threat of inconsistent regulation, Plaintiffs "must either present evidence that conflicting, legitimate legislation is already in place or that the threat of such legislation is both actual and imminent." *S.D. Myers v. City of San Francisco*, 253 F.3d 461, 469–70 (9th Cir. 2001) (citing *Huron Portland Cement*

[14] *See* Oregon House Bill 2186 (2009); Washington Executive Order 09-05 (2009); Northeast States Center for a Clean Air Future, *Introducing a Low Carbon Fuel Standard in the Northeast* (July 2009), *available at* www.nescaum.org/documents/lcfs-report-final-200909-rev-final.pdf.

Co. v. City of Detroit, 362 U.S. 440, 448 (1960)). Plaintiffs also contend that the proliferation of similar standards would violate the "internal consistency" test from *American Trucking Associations, Inc. v. Scheiner*, which requires that we consider whether widespread adoption of similar regulation would impermissibly interfere with interstate trade. 483 U.S. 266, 284 (1987). That case involved an unapportioned flat tax on trucking that did "not even purport to approximate fairly the cost or value of the use of Pennsylvania's roads." *Id*. at 290. The Court explained that "[i]f each State imposed flat taxes for the privilege of making commercial entrances into its territory, there is no conceivable doubt that commerce among the States would be deterred." *Id*. at 284. But the Court specifically excluded from the internal consistency test regulations, such as gas taxes and the Fuel Standard, that "maintain state boundaries as a neutral factor in economic decisionmaking." *Id*. at 283.

The Fuel Standard does not "place[] a financial barrier around the State of [California]." *Id*. at 284. If similar standards were adopted nationwide, they would not create the interlocking problems of cross-border price setting or out-of-state approval that appeared in *Healy* and *Edgar*. No form of fuel would be excluded from or charged an unapportioned fee to enter any state's market, no state would attempt to control which fuels were available in other states, and no state would peg its fuel prices or regulatory standards to those of another. So long as California regulates only fuel consumed in California, the Fuel Standard does not present the risk of conflict with similar statutes. *See Valley Bank of Nev. v. Plus Sys., Inc.*, 914 F.2d 1186, 1192 (9th Cir. 1990) (holding that "inconsistent state laws on [ATM] transaction fees can coexist without conflict as long as each state regulates only its own banks").

If we were to invalidate regulation every time another state considered a complementary statute, we would destroy the states' ability to experiment with regulation. Successful experiments inspire imitation both vertically, as when the federal government followed California's lead on air pollution, and horizontally, as shown by the federal Organic Foods Production Act of 1990, 7 U.S.C. §§ 6501–23, adopted after twenty-two states, starting with Oregon, enacted organic food labeling standards. *See* Or. Rev. Stat. § 632.925 (1973); S. Rep. No. 357, *reprinted in* 1990 U.S.C.C.A.N. 4656, 4943. After nearly half of the states acted, Congress provided a uniform standard. As it did there, Congress may decide that uniformity is warranted and set a national fuel standard. If it does so after several states have acted, it will have the benefit of their experiments. But when or if such uniformity is desirable is not a question for courts. The proliferation of organic labeling standards did not threaten our economic union, and the possibility that many states might perform lifecycle analysis on fuel sold within their borders does not risk the "competing and interlocking local economic regulation that the Commerce Clause was meant to preclude." *Healy*, 491 U.S. at 337.

With the Fuel Standard, California "has essentially assumed legal and political responsibility for emissions of carbon resulting from the production and transport, regardless of location, of transportation fuels actually used in California." *Rocky Mountain Ethanol*, 843 F. Supp. 2d at 1092. To Plaintiffs, this attempt to take responsibility is indistinguishable from taking control, from attempting to force other jurisdictions to adopt California's standards. But to the contrary, California and its citizens have chosen to acknowledge and account for the ill effects of their fuel consumption. This decision is one of a long series in which

California has chosen to pay for environmental protection. The Commerce Clause does not protect Plaintiffs' ability to make others pay for the hidden harms of their products merely because those products are shipped across state lines. The Fuel Standard has incidental effects on interstate commerce, but it does not control conduct wholly outside the state. Those effects may be considered under *Pike* on remand. 397 U.S. at 142.

V

CARB contends that Section 211(c)(4)(b) of the Clean Air Act authorized the Fuel Standard under the Commerce Clause. Although we reverse the district court's conclusions on the dormant Commerce Clause, this claim is not moot because the district court will consider further dormant Commerce Clause issues on remand. Rejecting CARB's contention, the district court concluded that CARB "failed to establish that the savings clause[] demonstrate[s] express exemption from Commerce Clause scrutiny." *Rocky Mountain Preemption*, 843 F. Supp. 2d at 1070. We agree.

Section 211(c)(4)(a) of the Clean Air Act preempts state laws prescribing, "for purposes of motor vehicle emission control, any control or prohibition respecting any characteristic or component of a fuel or fuel additive." 42 U.S.C. § 7545(c)(4)(A). The next subsection of the Act exempts California from that explicit preemption. *Id.* § 7545(c)(4)(B) (Section 211(c)(4)(b)). The Fuel Standard falls within this exemption because it is "a control respecting a fuel or fuel additive and was enacted for the purpose of emissions control." *Rocky Mountain Preemption*, 843 F. Supp. 2d at 1061 (citing Clean Air Act Section 211(c)(4)(B)). But we have previously held that "the sole

purpose of [Section 211(c)(4)(B)] is to waive for California the express preemption provision found in § 7545(c)(4)(A)." *Davis v. EPA*, 348 F.3d 772, 786 (9th Cir. 2003); *see also Oxygenated Fuels Ass'n Inc. v. Davis*, 331 F.3d 665, 670 (9th Cir. 2003) (holding that "the two provisions are precisely coextensive"). On this point, our precedent forecloses CARB's argument.

VI

The California legislature has determined that the state faces tremendous risks from climate change. With its long coastlines vulnerable to rising waters, large population that needs food and water, sizable deserts that can expand with sustained increased heat, and vast forests that may become tinderboxes with too little rain, California is uniquely vulnerable to the perils of global warming. The California legislature determined that GHG emissions from the production and distribution of transportation fuels contribute to this risk, and that those emissions are caused by the in-state consumption of fuels. Whether or not one agrees with the science underlying those views, those determinations are permissible ones for the legislature to make, and the Supreme Court has recognized that these risks constitute local threats. *See Massachusetts*, 549 U.S. at 522.

To combat these risks, the California legislature and its regulatory arm CARB chose to institute a market-based solution that recognizes the costs of harmful carbon emissions. For any such system to work, two conditions must be met. First, the market must have full and accurate information about the real extent of GHG emissions. Second, the compliance costs of entering the market must not be so great as to prevent participation. Plaintiffs attack the

lifecycle analysis and default pathways that fulfill these conditions, relying on archaic formalism to prevent action against a new type of harm. It has been sagely observed by Justice Jackson that the constitutional Bill of Rights is not a "suicide pact." *See Terminiello v. City of Chicago*, 337 U.S. 1, 37 (1949) (Jackson, J., dissenting). Nor is the dormant Commerce Clause a blindfold. It does not invalidate by strict scrutiny state laws or regulations that incorporate state boundaries for good and non-discriminatory reason. It does not require that reality be ignored in lawmaking.

California should be encouraged to continue and to expand its efforts to find a workable solution to lower carbon emissions, or to slow their rise. If no such solution is found, California residents and people worldwide will suffer great harm. We will not at the outset block California from developing this innovative, nondiscriminatory regulation to impede global warming. If the Fuel Standard works, encouraging the development of alternative fuels by those who would like to reach the California market, it will help ease California's climate risks and inform other states as they attempt to confront similar challenges.

VII

The Fuel Standard's ethanol provisions are not facially discriminatory, so we reverse that portion of the district court's decision and remand for entry of partial summary judgment in favor of CARB. We also reverse the district court's decision that the Fuel Standard is an impermissible extraterritorial regulation and we direct that an order of partial summary judgment be entered in favor of CARB on those grounds. We remand the case for the district court to

determine whether the ethanol provisions discriminate in purpose or effect and, if not, to apply the *Pike* balancing test.

We affirm the district court's conclusion that the 2011 Provisions are not facially discriminatory, but we reverse its holding that the 2011 Provisions are discriminatory in purpose and effect, and we direct the district court to enter an order of partial summary judgment in favor of CARB on those issues. We remand to the district court to apply the *Pike* balancing test to the 2011 Provisions. We affirm the district court's conclusion that Section 211(c)(4)(b) of the Clean Air Act does not insulate California from scrutiny under the dormant Commerce Clause. Rocky Mountain contends that the preliminary injunction should be lifted if CARB prevails on the merits of the dormant Commerce Clause on which the district court based its injunction. We agree and remand to the district court with instructions to vacate the preliminary injunction. We express no opinion on Plaintiffs' claim that the Fuel Standard is preempted by the RFS. We also express no opinion on CARB's claim that the savings clause in the Energy Independence and Security Act of 2007 precludes implied preemption by the RFS.

Each party shall bear its own costs.

AFFIRMED in part, **REVERSED** in part, **VACATED**, and **REMANDED.**

MURGUIA, Circuit Judge, concurring in part and dissenting in part:

While I agree with the majority's conclusions concerning the crude oil regulations and preemption under the Clean Air Act, I respectfully dissent from the majority's conclusion that the Low Carbon Fuel Standard's ("LCFS") ethanol regulations do not facially discriminate against interstate commerce.

I.

Determining whether a regulation facially discriminates against interstate commerce begins and ends with the regulation's plain language. Discrimination "simply means differential treatment of in-state and out-of-state economic interests that benefits the former and burdens the latter." *Or. Waste Sys., Inc. v. Dep't Env't Quality of State of Or.*, 511 U.S. 93, 99 (1994). "[T]he purpose of, or justification for, a law has no bearing on whether it is facially discriminatory." *Id*. at 100. Only after we find discrimination do we address, in our application of strict scrutiny, whether the reason for the discrimination is sufficiently compelling to justify the regulation. *See, e.g.*, *Or. Waste Sys.*, 511 at 100–07 (examining purported justifications for facially discriminatory regulation); *Chem. Waste Mgmt., Inc. v. Hunt*, 504 U.S. 334, 342 (1992) (noting that the "additional fee facially discriminates" and *then* examining the purported justifications for the discrimination).

I would therefore look only to the text of the LCFS to determine if it facially discriminates against out-of-state ethanol. *See Camps Newfound/Owatonna, Inc. v. Town of Harrison*, 520 U.S. 564, 575–76 (1997) ("It is not necessary

to look beyond the text of this statute to determine that it discriminates against interstate commerce."). Table 6 differentiates between in-state and out-of-state ethanol, according more preferential treatment to the former at the expense of the latter.[1] Table 6 thus facially discriminates against out-of-state ethanol. *See Or. Waste Sys., Inc*, 511 U.S. at 100 ("In making [the] geographic distinction, the [regulation] patently discriminates against interstate commerce.").[2]

The majority puts the cart before the horse and considers California's reasons for distinguishing between in-state and out-of-state ethanol before examining the text of the statute to determine if it facially discriminates. This approach is inconsistent with Supreme Court precedent, which instructs that we must determine whether the regulation is discriminatory before we address the purported reasons for the discrimination. *See Or. Waste Sys.*, 511 U.S. at 99.

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[1] Three examples are illustrative. The LCFS assigns a default carbon intensity value of 88.90 gCO_2e/MJ to California producers utilizing a dry mill, dry DGS, and natural gas production process. Midwest producers utilizing the same production process are assigned a default carbon intensity value of 98.40 gCO_2e/MJ, resulting in a 9.5 gCO_2e/MJ difference in favor of California producers. Next, California producers utilizing a dry mill, dry DGS, eighty percent natural gas, and twenty percent biomass production process enjoy a 9.4 gCO_2e/MJ lower carbon intensity value than their Midwest counterparts. Finally, California producers benefit from a 9.36 gCO_2e/MJ lower carbon intensity value over their Midwest counterparts for a dry mill, wet DGS, eighty percent natural gas, and twenty percent biomass production process.

[2] Because I conclude that the LCFS ethanol regulation facially discriminates, I do not reach the alternative argument that it regulates extraterritorial conduct.

II.

Because the LCFS facially discriminates against interstate commerce, it is subject to strict scrutiny and is unconstitutional unless California can demonstrate that it: (1) serves a legitimate local purpose, and (2) that purpose could not be served as well by available nondiscriminatory means. *Maine v. Taylor*, 477 U.S. 131, 138 (1986). "The State's burden of justification is so heavy that 'facial discrimination by itself may be a fatal defect.'" *Or. Waste Sys., Inc.*, 511 U.S. at 101 (quoting *Hughes v. Oklahoma*, 441 U.S. 322, 337 (1979)).

I would find that the LCFS serves the local purpose of reducing GHG emissions because California has a "legitimate interest in guarding against imperfectly understood environmental risks, despite the possibility that they may ultimately prove to be negligible." *Taylor*, 477 U.S. at 148; *see also Massachusetts v. EPA*, 549 U.S. 497, 516–21 (2007) (holding, for purposes of standing, that Massachusetts has an interest in regulating GHG emissions).

The second question—whether California can reduce GHG emissions through nondiscriminatory means—is more difficult. As explained by the majority, California's decision to disfavor out-of-state ethanol is connected to the goal of reducing lifecycle GHG emissions because California calculated that, on average, ethanol from other states produces more lifecycle GHG emissions. But even if, on average, ethanol from other states produces more lifecycle GHG emissions, that does not mean that the only way to regulate those emissions is by penalizing out-of-state producers. *See Toomer v. Witsell*, 334 U.S. 385, 397–98 (1948) (observing that even if out-of-state fishing boats were

larger and more disruptive than in-state boats, the state could simply regulate the size of the boats). For example, if the LCFS treated ethanol produced in efficient plants more favorably than ethanol from inefficient plants—rather than taking the shortcut of assuming that plants outside of California are less efficient—it could reduce lifecycle GHG emissions without facially discriminating against out-of-state ethanol. In fact, at oral argument, California acknowledged that there exist alternative ways to use lifecycle analysis to reduce GHG emissions:

> THE COURT: Is it your contention that the [LCFS] currently written represents the only way that the lifecycle analysis approach can be implemented or ever utilized to address [GHG] emissions?
>
> DEFENDANTS-APPELLANTS: *It's not our position that the LCFS is the only way the lifecycle could be used.* It is our position that the lifecycle is the only way to accurately measure [GHG] emissions from transportation fuels.

Hr'g Tr. 4:59–5:28 (Oct. 16, 2012) (emphasis added).

The nondiscriminatory alternative is apparent in the LCFS's current structure: Regulated parties may seek individualized pathways that use lifecycle analysis, but not Table 6's discriminatory carbon intensity values. These pathways are a reasonable, nondiscriminatory alternative that California could use to reduce lifecycle GHG emissions. This reasonable alternative, even if it is more difficult or costly to implement, means that California has failed to meet its

burden of showing that discriminating against out-of-state ethanol is the only way to reduce lifecycle GHG emissions. *Cf. Taylor* 477 U.S. at 147 (while a state need not "develop new and unproven means of protection at an uncertain cost," it "must make reasonable efforts to avoid restraining the free flow of commerce across its borders").[3]

CONCLUSION

The LCFS is the latest chapter in California's long history of innovative solutions to complicated environmental problems. But the current version of the LCFS facially discriminates against interstate commerce and California has failed to meet its onerous burden of demonstrating that a nondiscriminatory version of the regulation could not achieve its legitimate local interest of reducing GHG emissions. For this reason, I respectfully dissent.

[3] This is not to say that the only constitutional version of the LCFS is one that eliminates all default pathways. Rather, it could include default pathways that do not discriminate against ethanol solely because it was produced outside of California.

Appendix One
Table 6 (2011); Cal. Code Regs. tit. 17, § 95486(b)(1)

Fuel	Pathway Description	Carbon Intensity Value (gCO_2e/MJ)		
		Direct Emissions	Land Use	Total
Ethanol from Corn	Midwest average: 80% Dry Mill; 20% Wet Mill; Dry DGS; NG	69.40	30	99.40
	California average: 80% Dry Mill; 20% Wet Mill; Dry DGS; NG	65.66	30	95.66
	California; Dry Mill; Wet DGS; NG	50.70	30	80.70
	Midwest; Dry Mill; Dry DGS, NG	68.40	30	98.40
	Midwest; Wet Mill, 60% NG, 40% coal	75.10	30	105.10
	Midwest; Wet Mill, 100% NG	64.52	30	94.52
	Midwest; Wet Mill, 100% coal	90.99	30	120.99
	Midwest; Dry Mill; Wet DGS	60.10	30	90.10
	California; Dry Mill; Dry DGS, NG	58.90	30	88.90

	Midwest; Dry Mill; Dry DGS; 80% NG; 20% Biomass	63.60	30	93.60
	Midwest; Dry Mill; Wet DGS; 80% NG; 20% Biomass	56.80	30	86.80
	California; Dry Mill; Dry DGS; 80% NG; 20% Biomass	54.20	30	84.20
	California; Dry Mill; Wet DGS; 80% NG; 20% Biomass	47.44	30	77.44
Ethanol from Sugarcane	Brazilian sugarcane using average production processes	27.40	46	73.40
	Brazilian sugarcane with average production process, mechanized harvesting, and electricity co-product credit	12.40	46	58.40
	Brazilian sugarcane with average production process and electricity co-product credit	20.40	46	66.40

CARBOB: California Reformulated Gasoline Blendstock for Oxygenate Blending
DGS: Distillers' Grains
NG: Natural Gas

Appendix Two

Table 6 Breakout

This table shows the complete CA-GREET pathways for Midwest and California ethanol pathways using a dry-mill process, using natural gas for thermal energy (for heating the corn), and producing dry distillers' grains as a co-product.

	Midwest Pathway	**California Pathway**
Lifecycle Component	Carbon Intensity	Carbon Intensity
Growing of Corn	35.8	35.8
Transportation of Corn to Plant	2.2	6.8
Energy Use by Plant		
Natural Gas	27.1	24.0
Electricity	11.4	3.1
Credit for Co-Products	- 11.5	- 12.9
Transportation from Plant to Distribution Points in California	0.8	1.3
Denaturant	0.8	0.8
Subtotal: Direct Emissions	68.4	58.9
Land Use Change	30	30
Total Carbon Intensity	98.4	88.9