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Of Attorneys for State Defendants

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF OREGON

PORTLAND DIVISION

AMERICAN FUEL & PETROCHEMICAL MANUFACTURERS, AMERICAN TRUCKING ASSOCIATIONS, INC., a trade association, and CONSUMER ENERGY ALLIANCE, a trade association,

Plaintiffs,

v.

JANE O'KEEFFE, ED ARMSTRONG, MORGAN RIDER, COLLEEN JOHNSON, and MELINDA EDEN, in their official capacities as members of the Oregon Environmental Quality Commission; DICK PEDERSEN, JONI HAMMOND, WENDY WILES, DAVID COLLIER, JEFFREY STOCUM, CORY-ANN WIND, LYDIA EMER, LEAH FELDON, GREG ALDRICH, and SUE LANGSTON, in their official capacities as officers and employees of the Oregon Department of Environmental Quality, ELLEN F. ROSENBLUM, in her official capacity as Attorney General of the State of Oregon; and KATE BROWN, in her official capacity as Governor of the State of Oregon,

Defendants,

Case No. 3:15-cv-00467-AA

REPLY IN SUPPORT OF DEFENDANTS' MOTION TO DISMISS

and

CALIFORNIA AIR RESOURCES BOARD; STATE OF WASHINGTON; OREGON ENVIRONMENTAL COUNCIL; CLIMATE SOLUTIONS; ENVIRONMENTAL DEFENSE FUND; NATURAL RESOURCES DEFENSE COUNCIL; and SIERRA CLUB,

Intervenor Defendants.

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## I. Summary of Argument.

Plaintiffs' Complaint should be dismissed because it fails to assert any plausible claims that the Clean Fuels Program is invalid under the United States Constitution.

Plaintiffs' dormant Commerce Clause claims fail because Plaintiffs have not alleged facts supporting an inference of discrimination of any kind against out-of-state fuels, whether petroleum-based or alternative. The Complaint cannot support an inference that petroleum-based fuels and ethanol (the only type of alternative fuel that Plaintiffs allege is discriminated against) are similarly situated for constitutional purposes. Such allegations are essential for a plausible discrimination claim against out-of-state petroleum-based fuels. Nor does the Program discriminate against out-of-state ethanol. Out-of-state ethanols earn the most advantageous carbon intensity scores of all ethanols. As a result, discrimination—treating out-of-state and in-state interests differently with the effect of benefiting in-state interests and burdening out-of-state competitors—cannot be proven. All of Plaintiffs' discrimination claims fail for these reasons alone.

Plaintiffs' claims also fail because the Complaint cannot plausibly support a claim for facial, purpose, or effects discrimination. There is no facial discrimination because the Program distinguishes among fuels based on carbon intensity, not origin, and, on its face, the regulation provides its most favorable carbon intensity values to out-of-state ethanols. The purpose claim fails because the statements Plaintiffs rely upon are "easily understood, in context, as economic defense of a [regulation] genuinely proposed for environmental reasons," just as the Ninth Circuit concluded with respect to statements about California's similar program. *Rocky Mountain Farmers Union v. Corey*, 730 F.3d 1070, 1100 n. 13 (9th Cir. 2013), *cert. den*, 134 S. Ct. 2875 (2014) *and cert. den*, 134 S. Ct. 2884 (2014) (quoting *Minnesota v. Clover Leaf Creamery Co.*, 449 U.S. 456, 463 n. 7 (1981)). And Plaintiffs assert no valid effects claim. Plaintiffs must plead facts supporting an inference that the Clean Fuels Program has caused local products to claim a larger share of the market than competing out-of-state products. Plaintiffs



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have not alleged such facts. Nor can they, given that the Program's standards have not gone into effect; as a result, the effects claim is also not ripe. All of the discrimination claims lack merit.

Plaintiffs acknowledge that their extraterritoriality claim under the dormant Commerce Clause should be dismissed under *Rocky Mountain*, 730 F.3d 1070. Similarly, the claim should be dismissed to the extent that Plaintiffs rely upon "principles of structural federalism." No court has recognized such a claim, and, in any case, the Clean Fuels Program does not control conduct that occurs entirely outside of Oregon.

Both preemption claims also fail. The express preemption claim under Clean Air Act (CAA) section 211(c)(4)(A)(i) fails because EPA never made the finding that no control of a relevant characteristic of fuel under CAA section 211(c)(1) is necessary. *See* 42 U.S.C. § 7545(c)(4)(A). In the reformulated gasoline rule, EPA determined that methane was not an ozone-forming volatile organic compound (VOC) under CAA section 211(k). *See* Regulation of Fuels and Fuel Additives: Standards for Reformulated and Conventional Gasoline, 59 Fed. Reg. 7716-01, at 7722 (Feb. 16, 1994). In doing so, EPA did not base that decision on the standard in section 211(c)(1). Moreover, in the reformulated gasoline rule, EPA regulated ozone-forming VOCs, not the carbon intensity of fuel. As a result, preemption fails because the programs regulate different characteristics of fuel. Finally, even if EPA had determined under section 211(c)(1) that methane, generally, does not endanger public health, EPA subsequently found that greenhouse gases (GHG), including methane, do endanger public health and welfare. *See* Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66496-01 (Dec. 15, 2009). Thus, a predicate for application of section 211(c)(4)(A)(i) preemption is not met.

Plaintiffs' conflict preemption claim fails as well. Plaintiffs lack prudential standing to assert the rights of others—namely, producers of ethanol from plants built before 2007. The claim also fails because two explicit statutory savings clauses preserve state authority to regulate air pollution. *See* 42 U.S.C. § 7416; Energy Independence and Security Act of 2007, Pub. L.



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No. 110-140, §204 (b), 121 Stat. 1492, 1529 (2007) (EISA). Finally, if the Court reaches the conflict analysis, the Clean Fuels Program is in harmony, not in conflict, with the federal Renewable Fuel Standard (RFS) in the CAA. None of the statutory provisions that Plaintiffs cite supports a conclusion that Congress intended to ensure a nationwide market for corn ethanol produced in plants built before 2007. To the contrary, the RFS requires the increased use of renewable fuels *other than* corn ethanol with the objective of reducing GHG emissions. *See* Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program, 75 Fed. Reg. 14670-01 (March 26, 2010). In any event, Plaintiffs have not pleaded sufficient facts to support an inference that the Clean Fuels Program would close Oregon as a market for ethanol from plants built before 2007, or even that the Program would negatively impact such plants.

## II. The Clean Fuels Program Is Not Discriminatory.

Plaintiffs have not alleged, and cannot allege, facts that would allow the court to reasonably infer that the Clean Fuels Program discriminates in any form—facially, purposefully, or in its effects. *See Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009). Plaintiffs' claim that the Clean Fuels Program discriminates against out-of-state petroleum fuels in favor of in-state ethanol fails for two fundamental reasons—reasons applicable to any claim of discrimination, in any form.

First, Plaintiffs fail to allege that petroleum-based fuels and ethanol are similarly situated for constitutional purposes. *See Gen. Motors Corp. v. Tracy*, 519 U.S. 278, 299 (1997). In-state ethanol producers and out-of-state petroleum-based fuel providers sell different products that serve different functions, and they "would continue to do so even if the supposedly discriminatory burden were removed." *Id.* Plaintiffs' own allegations indicate that this is so. Plaintiffs allege that under the Clean Fuels Program, their members will have "to *replace* existing sources of ethanol with ethanol that has lower calculated carbon intensities or purchase credits from other parties." Complaint (ECF# 1), ¶ 55 (emphasis added). Notably, Plaintiffs do not allege that their members who import gasoline into Oregon will buy *more* ethanol and *less* petroleum as a result of the Clean Fuels Program. Given Plaintiffs' own allegations that the



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Clean Fuels Program will cause a shift in ethanol *sources*, but not *proportions*, Plaintiffs' conclusory allegation that the Program is "designed to displace imported fuels produced from petroleum sources," ECF# 1, ¶ 58, is insufficient to create a plausible inference that ethanol and petroleum-based fuels are similarly situated. Plaintiffs have alleged no facts that could support an inference that ethanol could, or will, displace petroleum in Oregon as a result of the Clean Fuels Program, and that is the sole inference upon which they rely to argue that these interests are similarly situated. *See* Plaintiffs' Response Brief (ECF# 63), pp. 23-24. Plaintiffs have failed to state the basic elements of a discrimination claim of any kind with respect to petroleum-based fuels.

Second, even if Plaintiffs had sufficiently alleged that out-of-state petroleum-based fuels and in-state ethanol were similarly situated, *Exxon Corp. v. Governor of Md.*, 437 U.S. 117 (1978), would require dismissal of any discrimination claim concerning petroleum-based fuels. Under that opinion, ethanol could completely displace petroleum-based fuels—just as independent operators completely displaced petroleum refiners in retail gasoline operations in the *Exxon Corp*. case—as long as the State does not *favor* in-state ethanol over competing out-of-state ethanol. *See id.* at 126 (finding no discrimination where "the Act creates no barriers whatsoever against interstate independent dealers"). And the Clean Fuels Program does not favor in-state ethanol over competing out-of-state ethanol. In fact, as is evident from the face of the regulation, the most favorable carbon intensity values for ethanol are earned by fuels from outside Oregon. *See* OAR 340-253-8030 (Table 3); *see also* Defendant-Intervenors' Motion to Dismiss (ECF# 52), p. 11. Thus, as a matter of law, there is no claim that Oregon's Program discriminates against petroleum-based fuels and in favor of ethanol.

Plaintiffs also fail to state a claim for *any* kind of discrimination against out-of-state ethanols because they disregard the fact that, as discussed above, many out-of-state ethanols earn lower carbon intensity values than the fuel from Oregon's single alleged plant. When the full ethanol market—as represented in OAR 340-253-8030 (Table 3)—is considered, it is clear that



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the Clean Fuels Program does not discriminate against out-of-state ethanol. *See* ECF# 63, pp. 16-17; *see also* ECF# 52, p. 11.

Plaintiffs have failed to allege, and cannot allege, the elements that are essential to *all* discrimination claims. The test for discrimination under the dormant Commerce Clause is not, as Plaintiffs suggest, whether a law places an out-of-state industry at a "commercial disadvantage." ECF# 63, p. 22 (citing *New Energy Co. of Ind. v. Limbach*, 486 U.S. 269, 275 (1988)). Rather, the test is whether the law affords "differential treatment of in-state and out-of-state economic interests that benefits the former and burdens the latter." *Or. Waste Sys., Inc. v. Dept. of Envtl. Quality of Or.*, 511 U.S. 93, 99 (1994). In other words, Plaintiffs must plausibly allege both a benefit to in-state competitors *and* a burden to out-of-state interests. *See id.* Under that proper test, the Clean Fuels Program is plainly non-discriminatory because of the highly favorable carbon intensity values associated with out-of-state fuels. *See* OAR 340-253-8030 (Table 3). Plaintiffs have cited no case, and Defendants are aware of none, where a law that provided its most favorable treatment to out-of-state competitors—as the Program does to out-of-state ethanols—was held to be discriminatory. Such a holding would contradict the very definition of "discrimination" under the dormant Commerce Clause. *See Or. Waste Sys., Inc.*, 511 U.S. at 99.

In addition, each of Plaintiffs' discrimination claims also fails for the additional reasons explained below.

**A. The Clean Fuels Program Does Not Discriminate on its Face.**

A state law "is discriminatory if it 'impose[s] commercial barriers or discriminates against an article of commerce *by reason of its origin or destination* out of State.'" *Pharm. Research & Mfrs. of Am. v. Cnty. of Alameda*, 768 F.3d 1037, 1041 (9th Cir. 2014) (quoting *C & A Carbone, Inc. v. Town of Clarkstown, N.Y.*, 511 U.S. 383, 390 (1994)) (emphasis added). The Clean Fuels Program is not discriminatory because it distinguishes among fuels based on lifecycle greenhouse gas emissions, not origin or destination. *See Rocky Mountain*, 730 F.3d at 1089.



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**1. The Clean Fuels Program Does Not Facially Discriminate Against Petroleum-Based Fuels.**

The Clean Fuels Program does not facially discriminate against petroleum-based fuels. Plaintiffs argue that the program facially discriminates because it "assigns petroleum a higher carbon intensity than ethanol and other Oregon biofuels." ECF# 63, p. 22. First, as explained above, because petroleum and ethanol are not similarly situated, Plaintiffs' claim of facial discrimination against petroleum-based fuels fails. Second, *Exxon Corp.* bars any such claim. Under *Exxon Corp.*, the Clean Fuels Program would not be discriminatory even if ethanol fully displaced petroleum-based fuels. *See* 437 U.S. 117. Third, the Ninth Circuit recognized in *Rocky Mountain* that petroleum-based fuels "present[] different climate challenges from ethanol and other biofuels." 730 F.3d at 1084. Thus, there are legitimate, non-discriminatory reasons to treat petroleum-based fuels differently from ethanol.

The cases cited by Plaintiffs[1] do not support their argument that the Clean Fuels Program facially discriminates against petroleum-based fuels. Plaintiffs cite *Bacchus Imps., Ltd. v. Dias*, 468 U.S. 263 (1984), and the Supreme Court's characterization of that decision in *Amerada Hess Corp. v. Dir., Div. of Taxation, N.J. Dep't of Treasury*, 490 U.S. 66 (1989), but these cases do not assist Plaintiffs. The law invalidated in *Bacchus Imps.* limited Hawaii's liquor excise tax exemption to two kinds of liquor "manufactured in" Hawaii. *In re Bacchus Imps., Ltd.*, 65 Haw. 566, 568 n. 1 (1982) (quoting HRS § 244-4), *rev'd*, *Bacchus Imps.*, 468 U.S. 263. In contrast to the Clean Fuels Program—where both in-state and out-of-state products can earn, and have earned, lower carbon intensity values—Hawaii's statute explicitly confined its tax exemptions to products "manufactured in" Hawaii. *Id.* Thus, unlike the Clean Fuels Program, the Hawaii law

[1] Many of the cases cited by Plaintiffs in their discussion of facial discrimination actually concern other types of discrimination. *E.g., Bacchus Imps., Ltd. v. Dias*, 468 U.S. 263 (1984) (addressing discriminatory purpose and effect); *Hunt v. Wash. State Apple Adver. Comm'n*, 432 U.S. 333 (1977) (explicitly noting the challenged statute's "facial neutrality" and instead striking it down due to its discriminatory effect).



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gave a benefit "exclusively to a localized industry." *See Amerada Hess*, 490 U.S. at 76 (describing *Bacchus Imps.*).[2]

Plaintiffs cite *Hunt v. Wash. State Apple Adver. Comm'n*, 432 U.S. 333 (1977), for the proposition that an otherwise-unconstitutional statute is not saved because it favors certain out-of-state products, in addition to favoring in-state products. But unlike the Clean Fuels Program, the North Carolina law challenged in *Hunt* did not assign its most favorable treatment to out-of-state products. *See Hunt*, 432 U.S. at 350-52. The law challenged in *Hunt* "'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.'" *Rocky Mountain*, 730 F.3d. at 1092 (quoting *Hunt*, 432 U.S. at 351). Plaintiffs allege no such advantages they, or their members, have earned and that the Clean Fuels Program eliminates. Indeed, on its face, the Program rewards all investment in innovative fuel production, regardless of where that innovation occurs. *Hunt* is, accordingly, no more relevant here than it was to Plaintiffs' challenge to California's low carbon fuel standard (LCFS).

Finally, *New Energy Co.*, 486 U.S. 269, does not assist Plaintiffs. In that case, the Supreme Court struck down an Ohio statute that awarded a tax credit for each gallon of ethanol sold in Ohio, "but only if the ethanol [was] produced in Ohio or in a state that grant[ed] similar tax advantages to ethanol produced in Ohio." *Id.* at 271. On its face, the law was structured to provide the most favorable treatment to Ohio ethanol in as many markets as possible. *See id.* at 274. Like the law in *Hunt*, the law in *New Energy Co.* is readily distinguishable from the Clean

[2] Plaintiffs incorrectly attempt to incorporate *Rocky Mountain*'s discussion of discriminatory *purpose* into Plaintiffs' discussion of *facial* discrimination. As evidence of the low carbon fuel standard's (LCFS) nondiscriminatory purpose, the Ninth Circuit noted that the petroleum-based fuel that was disadvantaged the most by the LCFS was produced in California, and that the California sources burdened by the LCFS constituted a larger share of the California market than the California sources benefited by the LCFS. *Rocky Mountain*, 730 F.3d at 1099. Of course, because Oregon has no local petroleum-based fuel producers, this same burdening of local petroleum interests is not possible. Rather, a more analogous situation is the one in *Exxon Corp.*, in which the absence of local petroleum refiners did not mean that the burden that the law placed on refiners was discriminatory. *See* 437 U.S. at 125-26.



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Fuels Program, in which out-of-state fuels have obtained more favorable carbon intensity values than their in-state competitors. No case supports Plaintiffs' claim of facial discrimination against petroleum-based fuels, and that claim should be dismissed.

**2. The Clean Fuels Program Does Not Facially Discriminate Against Out-of-State Ethanol.**

Plaintiffs concede that their facial discrimination claim regarding out-of-state ethanol cannot be reconciled with the Ninth Circuit's decision in *Rocky Mountain*, 730 F.3d at 1094, which held that California's LCFS did not facially discriminate against out-of-state ethanol. ECF# 63, p. 25. The values in Oregon's regulation are virtually identical to the values in California's table at the time of the Ninth Circuit's decision, and Plaintiffs do not contend otherwise. *See* ECF# 52, pp. 15-16. For that reason, and the reasons stated in Defendants' opening brief and above, this claim should be dismissed. *Id.* at 18-19.

**B. Plaintiffs' Discriminatory Purpose Claim Fails.**

Plaintiffs' discriminatory purpose claim fails for several reasons.[3] First, the statements Plaintiffs rely upon are taken out of context. In context, the statements reflect little more than possible *effects* of a program designed to achieve an environmental goal: the reduction of Oregon's carbon pollution. Plaintiffs rely on selective comments from documents incorporated by reference into their Complaint. But the Court should consider the entire content of the documents cited in evaluating the merits of the State's motion, not simply the statements Plaintiffs quote. *See, e.g., Petrie v. Elec. Game Card, Inc.*, 761 F.3d 959, 964 n. 6 (9th Cir.

[3] Plaintiffs claim that constitutional precedent is perfectly clear that discriminatory purpose alone can invalidate a state program. They point to language in *Bacchus Imps.*, but the Supreme Court there also found a discriminatory effect. 468 U.S. at 270-71. Several courts have raised doubts as to whether discriminatory purpose, standing alone, is sufficient to invalidate a law. *See Alliance of Auto. Mfrs. v. Gwadosky*, 430 F.3d 30, 36 n. 3 (1st Cir. 2005) (noting "there is some reason to question whether a showing of discriminatory purpose alone will invariably suffice to support a finding of constitutional invalidity under the dormant Commerce Clause"); *Wal-Mart Stores, Inc. v. City of Turlock*, 483 F. Supp. 2d 987, 1012-13 (E.D. Cal. 2006) ("In no Commerce Clause case cited or disclosed by research has a statute or regulation been invalidated solely because of the legislators' alleged discriminatory motives."). Nevertheless, whether or not a discriminatory purpose alone can be sufficient in some cases, Plaintiffs' Complaint and incorporated documents cannot support such a claim here.



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2014) ("We generally consider exhibits attached to a complaint and incorporated by reference to be part of the complaint."); *Dunn v. Castro*, 621 F.3d 1196, 1204 n. 6 (9th Cir. 2010) (noting that consideration of document was appropriate where it was incorporated by reference and attached as an exhibit to memorandum in response to Defendant's motion to dismiss). In context, the statements Plaintiffs rely upon do not reveal a discriminatory purpose. For example, the documents Plaintiffs incorporate by reference into their Complaint include the following:

- Former Governor Kitzhaber's 2012 letter directing DEQ Director Pedersen to develop rules to implement the Clean Fuels Program emphasizes that "[r]educing greenhouse gas emissions is among the most important challenges of our time. This is important not only to begin addressing the threat of global warming, but also to reduce our nation's dependence on imported petroleum, stimulate jobs throughout the nation to produce clean energy and save consumers money." *See* ECF# 1, ¶¶ 32, 72 (citing Governor Kitzhaber's 2012 letter); Exhibit 1 to Reply in Support of Defendants' Motion to Dismiss (Governor Kitzhaber's 2012 letter), p. 1.

- DEQ's final report on the Clean Fuels Program advisory committee process begins by stating that "[t]ransportation produces over a third of Oregon's greenhouse gas pollution. If Oregon is to reduce its contribution to climate change, greenhouse gas pollution from transportation must be reduced." The report then describes three approaches that Oregon is pursuing in its comprehensive strategy to reduce Oregon's contribution to climate change, of which the Clean Fuels Program is only one. *See* ECF# 1, ¶¶ 33, 42, 43, 81, 83, 86, 89; Exhibit 2 to Reply in Support of Defendants' Motion to Dismiss (Excerpt of DEQ Final Report of Advisory Committee Process, *full report available at* http://www.deq.state.or.us/aq/committees/docs/lcfs/reportFinal.pdf), p. 8.

- DEQ's written recommendation to the EQC to adopt the proposed Phase II rules identifies the need that the proposed rule would address: "Climate change poses a serious threat to Oregon's economy, environment and public health. Transportation sources account for approximately one third of all greenhouse gas emissions in Oregon." The recommendation notes that the rules would address the need by "reduc[ing] the average carbon intensity of Oregon's transportation fuels." In addition to the environmental benefits, DEQ recognized that "reducing climate change pollution has many co-benefits including: Reductions in social cost of carbon . . . Improvements to public health . . . Increased energy security." *See* ECF# 1, ¶¶ 57, 62, 64, 82, 89; Exhibit 3 to Reply in Support of Defendants' Motion to Dismiss (Clean Fuels Program Phase II Rulemaking), pp. 3-4.

- Former Governor Kitzhaber's 10-Year Energy Action Plan similarly emphasizes the contribution of transportation in Oregon to Oregon's greenhouse gas emissions. The Plan states, "To reach Oregon's 2020 goals, the state will need an approximately 30 percent reduction from 2010 greenhouse gas levels, which roughly translates to a 30 percent reduction in fossil fuel use." *See* ECF# 1, ¶ 73; Exhibit 4 to Reply in Support of Defendants' Motion to Dismiss (Governor Kitzhaber's 10-Year Energy Action Plan), p. 16. *See also* ECF# 1, ¶¶ 32, 72 (referring to Governor Kitzhaber's 10-Year Energy Action Plan).



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Plaintiffs point to the Economic Impact Analysis prepared for DEQ, as well as subsequent statements of public officials, as purported proof of the State's discriminatory purpose. ECF# 1, ¶¶ 71-84. But Plaintiffs take portions of the report out of context and ignore other portions. Agencies must evaluate and identify the potential fiscal impact in Oregon and to Oregonians of every proposed rule, including an "estimate of th[e] economic impact on state agencies, units of local government and the public." ORS 183.335(2)(b)(E). As required by law, the Economic Impact Analysis considers multiple possible scenarios that could occur, and all of them "reflect the uncertainty of market response—responses may focus on any one of a variety of fuels, those fuels may come from in-state, out-of-state or foreign feedstocks, and they may be refined locally or out of state." *See* ECF# 1, ¶ 82 (citing portion of Phase II Rulemaking referring to Economic Impact Analysis); Exhibit 5 to Reply in Support of Defendants' Motion to Dismiss (Economic Impact Analysis (without appendices)), p. 11. The report is clear that neither it nor any of the scenarios presented are "predictions of the future." Ex. 5, p. 45. One scenario envisions reliance on biofuels produced *out of state* from feedstocks grown *out of state*. *See id.* at 30. In a graph depicting possible effects of the program on the State's economy, that scenario is represented by a flat line. *Id*. at 29-30. All other scenarios evaluate the economic impacts that could occur if some portion of the production of biofuels that may be spurred by the program occurs in Oregon. *See id*. at 29.

Former Governor Kitzhaber and other public officials focused on the latter scenarios in their public statements. But potential economic effects touted by elected officials did not, thereby, suddenly morph into the purpose of the program. Plaintiffs note that former Governor Kitzhaber touted the "opportunity" for development of local industry. ECF# 1, ¶ 76 (quoting former Governor Kitzhaber's press release); Exhibit 6 to Reply in Support of Defendants' Motion to Dismiss (Governor Kitzhaber's Press Release), p. 1; *see also* ECF# 1, ¶¶ 63, 74 (referring to Governor Kitzhaber's Press Release). And Plaintiffs rely on a press release by the Senate Majority Leader's office that refers to an "independent analysis" of economic impact



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finding that the program "could" have certain positive economic impacts in Oregon. ECF# 1, ¶ 79; Exhibit 7 to Reply in Support of Defendants' Motion to Dismiss (Senate Majority Press Release), p. 1. Nothing about creating economic opportunity in Oregon is inherently discriminatory when, as here, the economic opportunity is shared equally with out-of-state businesses. *See Exxon Corp.*, 437 U.S. at 126 ("While the refiners will no longer enjoy their same status in the Maryland market, in-state independent dealers will have no competitive advantage over out-of-state dealers."). Although certain public officials hoped that the Clean Fuels Program would have a positive economic impact in Oregon, neither the structure of the program nor any statements by public officials indicates a design or intent to benefit Oregon's ethanol industry at the expense of out-of-state ethanol.

Second, the Ninth Circuit's *Rocky Mountain* ruling against the Plaintiffs' discriminatory purpose claim cannot be disregarded, either on its facts or its procedural posture. *See* 730 F.3d 1070. The plaintiffs in the Ninth Circuit case asserted that California's public officials and agencies made similar statements highlighting the economic benefits of the LCFS to California.[4]

[4] For example, the plaintiffs asserted that CARB and California's then-Governor Schwarzenegger had made the following statements:

- "CARB 'developed the LCFS in a manner that minimizes costs and maximizes the total benefits to California.'" Brief for Appellee at 3, *Rocky Mountain*, 730 F.3d 1070 (No. 12-15131), 2012 WL 3342552, at *3 (citations omitted). "CARB cited as one of the LCFS's 'key advantages' that it would 'reduc[e] [California's] dependence on foreign oil.' CARB recognized that the LCFS is 'designed' to 'stimulate the production and use of low-carbon fuels in California,' and to 'kee[p] more money in the State' by '[d]isplacing imported transportation fuels with biofuels produced in the State.'" Brief for Appellee at 24, *Rocky Mountain*, 730 F.3d 1070 (No. 12-15131), 2012 WL 3342552, at *24 (citations omitted).
- "Indeed, CARB predicted that 'displaced petroleum-based fuels will come at the expense of *imported* blendstocks,' while 'refineries in the State will continue to operate at capacity.'" Brief for Appellee at 24, *Rocky Mountain*, 730 F.3d 1070 (No. 12-15131), 2012 WL 3342552, at *24 (citations omitted) (emphasis in original).
- "CARB has acknowledged that 'the LCFS *is designed* to . . . stimulate the *production* and use of low-carbon fuels *in California*.' This is not an 'isolated' comment by an errant CARB staff member, but instead reflects a 'goal' that Governor Schwarzenegger identified as 'important . . . for California,' and that was central to LCFS's development. Brief for Appellee at 90, *Rocky Mountain*, 730 F.3d 1070 (No. 12-15131), 2012 WL 3342552, at *90 (citations omitted) (emphases in original).



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Those statements, as characterized by the plaintiffs there, are strikingly similar to the statements Plaintiffs rely upon here. The Ninth Circuit rejected the plaintiffs' reliance on such statements, reasoning, "These [types of statements] 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.'" *Rocky Mountain*, 730 F.3d at 1100 n. 13; *see also Valley Bank of Nev. v. Plus Sys., Inc.*, 914 F.2d 1186, 1196 (9th Cir. 1990) ("The legislators show less concern for out-of-staters. This predictable concern for Nevada residents does not rebut the evenhandedness of the legislation's plain language."). The same is true here.

Nor is *Rocky Mountain* distinguishable by its procedural posture. As in *Rocky Mountain*, this Court is not compelled to ignore the context of the statements on which Plaintiffs rely, particularly given that Plaintiffs have incorporated by reference the materials they contend support their claim. On a motion to dismiss, the question is whether the nonmoving party has stated a plausible claim for relief. *Iqbal*, 556 U.S. at 678. And this Court need not "accept as true allegations that contradict matters properly subject to judicial notice or by exhibit" or "allegations that are merely conclusory, unwarranted deductions of fact, or unreasonable inferences," of the kind offered here. *In re Gilead Scis. Sec. Litig.*, 536 F.3d 1049, 1055 (9th Cir. 2008). Plaintiffs' discriminatory purpose claim fails.

**C. Plaintiffs' Discriminatory Effects Claim Fails.**

Plaintiffs argue that the Clean Fuels Program will have a discriminatory effect because it is "inherent in the Oregon Program's design" that it will "create[] a 'commercial disadvantage' for petroleum and ethanol from outside Oregon." ECF# 63, p. 19. Plaintiffs are wrong for three reasons. First, Plaintiffs have failed to allege facts sufficient to meet the legal standard that applies to discriminatory effects claims. Second, the design of the Oregon Program is not

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- "With regard to 'biofuels,' '[t]he biorefineries expected to be built in the State will provide needed employment, an increased tax base for the State, and value added to the biomass used as feedstock.'" Brief for Appellee at 90, *Rocky Mountain*, 730 F.3d 1070 (No. 12-15131), 2012 WL 3342552, at *90 (citations omitted).



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discriminatory, even if discriminatory design *were* relevant to a discriminatory effects claim. Third, Plaintiffs cannot allege sufficient facts because, if ever a claim could be alleged, no claim could possibly be alleged now.

Plaintiffs misstate the legal standard by contending that they need only allege and prove that the Program creates a "commercial disadvantage" for petroleum and ethanol from outside Oregon. *See* ECF# 63, p. 19. That is not the standard. Plaintiffs cite *New Energy Co.*, 486 U.S. at 274. But discrimination there was "patent," such that an analysis of whether the statute would have a discriminatory effect was not needed or undertaken. *Id.* at 276. The standard for discriminatory effects, in contrast, requires proof of an *actual* discriminatory effect, not a *possible* one that might occur down the road:

> In essence, [plaintiff] asks us without substantial evidentiary support to speculate and to infer that this scheme necessarily has the effect it fears. This leap of faith we will not take. Courts examining a 'practical effect' challenge must be reluctant to invalidate a state statutory scheme . . . simply because it *might* turn out down the road to be at odds with our constitutional prohibition against state laws that discriminate against Interstate Commerce.

*Black Star Farms LLC v. Oliver*, 600 F.3d 1225, 1232 (9th Cir. 2010); *see also Int'l Franchise Ass'n, Inc. v. City of Seattle*, __ F. Supp. 3d __, 2015 WL 1221490, at *10-14 (W.D. Wash. 2015) (denying motion for preliminary injunction and holding that the plaintiff failed to "present[] evidence of an actual, rather than potential, impact on interstate commerce").

The Ninth Circuit held in *Black Star Farms* that a plaintiff must prove that the law resulted in local products claiming a larger share of total sales than out-of-state products. 600 F.3d at 1233. As a result, to survive a motion to dismiss, a plaintiff must allege sufficient facts to allow the court to draw a reasonable inference of a market share shift caused by the law. *See Iqbal*, 556 U.S. at 678. Plaintiffs have not satisfied that obligation here. Their conclusory allegations that the program "will have its intended discriminatory effect" because of what they allege to be discriminatory design are insufficient under *Iqbal* to survive a motion to dismiss. ECF# 63, p. 19. Their discriminatory effects claim should be dismissed for this reason alone.



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But the claim should also be dismissed because, even if discriminatory design were relevant to a discriminatory effects claim, the Clean Fuels Program's design is not discriminatory. Plaintiffs contend the design is inherently discriminatory for three reasons. First, it requires regulated parties to comply with the standard for carbon intensity. That is true, but the definition of regulated parties does not depend on the origin of the fuel; all Oregon producers or importers into Oregon of regulated fuel are regulated parties. OAR 340-253-0100(1). Second, Plaintiffs contend the Program "assigns lower carbon-intensity values to Oregon ethanol and other biofuels than to petroleum." ECF# 63, p. 19. In *Exxon Corp.*, the Supreme Court upheld a statute under similar circumstances, holding: "Since Maryland's entire gasoline supply flows in interstate commerce and since there are no local producers or refiners, such claims of disparate treatment between interstate and local commerce would be meritless." 437 U.S. at 125. The same is true here. Moreover, petroleum-based fuels "present[] different climate challenges from ethanol and other biofuels." *Rocky Mountain*, 730 F.3d at 1084. As a result, it is reasonable and non-discriminatory to treat these different types of fuels differently. Put another way, under *Exxon Corp.* and *Rocky Mountain*, even if petroleum were ultimately entirely displaced by ethanol, that would not be discrimination under the dormant Commerce Clause. Third, Plaintiffs contend the Program design is discriminatory because it assigns lower carbon intensity values to Oregon ethanol than to Midwest ethanol. But Plaintiffs ignore important information: Californian and Brazilian ethanol carry the lowest carbon intensity of all origin-identified ethanol in Oregon's regulatory look-up tables. OAR 340-253-8030 (Table 3). And even lower carbon intensity values are listed for ethanol whose origin is clearly not Oregon, given the allegations in the Complaint. *Id.*; *see also* ECF# 53, p. 11 (demonstrating that the lowest carbon intensity values correspond to Midwest ethanol). In *Rocky Mountain*, the Ninth Circuit ruled that all sources of ethanol should be considered. 730 F.3d at 1088. Considering all ethanol values, it is apparent that the Program is



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not designed to discriminate in favor of Oregon ethanol and against Midwest (or any other out-of-state) ethanol.

Plaintiffs have failed to plead the necessary facts to survive a motion to dismiss on their discriminatory effects claim. Nor could they possibly amend to plead sufficient facts at this point. If ever a discriminatory effects claim were to be alleged, it would have to be alleged after the Program goes into effect and, even then, only after evidence of its effect on the market share of relevant and appropriately comparable market participants is clear. Because it is premature for such evidence to be adduced or alleged, the claim of discriminatory effects is not ripe.[5]

## III. The Clean Fuels Program Does Not Regulate Conduct that Occurs Entirely Outside Oregon.

Plaintiffs acknowledge that the Ninth Circuit's decision in *Rocky Mountain* requires the dismissal of their claim that the Clean Fuels Program violates the Commerce Clause by regulating extraterritorially.[6] ECF# 63, p. 25. But Plaintiffs argue that their extraterritoriality

[5] Neither *Union Pac. R.R. Co. v. Cal. Pub. Util. Comm'n*, 346 F.3d 851, 871-72 & n. 22 (9th Cir. 2003), nor *Arizona v. Atchison, Topeka & Santa Fe R.R. Co.*, 656 F.2d 398, 402 (9th Cir. 1981), compel a different conclusion. In *Union Pac.*, the Ninth Circuit noted that "the extra-territorial effect of [the] regulation is undisputed." 346 F.3d at 871. Accordingly, ripeness was no barrier to the Court's ability to resolve the claim. And in *Atchison*, the Ninth Circuit found the issues to be "sufficiently concrete" and the "operation of [the statute at issue] against the state so inevitable" that the courts had jurisdiction to resolve the declaratory judgment claim. 656 F.2d at 402-03. That is not the case here. Plaintiffs have only alleged in conclusory terms that the effect of the statute will be discriminatory—but they have not provided any detail about those effects, because they cannot possibly know. The dispute is not ripe.

[6] The Ninth Circuit recently affirmed its conclusion in *Rocky Mountain* that "even when state law has significant extraterritorial effects, it passes Commerce Clause muster when, as here, those effects result from the regulation of in-state conduct." *Chinatown Neighborhood Ass'n v. Harris*, ___ F.3d ___, 2015 WL 4509284, at *6 (9th Cir., July 27, 2015) (upholding constitutionality of California's Shark Fin Law).

In addition, the Tenth Circuit recently upheld Colorado's renewable energy mandate against a dormant Commerce Clause challenge, holding that the Colorado law did not share any of the characteristics of the three cases in which the Supreme Court struck down a law because it violated the extraterritoriality doctrine. *Energy and Env't Legal Inst. v. Epel*, ___ F.3d ___, 2015 WL 4174876, at *3 (10th Cir., July 13, 2015) (characterizing *Baldwin v. G.A.F. Seelig, Inc.*, 294 U.S. 511 (1935), *Brown-Forman Distillers Corp. v. N.Y. State Liquor Auth.*, 476 U.S. 573 (1986), and *Healy v. Beer Inst.*, 491 U.S. 324 (1989), as sharing the following three characteristics: "(1) a price control or price affirmation regulation, (2) linking in-state prices to those charged elsewhere, with (3) the effect of raising costs for out-of-state consumers or rival businesses").



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claim remains viable because it has an independent basis in "principles of structural federalism." *Id*. Plaintiffs are incorrect, and their claim under "principles of structural federalism" should be dismissed.

Plaintiffs collect quotations from a variety of disparate cases in an effort to fashion a claim for violation of "principles of structural federalism." *See id*. at 26-27. But the cases that Plaintiffs cite fail to demonstrate the existence of a "principles of interstate federalism" claim. The cited cases interpret a variety of different constitutional provisions, including the Full Faith and Credit Clause of Article IV, section 1; the Contract Clause of Article I, section 10; and the Due Process Clause of the Fourteenth Amendment. *See id.* But Plaintiffs do not purport to bring a claim under any of those provisions.

Even assuming that a claim for violation of "principles of structural federalism" exists—which it does not—Plaintiffs fail to allege that the Clean Fuels Program controls conduct that occurs entirely outside of Oregon. In *Rocky Mountain*, the Ninth Circuit specifically held that the LCFS's use of lifecycle analysis did not constitute regulation of the components of the lifecycle. 730 F.3d at 1103 ("But California does not control these factors—directly or in practical effect—simply because it factors them into the lifecycle analysis."). Here, Plaintiffs cannot allege any type of extraterritoriality claim because the Clean Fuels Program—like California's LCFS—does not control the factors that go into lifecycle analysis. *Id.; see also Rocky Mountain Farmers Union v. Goldstene*, No. 1:09-cv-02234-LJO-BAM, 2014 WL 7004725, at *14 (E.D. Cal., Dec. 11, 2014) (denying plaintiffs' motion to amend complaint to add claim based on "principles of interstate federalism" because *Rocky Mountain*, 730 F.3d 1070, "forecloses any claim that the LCFS is an impermissible extraterritorial regulation, regardless of the basis for the claim, because any extraterritorial regulation claim necessarily is contingent on a finding that the LCFS regulates extraterritorially").

Because there is no independent claim for violation of "principles of structural federalism," and because even if there were, Plaintiffs cannot allege that the Clean Fuels



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Program controls conduct occurring completely outside of Oregon, this claim should be dismissed.

## IV. Plaintiffs' Preemption Claims Cannot Survive the Motions to Dismiss.

### A. Plaintiffs' Express Preemption Claim Fails.

Plaintiffs' claim that the Clean Fuels Program is expressly preempted by EPA's reformulated gasoline rule under CAA section 211(c)(4)(A)(i) is fatally flawed. That provision does not preempt state controls of a fuel characteristic unless EPA has found that no such control is necessary under section 211(c)(1). *See* 42 U.S.C. § 7545(c)(4)(A)(i). Plaintiffs argue that the Clean Fuels Program is preempted because EPA declined to regulate methane as an ozone-forming VOC in the reformulated gasoline rule. Plaintiffs' claim fails for three reasons. First, EPA never made the necessary finding to invoke section 211(c)(4)(A)(i). Second, the reformulated gasoline rule does not regulate the same characteristic of fuel that the Clean Fuels Program regulates, which is necessary for preemption to apply. Third, even if EPA had invoked section 211(c)(4)(A)(i) preemption as to methane generally, EPA's subsequent Endangerment Finding, which concludes that methane is a dangerous greenhouse gas that "may reasonably be anticipated to endanger public health or welfare," reversed the predicate finding necessary for preemption to apply. *See* 74 Fed. Reg. 66496-01.

It bears emphasizing that the statutory provision Plaintiffs rely upon, CAA section 211(c)(4) (codified at 42 U.S.C. § 7545(c)(4)), is an *exception* to a savings clause that otherwise preserves state authority to regulate air pollution. *See* 42 U.S.C. § 7416 (preserving state authority). The Ninth Circuit described the savings clause—codified at 42 U.S.C. § 7416—as "sweeping and explicit." *Exxon Mobil Corp. v. EPA*, 217 F.3d 1246, 1255 (9th Cir. 2000). It provides generally that state authority to regulate air pollutants is preserved. 42 U.S.C. § 7416. Because Plaintiffs cannot sustain a claim that Congress or EPA intended to preempt the Clean Fuels Program, the savings clause applies here and preserves the State's authority.



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**1. EPA Did Not Make the Necessary Finding to Invoke Section 211(c)(4)(A)(i).**

State authority is preserved here because EPA never made the required finding under section 211(c)(4)(A)(i). *See* 42 U.S.C. § 7545(c)(4)(A)(i). In order to invoke preemption, EPA must make the finding that no control of the characteristic of fuel under consideration is necessary under section 211(c)(1). *See id*. Section 211(c)(1) authorizes EPA to regulate fuel if the fuel or its emission product "causes, or contributes, to air pollution . . . that may reasonably be anticipated to endanger the public health or welfare." 42 U.S.C. § 7545(c)(1). EPA did not find under section 211(c)(1) that no control of methane is necessary. Instead, in the reformulated gasoline rule, EPA found only that methane is not an ozone-forming VOC under section 211(k). 59 Fed. Reg. 7722. Section 211(k) requires EPA to regulate fuel to achieve the "greatest reduction in emissions of ozone forming volatile organic compounds . . . achievable through the reformulation of conventional gasoline." 42 U.S.C. § 7545(k). This is the only statutory provision EPA mentioned in its discussion of methane in the reformulated gasoline rule, and the only provision under which it acted with respect to methane.

EPA must be express about its decisions to preclude state regulation under section 211(c)(4)(A). EPA's own regulations provide that state fuel controls are not preempted unless they are "explicitly regulated" by EPA. 40 C.F.R. § 80.1. This is consistent with the recognition that air pollution prevention is within the states' traditional authority that courts do not cast aside absent the "'clear and manifest purpose of Congress.'" *Oxygenated Fuels Ass'n, Inc. v. Davis*, 331 F.3d 665, 668 (9th Cir. 2003) (quoting *Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 230 (1947)). And as State intervenors explained, EPA has been very clear when it intends to invoke section 211(c)(4)(A)(i) preemption. *See* ECF# 52, pp. 20-21; 57 Fed. Reg. 47849 (Oct. 20, 1992) (explicitly proposing to find "under section 211(c)(4)(A)(i) that no control . . . is necessary under section 211(c)(1)" for fuel oxygen content).

In contrast, here, EPA only expressly incorporated preemption for characteristics of fuel that it *did* choose to regulate under section 211(c)(1). Under that provision, preemption of state



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controls is automatic if EPA controls a characteristic of fuel unless a state's control of the characteristic "is identical to" EPA's. 42 U.S.C. § 7545(c)(4)(A)(ii). By referring *only* to preemption of "non-identical" and "dissimilar State controls," EPA invoked only this automatic preemption provision, that is, preemption of any state effort to change any of the VOC control requirements that were included in the reformulated gasoline rule. 59 Fed. Reg. 7809. Neither EPA's preemption discussion nor its treatment of methane can reasonably be construed to be a finding that "no control . . . of the characteristic . . . of fuel . . . is necessary," such that state regulation of a characteristic of fuel that EPA chose *not* to regulate would be prohibited. *See* 42 U.S.C. § 7545(c)(4)(A)(i).

Plaintiffs attempt to avoid this conclusion by suggesting an interpretation of the statute that is inconsistent with its text. Plaintiffs contend that the structure of section 211(c)(4)(A) excludes the possibility that EPA could decline to regulate a characteristic of fuel and also allow States to regulate it. Plaintiffs are wrong. Plaintiffs argue that the structure of section 211(c)(4)(A) allows for two possibilities only: EPA chooses to regulate a characteristic of fuel and thereby preempts States from regulating that same characteristic of fuel, or EPA chooses not to regulate a characteristic of fuel and thereby preempts States from regulating that same characteristic of fuel. They assert that these possibilities "cover the waterfront of possible EPA regulatory choices." ECF# 63, p. 33. It is not so. Rather, there is a third choice. EPA may choose not to control a fuel characteristic *and* choose to allow States to regulate that same characteristic. It may do so by declining to make and publish the finding required by section 211(c)(4)(A)(i), that "no control or prohibition of the characteristic or component of a fuel or fuel additive under paragraph (1) is necessary." 42 U.S.C. § 7545(c)(4)(A)(i). EPA did not find that no control of any relevant characteristic of fuel under section 211(c)(1) was necessary in the reformulated gasoline rule. Plaintiffs' claim fails as a matter of law.



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**2. The Reformulated Gasoline Rule and the Clean Fuels Program Do Not Control the Same Characteristic of Fuel.**

Even if EPA had made a finding that no control is necessary under section 211(c)(4)(A)(i) in order to preempt state regulation of methane as an ozone-forming VOC, the State is regulating a different characteristic of fuel in the Clean Fuels Program. For section 211(c)(4)(A)(i) preemption to apply, the State must regulate the *same* characteristic or component of fuel that EPA finds it is not necessary to regulate. *See* 42 U.S.C. §§ 7545(c)(4)(A)-(c)(4)(A)(i) (providing that no state may "prescribe . . . any control or prohibition respecting *any* characteristic or component of a fuel" if EPA finds that "no control or prohibition of *the* characteristic or component of a fuel . . . is necessary" (emphasis added)). The reformulated gasoline rule regulates ozone-forming VOCs in each gallon of gasoline provided to consumers. In contrast, the Clean Fuels Program regulates the annual, average lifecycle carbon intensity of the total volume of fuel provided to consumers in Oregon by each fuel importer or producer. The two programs regulate different characteristics or components of fuel.

Plaintiffs respond by ignoring the statutory language. Plaintiffs contend that, to invoke preemption, "[t]the CAA asks only whether a state regulation was enacted 'for purposes of motor vehicle emission control.' If so, then the regulation is preempted unless it is identical to EPA's own fuel standard." ECF# 63, p. 32 (citation omitted). That is not a reasonable interpretation of the statute. The statute does not broadly exempt any fuel control enacted for purposes of emission control; rather, it exempts "any control or prohibition respecting *any characteristic or component* of a fuel or fuel additive in a motor vehicle" under two specified circumstances. 42 U.S.C. § 7545(c)(4)(A). Plaintiffs ignore the "characteristic or component" statutory terms (in addition to the non-automatic nature of section 211(c)(4)(A)(i) preemption). The Clean Fuels Program does not regulate any characteristic EPA has regulated or found unnecessary to control. Rather, the Clean Fuels Program regulates only the lifecycle carbon intensity of the aggregate amount of fuel provided in Oregon by each fuel importer or producer. To the extent that is a characteristic or component, EPA did not speak to it in the reformulated gasoline rule. Instead,



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EPA focused on the specific chemical composition of each gallon of gasoline, characteristics the Clean Fuels Program does not address.

Plaintiffs also suggest that a reading of the statute that would give meaning to the statutory terms "characteristic or component" would "wreak havoc" on national uniformity and encourage an "'inefficient patchwork of potentially conflicting regulations.'" ECF# 63, p. 32 (citation omitted). They suggest a state could invent a characteristic different from those on EPA's mind and use it as a pretext to regulate characteristics for which EPA promulgated different regulations or said no control was necessary. Plaintiffs contend that a state could, thereby, "undermine every aspect of the federal fuels standard." *Id.* This "Chicken Little" argument is not tied to reality. Plaintiffs have not alleged that the State invented the concept of carbon pollution so that it could regulate methane. They have not denied that carbon pollution is, in fact, causing a real and impending environmental disaster. Nor have they alleged any real-world regulatory conflict with the CAA or EPA's regulations under it. Congress chose its words, and each of them must be given meaning. Indeed, the words "characteristic or component" in this statute quite plainly *limit* EPA's preemptive power to precisely those "characteristic[s] or component[s]" EPA has addressed, expressly leaving the States free to regulate other "characteristic[s] or component[s]."[7]

It is clear that EPA was regulating the chemical composition of gasoline for its ozone-forming potential in the reformulated gasoline rule as required under section 211(k). EPA's

[7] Plaintiffs argue that the Clean Fuels Program is preempted as the result of a dormant Commerce Clause argument that CARB made in the *Rocky Mountain* litigation and the Ninth Circuit's ruling on the issue. They are wrong. CARB argued that in section 211(c)(4)(B), which exempts California from the provision at issue here (section 211(c)(4)(A)), Congress intended to exempt California from dormant Commerce Clause scrutiny as well. *See Rocky Mountain*, 730 F.3d at 1106. But the Ninth Circuit disagreed, finding no express exemption. In that context, the court discussed section 211(c)(4)(B), in which Congress used different language from section 211(c)(4)(A). The court did not find that section 211(c)(4)(A) applies. And, in any case, even if the Clean Fuels Program were found to be a control respecting a characteristic of fuel, the characteristic of fuel that the Program regulates is not the same characteristic that EPA declined to regulate in the reformulated gasoline rule.



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reformulated gasoline rule does not preempt the Clean Fuels Program, which regulates carbon intensity.

### 3. If EPA *Had* Regulated Methane, Generally, and Invoked Section 211(c)(4)(A)(i), it Nullified its Alleged Section 211(c)(1) Determination in the Endangerment Finding.

Even if emissions of methane more broadly were somehow considered to be a characteristic of fuel that EPA chose not to regulate under section 211(c)(1) in the reformulated gasoline rule, Plaintiffs' claim still fails. As noted earlier, section 211(c)(1) authorizes EPA to regulate fuel when it finds that fuel or its emission product "causes, or contributes, to air pollution or water pollution . . . that may reasonably be anticipated to endanger the public health or welfare." 42 U.S.C. § 7545(c)(1). EPA decided in the reformulated gasoline rule that "methane would be excluded from the definition of VOC on the basis of its low reactivity in keeping with past EPA actions." 59 Fed. Reg. 7722. The only way that language could be sufficient to constitute a finding under section 211(c)(1) and invoke section 211(c)(4)(A)(i) preemption would be for EPA's decision about methane's "low reactivity" to be considered a determination that methane, generally, does not "cause[], or contribute[], to air pollution or water pollution . . . that may reasonably be anticipated to endanger the public health or welfare," pursuant to section 211(c)(1). *See* 42 U.S.C. § 7545(c)(1). But even if EPA had made such a determination, EPA's subsequent 2009 Endangerment Finding would be a clear reversal of that determination. *See* 74 Fed. Reg. 66496-01. In 2009, EPA found that methane is a dangerous air pollutant that endangers public health and welfare. *Id.* As a result, the predicate for preemption would be absent and the Clean Fuels Program would be upheld.

Plaintiffs argue that EPA's 2009 Endangerment Finding is not relevant because it governs vehicle standards rather than fuel standards and that EPA is not required to adopt fuel standards even if it has made an endangerment finding for a pollutant. On that point, Plaintiffs further note that "if [EPA] finds that a vehicle standard adequately controls emissions of a particular pollutant," then EPA could choose not to adopt fuel standards to regulate that pollutant.



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ECF# 63, p. 34. But that is not the decision that EPA made regarding methane in the reformulated gasoline rule. EPA determined methane was not an ozone-forming VOC and therefore not subject to regulation under the reformulated gasoline rule, but not because vehicle standards sufficiently regulate methane. 59 Fed. Reg. 7722. Instead, the only rationale that EPA provided was that "methane would be excluded from the definition of VOC on the basis of its low reactivity." *Id.*[8] In other words, EPA indicated that methane emissions are not a significant concern with respect to ozone formation. *See id.* But to the extent that EPA's decision in the reformulated gasoline rule not to treat methane as an ozone-forming VOC could be interpreted as triggering preemption under CAA section 211(c)(4)(A)(i) as to methane generally, which the State disputes, EPA's Endangerment Finding nullified the predicate finding for preemption. *See* 74 Fed. Reg. 66496-01.

In short, Plaintiffs have failed to state a viable claim for express preemption under section 211(c)(4)(A)(i). If EPA had intended to preempt programs like the Clean Fuels Program, it would have been clear about that intent. Plaintiffs' express preemption claim fails and should be dismissed.

**B. Plaintiffs Provide No Basis to Deny the State's Motion to Dismiss the Fourth Claim for Relief.**

Plaintiffs' fourth claim for relief alleges that Oregon's Clean Fuels Program conflicts with and is preempted by the federal Renewable Fuel Standard (RFS) in the CAA because it closes a market for ethanol produced in plants built before 2007 (then-existing plants). ECF# 63,

[8] The lack of explanation by EPA regarding why it chose not to include methane within the definition of VOCs in the reformulated gasoline rule, as well as the fact that EPA's entire reformulated gasoline rule discussion and consideration of which VOCs to regulate was made in the context of CAA section 211(k), reinforce that EPA's decision is not the type of explicit published finding that triggers preemption under section 211(c)(4)(A)(i). EPA was required by Congress in section 211(k) to regulate ozone-forming VOCs in the reformulated gasoline rule. 42 U.S.C. § 7545(k)(1)(A). To meet that requirement, EPA had to determine which pollutants were VOCs. In making that required determination under section 211(k), EPA was not making a section 211(c)(4)(A)(i) discretionary decision about whether regulation of methane generally was necessary. For EPA to make a decision that no regulation of methane is necessary, for any reason, it would have had to do more than determine methane is not an ozone-forming VOC. It did not do so.



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p. 34 (citing 42 U.S.C. § 7545(o)(2)(A)(i)). The RFS exempts such existing plants from its requirement that certain fuels achieve a 20 percent reduction in lifecycle GHG emissions. 42 U.S.C. § 7545(o)(2)(A)(i). This claim should be dismissed for three independent reasons: (1) Plaintiffs lack prudential standing for this claim; (2) savings clauses in the Clean Air Act expressly preserve Oregon's authority to regulate air pollution and to adopt more environmentally protective laws; and (3) the Clean Fuels Program does not conflict with the RFS.

**1. Plaintiffs Lack Prudential Standing for their Conflict Preemption Claim Because They Do Not Allege that They Produce Ethanol from any Facilities Built Before 2007.**

Plaintiffs assert that they have prudential standing to sustain their conflict preemption claim because the Complaint alleges that some of Plaintiffs' members produce ethanol. ECF# 63, p. 41. But Plaintiffs do not allege that they or any of their members produce ethanol in any plants built before 2007. Because Plaintiffs are simply asserting the rights of others—namely, those who produce ethanol from plants built before 2007—they lack prudential standing for this claim. *See, e.g., The Wilderness Soc'y v. Kane Cnty.*, 632 F.3d 1162, 1169-71 (10th Cir. 2011) (holding that the plaintiffs lacked prudential standing to maintain a preemption claim because they sought to protect interests of a third party, and not their own rights).

**2. Plaintiffs Cannot Avoid the Savings Clauses in the Clean Air Act.**

As explained in the State's opening brief, because Congress expressly reserved the rights of the states to regulate air pollution and to impose more environmentally protective laws, this Court should not entertain Plaintiffs' claims that the Clean Fuels Program conflicts with the CAA. To reiterate briefly, CAA section 116 includes a savings clause that expressly preserves state authority to regulate air pollution. 42 U.S.C. § 7416. As noted in the State's opening brief, ECF# 51, pp. 28-29, section 211(c)(4)(A) provides for only two limited circumstances in which states will be preempted from regulating fuels to abate air pollution. 42 U.S.C. § 7545(c)(4)(A). Neither of those circumstances is present here. In addition, section 211(o), adopted as part of the



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EISA, includes a savings clause that *prevents* preemption of any more environmentally protective state law or regulation, further demonstrating congressional intent to preserve states' authority to adopt low carbon fuel standards.

Plaintiffs argue that "a savings clause does not bar the working of conflict preemption principles." ECF# 63, p. 35 (quoting *Sprietsma v. Mercury Marine*, 537 U.S. 51, 65 (2002)) (internal quotation marks omitted). While the State agrees that a savings clause does not necessarily bar the ordinary working of conflict preemption principles, it does where, as here, the savings clause would otherwise be rendered ineffectual. *Geier v. Am. Honda Motor Co.*, 529 U.S. 861, 869 (2000). The court in *Stenehjem* explained that in *Geier* and other obstacle preemption cases, the statutory preemption provisions and savings clauses were "inconsistent and conflicting," and in the absence of clear congressional intent found in the plain language of the statute, courts considered actual conflicts. *State ex. rel. Stenehjem v. FreeEats.com, Inc.*, 712 N.W.2d 828, 841 (N.D. 2006). But where, as here, Congress has pronounced its intent not to preempt through explicit statutory language, there is no federal preemption. *See id.* (citing *English v. Gen. Elec. Co.*, 496 U.S. 72, 78-79 (1990)). Moreover, the CAA section 116 savings clause and the section 211(c)(4)(A) preemption provision work together, reflecting a clear and harmonious congressional design, as opposed to the inconsistent and conflicting statutory provisions examined in *Geier*. *See* 42 U.S.C. §§ 7416, 7545(c)(4)(A).

Plaintiffs also argue that the EISA savings clause is inapplicable because "[the State] ha[s] not shown that the Oregon Program imposes a 'more environmentally protective requirement.'" ECF# 63, p. 40. Plaintiffs speculatively contend—without relying on any well-pleaded allegations in their Complaint—that the Clean Fuels Program "*may* instead increase GHG emissions (or at the very least hide them) by reshuffling higher carbon-intensity fuels to different markets, and may affect other federally regulated pollutants" by, for example, causing higher $NO_x$ emissions. *Id.* (emphasis added). This argument should be rejected because the



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Complaint fails to allege at all, much less properly plead, that the Clean Fuels Program does not impose environmental protections in addition to those imposed by the CAA.

**3. Oregon's Clean Fuels Program is in Harmony with the Clean Air Act.**

To the extent that this Court's analysis does not end with the savings clauses, Plaintiffs must plead allegations that, if proven, establish that the Clean Fuels Program conflicts with the clear and manifest intent of Congress in enacting the federal RFS in the CAA, as amended by the EISA. *See Oxygenated Fuels*, 331 F.3d at 668 (quoting *Rice*, 331 U.S. at 230). When interpreting a federal statute, courts presume that Congress did not intend to supplant state law. *College Loan Corp. v. SLM Corp.*, 396 F.3d 588, 597 (4th Cir. 2005). In addition, courts must attempt to harmonize federal and state statutes if reasonably possible. *See Unocal Corp. v. Kaabipour*, 177 F.3d 755, 769 (9th Cir. 1999) (noting "the respectful approach of generally interpreting and applying legislation by harmonizing state and federal statutes where possible so as to avoid finding preemption"); *Harris v. United States*, 536 U.S. 545, 555 (2002) ("[W]hen a statute is susceptible of two constructions, by one of which grave and doubtful constitutional questions arise and by the other of which such questions are avoided, [the court's] duty is to adopt the latter.") (internal quotation marks omitted). Moreover, "[t]he existence of a hypothetical or potential conflict is insufficient to warrant the preemption of the state statute." *Rice v. Norman Williams Co.*, 458 U.S. 654, 659 (1982). Thus, plaintiffs may "successfully enjoin the enforcement of state statute only if the statute on its face irreconcilably conflicts with federal . . . policy." *Id.*

As explained in the State's opening brief, ECF# 51, pp. 34-43, and further below, Plaintiffs have not alleged that the Clean Fuels Program cannot be reconciled with the federal RFS, as amended by the EISA. To the contrary, the Clean Fuels Program is in harmony with these federal laws.



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**a. Plaintiffs Cite No Authority Establishing Any Clear and Manifest Congressional Intent to Preempt Oregon's Clean Fuels Program.**

Plaintiffs' conflict preemption claim rests primarily on their inaccurate assertion that the RFS, as amended by the EISA, was intended to ensure an ongoing market for ethanol produced in plants built before 2007. ECF# 63, pp. 36-37. Plaintiffs cite several subsections of CAA section 211 in support of this premise: 42 U.S.C. §§ 7545(o)(2)(A)(i); 7545(o)(2)(A)(iii)(II)(aa); and 7545(o)(2)(B). ECF# 63, p. 36. They contend that, together, "[t]hese provisions reflect a congressional purpose to ensure a continued nationwide market for ethanol from existing ethanol plants, which Congress deemed necessary to 'stabilize the cost and availability of energy.'" *Id.* (quoting EISA § 806). The text and context of these provisions, however, belies Plaintiffs' argument.

First, Plaintiffs read far too much into CAA section 211(o)(2)(A)(i). In requiring "renewable fuel produced from new facilities that commence construction after December 19, 2007, [to achieve] at least a 20 percent reduction in lifecycle greenhouse gas emissions compared to baseline lifecycle greenhouse gas emissions," section 211(o)(2)(A)(i) makes no mention of ensuring a market for then-existing facilities. 42 U.S.C. § 7545(o)(2)(A)(i). Rather, it simply provides that then-existing facilities need not meet the 20 percent reduction in GHG emissions to comply with the RFS. *See id.* It would require an unreasonable logical leap to conclude that Congress intended to secure a market in perpetuity for fuels from then-existing facilities simply because such facilities need not be retrofitted to achieve a 20 percent reduction in GHG emissions to qualify for the RFS. If Congress had intended to guarantee a market for corn ethanol produced in then-existing plants, it would have imposed a requirement that certain volumes of such fuel be used to meet the volume requirements for renewable fuel. Congress did not do so.

The volume requirements for renewable fuel set by Congress in section 211(o)(2)(B) do not include a minimum amount that must be met with corn ethanol generally, let alone corn



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ethanol specifically from then-existing plants. *See* 42 U.S.C. § 7545(o)(2)(B). Section 211(o)(2)(B), therefore, does not support Plaintiffs' inaccurate premise that Congress intended to ensure an ongoing market for such fuels. That section simply sets out applicable volumes of renewable fuel required for the calendar years 2006 through 2022. As explained in the State's opening brief (ECF# 51, pp. 40-42), the volume requirements for renewable fuel in section 211(o)(2)(B) may be met with *any* type of renewable fuel.[9] Nowhere has Congress provided that any specified amount of corn ethanol produced in then-existing facilities must be used to meet the volume requirements for renewable fuel. *See* 42 U.S.C. § 7545(o)(2)(B).

Moreover, Plaintiffs' argument overlooks the significant congressional purpose of reducing lifecycle GHG emissions associated with fuels by encouraging increased production of "advanced biofuels."[10] Congress intended for the RFS to lead to *increased* use of types of renewable fuel *other* than corn ethanol. Tellingly, the RFS was designed to increase the market for "advanced biofuel," which does not include corn ethanol, by imposing annual renewable fuel volume requirements that are *increasingly* composed of advanced biofuels, with the ultimate objective to reduce the amount of GHG emissions.[11]

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[9] "Renewable fuel" is defined generally as "fuel produced from renewable biomass and that is used to replace or reduce the quantity of fossil fuel present in a transportation fuel." 42 U.S.C. § 7545(o)(1)(J).

[10]Congress defined "advanced biofuel" as "renewable fuel, *other than ethanol derived from corn starch*, that has lifecycle greenhouse gas emissions . . . that are at least 50 percent less than baseline lifecycle greenhouse gas emissions." 42 U.S.C. § 7545(o)(1)(B) (emphasis added).

[11] *See, e.g.*, 42 U.S.C. § 7545(o)(2)(B); 75 Fed. Reg. 14674 (Table I.A.1-1 showing volume requirements), 14675 (discussing "nested requirements"); EISA § 806 (setting forth Congressional findings that "accelerated development and use of renewable energy technologies provide numerous benefits to the United States, including improved national security, improved balance of payments, healthier rural economies, improved environmental quality, and abundant, reliable, and affordable energy for all citizens of the United States . . . ."); Testimony of House Representative Tom Davis in support of the EISA, 153 Cong. Rec. E2631, Dec. 18, 2007 (stating that the EISA would "not only address our reliance on imported oil, but will also help stem the creation of greenhouse gases"; that "[p]lacing a limit on the amount of corn ethanol eligible to be applied in meeting the RFS is a necessary step"; and that "more should be done to ensure the development of other biofuels"); Speech of House Representative John Dingle in support of the EISA, 153 Cong. Rec. E2665-01, Dec. 18, 2007 (stating that "the need to reduce greenhouse gas emissions from the transportation sector is also more apparent, and renewable fuels hold great promise in helping meet this challenge," and that, "conversely, several concerns have been raised with the viability of relying on corn-based ethanol as our primary renewable fuel").



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CAA section 211(o)(2)(A)(iii)(II)(aa) also fails to support Plaintiffs' argument. That section provides that *the EPA* may not restrict geographic areas in which renewable fuel may be *used*. 42 U.S.C. § 7545(o)(2)(A)(iii)(II)(aa). The Clean Fuels Program is not an EPA regulation, and nothing in the Clean Fuels Program restricts any geographic region in which fuel from then-existing facilities, or any other fuel, may be *used*.

Finally, Plaintiffs' reliance on *Geier* is misplaced. In *Geier*, a woman sued her car's manufacturer when she was injured after she collided with a tree. 529 U.S. at 865. She claimed the manufacturer had designed its car negligently and defectively because it lacked a driver's side airbag. *Id.* Federal law, however, expressly allowed manufacturers to choose between different passive restraint systems rather than mandating airbags. *Id.* at 875-81. Congress had made a policy choice to *guarantee* that manufacturers could choose from a variety of safety restraint systems. *Id.* at 881. A state tort claim for failure to install an airbag therefore directly infringed upon choices expressly reserved to manufacturers by Congress. *Id.*

The congressionally-mandated flexibility in *Geier* stemmed from a specific "policy judgment that safety would be best promoted if manufacturers installed alternative protection systems in their fleets rather than one particular system in every car." *Id.* In contrast, Congress made no explicit policy judgment that the increasing usage of renewable fuels *depends* on ensuring a continued market for corn ethanol produced in then-existing plants. Rather, while mandating the use of other, advanced renewable fuels, Congress merely provided that corn ethanol, including corn ethanol from then-existing plants, *may* be used to satisfy *some* of the RFS volume requirements. Unlike the situation in *Geier*, nothing in Oregon's Clean Fuels program would impede any express congressional policy.

**b. Plaintiffs Do Not Plead Sufficient Facts to Show that the Clean Fuels Program Would Foreclose Oregon as a Market for Ethanol Produced in Then-Existing Plants.**

Even if Congress somehow intended to secure a permanent, nationwide market for ethanol produced in then-existing plants (which it did not), Plaintiffs have not pleaded sufficient



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facts to establish that the Clean Fuels Program forecloses Oregon as a market for such fuels. Mere conclusory allegations that require unreasonable inferences need not be accepted as true in evaluating a motion to dismiss for failure to state a claim. *Blantz v. California Dep't of Corr. & Rehab., Div. of Corr. Health Care Servs.*, 727 F.3d 917, 927 (9th Cir. 2013) (conclusory allegation that defendant directed unlawful actions was insufficient to state claims for wrongful termination and other torts); *Moss v. U.S. Secret Serv.*, 572 F.3d 962, 969 (9th Cir. 2009) (affirming dismissal because "the non-conclusory 'factual content,' and reasonable inferences from that content" did not sufficiently state viewpoint-discrimination claim).

Here, the Complaint alleges in conclusory fashion that the Clean Fuels Program "is designed to close Oregon as a market for certain renewable fuels produced in existing biorefineries" and "penaliz[es] the continued production of renewable fuels in existing biorefineries." ECF# 1, ¶¶ 105-106; *see also* ECF# 1, ¶¶ 104, 139. But the Complaint does not identify a single then-existing facility that is exempted from the showing otherwise required by the federal RFS, let alone allege the carbon intensity that the fuel produced in such a facility would earn. This Court need not accept as true Plaintiffs' conclusory allegations because the Complaint fails to identify any exempted plants or any basis on which the Court could conclude that the Clean Fuels Program might negatively impact such plants.

Attempting to establish that Oregon's Clean Fuels Program will foreclose a market for ethanol produced in existing plants, Plaintiffs go beyond the allegations in their Complaint and cite "compliance scenarios" prepared for the Oregon DEQ by its consultant, ICF International. Plaintiffs claim that these compliance scenarios show that Oregon has predicted that "by 2019 [importers] will no longer be able to sell Midwestern ethanol in the Oregon market." ECF# 63, p. 39. Plaintiffs mischaracterize both the nature and the content of these compliance scenarios.

First, the compliance scenarios are *not* predictions, nor do they provide any evidence of future market conditions. The preface to this report states: "These compliance scenarios, however, should not be confused with ICF market forecasts." Compliance Scenarios, Final



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Report (Aug. 2014), p. 2. Ongoing market conditions and fuel availability will determine how compliance occurs.

Second, the compliance scenarios do not indicate that Oregon will cease importing ethanol from then-existing Midwestern plants. The compliance scenarios do show one category of ethanol, labeled "Corn, MW," dropping off in 2019 (after an initial *increase* in 2017 and 2018). *Id.* at 20. But this category of ethanol is defined quite clearly as corn ethanol from "conventional processes" with an average carbon intensity of 64.82. *Id.* at 10. This is, of course, not the only kind of corn ethanol produced by Midwestern plants. *See* ECF# 52, pp. 11 & n. 4 (demonstrating that lowest carbon ethanol under Oregon's Program is Midwestern ethanol); *see also Rocky Mountain*, 730 F.3d at 1084 ("The individualized pathway with the lowest carbon intensity was achieved by a Midwest producer . . ."). And the scenarios simply show conventional, higher-carbon corn ethanol from the Midwest being replaced, in Oregon's market, by *other* types of corn ethanol, most of which are also produced in Midwestern plants.

In sum, it is simply inaccurate to assert, as Plaintiffs do, that Oregon has predicted the elimination of Midwest ethanol from Oregon's market. The compliance scenarios are not predictions of the future, as discussed above. And, further, all they indicate is that Oregon expects that its ethanol needs may be met, over time, by lower carbon intensity ethanol, including ethanols that are produced in the Midwest.



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## V. Conclusion.

For all the above reasons and for the reasons stated in the State's Motion to Dismiss, each claim asserted in the Complaint should be dismissed.

DATED August 17, 2015.

Respectfully submitted,

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*s/ Christina L. Beatty-Walters*

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JOHN A. KITZHABER, MD
Governor

April 17, 2012

Dick Pedersen
Oregon Department of Environmental Quality
811 SW 6th Avenue
Portland, OR 97204

Dear Director Pedersen:

In 2009, the Oregon legislature adopted HB 2186, authorizing the Environmental Quality Commission (EQC) to adopt a low carbon fuel standard to reduce greenhouse gas emissions from transportation fuels. Since then, the Department of Environmental Quality (DEQ) has conducted an extensive technical and economic analysis of the policy, and you have also listened carefully to the views of stakeholders and the public. At this time, I would like you to take the next step in investigating a clean fuel standard by developing rules to implement it in two phases.

Reducing greenhouse gas emissions is among the most important challenges of our time. This is important not only to begin addressing the threat of global warming, but also to reduce our nation's dependence on imported petroleum, stimulate jobs throughout the nation to produce clean energy and save consumers money. Because transportation accounts for a third of Oregon's greenhouse gas emissions, we must tackle emissions from this sector in order to reach our goals. To address these emissions effectively, we must begin the process of transforming our transportation infrastructure to support a diversity of low carbon fuels. The clean fuels standard is a key step in this transformation, by allowing producers of all types of low carbon fuels to compete to meet our transportation fuel needs.

As urgent as this need is, we must continue to move deliberately to ensure that the clean fuel standard is implemented in a way that ensures adequate fuel supplies, and that does not cause increases in fuel prices. For this reason, I suggest you develop the standard in two phases. During Phase 1, fuel suppliers would begin to track and report the carbon intensity of transportation fuels over a two year period. During Phase 2, which would be triggered by the

EQC only after a successful conclusion of Phase 1, fuel suppliers would be required to meet the standard. This two phase approach will allow DEQ to assess the availability of low carbon fuels, adjust the program as needed to meet legal requirements, prepare for full implementation, and continue to seek public input before fuel suppliers are required to meet the standard.
As you know, Oregon is separately developing a ten-year energy action plan to:

- Reduce our dependence on carbon-intensive fuels and foreign oil;
- Develop home-grown renewable energy resources;
- Mitigate greenhouse gas emissions;

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- Improve energy efficiency and create rewarding local jobs; and
- Boost Oregon's economy through investment and innovation.

The clean fuels standard supports these goals and will be important to the success of this plan. It is also a central component of our statewide greenhouse gas reduction strategy for transportation being developed in response to SB 1059 adopted in 2010 and HB 2001 adopted in 2009.

For all of these reasons, I am asking you to propose the clean fuels standard for consideration by the Environmental Quality Commission, with a decision to be made by the end of this year. I ask you to work closely with legislators, both to keep them informed about this proposed course of action, and to request the legislative action necessary to implement the program fully.

Sincerely,

John A. Kitzhaber, M.D.
Governor

cc: Bill Blosser, Chair, Environmental Quality Commission
Richard Whitman, Senior Natural Resource Policy Advisor to Governor Kitzhaber

**Final Report**

# Oregon Low Carbon Fuel Standards

## Advisory Committee Process and Program Design

**January 25, 2011**

State of Oregon Department of Environmental Quality

Last Updated: 1/25/2011
By: Sue Langston
11-AQ-004

**This report prepared by:**

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# I. Executive Summary

Transportation produces over a third of Oregon's greenhouse gas pollution. If Oregon is to reduce its contribution to climate change, greenhouse gas pollution from transportation must be reduced. There are three essential approaches that must be pursed for a comprehensive strategy: cleaner vehicle technology, reducing the amount of miles traveled, and decreasing the carbon intensity (i.e. greenhouse gas emissions) of the transportation fuel we use. A combination of state and federal initiatives is making vehicle engine technology cleaner, and Oregon continues to develop programs to reduce the number of miles traveled. Oregon's low carbon fuel standards (LCFS) program will address the "third leg of the stool" by requiring reductions in the average carbon intensity of Oregon's fuel.

*The goal of the program is to reduce the average carbon intensity of conventional gasoline and diesel fuel by ten percent over a ten year period.*

In 2009, the Oregon legislature authorized the Environmental Quality Commission to develop a low carbon fuel standards program for Oregon. The goal of the program is to reduce the average carbon intensity of conventional gasoline and diesel fuel by ten percent over a ten year period. This can be achieved through the increased use of lower carbon, alternative fuels. The low carbon fuel standards program would not mandate the use of any specific fuel; it does not pick "winners" and losers" in the fuels market. Instead, suppliers and distributors of petroleum fuels can use any mix of traditional fuels and lower carbon alternative fuels they desire to meet the standards. As the standards tightens over time, fuel suppliers and distributors will need to increase the use of lower carbon fuels.

*Low carbon fuel standards will produce significant economic benefits for Oregon, creating new jobs and personal income that stays and circulates within this state.*

Oregon's low carbon fuel standards would promote the use of lower carbon, alternative fuels such as ethanol and biodiesel; as well as electricity, natural gas, and biogas, all of which can all help Oregon meet the standards. Low carbon fuel standards will also help promote the development of in-state low carbon biofuels production, as well as increased electric vehicle use. DEQ's economic analysis suggests that low carbon fuel standards will facilitate growth in these low carbon fuel sectors, which in turn is expected to produce significant economic benefits for Oregon, creating new jobs and personal income that stays and circulates within this state.

To design Oregon's low carbon fuel standards program, DEQ convened an advisory committee of diverse stakeholders to discuss, debate, and offer recommendations for various design elements of Oregon's low carbon fuel standards. DEQ spent over a year working with the committee to explore many technical and policy issues such as life-cycle carbon intensities of various fuels, flexible compliance approaches, including the use of carbon credits, effects of indirect land use on fuels, and safe guards to protect fuel producers and the public against fuel shortages or price spikes.

*DEQ's objective is to design a low carbon fuel standards program that is consistent with HB2186, effective in reducing greenhouse gas emissions, flexible for regulated parties, realistic, achievable, and reflects the best approach for Oregon.*

Over the year, DEQ's advisory committee reached agreement on some points, and disagreed on others, but always gave DEQ the benefit of their experience and perspective. DEQ wishes to sincerely thank them for their time and service.

This report describes DEQ's proposed design for an Oregon low carbon fuel standards program, as guided by advice from the committee, and includes several special features required by the Oregon legislature in House Bill 2186 (2009). In designing the program, DEQ carefully considered recommendations from each advisory committee member.

In early 2011, DEQ will discuss this report and program design with the Oregon Legislature. DEQ's intent is to begin public rulemaking for Oregon's proposed low carbon fuel standards in the summer of 2011.

Complete information about DEQ's low carbon fuel standards program design and advisory committee process, including issue papers, presentations, and committee meeting summaries can be found in this report and at the following website.
www.deq.state.or.us/aq/committees/lowcarbon.htm

Oregon Department of Environmental Quality
Jan. 7-8, 2015
Oregon Environmental Quality Commission meeting
Rulemaking Action Item

# Clean Fuels Program Phase II Rulemaking

## DEQ recommendation to the EQC

DEQ recommends that the Environmental Quality Commission:

Adopt the proposed rules in Attachment A as part of chapter 340 of the Oregon Administrative Rules.

## Overview

SHORT SUMMARY

DEQ proposes to amend and adopt Oregon Clean Fuels Program rules under division 253 of chapter 340 of the Oregon Administrative Rules. The proposed phase 2 rules would:

- Implement House Bill 2186 (2009) by establishing clean fuel standards to reduce greenhouse gas emissions from Oregon's transportation fuels by 10 percent over a 10-year period.
- Require importers of transportation fuels to reduce the average carbon intensity of fuels they provide in Oregon to meet the annual clean fuel standards. To meet the standards, regulated parties would select the strategy that works best for them, such as incorporating more lower-carbon biofuels, natural gas, biogas, propane or electricity into its fuel mix, or by purchasing clean fuel credits from providers of clean fuels.
- Allow providers of clean fuels to generate and sell clean fuel credits for the fuels they provide in Oregon.
- Modify the definition of fuel importer to be the owner of the fuel when it crosses into Oregon.
- Establish fuel supply and fuel price deferrals to contain the costs of the program.

BRIEF HISTORY

The 2009 Oregon Legislature passed House Bill 2186 authorizing the Oregon Environmental Quality Commission to adopt rules to reduce lifecycle emissions of greenhouse gases from Oregon's transportation fuels by 10 percent over a 10-year period.

DEQ's Clean Fuels Program Phase 2 Rules Advisory Committee raised questions about when Oregon must implement the Clean Fuels Program. After consulting with the Oregon Department of Justice, DEQ concluded that EQC has statutory authority to adopt Oregon's implementation schedule to achieve 10 percent reduction in fuel carbon content by the end of any 10 year period. Therefore, DEQ proposes to implement the clean fuels standards in the 2015 to 2025 timeframe.

Oregon started fuels reporting (phase 1) of the Clean Fuels Program on Jan. 1, 2013, after EQC adopted rules in December 2012. Phase 1 rules require Oregon fuel producers and importers to register, keep records and report the volumes and carbon intensities of the transportation fuels they provide in Oregon.

## REGULATED PARTIES

The Clean Fuels Program regulates Oregon producers and importers of transportation fuels for use in Oregon. The proposed rule defines importers as the owners of the transportation fuel when it crosses into Oregon.

## REQUEST FOR OTHER OPTIONS

During the public comment period, DEQ requested public comment on whether to consider other options for achieving the rules' substantive goals while reducing the rule's negative economic impact. Options could include:

- Using different values to establish the baseline year and annual clean fuel standards;
- Using different ways to ensure the program includes the most recent science regarding lifecycle emissions of greenhouse gases of transportation fuels;
- Identifying who must comply with the proposed rules including how and when to retain or transfer that responsibility;
- Identifying who is best suited to generate credits including how to ensure a robust credit generation process;
- Using different ways to encourage providers of clean fuels to participate voluntarily in the program to generate credits; and
- Identifying alternative mechanisms to control the costs of complying with the program.

## Statement of need

WHAT NEED WOULD THE PROPOSED RULE ADDRESS?

Climate change poses a serious threat to Oregon's economy, environment and public health. Transportation sources account for approximately one third of all greenhouse gas emissions in Oregon. The goal of the Clean Fuels Program is to reduce greenhouse gas emissions from Oregon's transportation fuels.

EQC's authority to adopt these rules will expire in 2015 under the current legislation. The commission adopted phase 1 rules in 2012, but Oregon needs phase 2 rules to provide the Oregon Legislature a fully realized and adopted clean fuels program and allow the legislature to use that information to determine whether to lift the sunset.

HOW WOULD THE PROPOSED RULE ADDRESS THE NEED?

The proposed rules would:

- Supplement the existing phase 1 reporting requirements;
- Implement phase 2 program requirements to reduce the average carbon intensity of Oregon's transportation fuels;
- Provide flexibility for regulated parties to comply with the Clean Fuels Program; and
- Add ways for DEQ to monitor and manage the program's impact on fuel supply and price.

HOW WILL DEQ KNOW THE RULE ADDRESSED THE NEED?

DEQ will monitor compliance with the clean fuel standard through quarterly and annual fuel reports submitted by fuel importers and providers of clean fuels. DEQ will use the information to gauge progress towards meeting the program's goals. DEQ will also review the program periodically to make changes as necessary in response to new science or policy developments.

## Program Considerations

### BENEFITS

The primary benefit of the Clean Fuels Program is the greenhouse gas reductions from switching to lower-carbon fuels. This program complements other transportation-sector strategies such as clean car standards, renewable fuels standards and commitments to reduce the amount that Oregonians drive needed to achieve Oregon's climate change goals. In addition to direct potential environmental benefits from the Clean Fuels Program, reducing climate change pollution has many co-benefits including:

- **Reductions in social cost of carbon**
  The social cost of carbon is the monetized value of damages avoided when there are reductions in carbon emissions. Clean fuel standards can result in significant economic benefits by reducing the social cost of carbon in categories such as agricultural productivity, human health and flooding.

- **Improvements to public health**
  Using clean fuels decreases greenhouse gas emissions and levels of criteria air pollutants, specifically nitrogen oxides, NOx, and particulate matter, PM. Research links NOx and PM to an array of respiratory and heart problems, especially in sensitive populations such as children and the elderly.

- **Increased energy security**
  Increased use of clean fuels will displace fuels produced from petroleum sources. This can improve energy security by reducing the continued risk associated with crude oil supplied from historically unstable regions.

ICF International's recent study titled "California's Low Carbon Fuel Standard: Compliance Outlook & Economic Impacts" monetized the values of the co-benefits described above. Since DEQ did not perform an independent analysis of these impacts, DEQ did not include monetized values in the fiscal and economic impact analysis below.

### COST CONTAINMENT DEFERRALS

The proposed phase 2 rules provide cost containment to assure decision makers and the public that Oregon's Clean Fuels Program is sensitive to the ability for regulated parties to comply with the regulation and the potential impacts the regulation may have on fuel prices.

DEQ developed a suite of mechanisms designed to allow the program to respond and adjust requirements if Oregon experiences fuel shortages or excessive fuel price increases. DEQ proposes three mechanisms to monitor and evaluate the supply of clean fuels and the price of fuels.

1 Forecasted Deferral Due to Fuel Supply ensures an adequate supply of clean fuels to comply with the clean fuel standards in the next year. This deferral allows DEQ to act proactively to defer requirements and prevent compliance problems before they occur, if there are fuel supply problems.

2 Emergency Deferral Due to Fuel Supply responds to an unanticipated shortage of lower carbon fuel supplies. This deferral allows DEQ to act rapidly to respond to an emergency related to the production or transportation of clean fuels.

3 Fuel Price Deferral ensures that fuel prices in Oregon remain competitive with neighboring states without a low carbon fuel standard. This deferral requires DEQ to defer, amend or suspend program requirements if the Clean Fuels Program is the underlying cause of any significant fuel price increase.

DEQ anticipates the most likely cause of a price increase caused by the program would be due to competition over a limited supply of clean fuels; therefore, the fuel price deferral in item 3 above would act as a backstop to the fuel supply deferrals in items 1 and 2 above. Though these safeguards will not prevent all future increases in fuel prices, DEQ expects the fuels supply deferrals above would identify and mitigate any potential for significant price increases before DEQ detects any actual effect on prices in Oregon.

Transportation fuel's retail price has varied dramatically in the past and will continue to vary in the future depending on a wide array of factors such as global oil supply and demand, natural and man-made disasters, geo-political unrest, operational problems at primary oil refineries serving Oregon, and the business strategies of individual petroleum companies. Oregon did not design the Clean Fuels Program to address these risks, but it provides safeguards to help manage the risk of price increases that may occur due to program implementation.

## OTHER COST CONTAINMENT APPROACHES

The California Air Resources Board adopted and is implementing standards similar to those EQC is considering in this rulemaking. CARB is considering updates to its regulation to add cost containment measures into its program, but has not yet adopted a specific approach. Discussions about California's cost containment provisions are available at http://www.arb.ca.gov/fuels/lcfs/lcfs_meetings/030714lcfsconceptpaper.pdf.

DEQ is tracking California's development of cost containment mechanisms. If CARB develops mechanisms that DEQ believes will be implementable and beneficial to Oregon, the Clean Fuels Program could propose future rules to incorporate similar mechanisms. Any such proposal would require an assessment of EQC's rulemaking authority and a full public rulemaking process including evaluating the fiscal impacts, public comment and action by EQC.

## Rules affected, authorities, supporting documents

| LEAD DIVISION, SECTION | PROGRAM OR ACTIVITY |
|---|---|
| Environmental Solutions Division<br>Air Quality Planning Section | Oregon Clean Fuels Program |

CHAPTER 340 ACTION

| | |
|---|---|
| Adopt | OAR 340-253-0620, OAR 340-253-1050, OAR 340-253-2000, OAR 340-253-2100, OAR 340-253-2200, OAR 340-253-8010, OAR 340-253-8020, OAR 340-253-8050 |
| Amend | OAR 340-253-0000, OAR 340-253-0040, OAR 340-253-0060, OAR 340-253-0100, OAR 340-253-0200, OAR 340-253-0250, OAR 340-253-0310, OAR 340-253-0320, OAR 340-253-0330, OAR 340-253-0340, OAR 340-253-0400, OAR 340-253-0450, OAR 340-253-0500, OAR 340-253-0600, OAR 340-253-0630, OAR 340-253-0650, OAR 340-253-1000, OAR 340-253-1010, OAR 340-253-1020, OAR 340-253-1030 |
| Amend and Renumber | OAR 340-253-3010 to 340-253-8030, OAR 340-253-3020 to 340-253-8040, OAR 340-253-3030 to 340-253-8060, OAR 340-253-3040 to 340-253-8070, OAR 340-253-3050 to 340-253-8080 |

STATUTORY AUTHORITY

ORS 468.020; Sec. 6 of Oregon Laws 2009, chapter 754, also referred to as House Bill 2186 (2009)

STATUTE IMPLEMENTED

Sec. 6 of Oregon Laws 2009, chapter 754, also referred to as House Bill 2186 (2009)

LEGISLATION

House Bill 2186 (2009)

Documents relied on for rulemaking ORS 183.335(2)(b)(C)

| Document title | Document location |
|---|---|
| Oregon Low Carbon Fuel Standards Advisory Committee Process and Program Design Final Report (2010) | http://www.deq.state.or.us/aq/cleanFuel/ruleprocess.htm |
| Oregon Clean Fuels Program Phase 1 Rulemaking materials (2012) | http://www.deq.state.or.us/regulations/2012AdoptedRules.htm |
| Oregon Clean Fuels Program Phase 1 Updates Temporary Rulemaking materials (2013) | http://www.oregon.gov/deq/RulesandRegulations/Pages/2013/CFPPh1.aspx |
| Oregon Clean Fuels Program Phase 1 Updates Permanent Rulemaking materials (2014) | http://www.oregon.gov/deq/RulesandRegulations/Pages/2014/adopted2014.aspx |
| Oregon Clean Fuels Program Phase 2 Rulemaking Advisory Committee (2014) | http://www.oregon.gov/deq/RulesandRegulations/Pages/Advisory/A2CFPPh2.aspx |
| ICF contract deliverables (Task 1 memo, Task 2 report, Task 3 report) | http://www.oregon.gov/deq/RulesandRegulations/Pages/Advisory/A2CFPPh2.aspx |
| Applications from registered regulated parties for the Oregon Clean Fuels Program | Program files located at:<br>DEQ Headquarters<br>811 SW 6th Avenue<br>Portland OR 97204 |
| California Low Carbon Fuel Standard regulation and rulemaking documents | http://www.arb.ca.gov/fuels/lcfs/lcfs.htm |
| British Columbia Low Carbon Fuel Requirements regulation | http://www.empr.gov.bc.ca/RET/RLCFRR/Pages/default.aspx |

## Fee Analysis

This rulemaking does not involve fees.

## Statement of fiscal and economic impact

ORS 183.335 (2)(b)(E)

FISCAL AND ECONOMIC IMPACT

The Oregon Clean Fuels Program is a technology neutral, market-based regulatory approach to reduce carbon pollution from transportation fuels. The program does not mandate the use of any particular type of fuel or technology. Instead, it defines a performance standard to reduce the average carbon intensity of fuels sold by 10 percent over 10 years. The proposed rules offer many strategies for meeting the clean fuel standards by allowing each regulated party the flexibility to use any combination of these strategies to meet its particular circumstance, perspective and business needs. California and British Columbia are implementing similar programs.

The flexibility in this regulatory approach makes it difficult to estimate the fiscal and economic costs to individual regulated parties or fuel consumers. The cost to comply with the standards would depend on each regulated party's unique compliance strategy and the future availability and cost of clean fuels and clean fuel credits. Future market forces could influence these factors. There are basic program design elements that can minimize and contain costs and help ensure the economic benefits of the program.

Ten-Year Phase-In Period of the Clean Fuels Program

DEQ's Clean Fuels Program Phase 2 Rules Advisory Committee raised questions about when Oregon must implement the Clean Fuels Program. After consulting with the Oregon Department of Justice, DEQ concluded that EQC has statutory authority to adopt Oregon's implementation schedule to achieve 10 percent reduction in fuel carbon content by the end of any 10-year period. Therefore, DEQ proposes to implement the clean fuels standards in the 2015 to 2025 timeframe.

Sec. 6 of Oregon Laws 2009, chapter 754 grants EQC this authority and states, EQC "may" adopt various features as part of the program to achieve a 10 percent reduction in fuel carbon content, "including but not limited to..." a 10-year phase-in schedule. While the statute, adopted in 2009, anticipates this 10-year period ending in 2020, the clear intent for the program is to have a 10-year phase-in period. This is also consistent with the phase in schedules of California and British Columbia's programs. DEQ concludes it is infeasible to require a 10 percent reduction in fuel carbon content in five years, 2015 to 2020. Therefore, DEQ proposes a 10-year phase in period, consistent with statutory authority, of 2015 to 2025.

Potential Impact on Fuel Prices

To estimate the potential fiscal and economic impact of the proposed rule on the price of fuel, DEQ reviewed studies, including the documents in the table below. This table includes a range of potential fuel price impacts that DEQ considered. Details about assumptions used to estimate the fuel price impacts are in each study. The estimated price impacts below reflect potential price increases at the end of the 10-year phase-in period.

| Document | Potential Fuel Price Impacts |
|---|---|
| California's Low Carbon Fuel Standard: Compliance Outlook & Economic Impacts<br>ICF International, 2014 | $0.06 to $0.19 per gallon |
| Understanding the impact of AB 32<br>Boston Consulting Group, 2012 | $0.33 - $1.06 per gallon |
| Low Carbon Fuel Standard Clarifications<br>Leidos, 2014 | $0.04 to $0.06 per gallon |

DEQ used a fuel price range of $.04 to $0.19 to characterize the potential impact of the program on future fuel prices by the end of the ten-year period after consulting with experts in the fuels market including other agencies and academic institutions. DEQ also considered the Expert Evaluation of the Report "Understanding the Impacts of AB32" from the UC Davis Policy Institute for Energy, Economy and the Environment in 2013. DEQ concluded the assumptions used to develop fuel prices in the ICF International and Leidos studies are more likely to occur for Oregon than the assumptions that the Boston Consulting Group used.

**Potential Impact on Fuel Consumers**

Fuel consumers could experience both positive and negative indirect costs as regulated parties pass their savings and costs to the public through the retail price of fuels. For example, if the price of clean fuels were less than the fuels they replace, then the retail fuel price should decrease. Conversely, if the price of clean fuels were greater than the fuels they replace or if regulated parties had to purchase credits to comply with the standards, the price at the pump could increase. This could cause a ripple effect throughout the general economy as businesses react to changes in fuel costs. Businesses that realize fuel savings through investment in lower cost alternative fuels are likely to grow. Conversely, businesses with higher fuel costs could have increased difficulty managing their profitability.

The proposed fuel price deferral allows DEQ to monitor fuel prices and provide the ability to amend or defer program requirements if Oregon fuel prices cannot compete with nearby states that do not have a clean fuel policy. The trigger for the proposed fuel price deferrals is approximately five percent of the retail price of the fuel; approximately $0.20 for fuel that is $4.00 per gallon.

**Potential Impact to the Oregon Economy**

In 2010, Jack Faucett Associates analyzed the macroeconomic impact of an Oregon low carbon fuel standard (http://www.deq.state.or.us/aq/committees/docs/lcfs/appendixDeconimpact.pdf.) While the 2014 ICF International compliance scenario analysis updated many of the numerical factors from that study, the basic conclusion of the Jack Faucett study remains the same. Jack Faucett Associates concluded that:

- To achieve compliance, significant investment in infrastructure and fuel production capacity results in an influx of economic activity, including growth in employment, income and gross state product.
- Positive economic impacts in Oregon stem from importing less petroleum fuel.
- Many of the lower carbon fuels that replace gasoline and diesel cost less and would result in lower costs at the pump for fuel users.

STATEMENT OF COST OF COMPLIANCE

Regulated Parties

The Clean Fuels Program currently regulates 61 businesses. DEQ estimates the proposed rules could change the number of regulated parties, by removing about 12 existing businesses and adding about 40 new businesses. Regulated parties are:

- *Importers of Transportation Fuels*

  Businesses that import gasoline, ethanol, diesel fuel, biodiesel and biomass-based diesel for use as a transportation fuel in Oregon are the largest group of regulated parties. These businesses must register with DEQ, keep records and submit reports described under Administrative Costs below and meet the annual clean fuel standards. The cost of compliance would vary for each regulated party depending on their compliance strategy described under Costs to Reduce Carbon below.

  Businesses that import fewer than 250,000 gallons per year of transportation fuel must register with DEQ, but do not need to keep records, submit reports or meet the clean fuel standards.

- *Producers of Transportation Fuels*

  Currently, there are no producers of gasoline or diesel fuel located in Oregon. One business produces ethanol and one produces biodiesel. Both would be regulated parties that must register with DEQ, keep records and submit reports described under Administrative Costs below. However, since the biofuels produced already meet the proposed clean fuel standards, there are no additional costs associated with reducing carbon. These businesses could also generate credits and benefit from the sale of those credits.

Providers of Clean Fuels – Credit Generators and Credit Aggregators

Clean fuels include natural gas, biomethane, propane, electricity and hydrogen. The proposed rules do not require providers of clean fuels to participate because they are not regulated parties, but the proposed rules designate the party who is eligible to generate credits if they choose to. Any business that elects to participate in the program must register with DEQ, keep records and submit reports described under Administrative Costs below. There are also costs associated with transacting credits as described below. Revenue from the sale of credits is a benefit to a provider of clean fuel. The price of credits in California ranged from $17 to $70 per metric ton of CO2e since 2012 and is currently around $26 per metric ton of CO2e.

To estimate the number of businesses that could generate credits, DEQ identified the following suppliers of alternative fuels for use in Oregon listed in US Department of Energy's Alternative Fueling Station Locator as of September 2014:

- Four hundred and thirteen locations containing 988 chargers that supply electricity;
- Fourteen locations that supply compressed natural gas (CNG);
- One location that supplies liquefied natural gas (LNG); and
- Thirty-one locations that supply liquefied petroleum gas (LPG) otherwise known as propane.

A variety of business types could become credit generators including, but not limited to, the following:

- Businesses, local governments, school districts and transit agencies that own alternative fuel fleets and dispensing infrastructure;
- Auto manufacturers that own electric charging stations;
- Businesses that provide chargers for their employees to charge their electric vehicles during work hours; and
- Utilities that help businesses provide fuel and infrastructure.

General Direct Costs

- *Costs to Reduce Carbon*

  To achieve the clean fuel standards, each regulated party could provide greater volumes of clean fuels, blend different types of clean fuels or purchase credits from providers of clean fuels. These options would have varying costs, some could increase and others could decrease. Many lower carbon fuels are cheaper than the gasoline and diesel fuel they replace while others are more expensive. Many alternative fuels also require investment in dispensing infrastructure or vehicles.

  While forecasting the price and carbon intensity values of fuels in 2025 is not possible, DEQ made the following assumptions about how one could quantify the potential cost to reduce carbon. In order to estimate the cost of purchasing clean fuel credits to comply, DEQ used the following information:

  1. The proposed clean fuel standards between 2015 and 2025;
  2. The energy density of gasoline and diesel; and
  3. A reasonable range of clean fuel credit prices.

  The equation is:

$$(Standard_{Year\ X+1} - Standard_{Year\ x}) \frac{gCO2e}{Mj} \times Energy\ Density \frac{Mj}{gal} \times \frac{MT}{1{,}000{,}000\ g} \times Credit\ price \frac{\$}{MT}$$

The following table is the result using the method above to calculate the for three credit prices:

| Potential Cost to Reduce Carbon (in dollars/gallon) | | | |
|---|---|---|---|
| | Credit Price ($ per metric ton of CO2e) | | |
| | @ $35/MT | @ $100/MT | @ $150/MT |
| 2025 | .04 | .11 | .16 |
| Average over 2015 - 2025 | .01 | .04 | .06 |

For example, the table above illustrates that with a credit price of $100 per ton, the incremental increased cost to a gallon of fuel in the year 2025 would be about 11 cents. Over the full ten-year program period of 2015 to 2025, the average incremental cost increase, at $100/ton credit price, is about four cent per gallon.

DEQ considers purchasing credits on the open market would be the highest-cost strategy for

meeting compliance since it is typically more volatile than long-term contracts with fuel suppliers. DEQ anticipates that most compliance strategies would involve purchasing and blending lower or competitively priced clean fuels combined with the purchase of some credits. The regulated party would incur the costs of purchasing credits to comply and providers of clean fuel would benefit from the sale of credits illustrated in the table above. DEQ is unable to estimate how these parties would pass any costs or benefits to fuel consumers.

- *Administrative Costs*

  DEQ developed an estimate of the initial administrative costs to comply with the Clean Fuels Program during the phase 1 rulemaking in 2012. The fiscal and economic impact from that rulemaking estimated one-time costs to register, keep records and submit reports based on:

  - Twenty business days, 160 hours, of labor;
  - Hourly wage of $65 per hour;
  - One-time labor cost of $10,400 per business; and
  - $20,000 in one-time IT costs.

  Businesses currently registered with DEQ already incurred the initial administrative costs. However, since the proposed rule would change the definition of businesses that the program regulates, some newly regulated businesses would incur the initial administrative costs. In addition, some businesses currently registered and reporting to DEQ would no longer be subject to the program, eliminating any costs of compliance for those businesses.

  In addition to the initial costs, there are ongoing costs to keep records and submit reports that all businesses participating in the program would incur:

  - **Registration**

    Regulated parties and providers of clean fuels that voluntarily participate in the program to generate credits must register with DEQ. This is a one-time requirement, unless changes to the registration information trigger a modification.

  - **Recordkeeping**

    A regulated party must maintain records for each individual fuel transaction. Most businesses already keep records such as invoices and bills of lading that are equivalent to the recordkeeping requirements of this program, but there would be an increase in work to comply with this requirement.

  - **Reporting**

    Regulated parties must submit quarterly and annual reports using the DEQ online reporting tool. Most businesses have staff assigned to do similar tasks such as other regulatory reporting requirements and filing taxes that are equivalent to the reporting requirements of this program, but there would be an increase in work to comply with this requirement.

  DEQ developed an estimate of the ongoing costs to comply with the Clean Fuels Program during phase 1 rulemaking in 2012. The fiscal and economic impact from that rulemaking estimated ongoing costs to comply with registration, recordkeeping and reporting based on:

- Thirteen business days, 104 hours, of labor;
- Hourly wage of $65 per hour; and
- On-going annual labor cost of $6,760 per business.

Members of the phase 2 Clean Fuels Program Advisory Committee commented that these estimates for administrative costs are too low and should be adjusted to reflect the work of 0.5 full time equivalent employee or approximately $30,000 based on phase 1 implementation. The committee's comments are derived primarily from importers that supply not only gasoline and diesel, but also ethanol and biodiesel. It is the detailed information needed to document the carbon intensity values of ethanol and biodiesel that need to be traced back to their producers via invoices or bills of lading of each fuel for every transaction that make it time consuming. This is different from the workload for importers of fuels that have statewide carbon intensity values listed in lookup tables.

There are additional variables that could affect the administrative costs for an individual business including, but not limited to, businesses that:

- Participate in California's low carbon fuel standards program. These businesses would incur lower costs to comply with the Oregon clean fuels program than businesses that do not. For example, SeQuential Biodiesel estimates that they spend approximately five to 10 hours per month to comply with California requirements and about the same to comply with Oregon requirements. This is far below the estimates that were made by the fuel distributors in the advisory committee.

- Have suppliers and customers that participate in the California program. These businesses are already familiar with the required recordkeeping and would be more prepared to support their business partners in the Oregon program.

- Participate in EPA's Renewable Fuel Standards program. These businesses would encounter minimal additional costs to comply with the Oregon program because much of the information is identical.

- Currently report fuel information to DEQ or another agency. These businesses already have staff familiar with reporting and would likely not need additional labor to comply with the Oregon program.

All participants in the program would incur the following administrative costs.

- **Credit Generation**

  Regulated parties and providers of clean fuels would incur costs to ensure that the generation of credits is legitimate and accurate. These costs would be similar to the recordkeeping and reporting costs described above.

- **Credit Transaction**

  Regulated parties and providers of clean fuels would incur costs to document any transfer of generated credits to another party. There is no transaction fee, but there are documentation requirements to ensure that the transaction is legitimate and accurate. These costs would be similar to the recordkeeping and reporting costs described above.

Impacts to Various Parties

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

Direct Impacts: As part of its 2015-2017 Agency Request Budget, DEQ requested new resources to implement the Clean Fuels Program. DEQ requested three new positions, approximately 2.19 Full-Time Equivalent positions phased-in plus funding for professional services contracts. DEQ requested General Fund dollars to support the work. There is no known fee or federal funding to implement the Clean Fuels Program. Since submitting the Agency Request Budget, DEQ has reevaluated its approach on how to best fund the Clean Fuels Program efforts. The work will now be accomplished using existing staff resources, and not through any new positions as originally considered. This change in approach is reflected in the agency's 2015-17 Governor's Balanced Budget request.

Since 2009 when the Oregon Legislature passed HB 2186, DEQ used existing staff to develop the Clean Fuels Program. In 2013, DEQ began implementation of phase 1 of the program, using the same existing staff. To successfully implement phase 2, DEQ will need additional resources assigned to the Clean Fuels Program. The current program staff will continue to be dedicated to the Clean Fuels Program. In addition, streamlining and reassignment of work within the program will allow DEQ to use existing Air Quality positions to support the Clean Fuels Program moving forward.

California provided its reporting system to DEQ in phase 1 and, if approved, DEQ will continue to use it in phase 2.

OTHER STATE AND FEDERAL AGENCIES

Direct Impacts: The Clean Fuels Program does not impose direct fiscal or economic effects on state or federal agencies, unless the agency imports transportation fuel or provides clean fuels. If so, see the discussions about Providers of Clean Fuels above and General Direct Costs above.

Indirect Impacts: State and federal agencies are fuel consumers. See the discussions about Potential Impact on Fuel Prices above and Potential Impact on Fuel Consumers above.

LOCAL GOVERNMENTS

Direct Impacts: The Clean Fuel Program does not impose direct fiscal or economic effects on local governments, unless the local government imports transportation fuel or provides clean fuels. If so, see the discussions about Providers of Clean Fuels above and General Direct Costs above.

Indirect Impacts: Local governments are fuel consumers. See the discussions about Potential Impact on Fuel Prices above and Potential Impact on Fuel Consumers above.

PUBLIC

Direct Impacts: There are no direct fiscal or economic effects imposed by the Clean Fuels Program on the public.

Indirect Impacts: Members of the public purchase fuel for their personal vehicles and off-road equipment like recreational watercraft and generators. See the discussions about Potential Impact on Fuel Prices above and Potential Impact on Fuel Consumers above.

LARGE BUSINESSES – BUSINESSES WITH MORE THAN 50 EMPLOYEES

There are currently 25 large businesses registered with the program, primarily fuel terminal operators and fuel marketers. Using currently available information, DEQ estimates the proposed rules would not regulate additional large businesses or remove any from the regulated parties list.

Direct Impacts: See the discussions about General Direct Costs above.

Large businesses also provide clean fuels and may either be regulated parties or voluntarily participate in the program to generate credits. Examples include fuel terminals that import lower carbon ethanol or biodiesel; auto manufacturers that help businesses purchase electric vehicles and chargers; or utilities that provide fossil or bio-based liquefied or compressed natural gas for use as a transportation fuel.

Direct Impacts: See the discussion about Providers of Clean Fuels above.

Indirect Impacts: Large businesses are fuel consumers. See the discussions about Potential Impact on Fuel Prices above and Potential Impact on Fuel Consumers above.

SMALL BUSINESSES – BUSINESSES WITH 50 OR FEWER EMPLOYEES ORS 183.336

There are currently 36 small businesses registered with the program, primarily fuel distributors and biofuel producers.

Direct Impacts on providers of conventional petroleum fuels: See the discussions about General Direct Costs above. Fuel distributors located on borders with states that do not have a similar requirement could be at a competitive disadvantage due to additional regulatory costs.

Direct Impacts on providers of clean fuels: See the discussions about Providers of Clean Fuels above. Small businesses provide clean fuels and may either be regulated parties or voluntarily participate in the program to generate credits. These small businesses could experience an economic benefit from selling credits.

Indirect Impacts: Small businesses are fuel consumers. See the discussions about Potential Impact on Fuel Prices above and Potential Impact on Fuel Consumers above.

| | |
|---|---|
| a. Estimated number of small businesses and types of businesses and industries with small businesses subject to proposed rule. | Using currently available information, the proposed rules could regulate an additional 40 small businesses, but also remove 12 small businesses from the regulation.<br><br>Small businesses may provide clean fuels and voluntarily participate in the program. Examples include businesses that own equipment to dispense natural gas or propane to fleets like garbage trucks, school buses and delivery trucks. |
| b. Projected reporting, recordkeeping and other administrative activities, including costs of professional services, required for small businesses to comply with the proposed rule. | Small businesses would incur administrative costs as described in the discussions about General Direct Costs above. |
| c. Projected equipment, supplies, labor and increased administration required for small businesses to comply with the proposed rule. | Small businesses would incur administrative costs as described in the discussions about General Direct Costs above. |
| d. Describe how DEQ involved small businesses in developing this proposed rule. | DEQ convened a 21-member advisory committee that included small businesses to discuss the design of the Oregon Clean Fuels Program. See Advisory Committee discussion below. |

DOCUMENTS RELIED ON FOR FISCAL AND ECONOMIC IMPACT

| Document title | Document location |
|---|---|
| Registration and reporting information from the registered regulated parties | Program files located at:<br>DEQ headquarters<br>811 SW 6th Avenue<br>Portland OR 97204 |
| Clean Fuels Program Phase 1 Rulemaking – Statement of Need and Fiscal Impact (page 124), Dec. 2012 | http://www.deq.state.or.us/about/eqc/agendas/attachments/2012dec/ItemN_Attachments.pdf |
| California's Low Carbon Fuel Standard: Compliance Outlook & Economic Impacts (ICF International, 2014) | DEQ headquarters |
| Advisory committee meeting summary | http://www.oregon.gov/deq/RulesandRegulations/Pages/Advisory/A2CFPPh2.aspx |
| Economic Impact Analysis of the Low-Carbon Fuel Standard Rule for the State of Oregon (Jack Faucett Associates, Inc., 2010) | http://www.deq.state.or.us/aq/committees/docs/lcfs/appendixDeconimpact.pdf |
| California's Low Carbon Fuel Standard: Compliance Outlook for 2020 (ICF International, 2012) | http://www.caletc.com/wp-content/downloads/LCFSReportJune.pdf |
| Understanding the impact of AB 32 (Boston Consulting Group, 2012) | http://www.deq.state.or.us/aq/cleanFuel/docs/IndividualCommenters7.pdf |
| Low Carbon Fuel Standard feasibility | DEQ headquarters |

| | |
|---|---|
| assessment (Boston Consulting Group, 2014) | |
| Evaluation of Comprehensive GHG Emission Reduction Programs Outside of Washington (Leidos, 2013) | http://www.governor.wa.gov/issues/economy/climateWorkgroup/documents/Leidos_Task4_20131014.pdf |
| Low Carbon Fuel Standard Clarifications (Leidos, 2014) | http://www.theolympian.com/2014/03/04/3015675/consultant-says-clean-fuels-standard.html |
| Expert Evaluation of the Report: "Understanding the Impacts of AB32" (UC Davis Policy Institute for Energy, Economy and the Environment, 2013) | http://policyinstitute.ucdavis.edu/files/general/pdf/2013-05-09_Expert-Evaluation-of-BCG-Report.pdf |

ADVISORY COMMITTEE

DEQ appointed an advisory committee to provide input on the proposed rules and make recommendations on this fiscal and economic impact statement.

To comply with ORS 183.333, DEQ asked for the committee's recommendations on:

- Whether the proposed rules would have a fiscal impact,
- The extent of the impact, and
- Whether the proposed rules would have a significant impact on small businesses and complies with ORS 183.540.

The committee reviewed the draft fiscal and economic impact statement and its recommendations. The committee-meeting summary dated Aug. 28, 2014, documents the recommendation at http://www.oregon.gov/deq/RulesandRegulations/Documents/m3summary.pdf. The committee determined the proposed rules would have an impact on small businesses in Oregon; however, some impacts may be beneficial while others might be negative. The committee offered the following suggestions to reduce the negative economic impact on small business:

- Create default carbon intensity values in lieu of individual ones. This would significantly reduce the burden of keeping transaction-specific records.

  *DEQ is including this recommendation in the proposed rules.*

- Create a two-tiered reporting option for importers of finished fuels. There would be a simpler option to report fuels in aggregate using the default carbon intensity values and the more complex option for individual transactions and individual carbon intensity values. The tradeoff would be that under the simpler option, businesses would not be able to generate credits because they would not have sufficient documentation. They might have to buy credits to comply, but that might cost less than hiring a new person to keep track of the individual transactions.

  *DEQ is not including this recommendation in the proposed rules at this time in order to implement the new proposed definition of importer. DEQ will reassess the potential impact of the recommendation and continue to work with stakeholders on possible solutions to this issue.*

- Exempt importers of finished fuels. This category of fuel importer could experience potential compliance challenges because they might lack the influence to reduce the carbon intensity value

of ethanol or biodiesel already blended into the finished fuels they provide. Many of these businesses are small businesses.

*DEQ is not including this recommendation in the proposed rules at this time in order to implement the new proposed definition of importer. DEQ will reassess the potential impact of the recommendation and continue to work with stakeholders on possible solutions to this issue.*

The following advisory committee work was instrumental to the design of the Oregon Clean Fuels Program.

**2014**
From June through August 2014, DEQ worked with a 21-member advisory committee that included small businesses. The committee discussed phase 2 design of the Clean Fuels Program. Membership and meeting summaries are at http://www.oregon.gov/deq/RulesandRegulations/Pages/Advisory/A2CFPPh2.aspx.

**2013**
During the first half of 2013, DEQ conducted extensive outreach to fuel importers and producers across the state to determine who was regulated and non-regulated. This included small businesses. Outreach included a web-based survey, individual phone conversations and in-person meetings in Portland, Eugene, Salem, Medford, Bend and Pendleton.

**2012**
In May 2012, DEQ convened an advisory committee to focus on the fiscal and economic impact of implementing phase 1. Membership and the meeting summary are at http://www.deq.state.or.us/aq/cleanFuel/meetings.htm.

**2009-2010**
From November 2009 through November 2010, DEQ worked with a 29-member advisory committee that included small businesses. The committee discussed the design of the Oregon Clean Fuels Program. Membership and meeting summaries are at http://www.deq.state.or.us/aq/committees/advcomLowCarbonFuel.htm.

## Housing cost

To comply with ORS 183.534, DEQ determined the proposed rules would have no effect on the development cost of a 6,000-square-foot parcel and construction of a 1,200-square-foot detached, single-family dwelling on that parcel. The proposed rules only affect transportation fuels used in Oregon.

## Federal relationship

"It is the policy of this state that agencies shall seek to retain and promote the unique identity of Oregon by considering local conditions when an agency adopts policies and rules. However, since there are many federal laws and regulations that apply to activities that are also regulated by the state, it is also the policy of this state that agencies attempt to adopt rules that correspond with equivalent federal laws and rules." ORS 183.332

RELATIONSHIP TO FEDERAL REQUIREMENTS

This section satisfies the requirements of OAR 340-011-0029 and ORS 468A.327 to clearly identify the relationship between the proposed rules and applicable federal requirements.

**The proposed rules are "in addition to federal requirements" since** there are no federal regulations regarding the content of greenhouse gases in transportation fuels. The proposed rules protect the environment and residents of Oregon by reducing greenhouse gases.

WHAT ALTERNATIVES DID DEQ CONSIDER IF ANY?

In designing the Clean Fuels Program, DEQ considered many alternatives contained in the proposed rule. Input from advisory committees in 2010, 2012 and 2014 and extensive outreach with affected stakeholders throughout the process informed the design of the Oregon Clean Fuels Program. Documentation is in the rulemaking record.

## Land use

"It is the Commission's policy to coordinate the Department's programs, rules and actions that affect land use with local acknowledged plans to the fullest degree possible." OAR 340-018-0010

### LAND-USE CONSIDERATIONS

To determine whether the proposed rules involve programs or actions considered that are a *land-use action*, DEQ reviewed:

- Statewide planning goals for specific references. Section III, subsection 2 of the DEQ State Agency Coordination Program document identifies the following statewide goals relating to DEQ's authority:

| Goal | Title |
|---|---|
| 5 | Open Spaces, Scenic and Historic Areas, and Natural Resources |
| 6 | Air, Water and Land Resources Quality |
| 11 | Public Facilities and Services |
| 16 | Estuarial resources |
| 9 | Ocean Resources |

- OAR 340-018-0030 for EQC rules on land-use coordination. Division 18 requires DEQ to:
  - Determine whether proposed rules will significantly affect land use. If yes, how will DEQ:
    - Comply with statewide land-use goals, and
    - Ensure compatibility with acknowledged comprehensive plans, which DEQ most commonly achieves by requiring a Land Use Compatibility Statement.
  - Consider DEQ's mandate to protect public health and safety and the environment
  - Determine whether DEQ is the primary authority responsible for land-use programs or actions in the proposed rules
  - Consider present or future land uses identified in acknowledged comprehensive plans

### DETERMINATION

DEQ determined that the proposed rules listed under the Chapter 340 Action section above **do not affect** existing rules, programs or activities that are land-use programs and actions in OAR 340-018-0030 or in the DEQ State Agency Coordination Program.

## Stakeholder and public involvement

ADVISORY COMMITTEE

DEQ convened a Clean Fuels Program Phase 2 Rulemaking Advisory Committee, which met between June and August 2014. The 21-member committee included representatives from large and small fuel distributors, Oregon producers of biofuels, providers of lower carbon fuel such as electricity, propane, natural gas and biogas, local governments, and business and environmental interests. The committee's purpose was to gather expert input on policy and technical issues related to several program design options and the fiscal and economic impact of the proposed rules. Since the advisory committee for the phase 1 rules discussed many of the basic design issues, the advisory committee for the phase 2 rulemaking focused on how new information could affect the original program design choices.

The committee web page is at
http://www.oregon.gov/deq/RulesandRegulations/Pages/Advisory/A2CFPPh2.aspx.

ROSTER

| Primary Member | Affiliation |
|---|---|
| Mark Reeve | Chair |
| Darren Engle | Blue Star Gas |
| Ralph Poole | Campo & Poole |
| Jeff Rouse | Carson Oil Co., Inc. |
| Todd Campbell | Clean Energy Fuels |
| Josh Proudfoot | Good Company |
| James Mast | Mast Collaborative |
| Shanna Brownstein | Northwest Natural Gas |
| Joel Fisher | Oregon Business Association |
| Jana Gastellum | Oregon Environmental Council |
| Bob Russell | Oregon Trucking Association |
| Tom Koehler | Pacific Ethanol |
| Dan Sinks | Phillips 66 |
| Gary Neal | Port of Morrow |
| David Breen | Port of Portland |
| Brendan McCarthy | Portland General Electric |
| Gavin Carpenter | SeQuential Biodiesel |
| Terese Tyler | Space Age Fuel |
| Miles Heller | Tesoro |
| Peter Weisberg | The Climate Trust |
| Chuck White | Waste Management |
| Frank Holmes | Western States Petroleum Association |

MEETING NOTIFICATIONS

To notify people about advisory committee's activities, DEQ sent GovDelivery bulletins, a free e-mail subscription service, to the following lists.

- DEQ sent a one-time notice to Oregon Clean Fuels subscribers to describe how to sign up for advisory committee meeting notices. ORS 192.640.
- People who signed up for the Phase 2 Rulemaking Advisory Committee list.

DEQ also added advisory committee announcements to DEQ's calendar of public meetings at http://www.deq.state.or.us/news/events.asp.

Committee input is in the advisory committee meeting summaries. The committee reviewed the fiscal impact statement, specifically the impact on small businesses.

EQC PRIOR INVOLVEMENT

DEQ shares general rulemaking information with EQC through the monthly Director's Report. DEQ shared information about this rulemaking:

- On March 20, 2014, in the Director's Report at the meeting in Portland
- On June 19, 2014, in the Director's Report at the meeting in The Dalles
- On Aug. 27, 2014, in the Director's Report at the meeting in Medford
- On Nov. 6, 2014, in a facilitated hearing at the meeting in Portland
- On Nov. 20, 2014, in a facilitated hearing at a special meeting in Portland

PUBLIC NOTICE

DEQ provided notice of the Notice of Proposed Rulemaking with Hearing for this rulemaking. DEQ submitted notice to:

- Secretary of State for publication in the October 2014 *Oregon Bulletin*
- The Rulemaking web page: http://www.oregon.gov/deq/RulesandRegulations/Pages/proposedrule.aspx
- Approximately 6,182 interested parties on the Agency Rulemaking List through GovDelivery
- Approximately 2,141 stakeholders on the Oregon Clean Fuels List through GovDelivery
- Approximately 519 stakeholders on the Clean Fuels Program Phase 2 Rulemaking Advisory Committee List through GovDelivery
- The following key legislators required under ORS 183.335:
  - Michael Dembrow, Chair, Senate Environment and Natural Resources Committee
  - Paul Holvey, Chair, House Energy and Environment Committee

DEQ provided legal notice in the following newspapers:

*The Oregonian* – published on October 1, 2014

*East Oregon (Pendleton)* - published on October 1, 2014

## PUBLIC HEARINGS

DEQ held two public hearings. Oral comments received at the hearings are summarized in the Presiding Officers' reports.

### HEARING 1

DEQ held a public hearing hosted by the Environmental Quality Commission on Thursday, Nov. 6, 2014, at 1:30 p.m.

Presiding Officer: Chair Jane O'Keeffe

The presiding officer convened the hearing at 1:20 p.m. Larry Knudsen, Department of Justice, summarized procedures for the hearing including notification that DEQ was recording the hearing. The presiding officer asked people who wanted to present verbal comments to complete, sign and submit a registration form. According to Oregon Administrative Rule 137-001-0030, the presiding officer summarized the content of the notice given under Oregon Revised Statute 183.335.

Due to the large volume of comments, they are not individually summarized below. A full audio recording and a text transcript of the hearing are available through the EQC webpage.

Thirty-three people signed up to present comment, and several provided written testimony in addition to their comments. People presented comment both in opposition and support of the proposed Phase 2 rules and the Clean Fuels program in general. Commissioners asked clarifying and informational questions about specific comments as they were presented.

At the commission's request, several commenters provided additional clarifying comments regarding the commissioners' concerns about feasibility and discrepancies between economic analyses. Director Pedersen noted that DEQ staff can provide informational briefings to the commissioners, individually or in a group at a special meeting, between this meeting and the proposed January 2015 action.

Chair O'Keeffe closed the hearing at 4:45 p.m.

### HEARING 2

DEQ held a public hearing hosted by the Environmental Quality Commission on Thursday, Nov. 20, 2014, as part of a special commission meeting.

Presiding Officer: Chair Jane O'Keeffe

The presiding officer convened the hearing at 3:40 p.m. Paul Garrahan, Department of Justice, summarized procedures for the hearing including notification that DEQ was recording the hearing. The presiding officer asked people who wanted to present verbal comments to complete, sign and submit a registration form. According to Oregon Administrative Rule 137-001-0030, the presiding officer summarized the content of the notice given under Oregon Revised Statute 183.335.

Thirteen people submitted speakers' registration forms to present comment at the meeting. The notes below indicate the order in which comments were presented.

1. Shanna Brownstein, NW Natural, discussed the availability of alternative fuels.
2. Ross Macfarlane, Climate Solutions, noted support for the Oregon Clean Fuels Program and specified that the aviation sector strongly supports the standards with an opt-in provision for aviation fuels.
3. Todd Ellis, Imperium Renewables, provided an overview of the biofuels industry and expressed support for Oregon's Clean Fuels Program and standards.
4. Ian Thomson, Western Canada Biodiesl Association, discussed British Columbia's experience with a low carbon fuel standard.
5. Lisa Adatto, volunteer with the Oregon Environmental Council, discussed electric vehicles and noted support for Oregon's Clean Fuels Program.
6. Micah Berry, Chevron, noted the company's work to invest in alternative fuels and noted that the required new technology to support the low carbon fuel standard and Clean Fuels Program does not exist and is not likely to be successful.
7. Lauren Patton, Oregon Chapter of the American Planning Association, noted the organizations' support for the Oregon Clean Fuels Program.
8. Minhaj Ali Khan asked the commission to evaluate the issues more globally as it considers the Oregon Clean Fuels Program and low carbon fuel standards.
9. Jana Gastellum, Oregon Environmental Council, presented comments in support of the Oregon Clean Fuels Program and low carbon fuel standards.
10. Gavin Carpenter, SeQuential Biofuels, presented comments regarding used coconut oil biodiesel availability and in support of the Oregon Clean Fuels Program and low carbon fuel standards.
11. Caroline Silveira, DuPont, presented comments regarding DuPont's biofuels investments and development and expressed the company's support of Oregon's Clean Fuels Program.
12. Dale Feik, citizen, presented comments regarding overall carbon pollution concerns and asked the commission to support Governor Kitzhaber's energy and carbon goals for Oregon to reduce greenhouse gases.
13. Mary Solecki, Environmental Entrepreneurs, noted that a previous question about economic analysis has been studied and is expected to create new jobs and avoid damage from climate change from greenhouse gases.
14. Michael Vevera, Whole Energy Fuels, presented comments about project development and job creation. He noted California's success in spurring investment through its low carbon fuel standard and stated support for Oregon's Clean Fuels Program.

Chair O'Keeffe closed the hearing at 4:25 p.m.

Summary of comments

Attachment B is a summary of the comments DEQ received during the public comment period, including information about the source of the comment, commenter identification number, categories of comments and responses. Original comments are on file with DEQ.

UPDATED CLOSE OF PUBLIC COMMENT PERIOD

DEQ extended the public comment period for this rulemaking from Friday, Nov. 7, 2014, until Tuesday, Nov. 25, 2014, at 5 p.m. to provide additional time for comment.

## Implementation

The proposed rules would become effective Feb. 1, 2015.

### NOTIFICATION

- DEQ will notify affected parties via email using the Clean Fuels Program GovDelivery list.
- DEQ will update its webpage to reflect the current information.
- DEQ will publish the adopted rules in the Oregon Bulletin.

### OUTREACH

- DEQ will conduct additional outreach to new potential regulated parties based on information the Oregon Department of Transportation Motor Vehicle Fuels Tax Group gives to DEQ.
- DEQ will provide technical assistance about program requirements to regulated parties, credit generators and brokers.
- DEQ will provide general education to decision makers, interested stakeholders and the general public about changes to the program.

### REPORTING SYSTEMS

- DEQ will modify the CFP Online System to incorporate these rule changes.

## Five-year review

ORS 183.405

### REQUIREMENT

Oregon's Administrative Procedures Act, ORS 183.405, requires DEQ to review new rules within five years after EQC adopts them. The law also exempts some rules from review. DEQ reviewed the rules this report describes and determined whether they are subject to the five-year review. DEQ based its analysis on the law in effect when EQC adopted these rules.

### EXEMPTION FROM FIVE-YEAR RULE REVIEW

The Administrative Procedures Act, ORS 183.405(4), exempts the following rules from the five-year review because the proposed rules would amend or repeal an existing rule:

OAR 340-253-0000, OAR 340-253-0040, OAR 340-253-0060, OAR 340-253-0100, OAR 340-253-0200, OAR 340-253-0250, OAR 340-253-0310, OAR 340-253-0320, OAR 340-253-0330, OAR 340-253-0340, OAR 340-253-0400, OAR 340-253-0450, OAR 340-253-0500, OAR 340-253-0600, OAR 340-253-0630, OAR 340-253-0650, OAR 340-253-1000, OAR 340-253-1010, OAR 340-253-1020, OAR 340-253-1030, OAR 340-253-3010 (renumbered to -8030), OAR 340-253-3020 (renumbered to -8040), OAR 340-253-3030 (renumbered to -8060), OAR 340-253-3040 (renumbered to -8070), OAR 340-253-3050 (renumbered to -8080)

### FIVE-YEAR RULE REVIEW REQUIRED

No later than Jan. 7, 2020, DEQ will review the newly adopted rules, as ORS 183.405(1) requires, determining whether:

- The rule has had the intended effect
- The anticipated fiscal impact of the rule was underestimated or overestimated
- Subsequent changes in the law require that the rule be repealed or amended
- There is continued need for the rule.

The review will apply to the following proposed rules:

OAR 340-253-0620, OAR 340-253-1050, OAR 340-253-2000, OAR 340-253-2100, OAR 340-253-2200, OAR 340-253-8010, OAR 340-253-8020, OAR 340-253-8050.

DEQ will use "available information" to comply with the review requirement allowed under ORS 183.405 (2).

DEQ will provide the five-year rule review report to the advisory committee to comply with ORS 183.405 (3).


JOHN A. KITZHABER, M.D.

GOVERNOR

# 10-Year Energy Action Plan

254 State Capitol, Salem, Oregon 97301-4047 P: (503) 378-3111 F: (503) 378-4863
governor.oregon.gov

JOHN A. KITZHABER, M.D.
GOVERNOR

Dear Oregon,

Energy is THE issue of our time – both globally and here in Oregon – and no single issue will have a greater impact on our state's economy, environment and quality of life in the coming decade. The central question is whether we will shape our energy future through intentional investment and development, or whether it will shape us.

Oregon has a track record of successfully pursuing clean energy policy, programs and practices to reduce energy use and promote renewable alternatives to fossil fuels. These public and private initiatives have made Oregon a national leader, but we continue to face a fundamental challenge: to develop a comprehensive energy strategy that meets the state's carbon reduction, energy conservation and renewable energy goals and timetables, and that balances complex needs – including affordability and reliability – while enhancing our state's economic objectives.

This 10-Year Energy Action Plan takes a practical approach to that challenge, focusing on specific initiatives that move the dial in the short term and can be scaled up over time. It is also an economic action plan, emphasizing priorities that can get Oregonians back to work on energy-related projects in urban and rural communities across the state.

**The 10-Year Energy Action Plan focuses on three core strategies:**

1. **Maximize energy efficiency and conservation to meet 100 percent of new electricity load growth.**
   Oregon ranks fourth in the nation in energy efficiency.[1] Since 1980, Oregon households and businesses have realized energy efficiency and conservation savings equivalent to eight to ten power plants. The result has been lower energy bills, a cleaner environment, and a thriving local energy service industry that exports its technology and expertise to the world. To build on this success, to capture deeper, harder-to-reach efficiency and conservation opportunities, and to scale them community-wide, will require new data, new financing tools, rate design changes and trained workers. The Northwest Power and Planning Council's 6th Power Plan states that the region can meet 85 percent of new load growth through energy efficiency and conservation.[2] This plan calls for Oregon to meet all new electric load growth through energy efficiency and conservation. We will start at home. Every occupied state-owned building will establish baseline energy use, undergo an energy audit and identify cost-effective retrofits in the next ten years, improving the performance of up to four million square feet of identified office space and using the state as a market driver for greater energy efficiency and conservation projects.

2. **Enhance clean energy infrastructure development by removing finance and regulatory barriers.[3]**
   Since 2007, renewable energy development has resulted in more than $5 billion investment in Oregon.[4] However, the state's ability to attract new investment and pursue promising new technologies is hampered by three things: outdated and inadequate energy transmission and infrastructure; inefficient and disjointed local, state and federal regulatory processes; and limited public resources. The plan calls for the development of

1 American Council for an Energy Efficiency Economy (ACEEE) 2012 State Scorecard

2 Northwest Power and Conservation Council, Sixth Northwest Power and Conservation Power Plan, Feb. 2012.

3 Or. Rev. Stat. § 468A

4 Renewable Northwest Project, March 2011 release

a landscape level planning tool and streamlined permitting to give clean energy developers more certainty and predictability and to ensure the State's natural resources are protected. In addition, the plan calls for developing a new regional infrastructure bank to leverage public and private investment for infrastructure projects.

3. **Accelerate the market transition to a more efficient, cleaner transportation system.** Transportation is the single largest contributor to Oregon's carbon emissions and a significant source of air toxics. Oregonians consume 1.5 billion gallons of gasoline and drive 39 billion miles every year. According to an analysis conducted by the Oregon Department of Energy from U.S. Census Bureau data, fuel costs average Oregonians nearly seven percent of disposable income; nearly double the cost ten years ago. This plan calls for focusing on achieving a 20 percent conversion of large fleets to alternative fuel vehicles over the next ten years.

Each of these initiatives are discussed in detail in the chapters ahead and will involve bolstering existing programs, pursuing regulatory changes, and capitalizing on opportunities for the state to be a market driver through creative finance, purchasing, planning and governance.

This plan is a central component of my strategy to position Oregon to be more competitive in the global economy of the 21st century. It provides a framework to move away from a boom/bust economic cycle that depletes our natural capital and leaves us vulnerable to fluctuations in global markets. This plan provides strategies to meld workforce development initiatives, higher education opportunities, and local job creation with clean energy priorities; spur investment while developing home-grown renewable energy resources; and keep capital circulating in our region through local sourcing and supply chains while reducing our dependence on carbon-intensive fuels and foreign oil.

Many of the proposed goals and action items in this plan are ambitious. For example, the goal of meeting new electric load growth with conservation and energy efficiency will be particularly challenging, as will be the effort to secure a new, non-gas tax financing mechanism for multi-modal transportation infrastructure. I believe, however, that because the stakes are high for our state we must be bold in our vision and committed to a full and honest examination of these and other issues as we build the consensus necessary to secure our common future.

Finally, the 10-Year Energy Action Plan was created with input, advice and technical assistance from hundreds of Oregonians and organizations. A citizen task force met regularly for six months and made nearly 200 recommendations that have been synthesized and incorporated into the plan. I extend my sincere thanks to everyone who has participated in this process.

Sincerely,

John A. Kitzhaber, M.D.,
Governor

254 State Capitol, Salem, Oregon 97301-4047 P: (503) 378-3111 F: (503) 378-4863
governor.oregon.gov

# Table of Contents

# Introduction

In recent years, Oregon energy innovation has contributed to a decline in statewide electricity and natural gas consumption. From 2000 to 2011, electricity and natural gas use dropped.[5] Since 2002, Oregon's commitment to investing in energy efficiency through the Energy Trust of Oregon ("ETO") has resulted in cumulative savings of 322 average megawatts of electricity and 23.2 million annual therms of natural gas, reducing the costs to serve Oregon ratepayers by an estimated $1.8 billion.[6] Since establishing the State's Renewable Portfolio, we are on track to meet approximately 25 percent of our energy needs through clean sources by 2025. This has resulted in local development of wind and other renewable resources, resulting in more than $5 billion of investment in Oregon since 2007.[7]

This leadership in energy did not happen by accident. It has been nearly 40 years since Governor Tom McCall established an emergency energy conservation program in the state and more than 30 years since incentives and loan programs were created for residents and businesses to invest in renewable energy and energy efficiency. Concurrently, an enormous amount of work has been accomplished in the public and private sectors, and many boards, commissions, agencies and other groups have furthered our understanding of clean energy opportunities. This body of analysis has informed several extensive efforts over the past two years to analyze and diagnose energy trends. In that short time, the Oregon Department of Energy ("ODOE") has produced the State's biennial energy plan; the Oregon Global Warming Commission ("OGWC") proffered its thorough "Roadmap to 2020"; and the Oregon Energy Planning Council ("OEPC") produced its "Oregon Energy Planning Report."

The last report charted a useful framework for a statewide plan in its findings, and it noted the following priorities that should be included in such a plan:

> Oregon's Department of Energy mission statement is to ensure that the state "…has an adequate supply of reliable and affordable energy and is safe from nuclear contamination, by helping Oregonians save energy, develop clean energy resources, promote renewable energy, and clean up nuclear waste." The Department is charged with developing and administering the state's energy programs and helping with strategic planning to develop the state's future energy portfolio.
>
> In addition to the Department's goals, the Council has agreed that the state's future energy strategy should include the following goals or principles:
>
> - Maintain affordable energy costs.
> - Assure a high level of regional and local system reliability.
> - Promote a clean energy economy and jobs through new business and workforce development.

5 According to 2011 Oregon Utility Statistics book, electricity sales by all Oregon utilities peaked in 2000. Oregonians used 2.4 million megawatt hours less in 2011 than in 2000. Similarly, natural gas usage (including customers who buy their own natural gas) dropped by about 150 million therms between 2000 and 2011.

6 Energy Trust of Oregon 2011 Annual Report: http://energytrust.org/About/PDF/AnnualReport_2011.pdf

7 Renewable Northwest Project Economic Development Study: http://rnp.org/sites/default/files/pdfs/OR_5_billion_2-page_11Mar23.pdf

- Meet state goals and commitments on greenhouse gas emission performance standards.
- Meet state goals and commitments on developing renewable resources.
- Ensure the health and welfare of Oregon's citizens.

This action plan adopts these elements, with emphasis on strategies for implementing them, which are discussed below. The OEPC report also contained a number of recommendations on creating a comprehensive planning document, many of which have been incorporated herein.[8] As a matter of process, the members of Governor Kitzhaber's Energy Task Force were advised to consider the recent work of the noted groups and other relevant reports in developing recommendations for the 10-Year Energy Action Plan.

The proximity in subject and time of so many different energy-related efforts in Oregon, while convenient for the purpose of cross-reference, also indicates that a review of the management of energy policy at the state level is well-timed, allowing for a more efficient use of resources for the purposes of planning, coordination and implementation.

In drafting this report and its recommendations, the following major considerations have played a primary role:

## Jobs and the Economy

Oregon's innovative energy policy has made us a national leader in energy efficiency, renewable resource development, and clean energy job growth. Oregon ranks second in the nation in the clean-energy economy[9], fourth in the nation for energy efficiency[10], and fifth in the nation for green jobs per capita[11]. Oregon is widely recognized for our supportive policies, significant technology deployment, and track record of attracting capital.

Growing the number and availability of green jobs helps to competitively position Oregon to capitalize on the growing clean economy and to build resiliency into the State's economic development strategy. According to a recent study by the Economic Policy Institute ("EPI"), greener industries grow faster than the overall economy, states with more green intensive industries fare better during recessions, and green jobs are more accessible to workers without a college degree.[12] Green jobs also go beyond the renewable energy industry, permeating many industries including manufacturing. The findings from EPI provide further evidence that a sustainable economy and job creation can go hand in hand; indeed, green jobs can even be the backbone for an overall job creation strategy.

More than 22,900 Oregon businesses have invested nearly $2.4 billion in energy efficiency, including lighting, heating, industrial processes, and other measures. In Energy Trust of Oregon territory alone, energy efficiency programs have saved approximately $1 billion on program participant energy bills

8 Oregon Energy Planning Council, Oregon Energy Planning Report, Dec. 2010. The Council noted that future planning would require adequate resources, measurable benchmarks or criteria, public "buy-in", and significant leadership in managing competing interests.

9 State Clean Energy Leadership Index, Clean Edge Inc.

10 American Council for an Energy Efficiency Economy (ACEEE) 2012 State Scorecard.

11 Pollack, Ethan. Counting Up To Green, Economic Policy Institute, October 9, 2012.

12 Pollack, Ethan. Counting Up To Green, Economic Policy Institute, October 9, 2012.

while creating an estimated 2,500 jobs and spurring $90 million in wages and business income.[13] Nearly 425,000 people have installed energy efficient appliances in their homes, like refrigerators, dishwashers and washing machines.[14] Energy efficiency and conservation programs, such as the State's Residential Energy Tax Credit, have been instrumental in saving more than $1 billion in cumulative energy costs.[15] We have more to do to acquire additional electric and gas savings, which will add to these numbers and deliver still more benefits to the state.

Businesses have invested more than $5 billion in renewable energy in Oregon, including wind, solar and geothermal development.[16] Statewide, 2,600 megawatts of operating renewable energy have been installed to date, enough to power 650,000 homes.[17] This development has strengthened Oregon's economy. For example, from taxes, fees and assessments, wind farms have produced about $33.2 million annually for Sherman County alone.[18]

Vestas – the largest wind turbine manufacturer in the world – and Iberdrola Renewables – the second largest renewable power operator in the country – have both established their North American headquarters in Oregon. In addition, Oregon has become the U.S. solar manufacturing capital, employing 1,800 people in advanced manufacturing jobs at 12 manufacturing facilities.[19]

Ensuring a competitive advantage in Oregon for growing these industries includes offering a competitive regulatory environment (facility siting processes, as one example); targeted incentives (both financial and technical); a fertile research, development and commercialization effort; and a ready workforce.

## Affordable and Reliable Energy

Oregon's electric rates are among the lowest in the nation,[20] and natural gas and transport fuels are competitively priced and reliably delivered.

Maintaining affordable energy, especially in a predictable manner over the long-term, is essential to helping Oregon's businesses grow – particularly many of our manufacturing-based clusters – and keeping our citizens, especially our disadvantaged and low-income households, comfortable and safe.

Energy must remain accessible, in terms of the security of its supply and breadth of its delivery, for the state to thrive. And equity in the distribution of costs, benefits, and impacts must factor consistently, transparently, and justly into energy policy decisions.

Maintaining an up-to-date statewide energy action plan will further increase the reliability and predictability of energy services and costs for both businesses and consumers.

13 Energy Trust of Oregon, 2011 Annual Report, http://energytrust.org/About/PDF/AnnualReport_2011.pdf

14 Oregon Department of Energy

15 2011 Annual Report to the Oregon Public Utility Commission, Energy Trust of Oregon, April 16, 2012.

16 Renewable Northwest Project Economic Development Study, http://rnp.org/sites/default/files/pdfs/OR_5_billion_2-page_11Mar23.pdf

17 Oregon Department of Energy

18 Sherman County, Oregon

19 Business Oregon

20 Sixth Northwest Power and Conservation Power Plan, Northwest Power and Conservation Council, February 2012.

## Environmental and Quality of Life Values

Oregon is a diverse state, but residents share a deep appreciation for a rich quality of life, livable communities – both urban and rural – and a strong connection to the natural environment. Our energy future must improve our quality of life, make our communities healthier, determine the best use of our natural resources, and protect farms, forests, water, and wildlife.

## Carbon and Greenhouse Gas Reduction Goals

As we make investments necessary to provide energy for the next generation of Oregonians, our most difficult energy challenge involves reducing greenhouse gas emissions, particularly energy-related carbon dioxide. If we make the wrong choices, future carbon regulation could force us to prematurely abandon those investments, costing Oregon dearly. If we choose wisely, Oregon will be well-positioned to compete and thrive in an increasingly carbon-constrained world.

To this end, the Oregon State Legislature established greenhouse gas reduction goals for 2020 and 2050. Those goals are to reduce greenhouse gas emissions by 10 percent and at least 75 percent below 1990 levels, respectively.

Oregon has made significant progress toward reducing greenhouse gas emissions. For example, Portland General Electric has committed to end coal operations at its Boardman facility by 2020. Wind energy now contributes nearly six percent of Oregon's electricity, up from less than one percent in 2004.[21] Distributed energy generation facilities provide local, homegrown energy for ratepayers. Significant investments have been made in energy efficiency and conservation, the cheapest way to reduce greenhouse gas emissions. Oregon has successfully reduced greenhouse gas emissions while maintaining a competitively low cost of energy[22]:

Another critical opportunity to advance measurable outcomes in this area is to make sure that state and regional investments in infrastructure – estimated to be over $1 trillion along the West Coast in the next 30 years – account for climate risks in evaluating life cycle costs, siting and design. To advance this approach, Oregon is a founding partner of the West Coast Infrastructure Exchange[23], with a mission to advance this kind of innovative outcome and best practice.

As we look to the future, we need to continue to invest in demand management tools, smart grid infrastructure, energy efficiency, conservation, renewable energy and clean technology to significantly ratchet down greenhouse gas emissions, particularly from coal. The full range of impacts from such investments should be considered when weighed against cost; for example, considering socioeconomic effects in addition to greenhouse gas reductions. Recent analysis completed to inform the 10-Year Energy Action Plan is an example: the analysis used a sophisticated macroeconomic modeling tool to

21 Oregon Department of Energy, http://www.oregon.gov/ENERGY/Oregons_Electric_Power_Mix.shtml

22 U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

23 West Coast Infrastructure Exchange, http://www.westcoastx.com/home.php.

demonstrate the economic costs and benefits of achieving Oregon's greenhouse gas reduction goals under several hypothetical policy action scenarios.[24]

It is also important to determine the appropriate and responsible role of natural gas. Efficient, state of the art natural gas transmission and generation emit 50 percent less greenhouse gas than burning coal. Natural gas also has the potential to serve as a firming resource for renewable energy projects and as a cheaper alternative fuel for vehicles. For residential, commercial, and industrial customers currently using inefficient oil or other fossil fuel sources, converting electric heat to natural gas or bioenergy thermal heat technologies not only improves operating efficiency, it also results in a net greenhouse gas reduction. Natural gas can serve as a critically important tool in reducing our state's dependence on coal and in helping Oregon meet our 2020 greenhouse gas reduction goals.

**This energy action plan will ensure that over the next decade we create an energy infrastructure that will enable us to thrive in a carbon-constrained future.**

24 10-Year Energy Action Plan Modeling: Greenhouse Gas Marginal Abatement Cost Curve Development and Macroeconomic Foundational Modeling for Oregon, Center for Climate Strategies, July 30, 2012.

# Process

In March 2010, then-gubernatorial candidate John Kitzhaber released an energy policy campaign paper that, among other things, called for "a strategic climate and energy roadmap that lays out the practical steps to meet and implement [our goals] … ."[25] In order to fulfill that direction, in October 2011, Governor Kitzhaber appointed the 10-Year Energy Action Plan Task Force, an advisory committee generally charged with making recommendations on coordinated actions and initiatives that the State of Oregon can take in the next ten years to:

- Reduce our dependence on carbon-intensive fuels and foreign oil,
- Develop home-grown renewable energy resources,
- Mitigate greenhouse gas emissions,
- Improve energy efficiency and create rewarding local jobs, and
- Boost Oregon's economy through investment and innovation.

These goals build upon ensuring a continued supply of affordable, reliable energy for our citizens and businesses.

## Structure

The Task Force was led by a Chair and three Vice-Chairs and organized into the following design teams:

- Energy Efficiency and Demand Management
- Resource Mix
- Siting
- Transportation Design
- Governance Design

Each design team was given a specific charge for its particular issue area and made recommendations to the Governor based on its specific charge.[26] The final report is informed primarily by the recommendations from The Task Force and from subsequent public comments.

25 Kitzhaber 2010, Building a Clean Energy Future and Safeguarding Oregon's Natural Environment, Mar. 2010.

26 http://www.oregon.gov/energy/Pages/Ten_Year/Ten_Year_Energy_Plan.aspx

## Timeline

| | |
|---|---|
| Oct 2011 - Jan 2012 | Design team work |
| Feb 2012 | Integration team work |
| Mar 2012 | Governor's office prepares document for stakeholder review |
| June 2012 | Governor's office release Draft 10-Year Energy Action Plan |
| June - July 2012 | Governor's office gathers public comments on Draft 10-Year Energy Action Plan |
| Fall 2012 | Governor's office finalizes 10-Year Energy Action Plan |

## Task Force Leadership

*Chair* Michael Jung, Silver Spring Networks
*Vice-Chairs* Andrea Durbin, Oregon Environmental Council
Roy Hemmingway, Energy consultant
Kevin Lynch, Iberdrola Renewables
*Governor's Coordinator* Karen Joyce, Governor's Interim Energy Policy Advisor
*Governor's Office* Curtis Robinhold, Chief of Staff
Cylvia Hayes, First Lady of Oregon
Scott Nelson, Jobs and Economy Policy Advisor
Richard Whitman, Natural Resources Policy Advisor
Lynn Peterson, Sustainable Communities & Transportation Policy Advisor
Greg Wolf, Intergovernmental Relations & Regional Solutions Advisor
Dan Carol, Director of Multi-State Issues
***Staff:** Diana Enright, Oregon Department of Energy*
***Staff:** Matt Hale, Oregon Department of Energy*

## Design Team Members

**Governance**

Andrea Durbin, Oregon Environmental Council
Roy Hemmingway, Energy consultant
Kevin Lynch, Iberdrola Renewables

**Energy Efficiency and Demand Management (EEDM)**

**Chair:** Susan Ackerman, Public Utility Commission
Roger Gray, Eugene Water and Electric Board
Jeff Harris, Northwest Energy Efficiency Alliance

Margie Harris, Energy Trust of Oregon
Marty Sedler, Intel Corporation
Derek Smith, Clean Energy Works Oregon
Phil Welker, Portland Energy Conservation Institute
***Staff:** Theresa Gibney, ODOE*
***Staff:** Vijay Satyal, ODOE*

**Resource Mix**

**Chair:** Rachel Shimshak, Renewable Northwest Project
Bill Edmonds, NW Natural
Bob Jenks, Citizens Utility Board
John Mohlis, OR State Bldg & Construction Trade Council
Dave Robertson, Portland General Electric
Whitney Rideout, Oregon Association of Nurseries
John Savage, Public Utility Commission
***Staff:** Rebecca Sherman O'Neil, ODOE*
***Staff:** Tom Stoops, ODOE*

**Siting**

**Chair:** David Stewart Smith, Pacific Energy Systems
Scott Bolton, PacifiCorp
Mark Brown, Bureau of Land Management
Dan Erickson, fmr Wasco County Commissioner
Karen Green, fmr Chair, Energy Facilities Siting Council
Margaret Kirkpatrick, NW Natural
Monty Knudsen, US Fish and Wildlife Service
Tamra Mabbott, Umatilla County
Bruce Taylor, Defenders of Wildlife
Chris Taylor, Element Power
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**Transportation**

**Chair:** Jon Ruiz, City of Eugene
Charlie Allcock, Portland General Electric
Angus Duncan, Bonneville Environmental Foundation
Neil McFarlane, Trimet
David Patterson, Mitsubishi Motors
Derek Rotz, Daimler Trucks North America
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**Acknowledgements:**

Additional thanks go out to SA Anders, John Audley, Tammi Bellshaw, Shanna Brownstein, Chris Hagerbaumer, Eric Hesse, Tim McMahon, Sunny Radcliffe, Ben Ward, Amy Velez, Doug Young, Lisa Schwartz and David McKay.

## How to Stay Involved

Please visit the 10-Year Energy Plan web site to view the materials that helped inform this action plan, the Task Force Recommendations, and Draft 10-Year Energy Action Plan. Please sign up for email alerts so you can be involved in implementing Oregon's 10-Year Energy Action Plan.

# Goals

## State Energy Goal One:
Maximize energy efficiency and conservation to meet 100 percent of new electric load growth.

Over the next decade, energy efficiency and conservation will serve as the cornerstone of Oregon's energy policy. Since 1980, more than half of the increase in demand for electricity in the Northwest has been met with energy efficiency savings equivalent to eight to ten power plants.[27] Since 2002, Energy Trust of Oregon has reduced electric load 4.5 percent compared to what it would have been without their efficiency programs. These savings have been accomplished by installing improvements like building insulation, high-efficiency lighting, cooling and water heating systems, changes to industrial manufacturing and process improvements, energy management enhancements and improved irrigation. Likewise, Oregon's publicly-owned utilities have invested significantly in energy efficiency and conservation. From 2002 to 2011, public utility energy efficiency programs have saved their customers 135.3 average megawatts, resulting in an average of 239 kilowatt hours of savings per year per customer. Oregon's successes stem from longstanding public policies that recognize the myriad benefits of efficiency, including lower energy bills for consumers, a cleaner environment, and rewarding local jobs. As a result, Oregon ranks fourth in the nation in energy efficiency.

According to the Northwest Power and Conservation Council, enough cost-effective conservation measures will be available to meet 85 percent of the region's load growth for the next 20 years.[28] In Oregon, it is likely that we will exceed this, reaching zero or negative load growth in the coming decades. In fact, Oregon Public Utility Commission data show the state's total electric and gas usage has declined in recent years.[29]

Meeting 100 percent of new load growth through energy efficiency and conservation is an aggressive statewide stretch goal. Every utility serving Oregon customers is different; each has its own energy efficiency and conservation program tailored to meet the specific needs of its customers. Some utilities are better situated to meet certain load targets, and it is unfair to expect each utility to meet 100 percent of load growth through energy efficiency and conservation, particularly in those territories where there is a large single load user, such as a data center. However, an analysis completed in support of the 10-Year Energy Action Plan demonstrates a scenario in which energy efficiency measures available to the state are able to meet new load growth through 2022 while providing net savings to consumers and significant greenhouse gas reductions.[30] It is critically important that we, as a state, push to meet this stretch goal because energy efficiency is the cheapest, least-cost way to meet new

27 Sixth Northwest Power and Conservation Power Plan, Northwest Power and Conservation Council, February 2012.

28 Sixth Northwest Power and Conservation Plan, Northwest Power and Conservation Council, February 2012. The region includes Idaho, Montana, Oregon and Washington.

29 According to 2010 Oregon Utility Statistics, electricity use in Oregon peaked in 2000. Oregonians used 3.6 million megawatt hours of electricity less in 2010 than in 2000. Similarly, natural gas usage dropped by more than 200 million therms from 2008 to 2010.

30 10-Year Energy Action Plan Modeling: Greenhouse Gas Marginal Abatement Cost Curve Development and Macroeconomic Foundational Modeling for Oregon, Center for Climate Strategies, July 30, 2012.

consumer demand for power. If executed correctly, maximizing energy efficiency and conservation will ensure that Oregon maintains our competitively low cost of energy, making us an attractive place for businesses to locate and protecting Oregon consumers.

One of the biggest hurdles to achieving these energy efficiency gains is in commercial buildings. While publicly-owned utilities and the Energy Trust of Oregon are working with customers to retrofit many thousands of buildings a year, there are opportunities to achieve deeper savings with integrated retrofits, especially in older buildings with outdated systems. Over the next decade, the state will coordinate, focus and maintain existing energy efficiency programs, while at the same time looking at new, innovative approaches to explore the direct use of utility and other private capital for investment in energy efficiency and conservation. These new voluntary efforts will allow us to accomplish deeper energy efficiency efforts and to grow programs to reach customers who are not now adequately served.

In addition, we will establish a State Building Innovation Lab designed to help understand how to pursue deep energy efficiency and conservation retrofits in the public sector. Over the next ten years, for every occupied state-owned building, the State Building Innovation Lab will establish baseline energy use and conduct energy audits to identify cost-effective retrofits. The buildings will be retrofitted, improving the performance of up to four million square feet of identified office space and creating the data and experience to help drive a larger market.

Over the next decade, the state will coordinate, focus and build on existing energy efficiency capabilities while at the same time looking at new, innovative approaches and policies to explore direct use of utility and potentially other private capital for investment in energy efficiency and conservation. These new voluntary efforts will allow us to accomplish deeper energy efficiency efforts and to grow programs to reach customers who are not now adequately served. This investment could save home- and business-owners money on their utility bills, create more jobs, further strengthen our economy, and protect our quality of life.

Both the creation of the State Building Innovation Lab and the larger effort to address regulatory issues will be led by a public-private team with members from the Governor's office, the Oregon Department of Energy, the Oregon Public Utility Commission, the Building Codes Division, utilities, and numerous entities, such as the Energy Trust of Oregon and Clean Energy Works Oregon ("CEWO"), with expertise in the delivery of energy efficiency measures.

### State Energy Goal Two:
### Enhance clean energy infrastructure development by removing finance and regulatory barriers.

Oregon's natural gas, electric, water, and waste infrastructure is aging and needs to be significantly upgraded and expanded. The state has a backlog of improvements that must be made to existing infrastructure to meet the demands of Oregonians and to make communities more resilient. In order to meet this need, the State will create the West Coast Infrastructure Exchange[31]. The Exchange will align the State's capital facilities and infrastructure planning efforts by developing new mechanisms for local technical assistance, bundling water and energy innovations across borders, and attracting investment

31 West Coast Infrastructure Exchange, http://www.westcoastx.com/home.php.

capital through new performance partnerships. This strategic approach will require improved coordination and integration between energy, transportation, land use and economic development planning.

In addition, Oregon will continue to assist in the build-out of a clean energy infrastructure by removing market barriers in the Energy Facility Siting Council process. The proposed changes to the Siting Council process will create more predictability and certainty for developers and create more flexibility to protect the State's natural resources. This effort will ensure that Oregon can continue to meet the State's energy goals through harvesting clean energy resources while protecting clean air, clean water, open spaces, high-value farmland and other critical natural resources.

## State Energy Goal Three:
## Accelerate the market transition to a more efficient, cleaner transportation system.

Oregon communities have been working over the last 39 years to understand the connection between land use and transportation, and to maximize the capacity of our transportation system. In addition, a more robust electric vehicle pool has the potential to assist electric utilities with new grid management opportunities. Oregon's per capita vehicle miles traveled ("VMT") rose 4 percent from 1990 to 2000, but Oregon was one of only two states to experience a decline (-8 percent) since 2008.[32] This reduction benefits Oregonians by improving air quality, boosting public health, and reducing congestion.

Transportation is the single largest contributor to Oregon's greenhouse gas emissions, accounting for 37 percent of total emissions.[33] Oregon's roads accommodate four million registered vehicles for 2.7 million licensed drivers.[34] Oregonians consume some 1.5 billion gallons of gasoline to drive more than 33 billion miles every year.[35] According to analysis done by the Oregon Department of Energy from U.S. Census Bureau data, fuel costs average Oregonians nearly seven percent of disposable income, nearly double the cost ten years ago. Moreover, gasoline prices are projected to rise, so this trend is expected to continue unless the transportation system and habits are reformed.

To reach Oregon's 2020 goals, the state will need an approximately 30 percent reduction from 2010 greenhouse gas levels, which roughly translates to a 30 percent reduction in fossil fuel use.[36]

Over the next ten years, the State will reduce dependence on fossil fuels by assisting in the conversion of 20 percent of large fleets to alternative fuel vehicles, including, but not limited to, electric, compressed natural gas ("CNG"), and liquefied natural gas ("LNG"). Converting 20 percent of large fleets over the next ten years will accelerate the market for newer, cleaner-burning vehicles that are less expensive to operate over the life of the vehicle, which will help the state and businesses save money on operations and fuel.

32 Oregon Department of Transportation, Status of Oregon GHG Emissions, October 2008.

33 Report to the Legislature: Oregon Global Warming Commission, 2011.

34 Oregon Department of Transportation.

35 Federal Highway Administration, Highway Statistics 2010.

36 Oregon Revised Statute 469A

# Cross-Cutting Critical Paths

**In order to meet our state energy goals over the next decade, we will focus on three cross-cutting areas.**

## Critical Path: Technology and Innovation

The development and application of new technologies and innovations are vital to strengthening Oregon's energy leadership over the coming decade. Levels of investment in this area have long been incommensurate with the magnitude of our energy challenges and opportunities. Addressing this gap requires closer coordination between organizations involved in such activities today, as well as focused efforts on areas generating the greatest net benefits for Oregon.

Toward these ends, the state will leverage its existing infrastructure, such as the Oregon Innovation Council, in collaboration with relevant organizations and stakeholders, both public and private, to develop a detailed proposal that:

> Addresses an overall statewide approach to coordinating and leveraging public and private investment in energy technology research, development, demonstration, and deployment (RD3);
>
> Bolsters energy efficiency and demand response research and development to meet all future load growth with next-generation technologies and approaches (State Energy Goal One);
>
> Minimizes the cost of integrating the large amounts of intermittent renewable energy resources that will be necessary to meet both statutory obligations and growing consumer demand (State Energy Goal Two); and
>
> Targets activities to accelerate the deployment of intelligent transportation systems and electric vehicles, including potential integration with grid modernizations initiatives (State Energy Goal Three).

## Critical Path: Carbon and Climate

The most difficult energy challenge involves reducing greenhouse gas emissions across the energy and transportation sector. Failure to do so may result in investments that have to be prematurely abandoned as we move into a carbon-constrained future.

In order to identify and rank the best opportunities for cost-effective carbon reduction, the state commissioned an analysis that compares the costs and greenhouse gas reduction benefits of over 200 carbon reduction strategies.[37] This analysis demonstrates that there are significant opportunities

37 10-Year Energy Action Plan Modeling: Greenhouse Gas Marginal Abatement Cost Curve Development and Macroeconomic Foundational Modeling for Oregon, Center for Climate Strategies, July 30, 2012.

available to meet Oregon's energy and greenhouse gas reduction goals in every sector of the economy, and to do so cost-effectively. Moreover, the analysis demonstrated that even relatively less cost-effective measures can work together with cost-saving measures to provide important employment and economic activity benefits to Oregon.

The data from the cost-effectiveness study has informed this Action Plan and the set of actions proposed to meet the state's greenhouse gas reduction goals by 2020, and the State's ability to enforce those actions. The proposed measures will require participation from key state agencies, including, but not limited to, the Department of Environmental Quality, Department of Transportation, Public Utility Commission, Department of Agriculture, Department of Land Conservation and Development and Oregon Department of Energy. This action plan outlines the responsibilities and reporting mechanisms required from the State to meet the greenhouse gas reduction goals.

## Critical Path: Cutting Edge Communities

Oregon is a national leader in energy efficiency, land use planning, multi-modal freight and passenger choices, renewable resource development and environmental stewardship. However, we have not yet asked our state or local entities or citizens to have a complete conversation about the integration of these elements.

The Cutting Edge Communities program will ensure that local governments statewide have access to state programs that will help fund their individual efforts to help meet the State's ten year energy goals. Implementation of locally adopted energy action plans will create more resilient communities that can meet their own long-term goals of energy independence, reliability, affordability and job creation.

Urban and rural communities interested in taking advantage of the goals of the 10-Year Energy Action Plan can work through the Regional Solutions network to access state programs that would help advance their goals.

## Critical Path: Bioenergy Development

Oregon's natural resources and environment are at the center of the state's identity and economy. Agriculture and forestry represent two of Oregon's top three industries and employ more than a hundred thousand Oregonians while contributing billions of dollars to the state's economy. Natural resource management, utilization and protection form the core of rural economies and are the shared heritage of Oregon communities. Strengthening the health of our environment, these key industries and rural communities is a priority for the state and will be advanced by a strategic, integrated approach to bioenergy opportunities.

In order to ultimately develop a robust restoration economy for rural Oregon and increase energy production from biomass, the state will focus incentives on building the energy production market. While issues related to secure fuel supplies are important, the next Legislature could repurpose existing incentives to focus on capital investment in biomass energy and biofuels production facilities. The existing biomass collector tax credit has indeed been shown to increase economic

activity in the sector.[38] Supporting capital investment in biomass energy and biofuels facilities will drive market expansion. Thus, this plan proposes a shift of incentive investments from collection of fuel sources to investment in facilities such as institutional boilers, cogeneration facilities, and cellulosic biofuels production.

The state will develop a coordinated approach to bioenergy opportunities that support key outcomes for a healthy environment, thriving communities, and a strong economy. This approach will accomplish the following:

- Support key Oregon industries – such as food processing, forest products, dairy and production agriculture – and help them save energy, integrate local energy sources, and develop new energy products. Specific action plans will be developed to advance energy conservation and renewables within each of these industries.

- Integrate local energy sources into residential, commercial and industrial buildings. This will encourage energy dollars to stay within the local economy and help to drive down spending on energy by governments, school districts and others. The Governor's Cool Schools Initiative and the State Building Innovation Lab will be the catalysts to move these efforts forward.

- Develop new and expanded markets for advanced biofuels and engineered solid fuel products, such as the Clean Fuels Program. Markets will include local, domestic and export-focused opportunities. Supporting a clean fuel industry will help develop new biofuel manufacturing capabilities in Oregon, such as the new ZeaChem facility in Boardman, and help commercialize new technologies that create advanced fuel from woody biomass, agricultural residuals and energy crops, algae, and materials from the waste stream.

- Prioritize and coordinate state agency actions that will efficiently deploy tools and resources that support bioenergy development and ensure a consistent regulatory approval process. State research, development, commercialization, regulation, incentives, and technical support programs will be aligned to bring bioenergy technologies and projects to fruition. This includes coordination with existing state strategies such as the Integrated Water Resources Strategy, the Oregon Strategy for Greenhouse Gas Reductions, Oregon's Forest Biomass Strategy, and the State Transportation Strategy.

- Encourage integration of anaerobic digestion projects into composting and food waste collection programs to support increased energy generation and co-product development, including nutrient recovery and soil amendments.

- Bioenergy projects will be coordinated to help support environmental health and protection objectives and develop beneficial co-products. Anaerobic digestion projects will help reduce waste going into the landfill, support nutrient recovery and management, and help achieve water protection goals. Woody biomass projects will help leverage forest health restoration projects and utilize forest residuals that would otherwise be released as smoke into the environment.

38 Nielson-Pincus, M., Krumenauer, M., MacFarland, K. Mosely, C. . Impacts of the Biomass Producer or Collector Tax Credit on Oregon's Wood Fuel Market and Economy. Ecosystem Workforce Program Working Paper Number 32. http://ewp.uoregon.edu/

# Taking Action: The Plan for our Energy Future

## Goal One:
## Maximize Energy Efficiency and Conservation

### Unlock Energy Efficiency as a Resource

In Oregon and elsewhere, stakeholders have long discussed how to more effectively integrate energy efficiency and conservation into both investor- and consumer-owned utility models that currently deliver energy services. Oregon has made significant strides in this area, including the creation of the ETO, collection and allocation of the public purpose charge, and "decoupling" our utilities. This regulatory framework has propelled Oregon to the forefront as an energy efficiency leader. However, with projections showing that access to currently-defined, cost-effective modes of efficiency is diminishing, and with our understanding that efficiency is still the cleanest, cheapest form of energy and absolutely essential to resilience and success in a resource-constrained environment, it is time to pioneer a new regulatory regime and business model that allows investor-owned utilities to invest in deeper efficiency savings while still meeting customer and shareholder needs.

The public benefits are many, including the fact that extensive energy efficiency retrofit work in the public, commercial and industrial sectors can create thousands of good jobs that cannot be outsourced. With an impressive track record of innovation and excellent working relationships between the state and the utilities that serve us, building a new model is a difficult but achievable goal.

***Action Item:*** *The state will analyze market barriers and work with stakeholders and the legislature to develop a new regulatory framework and financial mechanisms that allow for new consumer demand for energy to be met through energy efficiency and conservation.*

## Create the State Building Innovation Lab

Building efficient new buildings is the most cost-effective way of reducing the State's utility bill. However, given the State's aging building infrastructure, the State Building Innovation Lab will ensure that Oregon reduces energy consumption in all state-owned buildings by 20 percent over the next ten years. Managed by the Oregon Department of Energy, and in close coordination with the Department of Administrative Services, the Lab will conduct energy audits and identify cost-effective retrofits for every occupied state-owned building, improving the performance of up to four million feet of identified state office space.

The U.S. DOE Better Building Initiative sets a national target of improving energy efficiency in commercial and industrial buildings by 20 percent by the year 2020. The Initiative includes a challenge to states and local governments to lead by example. The State Building Innovation Lab would work to achieve this transition, focusing on technologies like more energy-efficient water and space heating and cooling technology, such as ductless heat pumps and heat pump water heaters, or other energy efficient natural gas solutions, consistent with organizations like the Northwest Energy Efficiency Alliance.

It has been estimated by ODOE that a 20 percent reduction in the electric utility costs for state-owned buildings in Oregon would result in annual savings of at least $100 million. That money could be leveraged to obtain at least $1.4 billion in borrowing capacity to finance the upgrades. Initially, much of the savings would be used to finance the underlying debt, but as time progresses, the actual savings will begin to accrue to the state.

In addition, the State Building Innovation Lab provides an opportunity to pilot and test commercial building asset ratings and public disclosure mechanisms that can create competition for energy efficiency and conservation in the private sector.

Undertaking this initiative would have a direct and immediate impact on Oregon's economy, resulting in savings for the state and creating jobs. Through this work, benefits can be created by testing and scaling different tools to help drive deeper, harder-to-reach savings in the commercial sector. For example, through the Lab, ODOE can establish a baseline for building performance and demonstrate which energy efficiency and sustainability measures can be taken to decrease the cost of energy for the State of Oregon. This tool would help demonstrate the value of energy efficiency and conservation to the private sector.

Through this effort, ODOE will explore public-private partnerships and other funding mechanisms, such as an energy efficiency power purchase agreement, on-bill finance or repayment, and energy services company models to finance the work. Understanding how these financial mechanisms work for state-owned buildings will help provide an understanding of how a similar model could function in the commercial market to capture harder, deeper-to-reach efficiencies and savings in commercial and industrial building stock.

Through this effort, ODOE will gather and analyze data, including the number of jobs created, the amount of money state entities save on utility bills, and overall carbon reduction. The data will serve as the foundation for understanding how to create innovative market opportunities and streamline the regulatory environment.

The State Building Innovation Lab will serve as a replicable model for both the commercial sector and one that could be adopted by local and regional governments to help them save money, reduce their energy consumption, create local jobs, and strengthen the local community.

***Action Item:*** *Create the State Building Innovation Lab to conduct energy audits, identify cost-effective retrofits and complete the retrofits for every occupied state-owned building over the next ten years.*

## Oregon Innovation Council ("Oregon InC")

The Oregon Innovation Council works to ensure the global competitiveness of Oregon industries by helping innovators create high-paying jobs, entrepreneurs create companies, and university researchers bring federal and private research dollars to Oregon in a partnership between the state's private sector leaders and its research universities. Oregon InC's labs and researchers can provide companies with access to cutting-edge research and development capacity. And Oregon InC commercialization grants help turn innovative ideas into commercial products, helping startup companies develop products that attract additional financial backing to grow ideas into revenue. In only three biennia of funding, Oregon InC initiatives have created 30 new companies marketing innovative products, captured $350 million in federal and private grants, and raised more than $115 million in private capital for emerging companies.

Many of the Oregon InC-funded efforts relate directly or indirectly to advanced energy applications for energy efficiency, transportation, and generation. Further investment in Oregon InC can help pave the way for significant breakthroughs and commercialization of these critical technologies and help grow Oregon's innovation economy. Over the next decade, implementation of this plan should be carefully coordinated with Oregon InC, helping to maximize development of homegrown applications that can accelerate energy applications.

***Action Item:*** *Increase funding for the Oregon Innovation Council.*

## Unparalleled Public-Private Work

The ETO, Bonneville Power Administration ("BPA") and publicly-owned utilities serve as the foundation for energy efficiency, conservation, and small-scale renewable investment in Oregon.

Over the past 30 years, BPA programs have made the Northwest a leader in treating energy efficiency and conservation as a power resource. The Northwest Power Act of 1980 called on the Northwest to give energy conservation top priority in meeting its power needs, and the region quickly learned that a megawatt saved is the equivalent of a megawatt produced.

As of 2009, energy efficiency accounted for only one percent of all electricity production in the United States. But in the Northwest, it accounted for 12 percent, thanks to collaboration among a number of entities: the Bonneville Power Administration, Northwest Power and Conservation Council, regional utilities, state agencies and environmental interests.

In fiscal year 2009 alone, BPA secured approximately 70 average megawatts of energy efficiency for the Northwest – enough energy to power 60,000 homes[39]. Through BPA programs, Oregon's municipal, cooperative and public utilities have saved their customers an average of 239 kilowatt hours per year.

The ETO, funded through a public purpose charge, has achieved further efficiency, conservation and renewable deployment gains for its customers while transforming markets. The ETO charter must be expanded to allow the Trust to leverage existing infrastructure to deliver broader benefits, like carbon reduction and economic gains, from energy efficiency and renewable energy investments to the state. This will allow the ETO to begin to provide new clean generation opportunities and savings for their customers, and to focus on sustainability to allow community-level scalable investment.

Market transformation programs – such as the Northwest Energy Efficiency Alliance ("NEEA"), ETO, BPA and the state's Residential Energy Tax Credit ("RETC") – can help scale energy efficient technologies. This not only helps grow Oregon businesses and strengthen our economy, it also provides homeowners and business owners with less expensive, cleaner alternatives to existing technologies.

EnergyTrust of Oregon

### Timber Products builds a foundation of energy efficiency

Timber Products Company, which manufactures a wide range of environmentally certified hardwood, plywood and decorative panels, incorporated energy efficiency into it business model in the late 1990s. "Energy conservation plays a key role in our company's economics and community stewardship," said Brad Beavers, process control manager. "If we can do it cheaper and with less environmental impact, we do it."

**PROJECT-AT-A-GLANCE**

- Oregon manufacturing facilities in Medford, Grants Pass and White City
- 650 Oregon employees

**Project benefits**

- Lower operating and energy costs
- Reduction in material processing
- Less waste of raw materials
- Opportunity to extend equipment life
- Decreased noise
- Improved lighting levels
- Reduced environmental impacts

**Financial analysis**

- $94,409 estimated annual energy cost savings
- $385,095 total of project costs
- $175,325 in cash incentives from Energy Trust

**Estimated annual savings**

- 1,787,221 kilowatt hours
- 679 tons of carbon dioxide
- 679 tons of carbon dioxide

39 Bonneville Power Administration, http://www.bpa.gov/Energy/N/

Another example of the kind of public-private partnership at which Oregon excels, and which is necessary for technology deployment, is Clean Energy Works Oregon ("CEWO"). Since 2010, CEWO has remodeled more than 1,500 homes throughout Oregon to make them more efficient, comfortable, and safe for residents. This program has created or sustained more than 150 direct construction jobs and leveraged nearly $20 million in private capital investment. CEWO is a national leader in delivering residential and other energy efficiency related services; as such, the state will continue to support CEWO to deliver such services, make energy efficiency gains in the residential sector, and save Oregonians money on their utility bills.

The Governor's Cool Schools program illustrates how the public-private relationships in energy efficiency can work quickly and well to deploy projects. Just a few months after being sworn into office, the Governor and his staff were working with groups like ETO and CEWO, at no additional fiscal impact to the State, on Phase 1 of the Cool Schools effort. During the course of Phase 1, the state's Small Energy Loan Program ("SELP") was tracking potential projects at 51 schools in 19 school districts, with project costs of around $17 million. To date, the program has leveraged a $175,000 investment from the State to generate over $21 million in energy efficiency upgrades for schools. The program directly catalyzed projects in 13 school districts, improving 39 school buildings in 10 counties across the state. SELP financed $4.8 million of $5.3 million in project costs, which enabled improvements at 28 schools in eight school districts statewide.

To date, ODOE has received loan applications from eight school districts requesting $2.8M in loans. ODOE is actively working with 15 school districts at various points in the process of project design and planning. ODOE anticipates another $2.3 million in loan applications between now and the close of the application period.

Lastly, more needs to be done to provide low-income Oregonians access to energy efficiency and conservation programs. Using $3.6 million from the American Recovery and Reinvestment Act, the Oregon Department of Energy and Housing teamed up to offer the State Energy Efficient Appliance Rebate Program to low-income homeowners. This program has provided 3,212 rebates to 2,555 homeowners in every county, including 1,102 for heat pumps and 597 for furnaces, covering 70 percent of the system cost. Savings from this program include one-million kWh of electricity, 33,000 therms of natural gas, and 1.6 million gallons of water.

The Oregon Department of Energy, in conjunction with the Oregon Public Utility Commission and other stakeholders, will analyze current funding for weatherization programs, identify gaps in resources and develop innovative new strategies to increase the amount of energy efficiency and conservation delivered to low-income Oregonians.

Today, energy efficiency is more important than ever. It is clean and emission free. It is also low cost relative to new energy generating resources. It serves our national goals of reducing our carbon footprint and enhancing our energy independence. In short, it is the world's most environmentally and economically friendly energy resource.

## Public Performance Disclosure Mechanisms

Public building performance disclosure mechanisms are a critical tool in driving demand for energy efficiency and conservation. Currently, the ETO is providing homeowners with an energy performance

score, a new tool that is similar to a miles-per-gallon rating for their home. The score provides homeowners with information about how much it costs to operate their home and a list of potential upgrades that will make their homes more comfortable and affordable.

***Action Item:*** *The state will build on this pilot program to provide a tool that would be available to all homeowners. This tool can help accelerate the market for energy efficiency and, when provided to potential buyers at the point of listing, would allow homeowners to retrofit their new homes and amortize the costs of upgrades over the life of the mortgage.*

## Financing Energy Efficiency and Conservation

Innovative finance mechanisms are not the only tool needed to help scale energy efficiency over the long term. However, developing private sector finance mechanisms, such as an energy efficiency mortgage, that lead to the creation of a secondary market for this product will prove essential. In order for the private sector to develop a finance mechanism of this nature, it is critical that the state, in coordination with other jurisdictions, the federal government, and utility energy efficiency programs, continues to demonstrate the value of energy efficiency and conservation.

As stated above, the 2011 Legislature and the Governor created the Cool Schools program. Although this program is helping to decrease the cost of operations and maintenance for school districts statewide, it is also an important step in establishing the foundation for energy efficiency financing. Using the state's unique SELP program as a base, other incentives and authorization for additional capital to SELP-related reserve funds can be added to drive down the cost of lending for energy projects. As additional projects are undertaken, the state will be able to gather and aggregate energy performance data, ultimately leading to a private-sector driven financing tool.

This new financing tool will continue to allow greater access to low-interest financing, for example leveraging the low-interest financing provided by consumer-owned utilities, for schools across the state and providing one-stop-shopping for technical assistance.

In addition, the state has a number of programs that help drive energy efficiency projects in the commercial, industrial, and residential sector. These financial tools help local governments, businesses, and manufacturers retrofit their buildings and purchase highly efficient appliances so they can save money on energy bills. The state has incentive programs designed to help homeowners purchase more efficient appliances. To help reduce Oregonians' utility bills, the state should update current programs to include new appliances, including televisions, set-top boxes, battery charges, and shower heads. State investments have, over the years, helped scale new technologies and transform markets to make efficient technologies more affordable.

Despite the success of these programs, the state can always work to better direct investment in meeting our energy goals. Lack of capital is often cited as a barrier to energy efficiency upgrades; however, there is a barrier in the current incentive structure for building owners and tenants. This split incentive happens when one person owns a building and another uses it and pays the utility bill. The owner and tenant fundamentally do not have the same incentive to retrofit the building to be more energy efficient. The state, in partnership with the Legislature, should identify this and other market barriers to help drive investment in programs that meet the state's energy goals.

Lastly, since its inception in 1980, SELP has provided over $550 million through nearly 850 loans spread throughout the state. The program has achieved this significant level of financing in a self-sufficient manner without any initial capitalization. To continue this capability, SELP will need to be capitalized over the next several biennia.

***Action Item:*** *The state will develop a new financial tool in concert with new financing infrastructure to help utilities, consumers, and commercial and industrial property owners leverage existing investor-owned and publicly-owned utility programs to unlock the benefits of energy efficiency. The state will align existing incentive programs to support the state's goals to maximize energy efficiency, create the State Building Innovation Lab, Cool Schools and other programs that benefit the consumer. The state will develop a plan to capitalize the SELP program over the next several biennia.*

## Updating Energy Codes and Standards

Codes and standards are a useful way to drive investment toward a common energy goal. Strong building codes ensure that newly constructed buildings operate in an efficient manner. In addition, standards, in conjunction with Northwest Energy Efficiency Alliance and other utility-funded programs, help to transform markets and make energy and water efficient technologies available to all Oregonians, regardless of their income status.

***Action Item:*** *The state will work with market transformation programs to update Oregon's codes and standards.*

## Goal Two:
## Enhance Clean Energy Infrastructure

### The Backbone of Oregon's Energy Supply

Investments in Oregon's clean energy infrastructure will be built on the existing foundation of hydroelectric power, a resource that for decades has made the state one of the nation's leaders in clean, renewable energy. The existing federal hydropower system operated by the Bonneville Power Administration ("BPA") has created substantial value for Oregon through low-cost, reliable, and emission-free power that provides an economic advantage not found outside the Pacific Northwest. This important resource currently accounts for 43 percent of Oregon's electricity mix and acts as the principle source of balancing reserves for managing fluctuations in wind generation and other renewable energy resources. Preserving and enhancing the assets and value of the hydroelectric generation and transmission system are critical, especially given an aging infrastructure, high operational demand from variable generation, and a future with increasing carbon constraints.

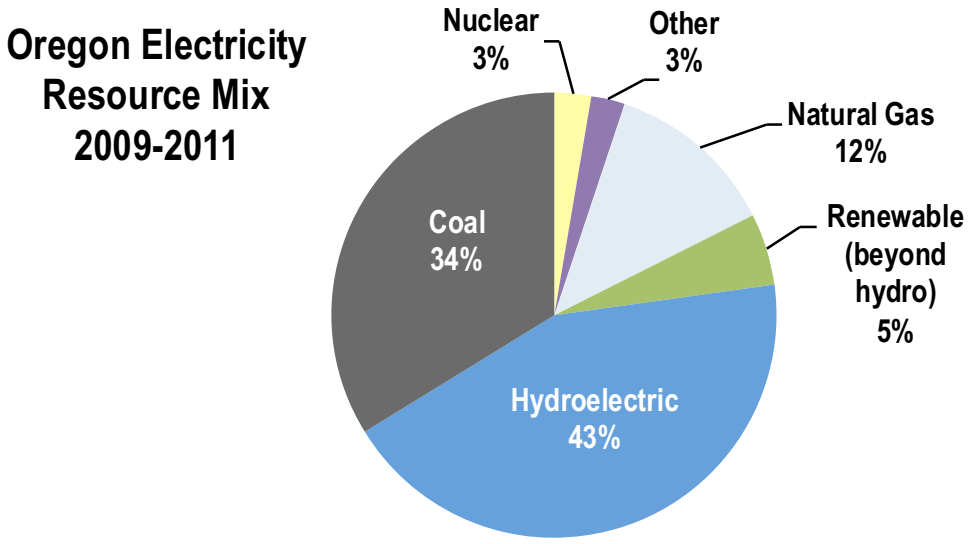
### Current Resource Mix

Oregon is rich in energy resources, including, but not limited to wind, solar, geothermal, wave, and biomass. Oregon will, to the extent possible, capitalize on harvesting these energy resources to meet Oregon's demand for power.

The state has invested a great deal of capital in growing the energy industry in Oregon. This focused investment has made Oregon a leader in reducing our dependence on fossil fuels, attracting a cluster of renewable energy companies – including, just to name a few, Vestas, Iberdrola Renewables, EDP Renewables, and SolarWorld – creating jobs and stimulating our economy. Our investment, coupled with the state's Renewable Portfolio Standard (RPS), has resulted in a $5.4 billion investment in the state's economy.[40]

40 Renewable Northwest Project, http://rnp.org/sites/default/files/pdfs/OR_5_billion_2-page_11Mar23.pdf

**Oregon's recent electricity mix (3-year average, 2009-2011[41]) breaks down as follows:**




The Oregon RPS directs Oregon utilities to meet a percentage of their customers' energy needs through renewable resources. Oregon's three largest utilities – Portland General Electric, PacifiCorp and the Eugene Water and Electric Board – will supply 25 percent of their customers' retail electricity needs through renewable resources by 2025. Likewise, other electric utilities in the state, depending on size, have standards of 5 or 10 percent in 2025. Eligible renewable resources include biomass, geothermal, hydropower, ocean thermal, solar, tidal, wave, wind, waste to energy and hydrogen (if produced from any of these sources). Twenty-five percent of the projected load for PGE and PacifiCorp alone in 2025 is 1,218 average megawatts of energy, or enough to serve just over one million residential customers.[42]

The RPS includes rate-payer protections to ensure that while transitioning to a fossil fuel-free future, we maintain low energy rates for customers and that Oregon remains a competitive and attractive place for manufacturers and businesses. The RPS limits rate impacts to no more than 4 percent of a utility's total revenue requirement. As of 2012, Portland General Electric reported an estimated cost of compliance with the RPS of 0.04 percent, and PacifiCorp reported negative compliance costs, meaning the utility actually saved money by complying with the RPS. The state's RPS clean energy goal serves as the floor, not the ceiling, for new, renewable energy development, and does so at no significant incremental cost to utilities or rate-payers.

## Future Resource Mix Potential

### *Smart Grid*

To more efficiently, effectively, and reliably deliver energy across the state, we need to improve and invest in infrastructure. More efficiently operating the grid in the future will require expanding our

41 Oregon Department of Energy, http://www.oregon.gov/ENERGY/Oregons_Electric_Power_Mix.shtml.

42 Oregon Department of Energy, http://www.oregon.gov/ENERGY/RENEW/RPS_home.shtml

Smart Grid capacity. Installation of Smart Grid meters and the associated automated metering infrastructure would allow for utility companies to more intelligently deploy energy to consumers to incentivize and increase demand management capabilities, and help transmission operators to balance intermittent resources. Smart Grid technology can also provide consumers information that allows them to actively participate in the energy system, enabling smart appliances and automated building management systems that can optimize both their owner's preferences and grid operations. These technologies can also greatly increase the integration of building energy systems with the requirements of grid operations through automated communications of grid needs in the forms of dynamic pricing and distributed decisions reflecting the preferences of the building owners and occupiers.

Exemplifying the future of a smarter grid are participants in the Pacific Northwest Smart Grid Demonstration Project, the largest of its kind in the nation. This five year project involving 112 megawatts of capacity and more than 60,000 metered customers in five states will gather data to provide utilities with two-way communications between distributed generation, storage, demand assets, and existing infrastructure. The $178 million project is half funded by the U.S. DOE through the American Recovery and Reinvestment Act; the other half comes from project participants. Managed by Battelle and involving the Bonneville Power Administration and 11 utilities, the project will help to quantify the costs and benefits of a Smart Grid while bringing the electric transmission system into the information age. More than $100 million in physical assets, including smart meters and demand response control units, will remain in the region when the pilot is complete. Oregon has much to gain by participating in this groundbreaking project, both in the added electric infrastructure and the information that will transition our electric system to the modern era, giving consumers new choices and lowering costs.

***Storage***

Numerous storage options – including battery-based or pumped energy storage – can also increase the ability to balance out intermittent resources, such as wind or solar, and provide an alternative to building new infrastructure, such as transmission line expansion. As battery technology continues to become more efficient and the need to integrate more diverse generation resources increases, battery-based energy storage has the potential to offer a cost-competitive option.

***Distributed Generation***

Distributed generation and combined heat and power (CHP) has huge potential to help the state meet its energy goals. As distinct from large, central station power plants that send electric power over many miles of transmission, distributed generation is energy that is used near the location where it is generated. The benefits of distributed generation are many, including increased efficiency, typically reduced environmental impact, reduced grid cost, increased reliability and quality, and business certainty.

A 2005 report by the Public Utility Commission found that with favorable conditions, Oregon could increase our distributed generation systems from about 500 megawatts to over 1800 megawatts by 2025.[43] As a general matter, the state exhibited these favorable conditions for several years through the BETC, the Renewable Energy Tax Credit ("RETC"), the Solar Photovoltaic Volumetric Incentive Rate

43 Oregon Public Utility Commission, Distributed Generation in Oregon: Overview, Regulatory Barriers and Recommendations, Feb. 2005.

Pilot Program ("Solar Rate Pilot"), and net-metering, mostly or exclusively focused on distributed solar technologies. However, communities like Klamath Falls have successfully installed distributed generation geothermal systems to heat municipal buildings, and many school districts throughout Oregon are swapping out old oil boilers for highly efficient biomass boilers. The Oregon Public Utility Commission will issue a report on the solar feed-in tariff pilot program and this data, combined with data collected from other distributed generation programs, can be used to determine which policies will best support expansion of distributed generation while protecting Oregon consumers. With more efficient solar systems and an increased focus on geothermal, biomass, and waste-to-energy technologies, Oregon now has the opportunity to significantly increase distributed generation resources.

***Thermal Energy***

In early 2011, co-chairs of Governor Kitzhaber's Forest Health & Biomass Energy Transition Team produced recommendations to the Governor. Recommendations included working with the Environmental Protection Agency to avoid discrimination against biomass heat and power generation, including a preference for biomass boilers with strong particulate controls in retrofit programs; ensuring that energy incentives maintained support of community-scale biomass projects; excluding woody biomass from regulation of solid waste; and reauthorizing the biomass producer and collector tax credit. In addition, the state's Forest Biomass Working Group released a more detailed set of recommendations[44].

The first step to support this resource diversification is to complete a full assessment of thermal energy use in the state, including its current applications, the potential for its further development, and the economic and environmental benefits of its use, provided funding for the assessment can be identified. In addition to this thermal assessment, the analysis would analyze the potential for renewable natural gas from sources such as waste water treatment plants, food waste and other sources. With this assessment completed, the state can then tailor a program to incent investment in thermal energy where appropriate.

***Wave Energy***

Following the successful path of more mature renewable technologies, such as wind and solar, Oregon has become a national leader in the development of wave energy through a combination of public investment and groundbreaking public-private partnerships. Oregon's leadership is the result of focused implementation of a strategic vision to recruit and support a wave power industry. The Oregon Wave Energy Trust ("OWET") was created by the Oregon Innovation Council in 2007. OWET funds a variety of projects that are accelerating the development of wave power in Oregon. Working with partners, Oregon has developed significant potential for an ocean energy industry. Oregon State University, for example, was awarded a multi-million dollar federal grant to establish the first National Marine Renewable Energy Center in the United States and is building the premier testing facility in North America. Responsibly sited wave energy has significant potential not only to provide additional resources to power Oregon, but to create a business cluster and models that can be exported to other states and countries around the world. The state is committed to developing a regulatory structure

44 Oregon Department of Energy, http://www.oregon.gov/energy/RENEW/Biomass/Pages/forest_biomass_working_group.aspx

that is useful and provides clear guidelines for developing wave energy facilities off of the Oregon coast.

***Action Item:*** *Align the state's incentive programs to support meeting the state's energy generation goals. Through targeted investment not only will the state meet its energy goals, it will transform markets for existing and new technologies to help Oregon establish and fully realize a new resource mix that provides stable, reliable, and clean energy for Oregonians. In addition, the state will create a regulatory structure that removes market barriers and allows for investment in diversifying the state's future resource mix.*

## Establish Landscape-Level Plan

To meet the state's clean energy requirement, there is a need to align the state's energy and land use goals. Too often, individual siting decisions lack context for evaluating tradeoffs among conflicting public policy priorities, and decision-makers struggle to understand cumulative impacts on wildlife, working farm and forest landscapes, and other natural resources. On the other side, developers often embark on projects without a clear understanding of the nature and magnitude of potential conflicts and how decision-makers will weigh tradeoffs. In the absence of any overarching conservation framework, requirements for mitigation of wildlife impacts for development are cumbersome and ad hoc, with high transaction costs to developers and few assurances that mitigation actions will adequately offset impacts with quantifiable environmental benefits. Although many parties recognize the potential value of offering an alternative approach with ecosystem market-based options that could be applied to a landscape scale, the state does not, at present, have the clear priorities needed to target mitigation actions for the greatest conservation benefit or a policy framework to support this approach.

Landscape-level planning will provide a tool to balance the need to site new energy development and transmission facilities with environmental constraints and other conservation values, helping to create a shared vision for long-term interaction of development and conservation. The product of these planning efforts, conducted on a regional scale, should be a decision support tool that provides geographic priorities to guide and inform siting decisions at the state, federal and local levels. Landscape planning is not intended to be a regulatory tool or replace project-level impact studies that are required as part of the siting process, but it may allow a more streamlined approach by directing development to areas with fewer conflicts and focusing attention on the most significant issues. Adoption of a landscape approach to mitigation based on regional conservation priorities should provide more efficient and effective options to offset impacts of permitted development. The result should be net conservation benefits for wildlife and habitats, and a process that is more efficient, transparent, and cost-effective. Landscape planning efforts should focus initially on eastern Oregon and expand to other regions in the future. In addition, relevant agencies will set up a mitigation bank to provide agencies tasked with mitigation efforts the ability to make strategic investments to protect habitat regardless of the location in which the project they are mitigating is located. The goal is to achieve greater predictability and certainty for all parties involved in the siting process.

***Action Item:*** *The state will create a landscape level plan decision-making tool and a mitigation bank.*

## Create Strong Project Officer Model

Multiple governmental entities, including state and federal agencies, tribes, and local governments, are involved in the siting and permitting of energy facilities, particularly linear projects. Their approvals are governed by separate laws, with different objectives, standards, and processes. We will work to improve agency coordination and seek greater uniformity of standards and thresholds, where appropriate.

The Project Officer will be the point person to ensure appropriate state coordination and participation at all levels of government. This includes coordinating with tribal and federal agency efforts, and entering into programmatic and project-specific Memorandums of Understanding ("MOUs") as needed. Coordination mechanisms for projects under federal and state review must be formalized, as well as processes for state participation in Federal Energy Regulatory Commission ("FERC") proceedings.

***Action Item:*** *The state will create and adopt the "Strong Project Officer" model by establishing an interdisciplinary team ("IDT") of agencies, led by the Project Officer, to review proposed Energy Facility Siting Council ("EFSC") projects. Agencies will make participation in the IDT a priority and raise issues in a timely manner in the IDT setting. Any conflicts within the IDT will be resolved by the Project Officer to the extent possible, with elevation to agency directors and then to the Governor's office to assure timely progress.*

## Adjust Jurisdictional Thresholds for Renewable Facilities

Renewable energy facilities are often approved through local county land use review rather than through EFSC's siting process. This is due in part to EFSC's jurisdictional thresholds for such facilities and in part to the perception by applicants that county approval can be obtained more quickly and easily, and at less cost. However, county staff and resources often are too limited to provide meaningful review of proposed energy facilities, and state agency staff may not always respond in a timely manner to counties' requests for assistance in their review. In addition, county approval standards may not be consistent with EFSC standards and as such may not be effective in implementing state energy and natural resource conservation policies.

In order to achieve more consistent standards and reduce forum shopping, the State will create a tiered threshold structure to encourage local governments to adopt standards for renewable facilities consistent with state standards. Local jurisdictions with standards that differ significantly from state standards would be subject to a lower jurisdictional threshold. Conversely, local governments with standards that are consistent with state standards would be authorized to review larger projects. The purpose of this new regulatory structure would be to preserve local governments' ability to make siting decisions that affect their communities while ensuring they have the resources necessary to implement state energy and natural resource conservation policies.

***Action Item:*** *The state will amend the Energy Facility Siting Council statute to adjust the jurisdictional threshold for renewable generation facilities.*

## Clarify Definition of Single Energy Facility

To avoid more stringent state siting requirements, wind power developers in some areas have, on occasion, split large projects into separate projects of less than 105 megawatts, allowing permitting by local land use authorities rather than the state. The result has been piecemeal permitting of large-scale development without a full evaluation of impacts and no assurance for needed mitigation. To prevent segmentation of large energy development proposals into separate smaller projects to avoid state siting requirements, the Legislature should amend statute to give EFSC the authority to develop a rule on what constitutes a "single energy facility" for purposes of state permitting jurisdiction.

***Action Item:*** *The Energy Facility Siting Council will by statute amend the definition of a single energy facility.*

## Amend EFSC "Balancing Rule"

To address concerns regarding local control, speed of review, and state interests involved in facility siting, the state will amend the EFSC "balancing" rules to include triggers for invoking the balancing process, notice to affected agencies, and timelines for response. This includes eliminating the requirement that an applicant must concede that it cannot meet the applicable standard in order to invoke the balancing process.

***Action Item:*** *The state will amend by rule to adjust the Energy Facility Siting Council "balancing" rule.*

## Allow Right-Sizing of Transmission Facilities

When Oregon's regulated utilities are developing major linear facilities, such as electric transmission lines or natural gas pipelines, current Oregon Public Utility Commission ("OPUC") requirements discourage overbuilding that would minimize future impacts of multiple facilities. Currently, OPUC regulatory practice allows utility cost recovery only for those facilities that will be deemed "used and useful" to customers. Allowing utilities to right-size linear projects would have the effect of saving rate-payers from bearing the cost of making multiple transmission investments over a longer period of time. The state should consider allowing utilities to make investments in transmission infrastructure to meet projected future demand and to allow for additional capacity if the additional capacity would save rate-payers from bearing the cost of multiple capital construction investments over time.

***Action Item:*** *Through a statutory or administrative rule change the state will create a regulatory structure to allow right-sizing of transmission facilities while protecting rate-payers from bearing unnecessary financial burden.*

## Bonneville Power Administration

The Bonneville Power Administration ("BPA") is a critical link to the future of renewable resource development in the Northwest. The federal agency owns and operates over 70 percent of the transmission capacity in the region. As BPA implements its statutory responsibility to "encourage the development of new, renewable resources," it will be important to operate the transmission system to deliver low-cost energy to the region while continuing to integrate variable renewable resources.

Working with the region's stakeholders to identify a more cooperative and efficient method of managing within-hour variability and seasonal generation issues is a key challenge for BPA. Progressing toward more modern grid operation should be done in a way as to encourage new renewable resources to develop in the region. Market-oriented solutions, such as the creation of an energy imbalance market, have the potential to stimulate renewable energy development and green power sales throughout the West, bringing with them critical jobs and tax dollars for rural Oregon. Building out proposed transmission lines, such as Boardman to Hemingway and Cross-Cascades, would ease the burden on the Bonneville system, create more diverse access to Oregon's renewable energy potential, and help Oregon utilities meet the state's greenhouse emissions reductions goals.

## Financing Clean Energy Infrastructure

Perhaps the single most important short-term issue affecting continued investment in clean energy production is the federal renewable production tax credit. The credit, which is set to expire at the end of 2012 for wind production and shortly thereafter for other renewable technologies, yields private investment of well over 10 times the investment that taxpayers make on the capital investment alone. While the credit has averaged a cost of a little over $1 billion per year, the American Wind Energy Association estimates that it drives more than $15 billion in private investment each year.[45] The effectiveness of the tax credit has, in the past, been hamstrung by short-term extensions and uncertainty around whether or not it would be renewed. In those instances when it has not been renewed, renewable production has been nearly completely wiped out. In a competitive world where these technologies need to be deployed at an even faster rate, the United States Congress should extend the tax credit for the long-term. Due to the importance of federal incentives for renewable energy generation, a critical component of Oregon's energy future, and the economic impact the wind industry has had on the state, Governor Kitzhaber serves as Vice-Chairman of the Governors Wind Energy Coalition and will continue to work in close collaboration with Oregon's federal delegation to drive clean energy policy on a national level.

At the state level, there are several tools available for investing in clean energy infrastructure. The state supports several tax incentives and has a unique tool in the SELP program.

***Action Item:*** *The state will assess how each incentive program functions in the market and will, while protecting tax-payer investment, remove market barriers to ensure the money is accessible to clean energy generation projects.*

45 American Wind Energy Association, Federal Production Tax Credit for Wind Energy, http://www.awea.org/issues/federal_policy/upload/PTC-Fact-Sheet.pdf

## Goal Three:
## Accelerate the market transformation to a more efficient, cleaner transportation system

Oregon has made huge strides in increasing efficiencies in the transportation sector and reducing emissions and fuel use over the last four decades. The majority of the gains in reductions are the result of community based initiatives that integrate land use and multi-modal transportation planning. Due to the cumulative investments by cities, counties and businesses, among other factors, our state has seen a leveling off, and slight decline, statewide, in the amount of vehicle miles traveled on state highways.[46] While other states have also seen a leveling off,[47] the VMT in Oregon has dropped dramatically in comparison to other states,[48] whose urban areas allow development that puts people farther away from their jobs and services and who do not maximize the use of other modal capacity. Oregon's gains in transportation efficiency equate to real savings for citizens of Oregon; less fuel consumed, less time spent in the vehicle and easier access for businesses to reach consumers.

All of the strides and cumulative investments made in the state have put Oregon on a path to reduce greenhouse gas emissions from the movement of people on the ground by 34 percent below 1990 levels by the year 2050.[49] Additional community investments and integration of transportation with our land use decisions, enhanced operations, and technological gains are needed to reach Oregon's 2050 reduction goal (ORS468.205). The Statewide Transportation Strategy, developed by the Oregon Department of Transportation, shows that a mix of technology, transportation and land use actions are needed to achieve this goal. For emissions resulting from the movement of both people and goods on all modes of transportation, the STS shows a future with 60 percent fewer GHG emissions than 1990. To reach this level, aggressive programs and strategies must be employed that address transportation systems, vehicle and fuel technology, and urban land use. Demand management and technology are key components.

There are four major strategies identified in this ten year timeframe that balance demand management with technological advances to bend the emissions curve and put us on a trajectory toward our 2050 goals:

- Continued Investment in Compact, Multimodal, and Mixed-use communities,
- Accelerated Fleet Turnover (residential and commercial) to Alternative Fuels,
- Implementation of Intelligent Transportation Systems, and

46 Oregon Department of Transportation. State of the System: 2012 Report on Oregon Transportation System. To be published December 2012.

47 Victoria Transport Policy Institute. The Future Isn't What It Used To Be: Changing Trends And Their Implications For Transport Planning. 7 October 2012.

48 Bureau of Transportation Statistics. State Transportation Statistics. Accessed electronically at: http://www.bts.gov/publications/state_transportation_statistics/ November 2012.

49 Oregon Department of Transportation. Ground Passenger Summary Sheet. Meeting Materials for the Statewide Transportation Strategy Policy Committee, October 24, 2011.

- Innovation in Financing a Clean Transportation System.

## Compact, Multi-modal and Mixed-use Communities

As stated in the Oregon *Statewide Transportation Strategy: A 2050 Vision for Greenhouse Gas Reduction*, "Oregon has been a leader in planning communities and transportation infrastructure to support expanded transportation options that not only create livable communities, but have also gone a long way in reducing greenhouse gas emissions." Additionally, technological innovations and operational efficiencies have further reduced emissions in the state. In total, Oregon is well situated to reduce emissions as implemented and planned work has created a strong foundation on which to build.

The importance of the linkage between transportation and land use planning has been acknowledged for many years and has helped to manage transportation travel demand. Oregon was a leader 40 years ago, when the Legislature put in place management techniques to help reduce transportation-related emission by controlling sprawl. To date, all Oregon cities have adopted Urban Growth Boundaries ("UGBs"). Oregon is one of the few states with such management measures.

Planning efforts such as the development of Regional Transportation Plans have included multi-modal elements, providing transportation options to the single- occupancy driver, and managing the system for optimized travel.

As a result of past efforts to plan for compact growth and build in transportation options, metropolitan Oregonians already drive less, and emit fewer GHG emissions, than residents of comparably sized metropolitan areas around the country. Beyond the metropolitan areas, other local governments around the state have accomplished much through their planning efforts.

Community leaders across Oregon are concerned about the increasing price of fuel and impacts to household budgets and costs of doing business. Communities across Oregon are attempting to invest limited resources in programs and projects that will give citizens the greatest rate of return on investments and create livable places to live and work.

There are two important programs that will further the discussion of how to get the biggest bang for the limited transportation buck for the public and private sectors: Metropolitan Scenario Planning and Least Cost Planning.

## Metropolitan Area Scenario Planning

In order to weigh the options and their relative impacts, many regions across the country have begun to use scenario planning. Scenario planning is an opportunity for policy makers, stakeholders and the public to think outside the box and consider a wider range of opportunities, challenges, and possible futures than may be considered in other planning efforts.

The Oregon Sustainable Transportation Initiative ("OSTI") is an integrated statewide effort to reduce GHG emissions from the transportation sector while creating healthier, more livable communities and greater economic opportunity. Land use and transportation system optimization strategies have been

shown to be among the most cost-effective strategies to reduce greenhouse gas emissions in Oregon.[50] Land use planning can proactively decrease emissions while making communities more accessible and user friendly. The efforts of OSTI and Statewide Transportation Strategy are the result of several policies designed to help the state meet our 2050 goal of reducing GHG emissions by 75 percent below 1990 levels (ORS468.205).

***Action Item:*** *The state, including DEQ, ODOT, DLCD, Housing, ODOE and Business Oregon, will continue to work with communities to move from research to policy development and actionable items that combine land uses and increase modal choice for freight and passenger travel.*

*State agencies will adopt appropriate policies and program implementation, including project prioritization criteria, that reflect energy efficiency and demand management to meet the 2050 goal.*

*The state, including DLCD, DEQ, and ODOT will continue to partner with MPOs to use scenario planning to quantify and forecast potential economic, environmental and equity impacts from different approaches as we look to reduce greenhouse gas emissions from the transportation sector.*

## Least Cost Planning Tool

ODOT's least cost planning tool ("LCP") is an attempt to improve the ability to measure the true costs and benefits of transportation plans, strategies, and action for development and project identification. This tool has been used extensively in the energy utility world to manage demand through planning for capacity additions and demand management. This methodology has reduced the cost to consumers, both business and residential, over the past five decades.

LCP seeks to incorporate utility-based efficiency and conservation tools to better address issues such as public health, economic, and environmental impacts. In doing so, it will increase diversity of information considered in transportation decision-making in Oregon. It also can provide a more accurate assessment of potential benefits relative to costs and impacts.

ODOT is in the process of working with stakeholders to develop a Least Cost Planning tool that can be applied at different stages of project definition and development.

***Action Item****: The Department of Transportation will use the least cost planning tool in scenarios for corridor planning as well as prioritization in investments including demand management. DLCD may also use this tool to inform the development of regional and local plans. Agencies with investment portfolios will consider the use of LCP in their decision-making processes as applicable to energy use and energy conservation.*

*The Oregon Transportation Commission ("OTC"), in coordination with the LCDC, state agencies, stakeholders, and the public, will update the State's long-term Modal Plans for Rail, Public Transportation and Bike and Pedestrian to reflect the need for multi-modal, mixed use development at both the state and local level. In addition, OTC will focus on the following important additional*

50 10-Year Energy Action Plan Modeling: Greenhouse Gas Marginal Abatement Cost Curve Development and Macroeconomic Foundational Modeling for Oregon, Center for Climate Strategies, July 30, 2012.

*elements in an updated OTP: energy efficiency and demand management, public health, complete streets design, practical design, least cost planning and inter-modal connectivity.*

*ODOT staff will propose a process for Project Design that would require Traffic Engineers to evaluate the mobility of walking, biking, and transit users in communities when assessing the capacity and mobility of the needs of vehicles. They will then test the evaluation process in demonstration projects. In addition, ODOT, DLCD, DEQ, Public Health, Housing and ODOE staff will work together to develop a multi-modal Level of Service for projects in communities where the existing modal split is 10 percent or higher for combined bike, pedestrian and transit.*

## Fleet Conversion

Oregon citizens are already ahead of the pack when it comes to early adoption of highly efficient and alternative fuel vehicles. Oregon consistently ranks in the top states for purchases per 1,000 households of hybrid Toyota Prius cars.[51] The state's market readiness and customer interest earned it a spot among the initial five states for the deployment of the first affordable, mass-produced, all-electric car, the Nissan Leaf.

The anticipated increased use of alternative fuel vehicles is creating a new role for Oregon's utilities as they become fuel providers for the transportation sector. Further down the road, emerging smart grid technologies promise to leverage electric cars into mobile energy resources for the grid. Such trends pave the way for innovation, technology, and a rise in public-private partnerships. Both investor-owned and consumer-owned utilities, along with their oversight boards, councils, commissions, and the state, can help accelerate the early deployment of alternative fuel vehicle infrastructure, as can third-party efforts.

***Action Item:*** *Based on successful programs elsewhere, Oregon should develop a comprehensive alternative fuel program that allows utility-ownership of refueling infrastructure and provides incentives, where appropriate, for vehicle conversions. Replacement vehicles include, but are not limited to, biodiesel, electric, CNG, propane and LNG vehicles for all vehicle types including heavy trucks and school buses. In promoting such conversions, the state will consider how smart grid technologies and practices could increase the value of the converted fleets to the overall energy infrastructure and grid operations. This process will inform the kind of regulatory framework and incentive structure that would be required to further accelerate the market for alternative fuel vehicles.*

*The state will continue to work with the transportation manufacturing cluster on advancing innovation in alternative fuels through research and development of technology and deployment to grow these innovations.*

*The state will implement the recommendations of the Energizing Oregon Plan that identifies regulatory streamlining and infrastructure needs.*

51 Hybrid Market Dashboard, www.hybridcars.com

*The State will support fleet financing projects like Clean Fleets Work that are currently supported through USDOE grants.*

## Supporting the Alternative Fuels Economy

The state will continue to build out an alternative fuel infrastructure in Oregon, including, but not limited to, biofuels, propane, electric and natural gas. In 2007, Oregon passed the Renewable Fuel Standard ("RFS") legislation that requires 10 percent ethanol to be mixed into gasoline and 5 percent biodiesel in diesel. The Clean Fuels Program ("CFS") was passed in 2009 and is scheduled to sunset in 2015. The CFS does not mandate the use of specific fuels, but instead allows fuel importers and distributors to use a mix of traditional fuels and lower carbon alternatives. Extending the CFS beyond the current 2015 sunset will reduce demand for carbon intensive fuel sources, create demand for alternative fuels, such as electricity, natural gas and second-generation biofuels, and provide the market predictability essential to supporting investment in and development of refueling infrastructure. Doing so has been shown to provide important economic benefits to Oregon's economy under a number of different potential compliance pathways.[52]

***Action Item:*** *Amend statute to remove the sunset for the clean fuels program and continue efforts to grow the alternative fuel industry in Oregon through market analysis and regulatory streamlining.*

## Clean Cities Plan and Implementation

The Energizing Oregon project, funded by the U.S. Department of Energy ("USDOE") planning grant, has three main objectives: to integrate and optimize existing Oregon Plug-in Electric Vehicle ("PEV") readiness and efforts, develop a statewide PEV market and community plan, and create momentum for reaching the national PEV deployment goal. The Clean Cities Plan is slated to be approved by the USDOE within the next year. The State must adopt policies and programs to make our state more competitive, and use existing state infrastructure to leverage federal investment in our transportation system.

***Action Item:*** *The State will implement the recommendations in the Energizing Oregon Plan that identifies regulatory streamlining and infrastructure needs.*

*The State will work with Business Oregon, the Department of Consumer and Business Services ("DCBS"), Building Codes Division, DEQ, ODOT and ODOE to apply for infrastructure grants from USDOE and the US Department of Transportation ("USDOT"), as they become available, to help strengthen our communities.*

## Intelligent Transportation Systems

A significant part of the demand management equation for conservation of fuel will depend on our ability to manage the assets we have today for both freight and passenger travel. The effectiveness of

52 Economic Impact Analysis of the Low-Carbon Fuel Standard Rule for the State of Oregon, Jack Faucett Associates, Inc., January 2011.

that system can be increased by how we provide information to the traveling public about travel time and costs by mode as well as increasing safety which decreases delay in the system.

Intelligent Transportation Systems over time have grown in application from highway capacity management through on-ramp metering to arterial signal progression to transit arrival time information access through phone apps.

There is projected growth in vehicle-to-vehicle communication, vehicle automation, and communication between transportation hard infrastructure such as signals and vehicles. Oregon's high tech and gaming industries have the potential for growth in this field.

The ability to provide real-time information to users of the system to make decision on travel time and cost will depend on the ability of public agencies to coordinate together as well as with private industry. Data sharing will be at the core of this new integrated system.

***Action Item:*** *The Governor's office will act as convener for a statewide conversation with industry and public sector agencies that will acknowledge the state of the system, where we want to be in ten years and what needs to be accomplished to fill the gap. A prioritized list of programs and or projects will be recommended to the Governor for action.*

*The Department of Transportation and our University System will partner with the Metropolitan Planning Organizations and other jurisdictions on unique opportunities to maximize the capacity of the entire transportation system using LCP principles and include transit and freight.*

## Financing the Transition to a Cleaner Transportation System

The state will advance an investment package that includes increased funding for local roads and bridges that incorporate multi-model design elements, bicycle and pedestrian infrastructure, transit operations and capital, freight and passenger rail improvements, as well as marine and air. This package should support development of all our modes to manage demand for travel. The estimated annual need for capital investment in these elements of our transport system exceeds $500 million.

In addition, as federal fuel efficiency standards increase, low- and zero-emission vehicles hit the road and fuel use decreases. This trend challenges a transportation system funded by gas taxes that are restricted to road and automobile-based investments. To address this revenue challenge, the state will develop alternative transportation funding strategies that will provide stable and flexible funding to help the state achieve our energy and emission reduction goals.

***Action Item:*** *The legislature should consider the use of a Road User Fee for highly efficient vehicles (55 mpg or greater) in lieu of a gas tax.*

*ODOT's Innovate Partnership Section should work with stakeholders to consider a demonstration of an alternative revenue model based on road user fee in an area of Oregon. The Road User Fee should include a vehicle impact fee based on vehicle class, including weight and emissions.*

*The state will support continued conversations about sustainable funding multi-modal transportation infrastructure in order to meet its greenhouse gas reduction goals for the transportation sector including freight and passenger travel by air, marine, rail, transit, bicycle and pedestrian.*

# Workforce Development

According to the Oregon Employment Department's second statewide green jobs survey, Oregon had an estimated 43,148 green jobs spread across 4,339 employers during 2010[53]. While the survey is titled a "green jobs" survey, the vast majority of the job titles included in the survey correlate directly or indirectly to the areas discussed in this plan.

The construction industry reported the largest number and highest share of green jobs. About one-fourth of all green jobs statewide were found in construction. Natural resources and mining, state and local government, manufacturing, and professional and technical services accounted for more than three-fourths of all green jobs.

According to employer responses to the survey, 44 percent of all green jobs either had no educational requirements or required no degree, while 39 percent of green jobs require some form of postsecondary education. The Employment Department estimates indicate that the average hourly wage for all green jobs in Oregon ($23.07) was somewhat higher than that of all non-federal jobs in Oregon ($19.83). Generally, those green jobs with higher educational requirements also provided higher wages.

Labor market analysis of these jobs can be challenging. Most green jobs do not have their own occupational codes. Companies in many emerging green industries cross over into other sectors. In many cases, training for green jobs is based on traditional training programs, with additional "green" coursework or certifications. In some cases, new green jobs will evolve from the need for new and different mechanisms for planning and coordinating to increase efficiency or mitigate damage, like in the case of landscape level planning. In other situations, additional jobs will emerge from newly commercialized and implemented technologies, as in the case of Intelligent Transportation Design.

**Clean Energy Works Oregon: Making the Program Work for Contractors**

From day one, the leadership at Clean Energy Works Oregon (CEWO) knew that their program wouldn't work if it didn't work for contractors – but figuring out how to make that a reality has been an active learning process. As a program charged with saving energy, CEWO had to balance the priorities of multiple stakeholders – in particular, contractors' interests in upgrading as many homes as possible, with the program's need to enforce quality installation standards, track impacts, and ensure a good customer experience.

It was only with ongoing feedback from contractors, participants, and program data analysis that they were able to identify problems quickly, and find solutions acceptable to both the contractors and the program. CEWO leadership came to understand the importance of a coordinated "voice of the contractors." They observed that, despite having training standards in place, their contractors had varying levels of technical experience and business savvy – which inspired the creation of a set of business development classes and mentoring opportunities for new contractors.

**Program Stats:**
Home energy upgrades from summer 2010 through March 2012: 1,300

Average cost of residential upgrade: $14,300

Contractors in CEWO's network: 50

[53] "The Greening of Oregon's Workforce: Jobs, Wages, and Training", Oregon Employment Department,
January 2012: QualityInfo.org/Green

In June 2012, Oregon released a new ten year Strategic Workforce Development Plan. The plan identifies three strategies for developing a workforce that can support the growth and innovation of Oregon companies. Certified Work Ready Communities will assure that workers have the foundational and problem solving skills necessary for new and emerging industries including "green" jobs. Sector strategies are industry-led efforts to better meet the specific workforce needs of industry sectors. Oregon's State Workforce Investment Board has developed a Green Jobs Council to focus specifically on the needs of the industries defined in this plan. In order for Oregon to increase family wage jobs via this plan, we must work with the OWIB Green Jobs Council as it works to align workforce development and education systems to pay close attention to the needs of these emerging and evolving industries, identify career pathways that lead to higher wage jobs, invest in the type of skill development that leads to good jobs, and coordinate responses to industry needs. To assist with this effort, the state will conduct a gap analysis in each of the sectors listed in this plan to understand whether or not we have the workforce we will need to meet our state's ten year energy goals. By working with this committee, the state will bolster existing labor, community college and university system workforce develop and education programs to build the local labor force needed to meet our 10-Year Energy Plan goals.

Oregon's workforce system is evolving to provide more opportunities for on-line training and certification for industry recognized credentials. Many of the occupations related to the strategies in this plan will benefit from the state's ability to provide the skills training and certification in a more cost effective and efficient manner. The system is partnering with industries to support more cost effective ways for companies to train their own through on-the-job training programs. This is another opportunity for the industries related to energy to find skilled workers who can quickly transfer existing skills to new jobs. By helping the workforce system better understand the opportunities and trends that emerge within the energy sector as a result of this plan, industry and policy leaders will be able to influence the development of a skilled and innovative workforce to meet industry needs.

# Oregon National Guard Fort Oregon Project

Oregon is a geographically and climatically diverse state which offers numerous possibilities for renewable energy that other installations do not possess. Due to these unique features, the Oregon Military Department ("OMD") is exploring industrial scale solar, wind turbines, geothermal, and wave energy opportunities to offset the annual energy consumption of the OMD.

Energy Security projects have now become a central part of the mission statement of all Department of Defense agencies, which coincides with the Oregon Legislature's mandate to invest 1.5 percent of all construction projects into Solar Energy development. OMD, with Legislative approval, has sought to maximize these investments by moving solar requirements from construction projects in northwest Oregon to Ontario, which increased our energy output and will reduce current and future state operational costs.

The high desert of Oregon is ideal for solar energy development and more efficient than other desert climates because of the large number of sunny days along with cooler ambient temperatures. It is abundantly clear that by developing an Energy Security project at Christmas Valley through use of the abandoned infrastructure, the OMD would save significant taxpayer dollars in the future. While Christmas Valley offers some of the best conditions for a solar project in the country, other renewable opportunities such as wind and geothermal should also be studied. The land, climate, and existing electrical infrastructure provides an opportunity to develop an industrial scale renewable energy project that can produce more than enough energy to offset the energy consumption of the OMD.

## Next Steps

| Item | Legislation | Exec/Admin Action | Recommendation Team |
|---|---|---|---|
| Unlocking Energy Efficiency | Yes | Yes | |
| State Building Innovation Lab | | Yes | |
| Conservation Tax Incentive ("RETC" and "Connie") | Yes | Yes | EEDM Design Team |
| Oregon Innovation Council Funding | Yes (Budget) | | |
| Clean Energy Works Oregon | Yes (Budget) | | |
| Energy Efficiency Research & Development/Commercialization | | Yes | EEDM Design Team |
| Small Scale Energy Loan Program (SELP) Capitalization | Yes (Budget) | | |
| Energy Performance Score | Yes | | EEDM Design Team |
| Landscape Level Planning | Yes | Yes | Siting Design Team<br>OEPC Report |
| Strong Project Officer Model | | Yes | Siting Design Team<br>OEPC Report |
| Jurisdictional Threshold Adjustment | Yes | | Siting Design Team<br>OEPC Report |
| Balancing Rule | Yes | | Siting Design Team<br>OEPC Report |
| Ocean Energy Siting Statute | Yes | | |
| Generation Tax Incentive | Yes | | |
| Biomass Collector Incentive Redesign | Yes | | Oregon Biomass Working Group |

| | | | |
|---|---|---|---|
| Infrastructure Financing Mechanism (Transportation, Grid Improvements; Transmission; Energy Efficiency) | | Yes | |
| Fleet Conversion | Yes | Yes | Transportation/Demand Mgmt. Design Team |
| Clean Fuels Program | Yes | | Transportation Design Team |
| Least Cost Planning Tool Use By ODOT | | Yes | Transportation Design Team |
| Clean Cities Plan Management | | Yes | Transportation Design Team |
| Non-Gas Tax Transportation Financing | Yes | Yes | Transportation Design Team |
| New Governance Model | Anticipated | Anticipated | Governance Task Force |
| Workforce Development Programs | | Anticipated (Budget) | Task Force |

# Appendices

- Oregon Energy Task Force Report and Recommendations to the Governor (PDF)
- Task Force Addendum Including Design Team Reports (PDF)
- Building a Clean Energy Future and Safeguarding Oregon's Natural Environment
- Sixth Northwest Conservation and Electric Power Plan (PDF)
- 2011-2013 State of Oregon Energy Plan (PDF)
- Oregon Public Utility Commission Report on Distributed Generation (PDF)
- Oregon Energy Planning Commission, 2010 Report (PDF)
- Oregon Global Warming Report to Legislature, 2010 (PDF)
- Financial and Economic Impact of the Business Energy Tax Credit, Final Report, May 2011 (PDF)
- 10-Year Energy Action Plan Modeling: Greenhouse Gas Marginal Abatement Cost Curve Development and Macroeconomic Foundational Modeling for Oregon, July 2012.

# Economic Impact Analysis of the Low-Carbon Fuel Standard Rule for the State of Oregon

Prepared for:
*Oregon Department of Environmental Quality*

Prepared by:
*Jack Faucett Associates, Inc.*

Economics
Public Policy
Planning
Jack Faucett Associates
Since 1963

**January 2011**

11-AQ-004d
1/25/2011

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**Acknowledgements**

This report was prepared by Jack Faucett Associates (JFA). The Oregon DEQ and TIAX, LLC developed the Low Carbon Fuel Standard compliance scenarios with substantial input from the Oregon Low Carbon Fuel Advisory Committee. TIAX, LLC estimated the direct impacts of the scenarios by using the Argonne National Laboratory VISION model and JFA converted the VISION outputs to inputs to the REMI PI+ macroeconomic model for the State of Oregon. The REMI model runs were conducted by REMI Northwest. The inputs and outputs of the REMI model were reviewed by Adam Rose, Ph.D. and Dan Wei, Ph.D. from the University of Southern California. DEQ staff provided project data and insightful reviews of model runs and reports including David Collier, Cory-Ann Wind, Sue Langston and Svetlana Lazarev. The TIAX, LLC staff included Jennifer Pont and Jeff Rosenfeld. REMI Northwest model runs were conducted by Alec Miller. Michael F. Lawrence and Scott Williamson conducted the study for JFA and are responsible for this report.

The contents of this report reflect the view of the authors who are solely responsible for the facts and accuracy of the material presented. The contents do not necessarily reflect the official views of the Oregon Department of Environmental Quality.

## Table of Contents

# Introduction

## National Movement to Low Carbon Fuel Standards

Strategies to reduce greenhouse gas emissions from the transportation sector generally fall into three distinct approaches. The first approach relies on VMT reduction strategies, which seek to reduce overall vehicle travel. The second approach places an emphasis on vehicle-technology strategies, which seek to make vehicles more efficient in their ability to transport people and goods. The third approach contains fuel strategies, which seek to change the content of vehicle fuels so that emissions are reduced. Low carbon fuel standards fall within the fuels-strategies approach.

Low carbon fuel standard policies (often referred to as "LCFS" policies) make up a distinct approach to responding to public concern about the emissions of greenhouse gases that cause climate change. While not all low carbon fuel standard policies are equal, they are generally characterized by a focus on the intensity of emissions from fuel consumed, rather than on the exact type of fuel consumed. This approach, which specifically does not mandate a particular fuel or fuel mix for any part of the vehicle fleet, is often referred to as a performance-based standard. Without specifying a required fuel source, an LCFS seeks to lower the intensity of emissions from transportation fuels. Unlike mandates to displace gasoline with ethanol or electricity, or to displace diesel with biodiesel, an LCFS strategy simply establishes an overall emissions standard for the fuel mix.

This approach seeks to create flexibility, and to allow those impacted by the regulation to find their own way to the most cost-effective path to compliance. There are many different fuels available to the transportation sector, from natural gas to electricity to a wide variety of biofuels feed stocks, each with its own cost and each with its own greenhouse gas reduction capacity. This variety produces many different options for achievement of a lower-carbon fuel mix.

Because of the flexibility such an approach offers to regulated industries, low carbon fuel standards have attracted interest around the country. California was the first to enact an LCFS, and analyses of similar policies are taking place in Washington, Oregon and the northeast region. Information from analyses of related policies, such as biofuels or electric-vehicle policies, is available to improve states' understanding of what outcome an LCFS might produce, and what costs such a policy might impose.

### Federal RFS and RFS2 Targets

There has never been (and there is not now) a federal low-carbon fuel standard. The government has enacted two different Renewable Fuel Standards (referred to by the acronym "RFS"), however. The original RFS, passed as part of the Energy Policy Act of 2005, mandated that 7.5 billion gallons of renewable fuel be blended into the gasoline supply by the year 2012. The second RFS (referred to as "RFS2") was included in the Energy Independence and Security Act of 2007 (EISA 2007), a statute which famously also mandated increases in vehicle fuel efficiency. RFS2 superseded the original policy, and mandated that 36 billion gallons of renewable fuels be blended into the transportation fuel mix by 2022. Within this 36-billion-gallon requirement were specific sub-requirements for different types of renewable fuels.[1]

The RFS approach is distinct from an LCFS approach in that it mandates that specific fuels be consumed, rather than setting a broad target and allowing regulated parties to select their own approach to compliance.

## California Low-Carbon Fuel Standard

In 2007, Governor Schwarzenegger established a low-carbon fuel standard for the state of California by executive order. This LCFS, which sets a target of 10% reduction in the carbon intensity of fuels by the year 2020, was further developed by California's Air Resources Board to contain intermediate targets for each year between 2011 and 2020.

California has not only a 10% reduction target after ten years, but also specific intermediate targets for each year:

| Year | Percent Reduction in Carbon Intensity |
|---|---|
| 2010 (Baseline) | 0% |
| 2011 | 0.25% |
| 2012 | 0.5% |
| 2013 | 1% |
| 2014 | 1.5% |
| 2015 | 2.5% |
| 2016 | 3.5% |

[1] "Renewable Fuel Standards (RFS)". Environmental Protection Agency Office of Transportation and Air Quality. Retrieved from http://www.epa.gov/otaq/fuels/renewablefuels/index.htm.

| | |
|---|---|
| 2017 | 5% |
| 2018 | 6.5% |
| 2019 | 8% |
| 2020 | 10% |

Oregon's proposed LCFS has intermediate requirements by which the fuel supply must meet progressively stricter standards over the ten-year span from 2012 through 2022. 2012 serves as the baseline (in which no improvement is mandated). Improvements are mandated starting in 2013, and as in California, the final target is to be reached in the tenth year of the ramp-up in 2022.

Also, California's LCFS is distinguished in terms of flexibility of compliance by the opportunity for regulated parties to comply by purchasing emissions credits from clean-electricity providers. Because the state has already authorized the trading of emissions credits, transportation fuel providers may utilize that approach toward achieving the mandated LCFS targets. Oregon will also allow for the purchase and trading of low carbon fuel credits as a method of LCFS target compliance.

## Washington Low-Carbon Fuel Standard

In May 2009, Governor Christine Gregoire issued Executive Order (E.O.) 09-05, Washington's Leadership on Climate Change. E.O. 09-05 directs the Washington Department of Ecology (Ecology) to assess whether the California Low Carbon Fuel Standard (LCFS) or a modification thereof would best meet Washington's greenhouse gas emissions reduction targets.

Accordingly, in consultation with Washington Departments of Commerce and Transportation, and with consultant assistance, Ecology will:

- Assess various lower carbon fuel programs and options.
- Assess how those options would align with Washington's transportation fuel supplies, greenhouse gas reduction targets, and state economic conditions,
- Recommend whether or not to pursue adoption of a low carbon fuel standard for Washington, what LCFS policies would best fit Washington, and if not recommended what alternatives could help achieve state GHG targets.

Ecology has completed its compliance scenario development, emissions reduction benefits, economic impact analysis and evaluation of alternatives. Ecology is now evaluating the options.

## Oregon Low-Carbon Fuel Standard

### Options for Compliance

Low-Carbon Fuel Standards present regulated communities with multiple options for compliance. Many types of fuels offer reduced emissions when compared against gasoline and diesel. Response strategies may target the light-duty fleet, which is very large and uses mostly gasoline, or they may target the heavy-duty fleet, which generates significant emissions from a smaller, mostly diesel-powered fleet.

*Biofuels*

The combustion of biofuels, a category which includes ethanol and biodiesel, generally emits less greenhouse gases per unit of energy than combustion of gasoline and diesel, when analyzed on a life cycle basis. Displacing conventional gas and diesel with biofuels, therefore, reduces the overall carbon intensity of the fuel mix and thus achieves progress toward LCFS targets. [2]

This can be done in many ways. Current federal regulations allow for the use of gasoline blended with up to 10% ethanol content in the on-road fleet of light-duty vehicles (a category including cars, SUVs and pickup trucks). In addition, recent federal regulatory changes allow for a blend of 15% ethanol in gasoline for vehicles of the 2007 or later model years, and may soon allow this fuel to be used in older vehicles as well. Oregon has not yet authorized gasoline blends containing more than 10% ethanol for use in the state. Encouraging the sale and consumption of these blended fuels, rather than of unblended gasoline, is one approach to reducing carbon intensity of fuels. More aggressive approaches to biofuels might seek to expand the use of flex-fuel vehicles, which can run on either gasoline or an ethanol-dominant blend (as high as 85% ethanol and 15% gasoline). Expanding the availability and consumption of biodiesel, or of hydrogenation-derived renewable diesel, in the heavy-duty fleet is an additional approach.

[2] The carbon intensities discussed here are estimated on a "Life cycle" basis. Life cycle carbon intensities measure not only the greenhouse gases contained in the fuel and emitted from the tailpipe upon combustion, but also the emissions required to grow, harvest, refine and transport the fuels to market. Cellulosic fuels gain an advantage over corn primarily in these "upstream" phases they require less energy to grow and refine than corn typically does, or are made from waste products. Calculations of life cycle greenhouse gas emissions are generated by DEQ and it's contractor, TIAX llc, using a model developed by DOE and can be independently assessed through the GREET emissions measurement tool, available at http://greet.es.anl.gov/. Oregon and TIAX have customized this GREET model to reflect Oregon-specific conditions.

Biofuels come from many different types of crops. The type of crop, as well as the process used to refine the feedstock, determines the amount of carbon reduction. The production and consumption of corn ethanol, which is common in the US, is relatively carbon intensive and represents only a moderate savings compared to conventional gasoline. Ethanol and biodiesel from stocks such as waste wheat straw, forest residue, farmed trees, waste berries, sugarcane, switchgrass or other cellulosic sources are less carbon intense, and are thus far more helpful in meeting LCFS targets.

*Electricity and Hybridization*

By virtue of their comparative efficiency when compared against conventional fuels, electric vehicles are also beneficial to reaching an LCFS target. Electric vehicles and plug-in hybrid electric vehicles use an electric motor (either independently or in combination with a conventional engine) to achieve low-carbon transportation.

These are included in LCFS strategies despite the fact that electricity is not usually a low-carbon fuel. In fact, electricity from coal is actually significantly more carbon-intensive than gasoline or diesel, when measured per unit of energy. Outside of the northwest, the current national electricity supply is dominated by coal-fired and natural-gas fired generation, and is a carbon-intensive energy source. In Oregon, the future of electricity generation will become less carbon-intense due to a state renewable portfolio standard and the closure of its only coal-fired power plant. Electric vehicles remain in LCFS strategies, however, because vehicular efficiency (how far the vehicle can go on the same amount of energy) is projected to be so much greater for these vehicles than for conventional vehicles that it overwhelms the carbon intensity of electricity.

These projections of great efficiency in electric vehicles are corroborated by recent EPA ratings for emerging electric vehicle models. The Nissan Leaf received ratings of over 90 miles per gas-gallon equivalent (the amount of electricity equivalent to the energy in a gallon of gas). This level of energy efficiency is roughly triple that of the average new automobile, and roughly quadruple that of the gasoline-powered vehicle fleet currently on the road. The Chevrolet Volt, which can run on both an electric charge and on electricity generated by an on-board gasoline engine, received two distinct efficiency ratings. When running on electricity from a charged battery (i.e. running directly on electricity), it also receives a rating just above 90 miles per gas-gallon equivalent. It is not as efficient when relying on gasoline, however; it achieves only 37 miles per gallon when drawing power from its gasoline engine. The analysis involved in developing these scenarios assumed relative efficiencies of the electric and gasoline fleets similar to these numbers.

Internal combustion engines expend most of the energy contained in gasoline in the form of noise, heat and vibration, applying only a fraction of the fuel's energy content to actually turning the wheels. By avoiding energy losses associated with fuel combustion, vehicles running on electricity can direct a greater share of their stored energy toward motion.

*Natural gas and biogas*

The combustion of natural gas, either in compressed (CNG) or liquefied (LNG) form, generally emits less greenhouse gases per unit of energy than combustion of gasoline and diesel, when analyzed on a life cycle basis. Displacing conventional gas and diesel with natural gas, therefore, reduces the overall carbon intensity of the fuel mix and thus achieves progress toward LCFS targets. This is true despite the fact that liquefied natural gas contains less energy per gallon than diesel, and consequently permits fewer miles of travel per gallon.

Compressed and liquefied natural gas can be utilized in both the light-duty and heavy-duty fleets. For the purpose of this analysis, however, the scenarios involving expanded use of natural gas fuels directed all new natural gas supply to the heavy-duty vehicles sector, where it was anticipated to displace diesel fuel.

Biogas (also referred to as biomethane) is produced from the biological breakdown of biodegradable organic materials (anaerobic digestion), resulting in a mixture of methane, carbon dioxide, and trace amounts of other gases. Biogas captured from landfills is referred to as landfill gas, while digester gas refers to the production of biogas from wastewater treatment plants (sewage), and livestock manure, food waste, industrial waste, and other sources. Biogas, like other forms of natural gas, can be compressed or liquefied, or converted to hydrogen. Biogas can also be injected into a natural gas pipeline. Because biogas is made from waste, It has a very low carbon intensity.

Natural gas and biogas also offers economic benefits to the US economy over petroleum consumption. Most natural gas is domestically produced, allowing the positive economic and employment benefits from production, processing, distribution and sale to be fully captured within the US economy. By contrast, the US economy imports approximately two thirds of its petroleum for use in the transportation sector. In addition, a significant infrastructure for processing and distributing natural gas products already exists in the form of pipeline networks serving the utilities sector. This cost-effective infrastructure, along with low projected costs of extraction, produces a very low retail price (projected to be only around 60% of petroleum fuels) and significant fuel savings to consumers, businesses and governments.

*Hydrogen*

Hydrogen fuel is yet another alternative fuel offering lower carbon emissions per mile of vehicle travel. Emissions from the use of hydrogen fuel are extremely low, and can constitute no greenhouse gas emissions at all. However, hydrogen fuel does require energy-intensive processes for its formulation. Several approaches exist, usually using fossil fuels to isolate and store hydrogen in fuel cells. This process, rather than the actual use of the fuel in a vehicle, is where the associated emissions are generated.

Despite these associated emissions, the EPA and AEO associate hydrogen with fewer emissions per unit of energy than either diesel or gasoline. In addition to this benefit, the vehicular efficiency (how far the vehicle can go on the same amount of energy) is projected to be much greater for these vehicles than for conventional vehicles. As such, hydrogen achieves two benefits: it reduces the emissions associated with energy use and achieves greater distance traveled on the same amount of energy.

Hydrogen technology is, however, in its infancy. Excess supply from industrial production of hydrogen is not considered to be sufficient to supply fuel to a significant share of the vehicle fleet or to displace a significant amount of petroleum fuels. Developing the production capacity, vehicle technology and distribution infrastructure is considered to be at best a long-term goal, and expansion of a hydrogen transportation industry is viewed as unrealistic over the period of analysis considered in this project.

## Expected Economic Impacts in Oregon

This economic analysis of potential Low Carbon Fuel Standards in Oregon is focused on the development and evaluation of potential impacts from a wide range of fuels that could be used in the future to comply with the low carbon fuel standards. The purpose of the standards is to reduce carbon intensity of transportation fuel (including off-road equipment and vehicles) used from motor vehicle use in the state. This will be accomplished by altering the fuel supply mix from mostly petroleum products to a mix still dominated by petroleum products, but containing a greater portion of lower carbon alternatives such as ethanol, biodiesel, natural gas and electricity. The different scenarios reflect the uncertainty of market response – responses may focus on any one of a variety of fuels, those fuels may come from in-state, out-of-state or foreign feedstocks, and they may be refined locally or out of state.

Regardless of the fuels modeled, the importance of production within the United States, and possibly within Oregon, is economically very significant. The importation of petroleum products to the nation and to Oregon results in a negative balance of trade for the nation and for Oregon and reduces economic performance. Domestic production, by contrast, allows the domestic economy to retain the wealth spent on feedstock.

In a 2005 study for the US Department of Energy, researchers at Oak Ridge National Laboratories estimated that if oil prices in 2005 averaged $35-$45/bbl, oil dependence costs in 2005 will be in the range of $150-$250 billion.[3] By reducing petroleum imports and replacing

[3] COSTS OF U.S. OIL DEPENDENCE: 2005 UPDATE, David L. Greene, Oak Ridge National Laboratory and Sanjana Ahmad, University of Tennessee, February 2005, for the U.S. DEPARTMENT OF ENERGY

the fuel with low carbon domestic alternatives, there is an opportunity to reduce these economic losses from the US and Oregon economy.

## Other Economic Impact Studies

There have been several recent economic or macroeconomic impact analyses focusing on scenarios involving the implementation of an LCFS, or of some fuel-related strategies commonly found within an LCFS. The authors of these studies sought, or are seeking, to estimate a) carbon reduction potential, b) fuel usage patterns, and c) economic impacts of a low-carbon fuel standard strategy. The studies were completed by the Center for Climate Strategies and the Governmental Studies faculty at Johns Hopkins University, Professor Adam Rose at the University of Southern California, the Washington State Department of Ecology, the California Air Resources Board, NESCAUM[4], the California Climate Action Team, and Charles River Associates. A comparison of these studies is found in the Oregon Low Carbon Fuel Standards Report as Appendix E: Comparable Economic Studies in Other States Memorandum.

Not all of these studies have similar scenarios, assumptions or methods to those utilized for the Oregon analysis. In addition, not all have been completed to the point where results have been published. The table below briefly summarizes the year of publication and the perceived similarity of each study to the work being completed for Oregon. Those of high similarity should be more valuable to those considering an LCFS in Oregon.

*Studies Reviewed*

| *Study* | *Date of Publication* | *Similarity to Oregon Study and Usefulness for Comparison* |
|---|---|---|
| Impacts of Comprehensive Climate and Energy Policy Options on the U.S. Economy *Center for Climate Strategies and Johns Hopkins University* | 2010 | Limited. Considers macro effects of biofuels, but only as part of a 23-policy bundle. Analysis is done a) on a national scale and b) without detailed infrastructure assumptions |
| The Economic Impact of the Florida Energy and Climate Change Action | 2008 | Somewhat. A state-level study with macroeconomic analysis, finding $15 billion in direct savings from advanced |

[4] NESCAUM stands for Northeast States for Coordinated Air Use Management.

| | | |
|---|---|---|
| Plan on the State's Economy<br>*Adam Rose and Dan Wei, University of Southern California* | | biofuels use. No macro analysis was completed for the biofuels strategy, however, beyond a projection of 11,000 net positive new jobs created. |
| Washington State Low Carbon Fuel Standard Analysis<br>*Washington State Department of Environmental Quality* | Ongoing | Superior, but not yet complete. This study uses very similar methodologies and uses very similar sets of inputs and an equivalent LCFS scenario. Scenarios and assumptions differ only in minor ways from those in the current study. This study is not yet completed. |
| Northeast States Low Carbon Fuel Standard Analysis<br>*NESCAUM* | Ongoing | Significant, but not yet complete. This study undertakes very similar methodologies and uses very similar sets of inputs. Scenarios may differ; they have not yet been established. This study is in its beginning stages. |
| Updated Macroeconomic Analysis of Climate Strategies Presented in the March 2006 Climate Action Team Report<br>*California Climate Action Team – Economics Subgroup* | 2006 | Limited. As with Florida's study, this study completes a macroeconomic analysis of a bundle of 40 climate strategies, but no individual results for major LCFS components. Also uses different methods and model types from Oregon's approach. |
| Economic and Energy Impacts Resulting from a National Low-Carbon Fuel Standard<br>*Charles River Associates* | 2010 | Very Limited. The study analyzes the impacts of a severe rationing regime imposed on gasoline and diesel, rather than the displacement of those fuels by lower-carbon-content alternatives. It specifically assumes that any new low-carbon fuel capacity is impossible within the next 15 years, and thus models no change in the use of alternative fuels. The likelihood of its other assumptions is open to question on political, technological and economic grounds. |
| California Air Resources | 2009 | Somewhat. CARB's analysis considered |

| | | |
|---|---|---|
| Board, Economic Impact Estimate of Low-Carbon Fuel Standard | | a similar LCFS standard and also considered several alternate scenarios to achieving that standard over a 10-year period. However, their economic analysis was limited to direct microeconomic impacts, rather than a wider macroeconomic analysis showing the effect on the economy as a whole. |
| National Low Carbon Fuel Standard Analysis *University of California, Davis* | Ongoing | Unclear. Researchers seek to complete a macroeconomic analysis of a national LCFS scenario, but the scenario design is not yet complete and the analytical methods have not yet been publicly described. |

# Methodology

## Measuring Economic Impacts

Impact analyses are always framed within the context of "with" and "without" (benchmark) perspectives. The impact of an exogenous event, such as the application of an LCFS policy, is defined and measured in terms of the differences between the state of the economy associated with the change and its state without. Thus, impact analysis requires the ability to forecast a baseline condition. In *ex post* analyses, the only forecast required is of what the economy would have been without the change, since the state with the change is directly observable. In *ex ante* analyses such as the present study, research is required to estimate what the economy is expected to look like in both the "with" and "without" scenarios. This framework is required whether the analysis is qualitative or quantitative. Impacts cannot be ascertained otherwise.

All impact analyses require an explicit or implicit model that explains how the economy is affected by a variety of factors determined outside the control of private decision makers. Because there is a wide range of opinions on the likely direction of energy use, it may be wise to define alternative benchmark scenarios that will meet the LCFS mandates. In order to complete the analysis of the Oregon LCFS scenarios, the project team created a baseline that includes not only the fuel mix today, but the mix in each year between the current year and a forecast year without the potential Oregon LCFS. The end year for this analysis is 2022. This baseline is

developed from the US Department of Energy Annual Energy Outlook with major modifications based on discussions with the low carbon fuel advisory committee and TIAX. In future studies, DEQ might want to consider a longer term as well, such as 2030 or even 2050. The longer term horizon might reveal trends that are not anticipated. For example, hydrogen fuel is unlikely to play a role in meeting the 2022 goal, but may be an important option in the longer term. This analysis develops baseline and annual alternative impacts only over the period from 2012 to 2022.

Many issues must be considered in the baseline, including the underlying growth in Oregon population and economic activity. The most recent Oregon Economic Review and Forecast[5] expects annual employment growth over the next decade to be between one and two percent with annual growth in per capita income of about three percent. This growth in income and employment will include expected growth in demand for gasoline and diesel fuel to power transportation. Because of the State of Oregon and City of Portland renewable fuel standards, similar growth is expected for biofuels. These expectations are in the baseline scenario (referred to as the "Business As Usual" or "BAU" scenario). The baseline scenario changes will proceed in a dynamic fashion, the pace of which will be crucial in defining the impact and viability of a lower-carbon-intense-fuel-driven Oregon economy. Note that there are both microeconomic and macroeconomic baseline considerations. As such, both the VISION (vehicle inventory and use) and REMI (Input-Output, Computable General Equilibrium, and economic Geography models) tools must generate a baseline from which scenarios under consideration can be evaluated in later steps. These modeling tools and their application are discussed below.

## Types of Economic Impacts

The estimation of economic impacts of public policy often focuses on three types of impacts. Direct economic impacts refer to the changes in behavior and costs that result from actions to comply with the LCFS. For example, the development of distilling resources to produce fuel ethanol would be a direct impact. Indirect economic impacts are defined as the behavior and costs that result in the economy to facilitate the direct impacts. An example of indirect impacts is the economic impact resulting from the likely changes in spending on labor and fertilizer, which are needed to produce crops that will serve as feedstock for an ethanol production facility. The labor and materials needed to build and run such a facility are another indirect impact. Finally, induced economic impacts are the behavior and expenditures by households given the changes in income earned as a result of both direct and indirect activities. Induced impacts may occur across the entire economy.

Most environmental regulations result in higher production costs for the regulated industries. Tailpipe emissions regulations require additional vehicle emissions control technology which

[5] http://www.oregon.gov/DAS/OEA/economic.shtml#Most_Recent_Forecast

increases the production cost of the vehicle. Air quality regulations that limit plant emissions require production modifications or emissions post production processing to comply with emissions limits. The additional cost of compliance is compared to the benefits of reduced emissions such as improved health and quality of life. If the benefits of the regulation are deemed to exceed the costs, the regulation is considered cost effective.

The proposed Oregon LCFS is distinct in its economic impact from typical environmental regulation, as it provides an opportunity for economic gains as domestic and in-state production of replacement fuels stimulates the US and Oregon economies. This stimulus results from a reduction in petroleum imports and an increase in domestic investment to provide feedstock and production/generation facilities for the replacement fuels. In this study, all alternative fuel supply investment within Oregon is deemed to come from outside the state as there is now no significant transportation fuel production industry in Oregon. This external investment in productive facilities in Oregon creates employment, income and state product greater than would exist without this stimulation.

The potential decision by Oregon to institute an LCFS will provide opportunities for economic development within Oregon that would not occur in the absence of such a rule. Such investments will not occur in the absence of the rule, as investors would have no guarantee that the market for alternative fuels would materialize. Indeed, the petroleum sector could modify delivery prices in areas where such investments were made to make these investments uneconomic. However, with the rule in place, low carbon fuel suppliers are effectively guaranteed a market for their product as the fuel mix is required to meet the carbon intensity requirements of the regulation. Without a supply of these low carbon substitutes, traditional petroleum could not be sold in the Oregon market.

The level of investment assumed in the macroeconomic model is considered fixed in the baseline. Thus, new investment from outside of Oregon will increase economic activity in Oregon in the scenarios. This is particularly true in the short run as there is very little transportation fuel produced in Oregon today. If these investments, or even a portion of these investments, came from within Oregon, they would replace other Oregon investments. The economic impacts would then be measured as the impacts of the new investment less that of the displaced investment. This is a complicated calculus and has not been carried out in this analysis. If it had been, the measured economic impacts would likely still be positive, as only a portion of the investments would displace existing investments and the impacts of the displaced and new investments are likely to be similar in aggregate. Also, regardless of the source of the investment dollars, the LCFS policy (under most scenarios) would achieve a displacement of imports by domestically produced fuels, which allows the state to gain economic benefits associated with the production and sale of fuels benefits currently enjoyed almost exclusively by out-of-state providers.

This analysis considers impacts to over 70 distinct sectors of the economy. The nature of the expected impacts under the scenarios considered suggested that certain specific sectors would be likely to see significant impacts. The anticipation of the construction of new biofuels refining facilities suggests likely gains for the construction sector. Because construction is labor-intensive work (when considered in terms of the number of full-time-equivalent positions per dollar expended in the sector), employment was also anticipated to rise, and as a further consequence, incomes and consumer spending were expected to rise as well. Petroleum production would be expected to show a loss in economic activity as alternative fuels displace gas and diesel, but in Oregon's case, the state has no in-state production or refining, and so such an impact was not expected here. Even in the State of Washington, where they have a sizeable petroleum production economy, their economic analysis showed net economic benefits in all of their scenarios except for the one where all fuel production came from out-of-state sources.

The modeling and analyses produced results which agreed with those assumptions. The sectors in which the largest impacts are projected to occur under the different scenarios are described in the Macro Modeling section (see below).

## Scenario Development

### Purpose of Scenario Analysis

This scenario analysis is not a forecasting effort. Forecasting economic conditions in a particular year is a challenging prospect. Projections of future economic conditions depend on the expected growth in population and in economic activities, but are subject to the effects of natural, economic and political conditions during the forecast period that are impossible to predict with precision. Natural disasters, international banking collapse, war, embargos and many other unpredictable events will determine the future level of economic activity. The best that can be done is to develop a state economic forecast that is consistent with the national forecast and recognizes any unique characteristics of the Oregon economy. This forecast is the business-as-usual scenario, without a LCFS either in Oregon or nationwide. Fortunately, this analysis of a Low Carbon Fuel Standard requires only a baseline, and not a full economic forecast, to assess the impacts of the standard.

The transportation fuel supply industry in Oregon will have a range of options available to it to supply transportation fuel to the state while meeting the LCFS. These options are referred to as compliance scenarios. The DEQ, working with the low carbon fuel advisory committee and TIAX, developed a set of compliance scenarios that are believed to bracket the range of potential fuel supply options. All of the selected compliance scenarios result in compliance with the

LCFS, and they are expected to bracket a range of realistic assumptions regarding the low carbon fuels available in the future. Scenario analyses were conducted for gasoline and diesel fuel, both separately and in a single fuel pool.

Impacts are measured by comparing each scenario to the baseline business-as-usual scenario. The direct, indirect and induced impacts are catalogued for each scenario compared to the baseline for macroeconomic variables such as employment, personal income and state product.

## Carbon Intensities

The process of identifying scenarios in which alternate fuel use leads to a certain level of change in carbon intensity depends on an understanding of the relative carbon intensities of different fuels. Analysts utilized carbon intensity calculation methods developed by Argonne National Laboratories as part of its GREET model. These carbon intensities represent the amount of greenhouse gases a fuel is expected to produce for a fixed unit of energy (this is most commonly measured in grams per megajoule). Different fuels have different amounts of energy in the same volume, so comparisons by gallon can be misleading, and inapplicable as a measurement for non-liquid fuels such as electricity and compressed natural gas. Comparing by units of energy allows fuels of very different types to be compared on similar footing.

Carbon intensities were developed for gasoline, diesel, natural gas from fossil sources, and electricity. Carbon intensities for biomass-based diesel and ethanol were further refined to differentiate between all the different biofuels pathways under consideration as part of the scenarios in this analysis. Separate carbon intensities were developed for each of the following:

- Midwest corn ethanol, refined in Midwestern refineries and transported to Oregon
    - Conventional varieties
    - Lower-carbon varieties
- Midwest corn ethanol, made with Midwest corn but refined in Oregon
- Cellulosic ethanol from waste food
- Out-of-state cellulosic ethanol
- Imported sugarcane ethanol from Brazil
- Cellulosic ethanol from forest residue and from grass waste
- Cellulosic ethanol from wheat straw

- Cellulosic ethanol from farmed trees
- Midwest-produced biodiesel from soybean stock
- Northwest-produced biodiesel from canola
- Northwest-produced biodiesel from waste yellow grease
- Northwest-produced renewable diesel from camelina
- Cellulosic diesel
- Compressed natural gas from waste biogas

All carbon intensities, including those for both gasoline and diesel, were then weighted by projections of vehicle efficiency (miles driven on the same amount of energy as is contained in a gallon of gas) as compared to a conventional gasoline or diesel vehicle to develop carbon intensities for each fuel. This step was taken to allow the comparison to account for the projected transportation efficiency of fuels. As mentioned above in the section describing electrification and the use of natural gas as an LCFS option, different fuels are associated with engine technologies which have different efficiency ratings. Applying this adjustment allows for the measurement of carbon intensity per mile traveled, rather than just a measurement of carbon intensity from production, transportation, refining, storing and burning fuel.[6]

## Scenario Selection

A compliance scenario combines information from a fuels assessments and the calculation of carbon intensities to estimate the volume of various low carbon fuels that would be needed to achieve the LCFS. There are several purposes for developing compliance scenarios:

- The scenarios allow DEQ to assess whether the current production capacity of low carbon fuels in Oregon will likely be sufficient to support compliance with a LCFS program.
- The scenarios allow DEQ to identify any gaps in alternative fuel availability that would need to be filled in order to have a feasible program. This allows DEQ to evaluate the LCFS phase-in schedule in light of expected fuel availability and identify investment

[6] This analytical step, if enshrined in policy, has the potential to create an incentive for fuel providers and vehicle manufacturers to pursue vehicle efficiency technologies. Under such a policy, improvements in vehicle efficiency of specific models would make the fuels powering those vehicles more attractive for compliance with an LCFS policy.

needs and economic development opportunities for Oregon to increase the availability of lower carbon alternatives fuels by 2022.

- The different compliance scenarios allow DEQ to evaluate the reasonable range of possible economic impacts associated with different compliance options.

Based on discussions with DEQ and the low carbon fuel standards advisory committee, TIAX created an Oregon-adjusted business-as-usual case. It assumed that Oregon receives its proportional share of fuels required by the federal Renewable Fuel Standard (RFS2) and that the Oregon Renewable Fuel Standard and Portland Renewable Fuel Standard regulations remain in place. It also assumed continuation of the Oregon Low Emission Vehicle program as well as federal fuel economy standards currently in place.

DEQ worked with the advisory committee to develop eight variations of compliance scenarios in order to compare the effects of several factors including: indirect land use change, in-state vs. out-of-state production of biofuels, price of crude, the need for advanced cellulosic technologies to develop, and the adoption rate of electric vehicles. TIAX then created the different fuel combinations that represent each compliance scenario. All scenarios were created to achieve a 10% reduction in carbon intensity by 2022. For each scenario there were separate analysis (Runs) for light duty and heavy duty vehicles. The eight scenarios are listed below.[7]

Scenario A – Cellulosic Biofuels with Indirect Land Use Change

*Cellulosic Ethanol with indirect land use change (Produced In-State)*

- In addition to Northwest corn ethanol and waste berry ethanol, compliance with standards achieved through use of in-state cellulosic ethanol. A small amount of out-of-state cellulosic ethanol is included due to lack of additional in-state feedstock availability.
- If more ethanol is needed to reach total RFS2 proportional share volumes, it comes from Midwest corn ethanol.

*Cellulosic diesel with indirect land use change (Produced In-State)*

- Compliance achieved through the use of new in-state cellulosic diesel and new waste oil biodiesel capacity.

Scenario B – Mixed Biofuels with Indirect Land Use Change

*Mixed ethanol with indirect land use change*

- In addition to Northwest corn ethanol and waste berry ethanol, compliance achieved through use of sugarcane ethanol, lower carbon intensity Midwest corn ethanol, and cellulosic ethanol (some produced in-state, a small amount from out-of-state).

[7] Scenario descriptions developed by DEQ and TIAX, LLC

- So much ethanol was required here that the blend wall had to be increased to E12 (12% ethanol blended with gasoline) in 2017 and E15 (15% ethanol blended with gasoline) in 2020.

*Conventional biodiesel with indirect land use change*

- Compliance achieved through:
  - Moderate amounts of in-state cellulosic diesel production
  - Out of state grown and produced camelina-based renewable diesel
  - New in-state waste oil biodiesel capacity
  - Existing in-state canola biodiesel
  - New out-of-state canola biodiesel production from Oregon grown canola

Scenario C – Mixed Biofuels without Indirect Land Use Change

*Mixed ethanol without indirect land use change*

- In addition to Northwest corn ethanol and waste berry ethanol, compliance achieved through use of sugarcane ethanol, lower carbon intensity Midwest corn ethanol, in-state cellulosic ethanol, and some cellulosic ethanol produced out-of-state.
- For comparison with Scenario B, we increased the blend wall to E12 in 2017 and E15 in 2020.

*Conventional Biodiesel without indirect land use change*

- Compliance achieved through:
  - Existing canola biodiesel
  - Existing waste oil biodiesel
  - Midwest soybean biodiesel

Scenario D – Electricity, CNG and Cellulosic Biofuels with Indirect Land Use Change

*High Electric Vehicles with Cellulosic Ethanol with indirect land use change (Produced In-State)*

- In addition to Northwest corn ethanol and waste berry ethanol, compliance achieved through use of Electric Vehicles and Plug-In Hybrid Electric Vehicles plus in-state cellulosic ethanol.
- Similar to Scenario A except more electric vehicles to substitute for light duty gasoline are included, so less ethanol is required.

*Maximize CNG vehicles and cellulosic diesel with indirect land use change*

- Similar to Scenario A except more CNG vehicles to substitute for heavy duty diesel are included so less biodiesel is required.

Scenario E – One Pool

In this scenario, all fuels are treated as a single pool for compliance purposes. Heavy-duty vehicles achieve disproportionate gains. Multiple new fuels sources are combined,

including ethanol and biodiesel along with electric vehicles, plug-in hybrids, and expanded use of CNG in trucks.

Scenario F – Mixed Biofuels without Indirect Land Use Change, high oil prices

- Similar mix of fuels as Scenario C, but with higher oil prices (compared against a baseline also modified to reflect higher oil prices).

Scenario G – Mixed Biofuels without Indirect Land Use Change, low oil prices

- Similar mix of fuels as Scenario C, but with lower oil prices (compared against a baseline also modified to reflect lower oil prices).

Scenario H – Cellulosic Biofuels with Indirect Land Use Change, Out-of-State

*Cellulosic Ethanol with indirect land use change (Produced Out-of-State)*

- In addition to Northwest corn ethanol and waste berry ethanol, compliance with standards achieved through use of out-of-state cellulosic ethanol.
- If more ethanol is needed to reach total RFS2 proportional share volumes, it comes from Midwest corn.

*Cellulosic biodiesel with indirect land use change (Produced Out-of-State)*

- Compliance achieved through the use of out-of-state cellulosic diesel and new in-state waste oil biodiesel capacity, existing in-state canola biodiesel.

## Alternatives Considered

DEQ considered many factors that provided the basis to many of the compliance scenario assumptions. A summary of the major factors considered include:

***Factor 1: End point of the LCFS.*** Instead of using 2022 as the end point of the LCFS, end points of 2020 or 2024 were considered. 2020 would align with California's program. Since it would be at least 2012 for rulemaking to be complete, the program would be less than 10 years. Therefore, regulated parties would have an accelerated timeframe to comply with the 10% reduction mandate. 2024 would align with Washington's program (although subsequent recommendations from Washington have a 2023 end point year). This would result in the program's reporting-only year being 2014 and the first compliance year being 2015. This delay in implementation would severely impede development of the infrastructure needed to support the LCFS. It would also complicate how DEQ could implement this program in light of the 2015 sunset date in the statute.

***Factor 2: Indirect Land Use Change.*** For this analysis, the low carbon fuel standards advisory committee chose to adjust the carbon intensity of biofuels with California Air Resources Board's indirect land use change (or "ILUC") estimate. The CARB estimate is the highest of those

available (the EPA also produced estimates of carbon emissions attributable to biofuels as a result of indirect land use change numbers for the RFS2 program, and Purdue University also has a new estimate for ILUC-driven carbon emissions from corn ethanol). There is no consensus establishing that one estimate is better or more accurate than the others. The use of the California Air Resources Board number is not an acknowledgement of its accuracy or acceptance, but merely to provide an upper bound for analysis purposes. This analysis provides some information on the significance of its effect that the advisory committee members could use to inform their recommendations to DEQ.

***Factor 3: Oregon's share of RFS2 biofuels volumes.*** RFS2 requires a minimum volume of biofuels to be produced nationwide, but does not specify where these volumes are used. Certain assumptions were made in order to estimate the amount of alternative fuels Oregon should expect to receive. The advisory committee recommended by consensus that the compliance scenarios assume that Oregon would receive its proportional share (by percentage of its fuel used compared to the entire country) of RFS2 biofuels.

***Factor 4: Blend wall***. In order to use all of the ethanol expected from Oregon's proportional share of RFS2, assumptions were necessary regarding the amount of ethanol that would be blended into gasoline during the 2012-2022 period. The current blend of 10% ethanol and 90% gasoline, known as E10, was retained for this analysis. A higher blend wall, allowing up to 15% ethanol, would create a higher baseline for ethanol use. A lower blend wall would need more ethanol to be used in flex-fuel vehicles capable of using up to 85% ethanol blend. The State of Washington's LCFS analysis assumed that a statewide ethanol blend of 15% ethanol would be in place in the future. The Oregon advisory committee recommended by consensus that E10 be the blend wall for this analysis (except in one case where it was necessary to increase the blend wall to E12 then E15 over time in order to consume all of its RFS2 proportional shares). The effect of this recommendation is that Oregon's program assumes the higher cost of developing the infrastructure needed to support a larger E85 fleet.

## VISION Modeling

The VISION Model, developed by Argonne National Laboratories, is a spreadsheet-based tool that seeks to measure energy and greenhouse gas emissions from the entire US on-road vehicle fleet. It relies on perpetual inventories of 22 different classes of light-duty vehicles (eleven each for autos and light trucks), as well as six different classes of heavy-duty vehicles. The tool allows for extensive customization of the assumptions underlying the types of fuel used, the types of vehicles entering the market, the carbon intensities of each type of fuel, and the extent to which various fuels are blended together.

The standard tool was extensively modified to reflect Oregon, rather than the entire US, before any analyses were completed. The vehicle fleet was adjusted in both size and composition to reflect state rather than national data. Fuel price data and projections were adjusted to reflect projections for the Pacific region, rather than national average projections.

For each scenario, analysts developed a detailed picture of the exact sources from which various fuel supplies would be obtained. The model was expanded to reflect this detailed picture of the scenario's fuel supply, and the carbon intensities used were adjusted to reflect the scenario's unique mix as well.

## Assumptions

Key assumptions in the VISION analyses, beyond those related to developing the LCFS scenarios, are as follows:

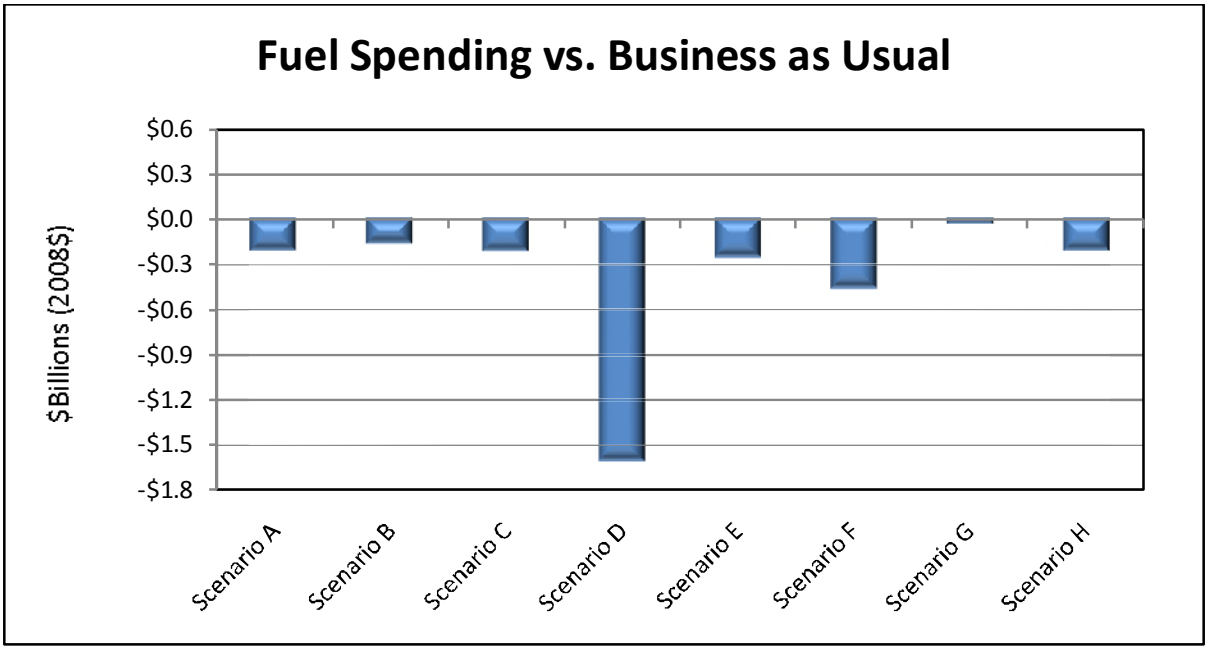
- Fleet composition – number and percent of each type of vehicle comprising the heavy-duty and light-duty fleets
- Fuel efficiency – miles per gasoline gallon equivalent achieved by each type of vehicle in the heavy- and light-duty fleets.
- Fuel and Vehicle prices – projected costs of each type of fuel, including taxes, as well as projected prices for each type of vehicle comprising the light-duty fleet.
- Carbon intensity full lifecycle carbon intensities for conventional fuels (diesel and gasoline) as well as alternative fuels (natural gas, electricity, biofuels)
- Vehicle duration and scrappage – rates at which vehicles leave the fleet as they age.

Assumptions are outlined in the Oregon Low Carbon Fuel Standard Report in:

- Appendix B: Lifecycle Analysis
- Appendix C: Infrastructure Cost Assumptions
- Appendix F: Compliance Scenario Documentation.

## Results

VISION analyses produce extensive results regarding a wide variety of impacts in each scenario, such as the volumes of various fuels consumed, the projected expenditure on those fuels, the blends of various fuels and the costs of any alternative vehicles required. An extensive collection of results is presented in Appendix A of this report. One representative result, the projected spending change on fuel under each of the eight scenarios, is depicted in the chart below:




## VISION to REMI

While the VISION model is a valuable tool for measuring the impacts of changes to vehicle fleets and fuels, it does not produce macroeconomic impacts that show how such changes might reverberate through the broader economy. Significant increases in the consumption of biofuels, particularly of biofuels produced in-state, can be expected to impact farming and agricultural sectors of the economy. Significant shifts away from petroleum-based fuels (gasoline and diesel) can be expected to have impacts on businesses involved in oil production, refining and transportation. Significant new utilization of natural gas or electricity produced in-state would also affect related industries. Macroeconomic models seek to estimate these broader impacts.

For this project, the study team utilized the "REMI PI+" model, produced by Regional Economic Models, Inc.

Also, VISION provides only some of the values necessary to fully inform the REMI PI+ model of the direct economic expenditures expected under the different scenarios. To provide necessary inputs, analysts (with input from the low carbon fuel standards advisory committee) developed estimates for a number of direct expenditures expected as part of each different scenario. The expenditures included:

- New refining capacity for ethanol and for biodiesel
- Labor, utilities and feedstock costs for new refinery operations
- Distribution and fueling infrastructure (including additional tanker fleet costs) for additional biofuels and natural gas
- Fueling infrastructure and additional vehicle costs for electric/plug-in hybrid-electric fleet
- Additional vehicle costs for natural-gas powered heavy-duty vehicles

Further, VISION produces many of its results in physical units, such as gallons of fuel or BTUs of energy. The VISION to MACRO process involved developing direct economic impact estimates under each scenario for fuel expenditures based upon Department of Energy fuel price projections.

## Assumptions and Results

Macro- and micro-economic models seek to evaluate economic activity at two very different levels. Micro analysis is concerned with activities for individuals or small groups of economic factors such as households, firms or agencies.

In this case, the modeling seeks to understand how the demand for transportation fuel is impacted by vehicle technology changes, driving patterns and fuel choice. VISION includes a full accounting of these decisions in the base year and in each forward year through 2022. It keeps track of the fleet over time so that the amount of fuel used, by type, is accounted for.

Macroeconomic models are broad aggregates of the economy. Sectors in the macro model include many products and industries collected and measured together. For example, there is no unique gasoline industry. Gasoline production is included in the Sector: *Petroleum and Coal Production*. Thus, both micro and macro models are required to simulate the economic impacts of the LCFS. These models can be separate stand-alone models or they can be combined in a

single program that translates and transfers the micro changes caused by this regulation to the macro model. In this case, we took advantage of the microeconomic detail of the VISION model and the capacity for macroeconomic aggregation of the REMI PI+ model. Other individual and combined models are available, but none offers more detail than those applied.

The full list of results and assumptions is included in Appendix B.

# MACRO Modeling

## Assumptions

The macroeconomic analysis was accomplished with the use of the REMI PI+ model. First, the business as usual case was run for Oregon using the REMI default case. Then, a model run was conducted and the results were compared to the baseline BAU for each scenario. The analysis focused on the change in employment, personal income and gross state product, but more detailed comparisons are available for each economic sector characterized in the 70 sector REMI as well as all categories of final demand.[8]

## PI+ Results

The eight compliance scenarios were designed by DEQ and the advisory panel to include a wide range of potential compliance scenarios for the Oregon fuel supply sector. The graphs below indicate how macroeconomic variables such as income, employment and state product vary across scenarios. All three macro variables move together as the scenarios alter the low carbon fuel mix. In all cases the Oregon economy and fuel supply system is treated as the responder to the LCFS as it purchases and supplies the needs of Oregon vehicles for fuel that meets the standard. No national LCFS is assumed. The potential supply of fuel from each source is determined in the scenario and limited if there is a capacity constraint.

All scenarios that rely on liquid fuels demonstrate similar macro impacts. Investment in new plants and equipment to produce these fuels and the required infrastructure stimulates the Oregon economy in the years when plants are built and in their continuing operation. Baseline conditions are developed from the US Department of Energy AEO report and the base case

[8] Final demand is the total demand for final goods and services in the economy.

scenario is built into the REMI models. Positive economic impacts in Oregon stem from the importation of less petroleum fuel and its replacement with Oregon produced products. To the extent that the Oregon LCFS reduces national petroleum imports, similar economic impacts will be realized. It should be noted that the level of petroleum consumption reduction in Oregon will not result in a lower absolute value for petroleum imports to Oregon then are imported today as demand growth is expected to continue through 2022. In the longer term, improved internal combustion efficiencies associated with new higher Corporate Average Fuel Economy (CAFE) regulation is expected to result in lower petroleum consumption in 2030 than the amount consumed currently.

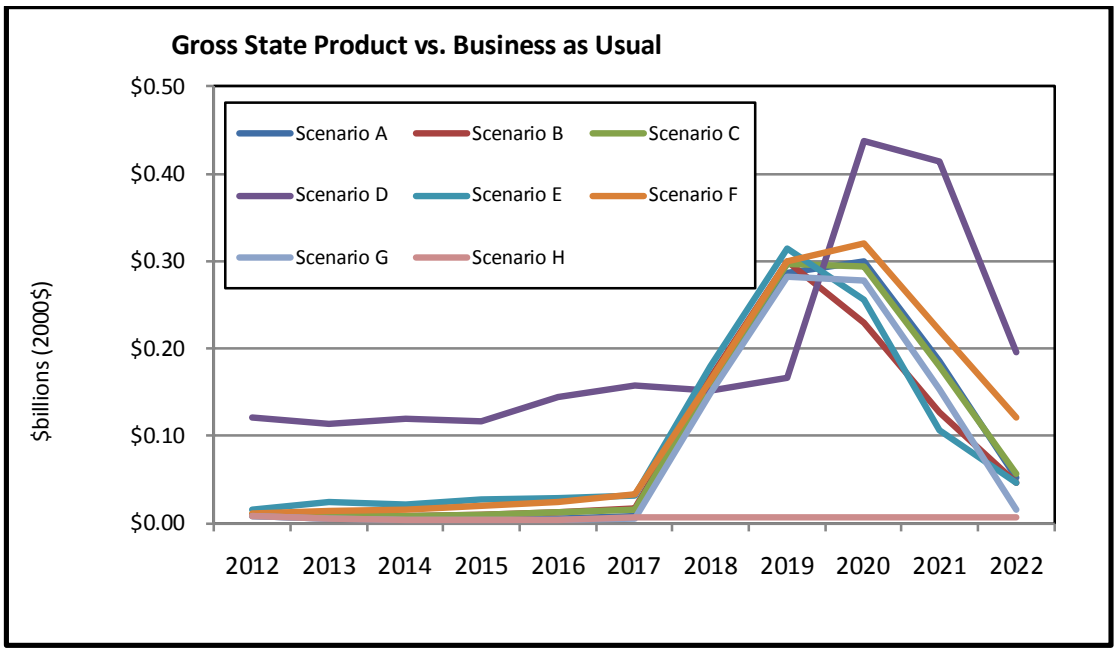
The results from Scenario D suggest that meeting the LCFS with electric vehicles in the light duty market and natural gas powered vehicles in the heavy duty market provides an earlier economic benefit than liquid fuel options through higher effective vehicle efficiencies. The US and California low emission vehicle standards and other forces are leading to the introduction this year of several electric-powered vehicles by both US and foreign automobile producers. The presence of pre-existing forces encouraging the development of an electric-vehicle fleet may allow the Oregon population to reduce their petroleum demand through this avenue more readily than through other alternative-fuel options.

The macroeconomic modeling analysis produced estimates of overall economic impacts, as well as specific impacts to approximately 70 different sectors of the economy, for all eight different compliance scenarios. The full results are included in this report as Appendix C.

All scenarios show net economic growth, but the final scenario, assuming all alternative fuels to be imported, shows very little economic change at all. This is due to the decision to assume that all of the capital investment will come from outside the state of Oregon and was based on the fact that the state currently has a very small domestic industry that produces transportation fuels. An analysis that considered this new capital expenditure as being taken from other capital-investment opportunities within the state would likely show more economic losses. This analysis, however, assumes that the lost capital investment occurs almost entirely out of state.

## Gross State Product

The first graphic demonstrates the change in gross state product (GSP) projected under each scenario.



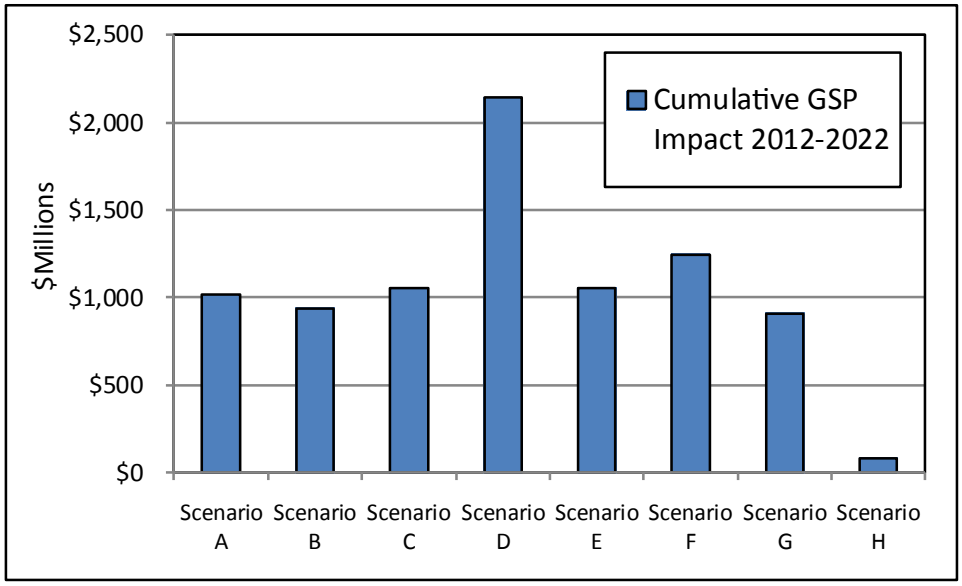

The graphic above depicts the GSP impacts of each of the eight scenarios modeled. In every scenario, the overall GSP changes are positive, indicating that the scenarios drive growth in economic activity in the state.

Results for six of the eight scenarios (scenarios A through C and E through G) produce a very similar projection, indicated by the six closely grouped lines in the graph. These scenarios all produce minor changes to GSP for the first five years of policy implementation (2013 to 2017), followed by rapid rises in the GSP impact in 2018 and continuing through 2021. This sudden increase in scenario impact corresponds to the beginning of construction of plants for the refining of biofuels. This construction, assumed to start only after a few years due to the time requirements of necessary preliminary steps such as design, permitting and site selection, represents a significant infusion of money into the state's economy.

Scenario D, which envisions an approach more focused on electricity and natural gas than on biofuels, produces a larger GSP impact and a different GSP impact pattern. This is represented by the high purple line. Unlike other scenarios, positive GSP impacts begin immediately, due to the expected on-going investment in electrical charging stations. This investment can begin immediately. Some in-state biofuels refining remains part of the scenario, and so the GSP impact of Scenario D spikes upward late in the period. As with other scenarios, this reflects investment in the construction of a refinery.

Scenario H, which envisions reliance on biofuels provided entirely from out-of-state agriculture and out-of-state refining, produces the lowest impact on GSP. The flat line in the graph represents this scenario. With little investment change in the state, and little change in overall fuel spending, this scenario produces very small changes from the business-as-usual projection.

The graphic below shows the overall volume of GSP change from the baseline in each scenario for the entire 10-year period in which the LCFS would ramp up to full implementation:



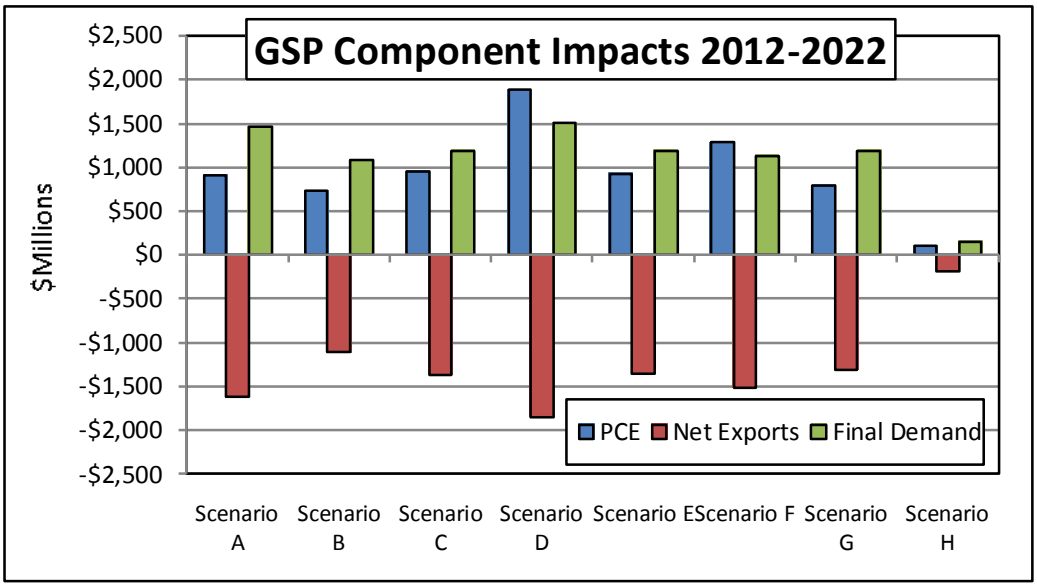

Overall, the six scenarios involving in-state production of biofuels (A through C and E through G) have fairly similar GSP impacts, ranging from approximately $900 million to about $1.25 billion in additional economic activity. Differences in the projected prices of fuels and the types and volumes of fuels needed are responsible for the variation among these six scenarios. Scenario D, which produces higher GSP impact projections every year, has a similarly higher cumulative effect. Scenario H, which never has a large impact in any single year, has a small cumulative effect.

## Gross State Product Components

Gross State Product is estimated by measuring several components of activity in the state's economy. Levels of consumer spending, private sector investment, inventories, imports and exports, and government spending are among the components that make up a state's overall GSP.

The analysis of the LCFS scenarios identified three GSP components consistently expected to show significant impacts. Those components are Personal Consumption Expenditures, Private

Domestic Investment, and Net Exports (which represents the value of goods exported after deducting the value of goods imported).




In all scenarios, net exports (indicated by the red columns) fall against the baseline as a result of the increase in imports required. These imports are components of the capital to be constructed. However, this change (measured as a loss of GSP) is offset by increases in demand (indicated by the green columns) in every case. While these two components largely offset each other, personal consumption rises in every scenario, helping to drive the positive overall GSP change.

Two other GSP components, government expenditures and private domestic investment, also rise in every scenario, but at a much smaller scale.

## Changes in Output and Value Added by Sector

**Output** is a measure of the total production in each sector, including a) intermediate consumption as an input to other products, b) final consumption as an end product by households, and c) the amount exported to non-Oregon markets for consumption.

**Value Added** has many components, the key ones associated with compensation of labor and return to capital.

REMI PI+ modeling produced estimates of the change in output for 70 individual sectors (see appendices for all sector outputs). Of these 70 sectors, the changes in output and value added were consistently largest in nine sectors in particular. Those nine sectors are:

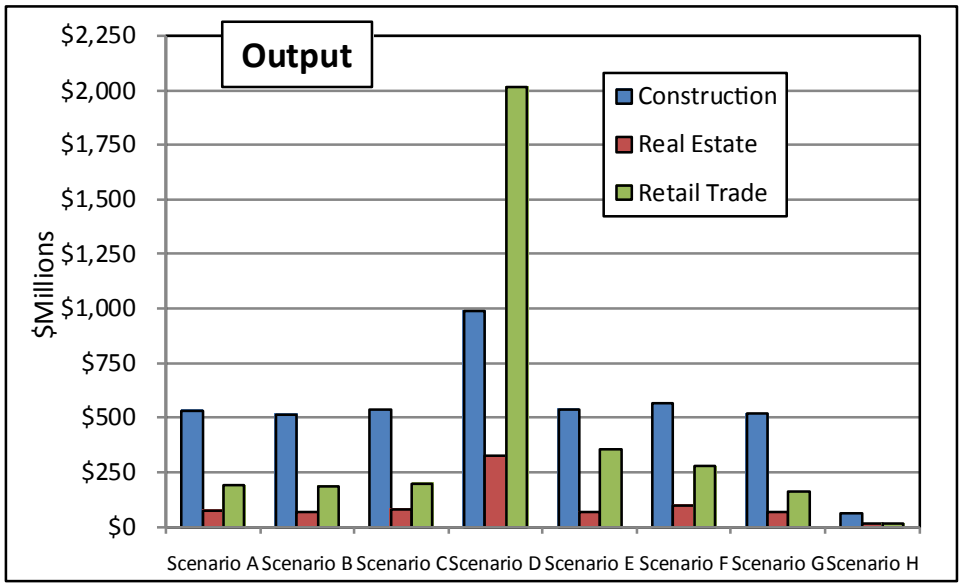
- Construction

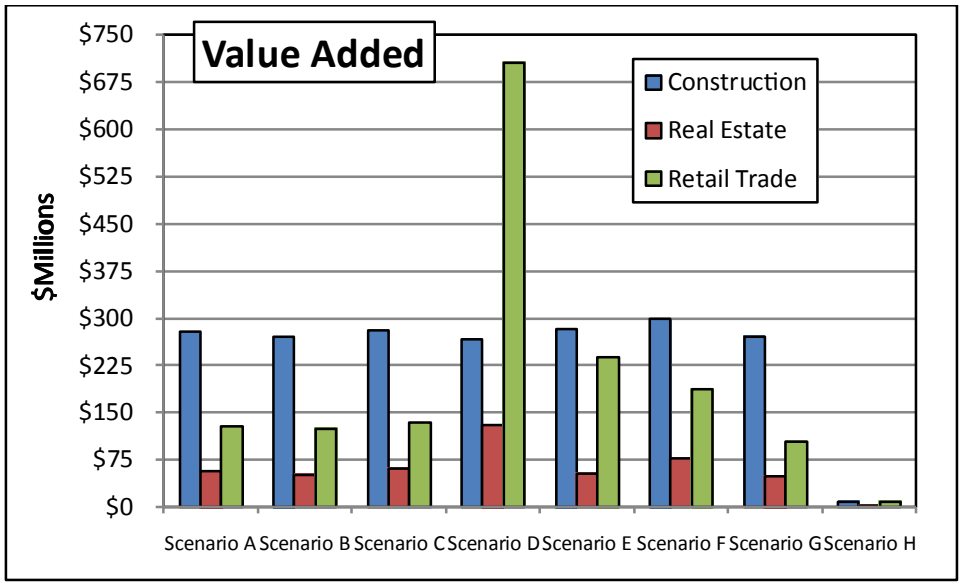
- Real Estate
- Retail Trade
- Wholesale Trade
- Professional Services
- Healthcare
- Banking
- Waste Management
- Administrative Services

Each of these sectors saw an impact of over $50 million in additional volume above the baseline in at least one scenario. It is valuable to observe that no one of these nine specific sectors modeled in this analysis saw significant negative impacts as a result. Also, no sector was projected to experience negative impacts of a size on the scale of the positive impacts identified in these nine.

Notably, the sectors of petroleum production and agricultural production were not among the sectors projected to experience significant economic impacts under these scenarios. Oregon produces no petroleum fuel in-state, and so the losses incurred to the petroleum sector would be felt elsewhere in the country. Agriculture is impacted, but other sectors see larger changes due to their connection with the new spending on construction of biofuels refining facilities. Because that spending represents the great majority of the economic activity associated with LCFS compliance, sectors most affected by it show the largest impacts.

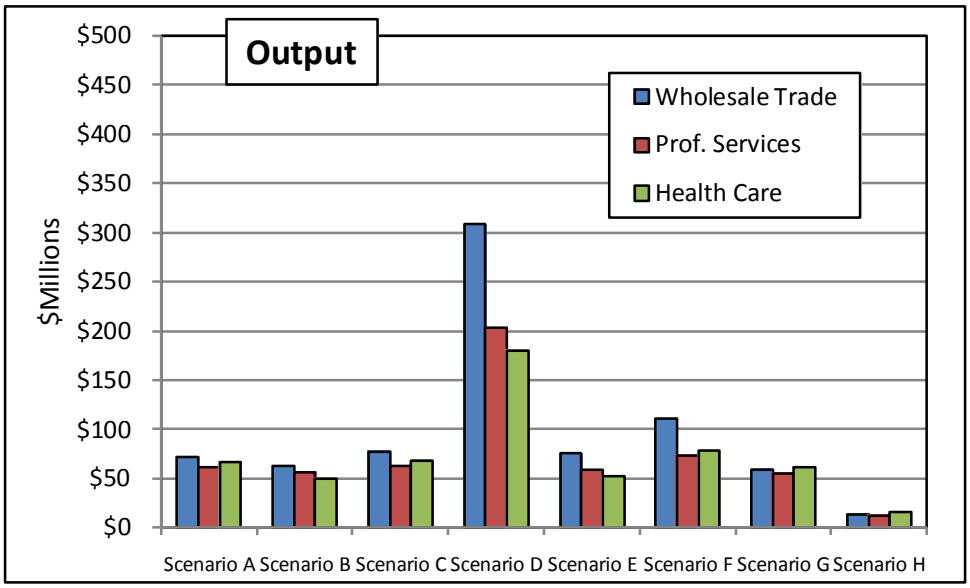
The sectors registering the largest impacts are the construction, real estate, and retail trade sectors.

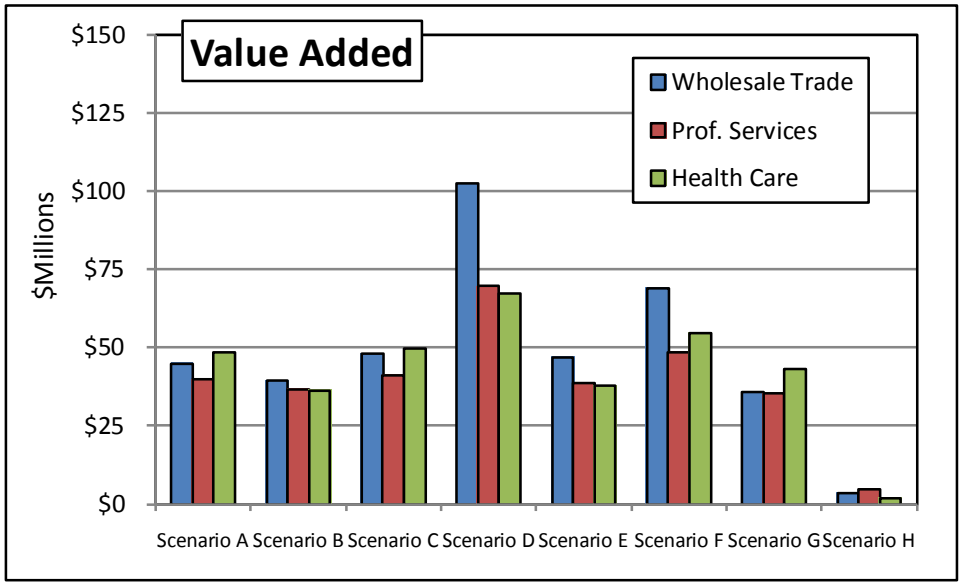


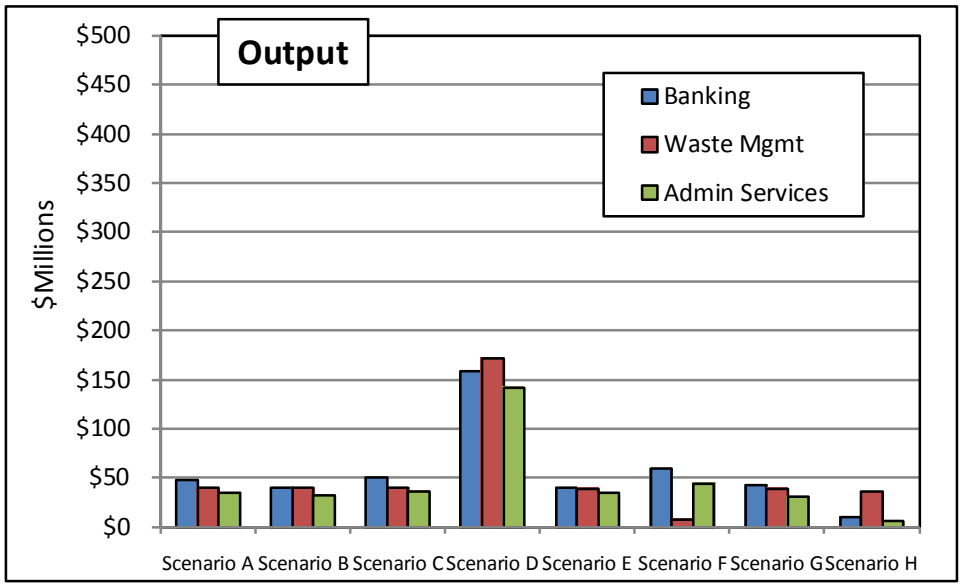

The construction sector impacts are similar in all scenarios with biofuels plant construction assumed to occur (all scenarios except H). Retail trade and real estate are similar in the same scenarios with the exception of Scenario D. Scenario D stands out in that the positive impacts in the retail trade sector are magnified. Retail fuel expenditures fall significantly in scenario D, as a consequence of the lower price of energy when supplied in the forms of electricity and natural gas. This leaves greater room for consumer expenditures on other categories of goods and services. Overall, the changes to ouputs for these three sectors are roughly twice as large as the changes to value added.

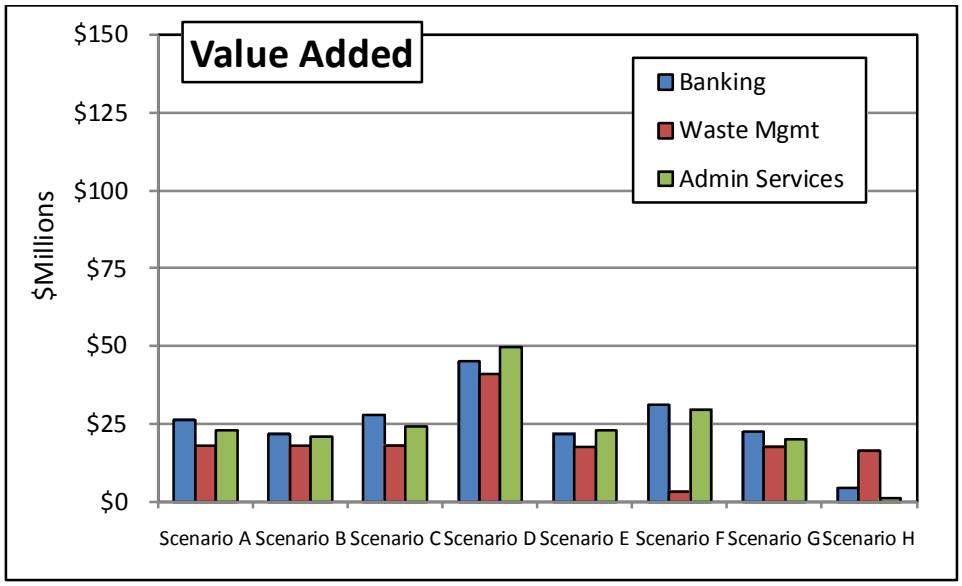
The three sectors showing the next highest levels of overall impact in outputs and value added are wholesale trade, professional services and health care.



The next three sectors with significant impacts are banking, waste management and administrative services.

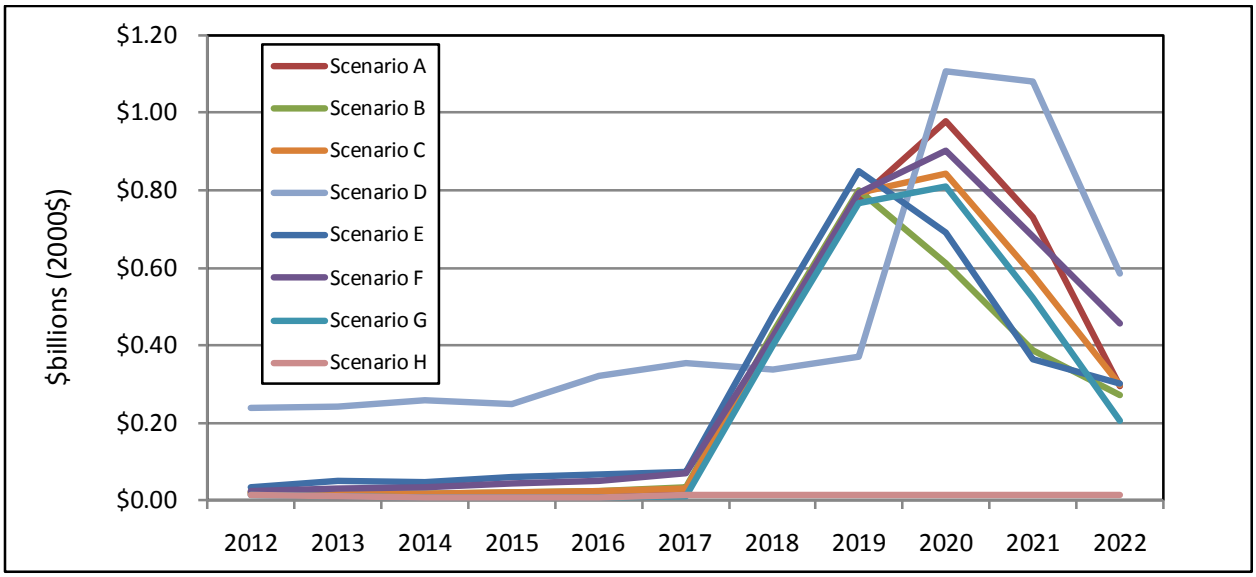


## Employment, Income and Demand

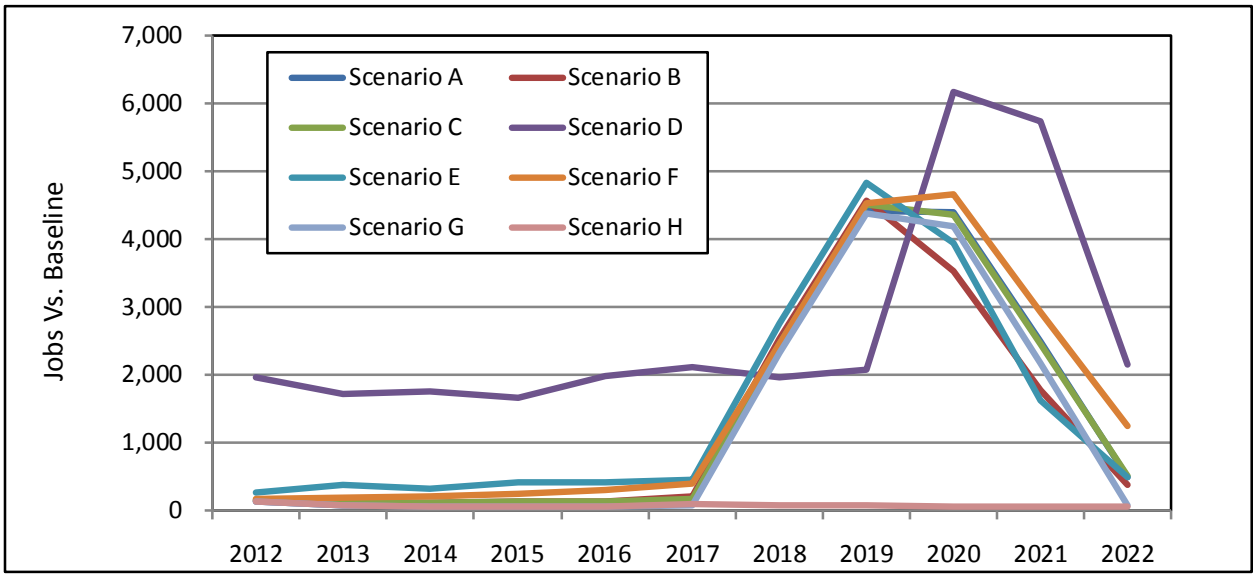
Below are year-by-year impacts to important macroeconomic impacts not captured as sectors. These include overall demand impacts, overall employment impacts, and overall personal income impacts.

*Changes in **Demand** under Eight LCFS Compliance Scenarios*




Aggregate demand is the total demand for final goods and services (as opposed to wholesale goods or raw materials) in an economy. Demand tracks very similarly to GSP for the eight LCFS scenarios considered in this study. As with other indicators, the onset of significant capital investment drives the largest portion of the changes from baseline in each scenario.

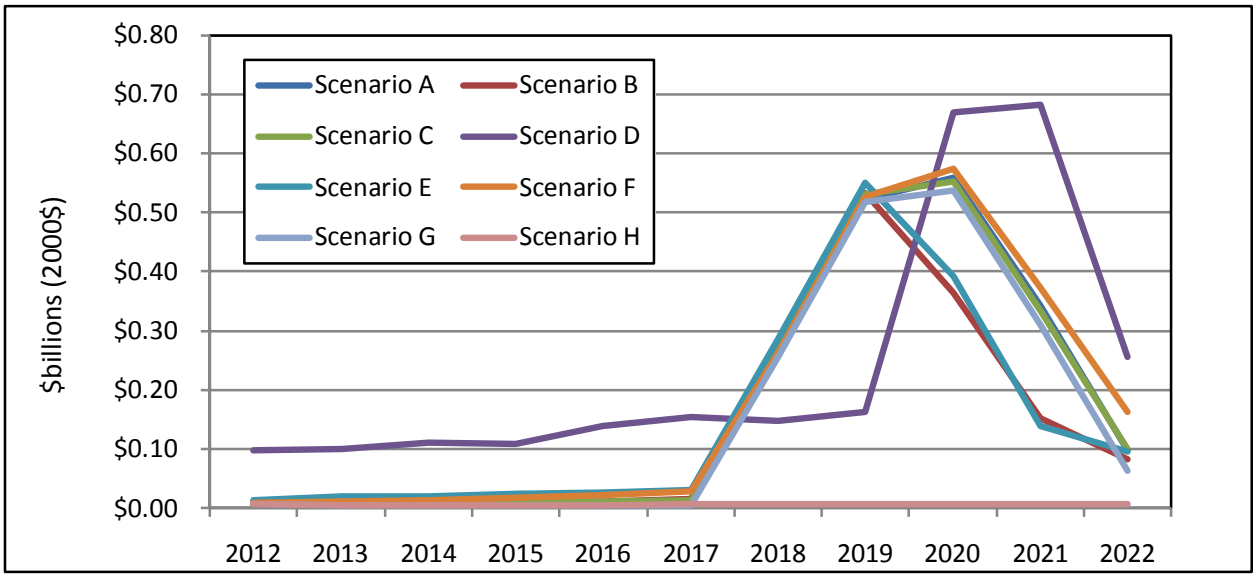
*Changes in **Employment** under Eight LCFS Compliance Scenarios*




Employment in the above graphic is measured as jobs. The scenarios reflect a correlation between the intensity of investment, which tracks with the timing of refinery construction, and increases in employment. Plants, once built, directly employ relatively small numbers of people (below 100 per plant). During the construction phase, by contrast, the spending involved works through the economy to create employment for thousands of people.

Scenarios D and H stand out much in the way they do in the GSP projections. In scenario D, the investment in fueling capacity and charger station installation drives employment even in the earlier years. This scenario results in approximately 2,000 additional jobs every year throughout the ten-year period even without the construction of any biofuels refining capacity. This employment is tied to other infrastructure creation. Scenario H again has no significant impact.

*Changes in **Income** under Eight LCFS Compliance Scenarios*




Income levels again follow a familiar pattern. Additional employment drives income changes at equivalent points in time across the 2012-2022 timeframe. The six scenarios assuming in-state biofuels production separate in 2020, however. Some see high income effects in 2020 while others see a much lower level than 2019 impacts. This is the result of different assumptions about the number and timing of biofuels plant production. Those scenarios which envision construction in 2020 at high levels see high income impacts. Others, which envision construction tailing off by that point, see income impacts fall. Scenarios D and H follow familiar outlying patterns.

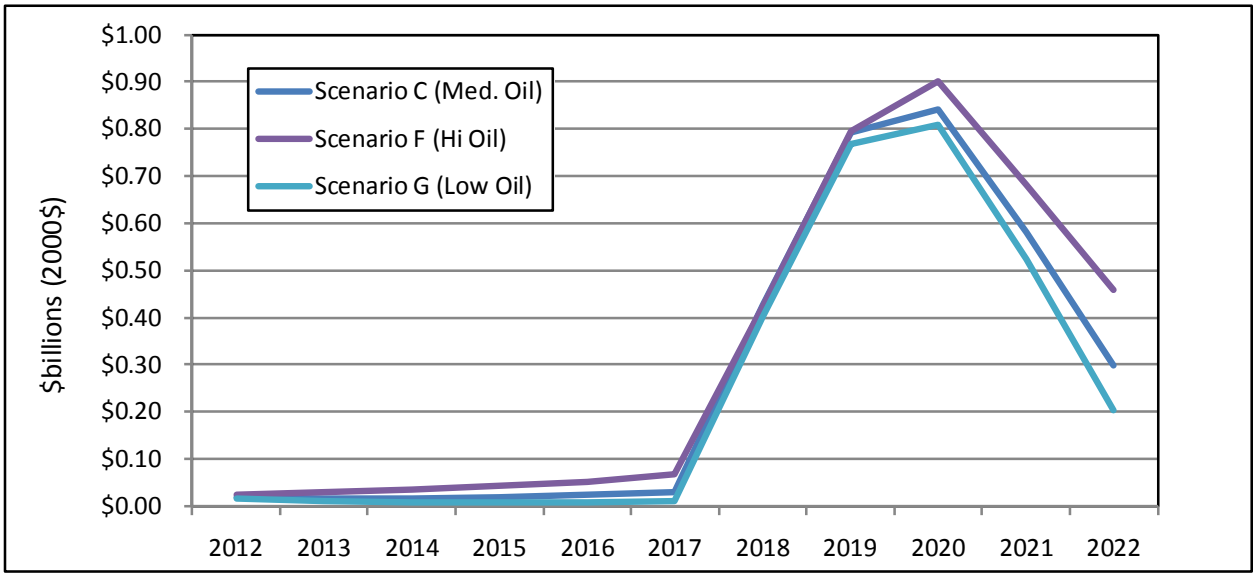
## Special Scenario Pairings

### Fuel Price

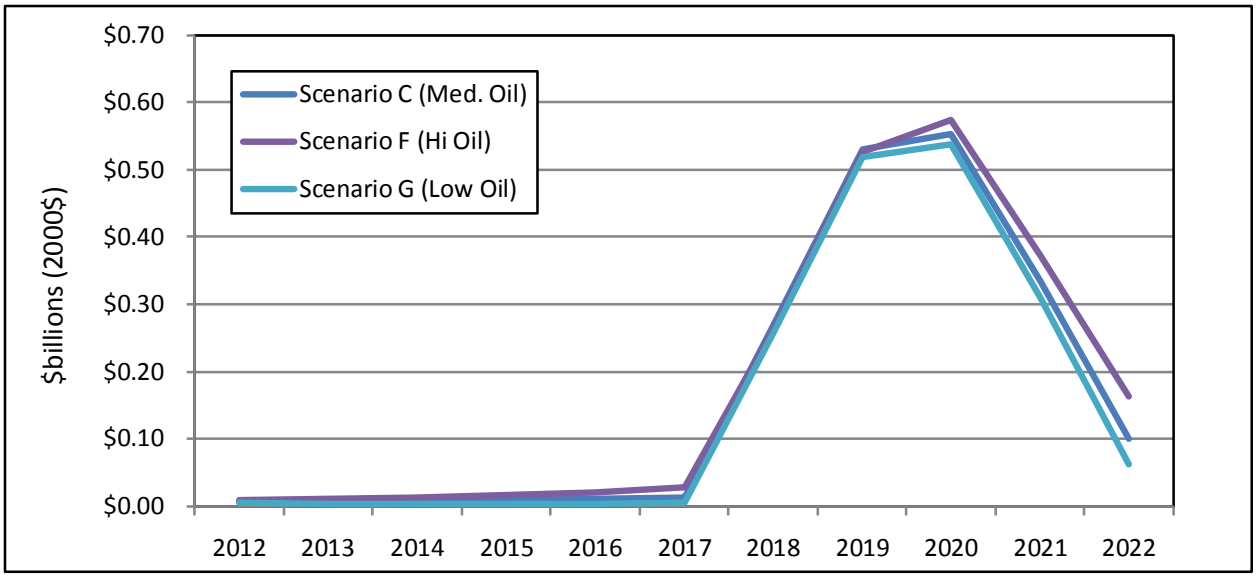
One scenario was modeled under three different fuel price projections. The standard projection used for all scenarios is drawn from the Department of Energy's Annual Energy Outlook, published in 2010. This "reference case" projection anticipates petroleum fuels (gasoline and diesel) growing gradually but constantly throughout the 2012-2022 period of analysis, reaching a retail price inclusive of all taxes of approximately $3.50 per gallon in 2022. Biodiesel and ethanol prices are projected to remain roughly at parity with gas and diesel prices. The high-price scenario involves petroleum fuels rising rapidly in price to over $5 per gallon by 2022. Further, the prices of gasoline and diesel outpace the prices of ethanol and biodiesel, making the shift to biofuels a cost-saving adjustment. The low-price scenario projects the same fuels to cost

approximately $2 per gallon throughout the period of analysis. These prices fall below the prices for biodiesel and ethanol in this projection, making the shift to biofuels represent an increase in costs. The graphs below show the sensitivity of the analysis to different fuel price assumptions:

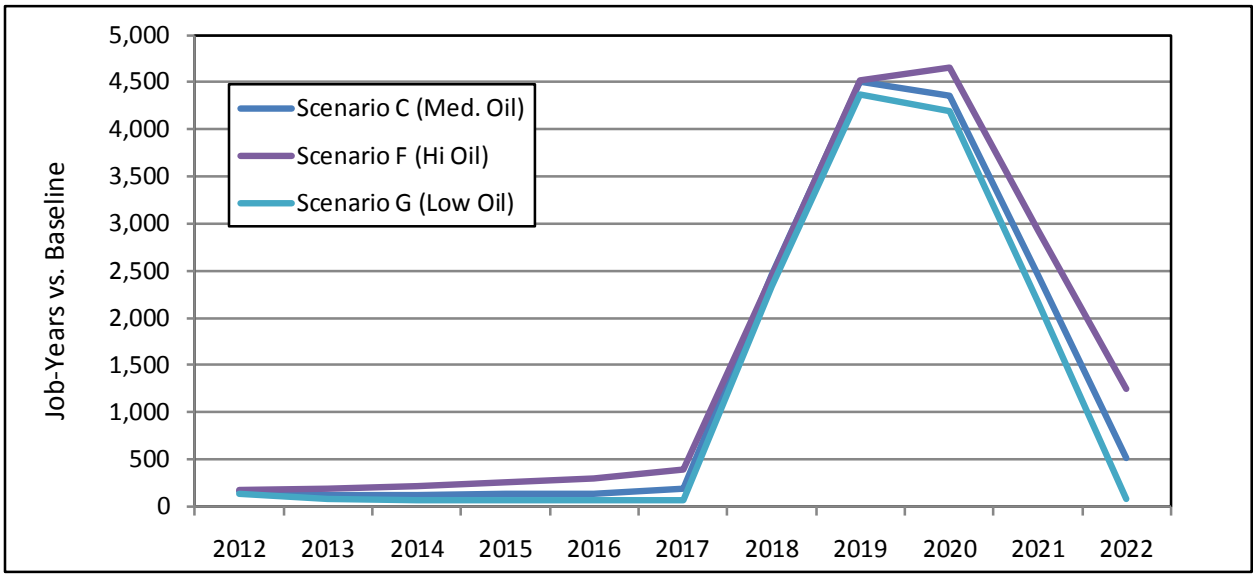
*Changes in **Demand** under Three Different Oil Price Projections*




*Changes in **Income** under Three Different Oil Price Projections*



*Changes in **Employment** Under Three Different Oil Price Projections*




These three graphics demonstrate that even very large changes in the projected price of oil will not have a dramatic change in the effect of a biofuels-based strategy. This may seem counter-intuitive, but it demonstrates the primary importance not of the fuel spending but instead of the investment in construction of refining capacity. The spikes in effects in all three graphs follow construction timing.

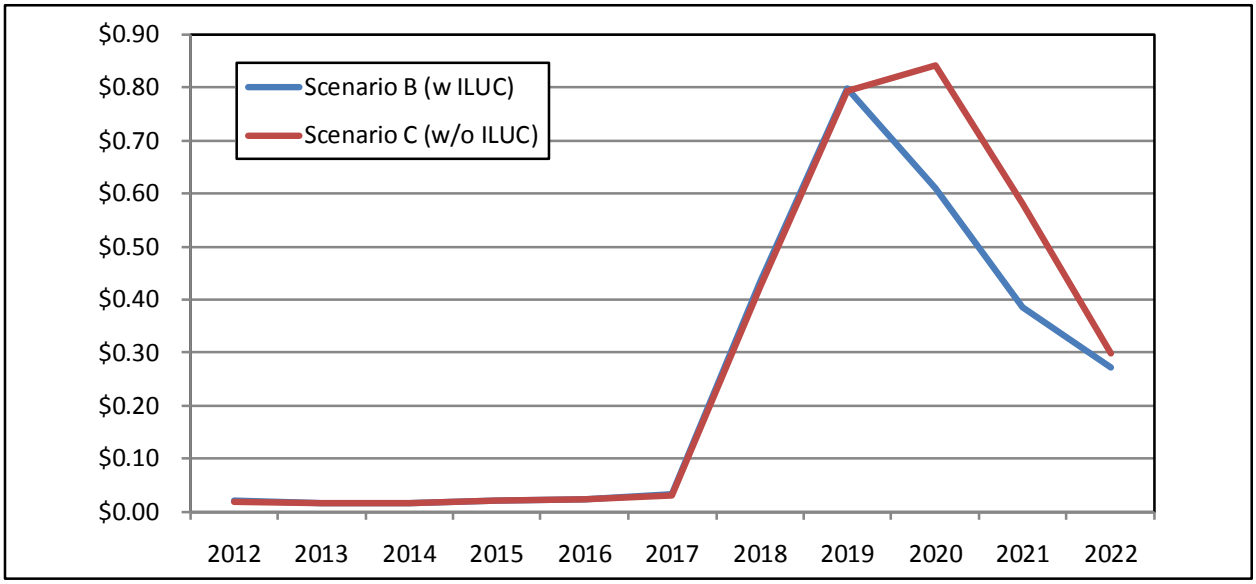
That said, the numbers for the year 2022 are deserving of attention. The line depicting Scenario F (the high-oil-price scenario) shows a significant difference from Scenarios C and G in the year 2022, the last year of the scenarios. By this time, the change in the fuel supply is significant, and consumers encounter significant savings by using biofuels in higher levels. As a consequence, significant consumer spending that would have gone to fuel is freed up for other spending, which drives demand and employment.

## Indirect Land-Use Change

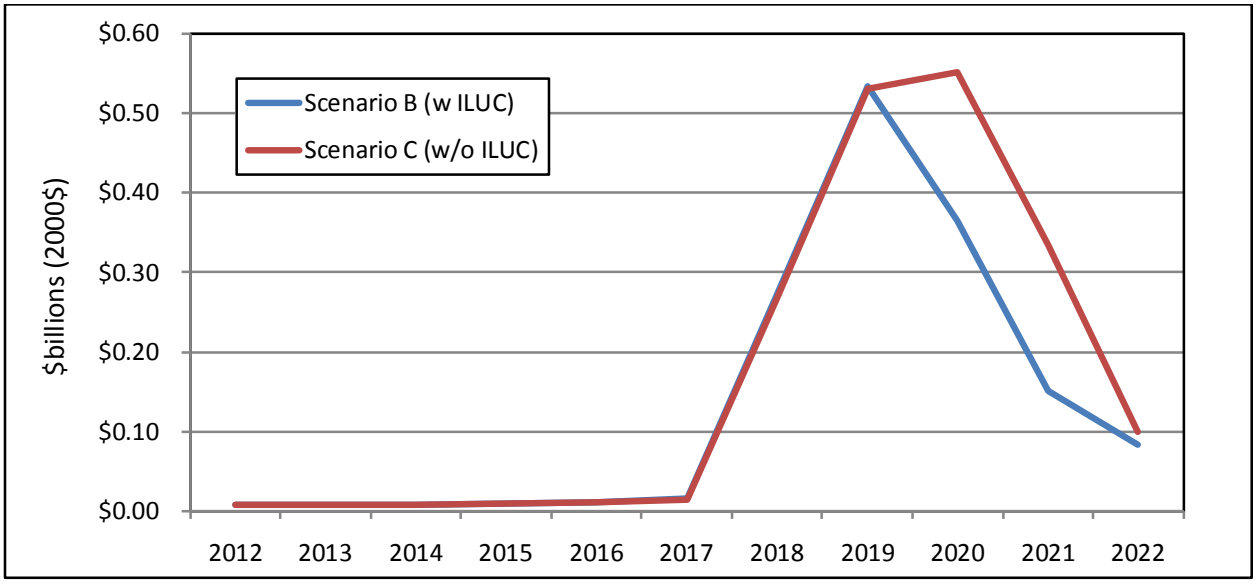
The publication of environmental research in *Science* and other publications have indicated that the greenhouse gas emissions from indirect land use changes from U.S. biofuels production may exceed those resulting from direct land use change. The conversion of cropland from food to fuel production can increase food prices and drive land use change in other areas of the globe to compensate for lost food and feed supply. Moreover, the U.S. Energy Independence and Security Act was recently amended to require the inclusion of indirect land-use change in life-cycle analyses of greenhouse gas emissions associated with U.S. biofuel production. In the economic analysis of the Oregon LCFS the question was asked if including adjustments for indirect land-

use change would impact the results. The graphs below indicate that there is some impact on employment, income and state product from the treatment of indirect land-use change, but that it is small relative to the impact of other variables. Therefore, the decision to include or exclude indirect land-use change should be made on grounds other than macroeconomic criteria.

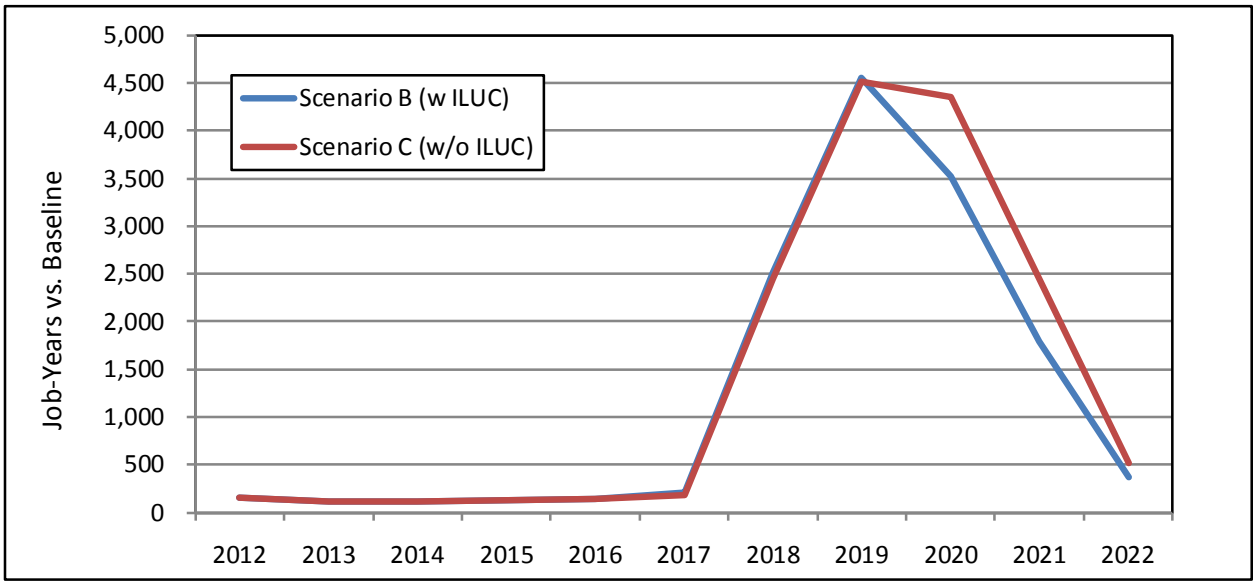
*Impact of ILUC Consideration on **Demand***




*Impact of ILUC Consideration on **Income***



*Impact of ILUC Consideration on **Employment***



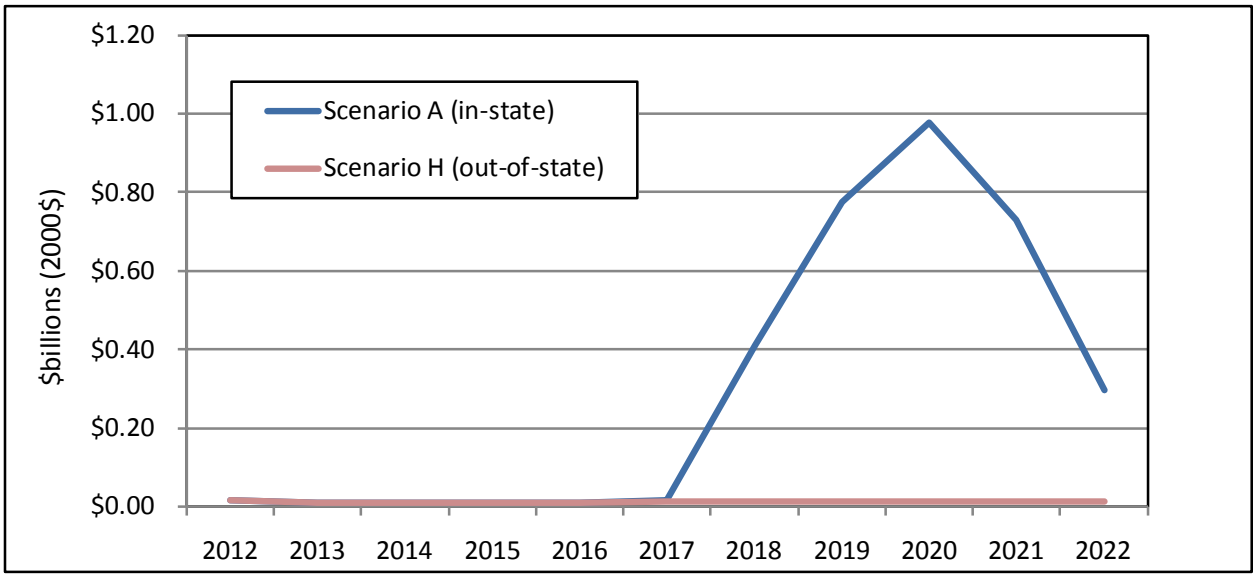

Considering ILUC as a factor in the carbon intensity of biofuels production adds a penalty to the carbon intensity of some fuels. Because production of biofuels from crops is now effectively less beneficial as a carbon-reduction technique, more reliance is placed on cellulosic and other fuels from waste or crops with a smaller indirect land use change penalty than corn or soybeans.

## Origin of Biofuels

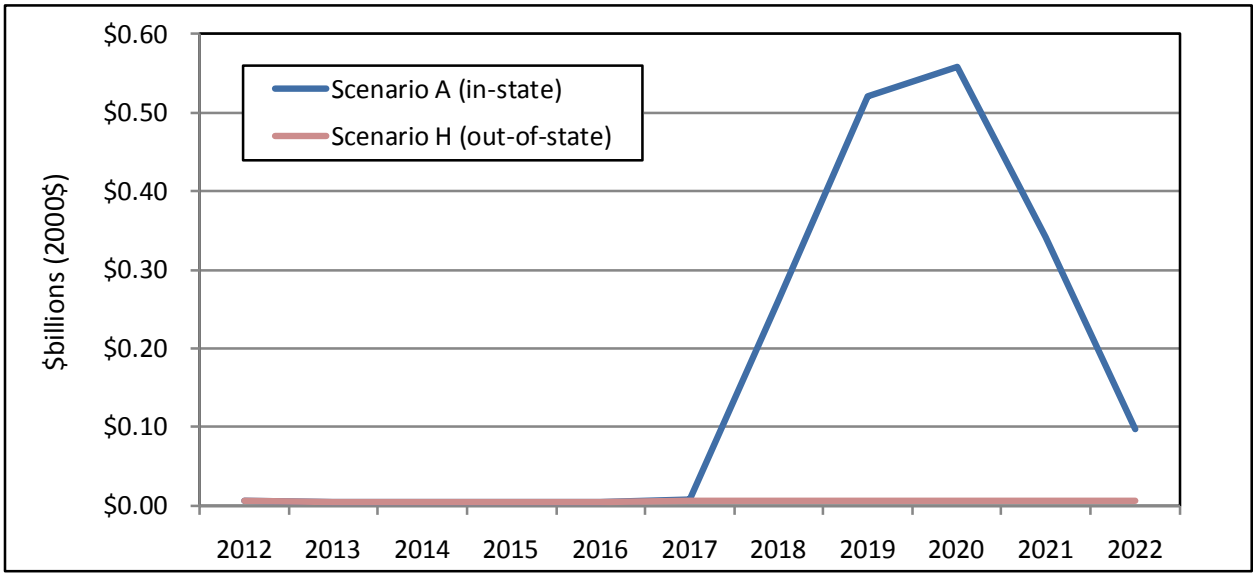
As indicated elsewhere in this report, there is an opportunity for economic gain if domestically produced fuel can replace some imported petroleum fuel. The Oregon LCFS is a technology forcing regulation that would result in less imported petroleum to Oregon and therefore a potential benefit. From the perspective of the Oregon economy, producing low carbon fuels in Oregon and replacing high carbon imported petroleum fuel will both reduce greenhouse gas emissions and provide an economic stimulus.

To test the impacts of fuel imports on the Oregon economy, a scenario was derived that compared a portion of the fuel supply produced in Oregon with a scenario where all additional capacity to produce biofuels would be out of state, and the fuel produced would be imported. The BAU includes current volumes of Oregon biofuels production.

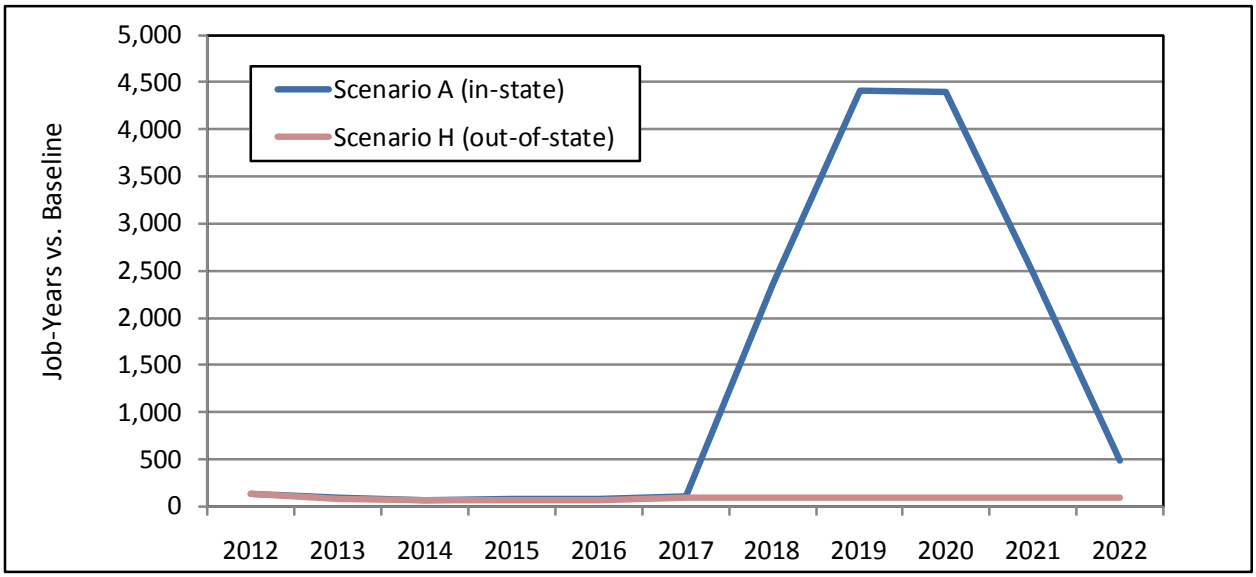
*Impact of In-State vs. Out-of-State Biofuels Supply on **Demand***




*Impact of In-State vs. Out-of-State Biofuels Supply on **Income***



*Impact of In-State vs. Out-of-State Biofuels Supply on **Employment***




As discussed above, the consumption of biofuels from out-of-state sources would not bring investment into the state of Oregon in the way that the development of an in-state biofuels industry would. Opportunities for spending on new capital and new infrastructure in-state, as well as the increased demand for agricultural products and services, are lost by reliance on out-of-state fuel supplies. In this way, the costs of importing biofuels are similar in nature to the costs of importing petroleum products.

Scenario H impacts are not negative, even though they involve reliance on imports. This is due to the fact that the baseline scenario assumes that almost all fuel consumed by the transportation sector is already imported. This scenario would produce economic losses only if it were to drive even more imports than the baseline scenario.

## Conclusion

This study has produced a number of projections regarding the broader economic impacts of a low-carbon fuel standard under a variety of scenarios meant to bracket the range of likely industry responses to such a regulation. Consistencies occur among the results of the various scenarios which indicate economic impacts that appear repeatedly even as assumptions are changed. The first is that regardless of the exact fuel mix, an LCFS which encourages a temporary inflow of investment from out of state will likely spur economic growth and job creation. This inflow of capital for the construction of new infrastructure produces a temporary increase in economic activity during the construction phase. The only scenario not requiring in-

state production, Scenario H, is also the only scenario not to produce significant economic benefits.

The scenario analyses provide much less guidance about the likely long-term impact of an LCFS after the necessary new infrastructure is in place. The scenarios reach their end in 2022, which is just at the end of the infrastructure expansion. The scenario analyses suggest that the economic impacts without spending on infrastructure are small in comparison to those in the years of capital expansion, but the period of analysis ends before any post-construction trend is established. The expectation, however, is that displacing imports with domestically-produced fuels would result in net economic benefit to the state as it captures the employment, profits and producer surpluses currently gained out of state.

The analysis of Scenario D, while again not being a prediction of the future, does expose certain economic advantages of natural gas and electricity as transportation fuels. The presence of effective distribution systems for both (natural gas pipelines and the power grid are widespread) limits the need for expensive new refining plants for these fuels. Distributed infrastructure in the form of charging or fueling stations can be built without delay, producing earlier and higher economic impacts.

Also, projected prices for electricity and natural gas are both significantly below the prices of conventional fuels or biofuels. The macroeconomic modeling immediately demonstrates a large positive impact from reducing the costs of fuel, even when taking into account the significant additional vehicle cost. Consumers direct the savings to other expenditures or to savings, and sectors far and wide see growth as a result.

It bears repeating that these are analyses of scenarios imagined as industry responses, and are not predictions of the future. These analyses are very sensitive to fuel price assumptions, cost assumptions, and projections about the economy in general – all of which are highly unreliable. The future courses of technology as well as policy will also be highly influential, whether changes occur locally or nationally.

Standing with business and labor leaders, Governor Kitzhaber today announced a new initiative to maximize the economic development potential of clean fuels in Oregon.

JOHN A. KITZHABER, M.D.
GOVERNOR

**NEWS RELEASE**

**FEBRUARY 13, 2014**

**Media Contact:**
Rachel Wray, 503-559-1277

# Governor Kitzhaber Announces New Clean Fuels Initiative

*(Salem, OR)* — Standing with business and labor leaders, Governor Kitzhaber today announced a new initiative to maximize the economic development potential of clean fuels in Oregon, directing the Department of Environmental Quality to move forward with full implementation of Oregon's Clean Fuels Program and announcing a new Clean Fuels Work Advisory Committee.

"We have the opportunity to spark a homegrown clean fuels industry right here in Oregon – an industry with a big impact in communities urban and rural alike," said Governor Kitzhaber. "I'm committed to using every tool at my disposal to support 21st century industries and innovation, and to attract investment and new jobs to our state."

While the state is well positioned to take advantage of a clean fuels industry cluster, Oregon's Clean Fuels Program is in a state of suspended animation. DEQ has only partially implemented the Clean Fuels Program passed by the Legislature in 2009. The program was designed to reduce the carbon intensity of fuels by 10 percent over 10 years, and while DEQ is collecting fuel data from producers and importers, it has not yet implemented the program's carbon reduction requirements.

With today's directive from the Governor, DEQ will fully implement the Clean Fuels Program, providing regulatory certainty for companies looking to invest in Oregon jobs, alternative fuels and vehicles, with big impact all over the state.

"At the Port of Morrow here in Eastern Oregon, we're connecting Oregon farmers with Oregon innovators and processors to national and international markets. And clean fuels are a big part of that story," said Gary Neal, General Manager of the Port of Morrow. "This 'clean fuel cluster' is key to creating good, family wage jobs in our community."

Delaying full implementation of the Clean Fuels Program has had real economic and environmental consequences. In 2012, Oregonians sent more than $6 billion out of state to import gas and diesel, while homegrown, low carbon fuel producers remain locked out

of a promising market. There are no oil refineries in Oregon, but there are biofuel producers, feedstock growers, a burgeoning electric vehicle industry, and propane, natural gas, and other innovative fuel companies ready to invest in the state if they have regulatory certainty.

"Oregon consumers need market access to cheaper, cleaner fuels, and our state needs more manufacturing and living wage jobs," said Neil Koehler, CEO of Pacific Ethanol. "We've only scratched the surface of the potential for a clean fuels industry that captures a portion of the billions we spend on gasoline every year and keeps it here — in Oregon — to grow, produce and deliver fuels that benefit our communities. The Clean Fuels Program is a great start."

In addition to directing DEQ to move forward, the Governor also announced a new Clean Fuels Work Advisory Committee. The committee is made up of both business and labor leaders, and will help answer questions about how to leverage the potential of clean fuels in Oregon and accelerate job creation and investment:

Robert Carrick, Daimler North America
Jill Eiland, Intel
John Mohlis, Oregon State Building Trades Council
Margaret Kirkpatrick, Northwest Natural
Gary Young, IBEW Local 48
Bob Levy, Windy River
Curtis Robinhold, Port of Portland
Darren Engle, Blue Star Gas
Neil Koehler, Pacific Ethanol
Gavin Carpenter, SeQuential Biofuels
Ryan Deckert, Oregon Business Association

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# SENATE MAJORITY OFFICE

Oregon State Legislature
State Capitol
Salem, OR


# NEWS RELEASE

February 17, 2015
CONTACT: Molly Woon (503) 986-1074
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## Senate takes historic step advancing Oregon's economy and fuel alternatives

*SB 324 makes permanent Oregon's Clean Fuels Program*

SALEM – Senate Democrats delivered a significant economic and environmental victory this afternoon, passing Senate Bill 324, legislation that removes the sunset on provisions related to Oregon's low carbon fuel standard. Commonly referred to as the Clean Fuels Program, the program requires oil companies to gradually reduce carbon pollution from their gasoline and diesel fuel by 10 percent over ten years.

"This is a historic day for Oregon and the world is watching as we lead on innovative solutions to reduce carbon pollution from fuels," said Senator Chris Edwards (D-Eugene/Junction City), chief sponsor of Senate Bill 324 and chair of the Senate Environment and Natural Resources Committee. "Today we are demonstrating that we can reduce carbon pollution, increase consumer choice, and create jobs right here at home."

SB 324 makes the adoption of rules by the Environmental Quality Commission surrounding Clean Fuels mandatory. The Program is technology-neutral, and fuel importers have flexible options to meet the standard. Oil companies can blend low-carbon biofuels into their fuel mix, and/or purchase credits generated by projects supporting electric vehicles, natural gas, propane, and other clean fuels. Oregonians will have more access to a variety of fuels as a result of the Clean Fuels Program, creating a more diverse, affordable, healthy, and stable fuel mix.

"The Clean Fuels Program is a smart, pragmatic approach to protecting our environment and encouraging innovating investments," said Senator Lee Beyer (D-Springfield), who carried the bill on the Senate floor. "Removing this sunset is an important step toward reducing our dependence on petroleum and channeling those dollars into Oregon's economy."

The Legislature approved House Bill 2186 in 2009, creating the Low Carbon Fuel Standard. Since then, stakeholders have worked to fully implement the program and SB 324 removes the final hurdle to enacting more fuel efficient standards.

Extending the Clean Fuels Program will give investors and entrepreneurs the certainty they need to expand production of alternative fuels and build additional facilities. That means new jobs in both rural and urban communities across Oregon. The Clean Fuels industry in Oregon has already generated hundreds of millions of dollars in economic activity and created thousands of jobs. Independent analysis has found that extending the program could save Oregonians more than $1.6 billion in fuel costs, create up to 29,000 jobs, and add $2.6 billion to Oregonians' personal income.

"Promoting innovation in clean energy is key component of the Oregon Senate Democrats' agenda for 2015," said Senate Majority Leader Diane Rosenbaum (D-Portland). "Senate Bill 324 will help support the growing green energy sector, power our economy, and help address the imminent threats that we face from global warming."

SB 324 will now go to the House of Representatives for consideration.

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