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## Locking in Corn Ethanol Locks Out Alternatives

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### EXECUTIVE SUMMARY

Proposals by the corn ethanol industry to have taxpayers subsidize construction of huge pipelines and specialized gasoline pumps and car engines designed to use large amounts of its product could cost taxpayers more than \$9 billion – including increased consumer costs and federal funding of grants and assurances of loan guarantees – and would lock the nation into energy policies that are neither economically nor environmentally viable.

Environmental Working Group analyzed the proposal advanced by the corn ethanol industry after it was stymied in its bid to win a multi-year extension of the tax subsidy that pays oil companies to blend ethanol with gasoline. Under the industry proposal, the government would issue taxpayer-backed loan guarantees to support construction of pipelines over thousands of miles as well as special gasoline pumps and cars designed to use higher percentages of corn ethanol.

EWG's analysis shows that the corn ethanol infrastructure proposal would simply perpetuate policies that have failed to produce a viable, self-sustaining energy alternative or to make a meaningful dent in the nation's dependence on imported fossil fuels. Since 2005, American taxpayers have paid more than \$23 billion in tax credits to hugely profitable oil companies to blend corn ethanol with gasoline. Independent analysts, including the Congressional Budget Office (CBO) and the Government Accountability Office (GAO), have both concluded that this Volumetric Ethanol Excise Tax Credit (VEETC) is unnecessary and duplicative, since oil companies are already required to use an increasing amount of ethanol under the Renewable Fuel Standard (RFS) provisions of the 2007 energy bill.

Growth Energy, an ethanol lobbying group, implies that its "Fueling Freedom" proposal would not add to the deficit because it would simply shift what taxpayers are already spending on VEETC to infrastructure support. However, EWG's analysis shows that taxpayers could be on the hook for more than \$9 billion for blender pumps, flex-fuel vehicles and a pipeline project that is likely to fail. Because the 45 cent-per-gallon tax credit is set to expire at the end of 2011, that expense would increase the federal deficit unless the subsidies were offset by spending cuts or tax increases. There are no new offsets available from VEETC after this year to pay for the loan guarantees and other subsidies the "Fueling Freedom" plan envisions.

Over the last decade, corn ethanol has contributed to increased food prices and conversion of environmentally sensitive land into monoculture crop cultivation, and it has barely dented our dependence on fossil fuels. The "Fueling Freedom" plan would extend this record of economic futility and social and environmental harm.

In summary, the likely consequences include:

**1. Cost to Taxpayers:** Growth Energy has proposed that American taxpayers cover 80 percent of the cost of building ethanol pipelines through loan guarantees. The Department of Energy (DOE) found that Growth Energy's proposal for a pipeline from Iowa to New Jersey would cost \$7.7 billion in total, or \$4.5 million per mile.<sup>1</sup>

In addition, Growth Energy called for loans, grants or other taxpayer funding to install blender pumps at privately- or corporate-owned gas stations that dispense higher blends of ethanol and for mandates requiring production of flex-fuel vehicles that can use up to 85 percent ethanol fuel (E85). If the industry gets its wish, consumers would pay about \$2 billion to install 200,000 new blender pumps.<sup>2</sup> Under a flex-fuel mandate, auto manufacturers would pass about \$1.2 billion per year in new costs on to consumers purchasing new vehicles.<sup>3</sup>

**2. Locking in Corn Ethanol:** The "Fueling Freedom" subsidy proposal is not only a waste of scarce taxpayer dollars but also promises to lock the nation into dependence on the least efficient and most environmentally destructive biofuels – ethanol produced from corn grain or corn stover (crop residue) – and to slow the adoption of potentially more desirable cellulosic options. The route of the proposed pipeline runs through traditional corn-growing regions, but only 7 percent of existing or proposed cellulosic or advanced biofuel plants are near it.

Corn ethanol production has already reached 13.2 billion gallons per year, just 1.8 billion gallons shy of the 2015 RFS mandate of 15 billion gallons. The corn ethanol infrastructure projects would promote corn ethanol use well in excess of the RFS mandate while limiting production of more sustainable biofuels – the supposed objective of the mandate – to a trickle.

Corn ethanol is not a sustainable solution to long-term energy needs. Other options, such as the drop-in fuels recommended by the Interagency Biofuels Task Force, do not require special infrastructure and would be less dependent on government support.

**3. Financial and Environmental Feasibility:** The DOE analysis essentially concluded that ethanol pipelines are not economically or environmentally feasible. DOE found that ethanol transported via the proposed pipeline would exceed East Coast demand by 1.3 billion gallons a year. Producing this much ethanol would require the entire annual corn crop of Nebraska, the second-highest corn producing state. Since ethanol is more corrosive than regular gasoline, it cannot be shipped via existing pipelines or stored and pumped in the existing fuel infrastructure. Even in new storage tanks, the risk of the fuel separating while stored is greater, increasing the danger of leaks that could threaten local water supplies.

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<sup>1</sup> "Dedicated Ethanol Pipeline Feasibility Study." March 2010. U.S. Department of Energy. Accessed online January 17 2011 at [http://www1.eere.energy.gov/biomass/pdfs/report\\_to\\_congress\\_ethanol\\_pipeline.pdf](http://www1.eere.energy.gov/biomass/pdfs/report_to_congress_ethanol_pipeline.pdf).

<sup>2</sup> Jennings, Brian. American Coalition for Ethanol. 2 December 2009. Accessed online 17 January 2011 at [http://www.ethanol.org/pdf/contentmgmt/ACE\\_refuel\\_property\\_tax\\_credit\\_ltr\\_clarification\\_12\\_2\\_09.pdf](http://www.ethanol.org/pdf/contentmgmt/ACE_refuel_property_tax_credit_ltr_clarification_12_2_09.pdf).

"Blending Better Solutions: A Petroleum Marketer's Guide to Blender Pumps, E85, and Mid-Range Ethanol Blends." Accessed online January 17 2011 at [http://www.ethanol.org/pdf/contentmgmt/Blending\\_Better\\_Solutions\\_ACE\\_Spring\\_2008.pdf](http://www.ethanol.org/pdf/contentmgmt/Blending_Better_Solutions_ACE_Spring_2008.pdf).

<sup>3</sup> Growth Energy. "Background." 2011. Accessed online 31 Mar. 2011 at <http://www.growthenergy.org/ethanol-issues-policy/fueling-freedom-plan/background/>

DOE found that installing the proposed pipeline would only be financially feasible with significant government support. Since taxpayers would insure 80 percent of project costs, they could lose more than \$6 billion if the proposed \$7.7 billion Iowa-to-New Jersey pipeline fails. The industry, meanwhile, is requesting subsidies for several other pipelines.

**4. Locking Out Farmers:** The proposed pipeline would pass near about half of the 27 ethanol plants operated by POET LLC, the world's largest ethanol producer. Only 35 percent of locally- or farmer-owned ethanol facilities are in states along the proposed pipeline route. Increasingly, large corporations dominate corn ethanol production. The share of ethanol produced by farmer- or locally owned plants has fallen from 40 percent in 2006 to just 18 percent today.

### **Conclusion**

The "Fueling Freedom" infrastructure proposal is simply a bid for additional taxpayer spending to prop up a first-generation biofuel that has been unable to survive on its own. Pouring more money into a poor biofuel choice, instead of accelerating research and development of truly sustainable biofuels, is corporate welfare masquerading as energy policy.

## **FULL REPORT**

### **Introduction**

Environmental Working Group (EWG) analyzed proposals by the corn ethanol industry that claim simply to “shift” funding from the Volumetric Ethanol Excise Tax Credit (VEETC) to the “Fueling Freedom” proposal to subsidize blender pumps and corn ethanol pipelines and to mandate flex-fuel vehicles. EWG’s analysis shows that the proposal would increase the deficit unless it was offset by higher taxes or lower spending and would lock out advanced biofuels and local farmers out while locking corn ethanol in.

In March 2010, the U.S. Department of Energy (DOE) studied the feasibility of one component of Growth Energy’s subsidy plan – a dedicated corn ethanol pipeline, which would likely be just one of several if Congress were to pass legislation subsidizing projects like this. DOE concluded that, “In all scenarios considered, government financial assistance were (sic) deemed necessary given current capital market constraints and the project’s dependence on legislation to sustain demand support.”<sup>4</sup>

DOE added that a “dedicated ethanol pipeline is feasible under certain scenarios.” EWG’s analysis, however, indicates that any such scenario is highly unlikely and would require billions more in taxpayer-backed subsidies at a time when state and federal budgets are being drastically shrunk.

This report has five major sections:

- (1) Taxpayers Back on the Hook
- (2) Feasibility of a Corn Ethanol Pipeline
- (3) Locking in Corn Ethanol
- (4) Locking out Local Farmers
- (5) Recommendations.

### **(1) Taxpayers Back on the Hook**

Since 2005, American taxpayers have paid more than \$23 billion to hugely profitable oil companies to blend corn ethanol with gasoline. Independent analysts including the Congressional Budget Office (CBO) and the Government Accountability Office (GAO) have concluded that the Volumetric Ethanol Excise Tax Credit (VEETC) is unnecessary and duplicative, since oil companies are required to blend an ever-increasing amount of ethanol into gasoline under the Renewable Fuel Standard (RFS) provisions of the 2007 energy bill.

After failing to secure a multi-year extension of VEETC, corn ethanol lobbying groups and have put forth a proposal for taxpayers to subsidize construction of ethanol pipelines and specialized fuel pumps for service stations and to mandate the manufacture of cars designed to run on higher percentages of ethanol.

The industry implies that its proposal would not add to the federal deficit because the new spending on

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<sup>4</sup> “Dedicated Ethanol Pipeline Feasibility Study.” March 2010. U.S. Department of Energy. Accessed online Jan. 17, 2011 at [http://www1.eere.energy.gov/biomass/pdfs/report\\_to\\_congress\\_ethanol\\_pipeline.pdf](http://www1.eere.energy.gov/biomass/pdfs/report_to_congress_ethanol_pipeline.pdf).

infrastructure would simply take the place of funding that currently goes to VEETC. However, EWG's analysis shows that the ethanol industry's "Fueling Freedom" proposal would potentially increase the deficit by more than \$9 billion unless it is offset by other spending cuts or tax increases. This is because the 45-cent-per-gallon VEETC tax credit is scheduled to expire at the end of this year. After that point there is no offsetting savings to pay for new loan guarantees and other subsidies that the "Fueling Freedom" plan envisions.

### **\$8 Billion for a Corn-Ethanol Pipeline**

The Department of Energy (DOE) found that the specific proposal advanced by POET LLC, Magellan Midstream Partners, L.P. and Buckeye Partners, L.P. to build a pipeline from Iowa, the largest corn ethanol producing state, to New Jersey would cost \$7.7 billion, or \$4.5 million per mile.<sup>5</sup> POET, a company based in South Dakota, owns the largest number of ethanol plants in the U.S. Growth Energy is its lobbying and public relations arm. Buckeye Partners, a company that operates and maintains pipelines, later dropped out of the feasibility project, but Magellan Partners, another pipeline company, is still working with POET to lobby for federal funding for this special-interest proposal.<sup>6</sup>

DOE concluded that construction costs for the pipeline "would have to remain below \$2.5 million per mile, or approximately \$4.3 billion total, for the pipeline to be economically feasible," even with government loan guarantees.<sup>7</sup> "High uncertainty and sensitivity to return make cost control an absolute imperative for project feasibility," DOE's report concluded.<sup>8</sup> Later in their report, the agency noted that \$4.5 million per mile would be a more accurate estimate of the actual cost of the pipeline in light of "recent trends in construction costs for oil and gas pipelines, and... expected pipeline length and diameter."<sup>9</sup> The pipeline's materials would also need to be newer and customized to carry ethanol, which is more corrosive than petroleum-based products. At DOE's price estimate, the total cost to construct the 1,700-mile pipeline would be \$7.65 billion.

POET's and Magellan's cost estimate was less than half this amount – \$2 million a mile or a total of \$3.4 billion. DOE called this estimate "optimistic." Both the industry and government estimates also assumed that policy and tax incentives such as VEETC would remain in place. VEETC, however, is due to expire this year, and opposition to extending it is growing.

EWG's analysis of the cost of other pipeline projects also indicates that the companies' estimate of \$2 million a mile is "optimistic." Moreover, no other U.S. pipeline other than the Trans-Alaskan oil pipeline is known to have received government incentives. This table shows the cost of other recent pipeline projects:

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<sup>5</sup> "Dedicated Ethanol Pipeline Feasibility Study." March 2010. U.S. Department of Energy. Accessed online January 17 2011 at [http://www1.eere.energy.gov/biomass/pdfs/report\\_to\\_congress\\_ethanol\\_pipeline.pdf](http://www1.eere.energy.gov/biomass/pdfs/report_to_congress_ethanol_pipeline.pdf).

<sup>6</sup> Rapier, Robert. "The Midwest Should Use Its Own Ethanol." 11 August 2010. Forbes. Accessed online January 17 2011 at [blogs.forbes.com/.../2010/.../the-midwest-should-use-its-own-ethanol/](http://blogs.forbes.com/.../2010/.../the-midwest-should-use-its-own-ethanol/).

<sup>7</sup> "Dedicated Ethanol Pipeline Feasibility Study." March 2010. U.S. Department of Energy. Accessed online January 17 2011 at [http://www1.eere.energy.gov/biomass/pdfs/report\\_to\\_congress\\_ethanol\\_pipeline.pdf](http://www1.eere.energy.gov/biomass/pdfs/report_to_congress_ethanol_pipeline.pdf).

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

**Table 1: Recent U.S. Pipeline Projects**

<b>Project Name</b>	<b>Total Cost (in millions)</b>	<b>Length (in miles)</b>	<b>Cost per Mile (in millions)</b>
Mackenzie Project – Canadian gas pipeline <sup>10</sup>	\$16,000	1,027	\$15.5
Keystone XL– Canadian portion of oil pipeline <sup>11</sup>	\$1,660	327	\$5.1
<b>Proposed ethanol pipeline – DOE estimate</b>	<b>\$7,650</b>	<b>1,700</b>	<b>\$4.5</b>
Keystone – original oil pipeline <sup>12</sup>	\$5,200	1,610*	\$3.2
<b>Proposed ethanol pipeline – POET and Magellan Partners’ estimate</b>	<b>\$3,400</b>	<b>1,700</b>	<b>\$2.0</b>

\* subtracting miles of already constructed pipeline

These costs do not include indirect or intangible costs such as environmental or social impacts, groundwater contamination or destruction of wildlife habitat. In 2003, researchers Neil Thompson and Patrick Vieth found that the cost of corrosion to “the transmission pipeline industry is approximately \$5.4 billion to \$8.6 billion annually. This can be divided into the cost of failures, capital and operations and maintenance...”<sup>13</sup> This study was based on 1998 costs, which would certainly be considerably higher today. Again, some of these costs are not factored into the total construction costs listed above.

The most likely form of government support for the proposed ethanol pipeline is a federal loan guarantee. DOE and other agencies currently guarantee loans “to eligible clean energy projects (i.e., agreeing to repay the borrower’s debt obligation in the event of a default) and [provide] direct loans to eligible manufacturers of advanced technology vehicles and components.”<sup>14</sup> But, DOE does not have the authority to provide financing to projects like an ethanol pipeline since it does not fit within the currently eligible categories: “biomass, hydrogen, solar, wind and hydropower, advanced fossil energy coal, carbon sequestration practices and technologies, electricity delivery and energy reliability,

<sup>10</sup> National Energy Board. “NEB Approves Mackenzie Project with 264 Conditions.” 20 December 2010. Downstream Today. Accessed online 17 January 2011 at [http://www.downstreamtoday.com/news/article.aspx?a\\_id=25108](http://www.downstreamtoday.com/news/article.aspx?a_id=25108).

<sup>11</sup> Burke, Jordan. “TransCanada Keystone XL Pipeline Approved by Canada (Update2).” 11 March 2010. Bloomberg. Accessed online 17 January 2011 at <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aAvvuk.jDH3A>.

<sup>12</sup> Ibid.

<sup>13</sup> Thompson, Neil and Patrick Veith. “Corrosion Costs U.S. Transmission Pipelines as Much as \$8.6 Billion/year.” Pipeline and Gas Journal (March 2003). Accessed online 17 January 2011 at [http://findarticles.com/p/articles/mi\\_m3251/is\\_3\\_230/ai\\_n25064976/](http://findarticles.com/p/articles/mi_m3251/is_3_230/ai_n25064976/).

<sup>14</sup> “The LPO Mission.” U.S. Department of Energy. Accessed online 17 January 2011 at [http://lpo.energy.gov/?page\\_id=17](http://lpo.energy.gov/?page_id=17).

alternative fuel vehicles, industry energy efficiency projects, or pollution control equipment.”<sup>15</sup> As a result, Growth Energy is already begging Congress again this year to approve taxpayer-funded infrastructure.

With a loan guarantee of 80 percent, taxpayers would be out \$6 billion if the pipeline failed. It would not be the first time that taxpayers have bailed out unsuccessful biofuels projects. In 2010, for instance, Colorado-based Range Fuels announced that it might shut down its cellulosic ethanol plant in Georgia. This came after the company was awarded a \$76 million DOE grant for the project in 2007, in addition to an \$80 million loan guarantee from the U.S. Department of Agriculture and an \$80 million bond for the plant’s construction.<sup>16</sup> This dire outcome underscores that government agencies must thoroughly vet projects and ensure that taxpayer dollars are not wasted on fuels that will harm the environment.

### **\$2 Billion for Blender Pumps**

Growth Energy’s goal of installing 200,000 new blender pumps at privately- or corporate-owned gas stations to dispense higher blends of ethanol will cost about \$10,000 for each installation (if certified by Underwriters Laboratories), for a grand total of \$2 billion.<sup>17 18</sup> They have suggested that taxpayers underwrite these costs with grants, loans or tax credits. Current service station infrastructure and its parts, including nozzles, pumps, and dispensers, are not compatible with higher ethanol blends, because ethanol is more corrosive and prone to fires than pure gasoline.

### **\$1.2 Billion for Mandated Flex-Fuel Vehicle Production**

The third component of the “Fueling Freedom” plan is to require auto manufacturers to produce only flex-fuel vehicles with engines that can run on up to 85 percent ethanol (E85). Legislation was introduced in the last Congress and again this year to mandate production of these vehicles. It is estimated to add \$120 to the cost of each vehicle, or about \$1.2 billion for the approximately 10 million passenger vehicles sold each year. Consumers could fuel these cars on ethanol blends up to E85, which delivers 27 percent lower gas mileage than regular gasoline.<sup>19 20</sup> Such a policy would distort the market and lock out other advanced vehicle technologies such as hybrid and electric vehicles as well as the innovative “drop-in” fuels recommended by the Interagency Biofuels Task Force, which do not require special infrastructure for deployment.

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<sup>15</sup> “Loan Guarantee Program Section 1703.” U.S. Department of Energy. Accessed online 17 January 2011 at [http://lpo.energy.gov/?page\\_id=39](http://lpo.energy.gov/?page_id=39).

<sup>16</sup> Wang, Uculia. “Report: Range Fuels to Shut Down Plant.” 14 January 2011. Reuters. Accessed online 18 January 2011 at <http://www.reuters.com/article/idUS154341571120110114>.

<sup>17</sup> Jennings, Brian. American Coalition for Ethanol. 2 December 2009. Accessed online 17 January 2011 at [http://www.ethanol.org/pdf/contentmgmt/ACE\\_refuel\\_property\\_tax\\_credit\\_ltr\\_clarification\\_12\\_2\\_09.pdf](http://www.ethanol.org/pdf/contentmgmt/ACE_refuel_property_tax_credit_ltr_clarification_12_2_09.pdf).

<sup>18</sup> “Blending Better Solutions: A Petroleum Marketer’s Guide to Blender Pumps, E85, and Mid-Range Ethanol Blends.” Accessed online January 17 2011 at [http://www.ethanol.org/pdf/contentmgmt/Blending\\_Better\\_Solutions\\_ACE\\_Spring\\_2008.pdf](http://www.ethanol.org/pdf/contentmgmt/Blending_Better_Solutions_ACE_Spring_2008.pdf).

<sup>19</sup> Growth Energy. “Background.” 2011. Accessed online 31 Mar. 2011 at <http://www.growthenergy.org/ethanol-issues-policy/fueling-freedom-plan/background/>

<sup>20</sup> Department of Energy Office of Energy Efficiency and Renewable Energy (DOE-EERE). “E85: An Alternative Fuel.” 19 Feb. 2010. Accessed online 31 Mar. 2011 at <http://www.afdc.energy.gov/afdc/ethanol/e85.html>

## Total Taxpayer Investment

The total bill for these three initiatives – including increased consumer costs and taxpayer funding of grants and assurances of loan guarantees – could exceed \$9 billion, more than the ethanol tax credit currently costs per year. Furthermore, many of the assumptions underlying the pipeline proposal are overly optimistic. If the government were to provide POET and Magellan with a loan guarantee, there is a good likelihood that the project would fail and taxpayers would be forced to pick up its costs.

## (2) Feasibility of a Corn Ethanol Pipeline

### Volume Requirements

DOE's feasibility report estimated that the amount of ethanol likely to be transported by this proposed pipeline would be 2.8 billion gallons per year over its 40-year life, just 8 percent of the 36 billion gallons mandated by 2022 under the RFS. However, DOE concluded that this amount would not be economically viable. The agency estimated that approximately 4.1 billion gallons per year would have to be shipped through the pipeline for the project to be feasible. This would exceed current demand in the East Coast service area by 1.3 billion gallons annually.<sup>21</sup> These projections assumed that most vehicles will use at least 10 percent ethanol (E10) and that 80 percent of flexible-fuel vehicles will use 85 percent ethanol (E85) by 2030. Even these projections are implausible, since only 1 percent of E85 vehicle owners actually filled up with E85 in 2006.<sup>22</sup>

Few consumers run their flexible-fuel vehicles on E85 because the ethanol blend is 27 percent less fuel efficient than regular gasoline and is often a poor choice compared with other options.<sup>23</sup> Based on Energy Information Administration (EIA) data, Robert Rapier, an executive at the renewable energy company Merica International, has pointed out that consumers are spurning E85 even in the Midwest, where 95 percent of ethanol is produced. He has suggested that, "...instead of looking at E15 mandates and ethanol pipelines, the ethanol industry would be better served to capture the E85 market in their own backyard."<sup>24</sup>

But that goal is probably unrealistic. The low acceptance rate for E85 in the heartland suggests that many Midwesterners are simply voting with their pocketbooks. For whatever reason - objections to the environmental impacts of ethanol production, the limited economic benefits of ethanol plants, the massive federal subsidies or the fact that ethanol is more expensive to use despite being cheaper at the pump – consumers most familiar with ethanol choose not to use it despite the fuel's widespread availability.

Even if all vehicles currently using E10 blends were to shift to 15 percent ethanol (E15), DOE's estimated 4.1 billion gallon annual throughput requirement for the proposed pipeline would barely be met. There is little prospect of such a shift, moreover, since EPA has only approved E15 for use in

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<sup>21</sup> "Dedicated Ethanol Pipeline Feasibility Study." March 2010. U.S. Department of Energy. Accessed online January 17 2011 at [http://www1.eere.energy.gov/biomass/pdfs/report\\_to\\_congress\\_ethanol\\_pipeline.pdf](http://www1.eere.energy.gov/biomass/pdfs/report_to_congress_ethanol_pipeline.pdf).

<sup>22</sup> Ibid.

<sup>23</sup> "E85: An Alternative Fuel." 19 February 2010. U.S. Department of Energy. Accessed online 17 January 2011 at <http://www.afdc.energy.gov/afdc/ethanol/e85.html>.

<sup>24</sup> Rapier, Robert. "The Midwest Should Use Its Own Ethanol." 11 August 2010. Forbes. Accessed online January 17 2011 at [blogs.forbes.com/.../2010/.../the-midwest-should-use-its-own-ethanol/](http://blogs.forbes.com/.../2010/.../the-midwest-should-use-its-own-ethanol/).



vehicles made since Model Year 2001. It is also unknown how many service stations will even offer E15 because of its potentially damaging effects on small, off-road and older vehicles engines, higher emissions of certain air pollutants, uncertainty over warranties and liability protection, safety and environmental hazards and concerns over potential misfueling.

## Corn Requirements

The amount of corn it would take to meet DOE's 4.1 billion gallon annual throughput goal is more than the entire annual corn production of Nebraska, the second highest corn-producing state. Nebraska is expected to grow about 1.48 billion bushels of corn in 2011.<sup>25</sup> <sup>26</sup> The percentage of U.S. corn used for ethanol production has reached 40 percent, helping to push up food and commodity prices and disproportionately affecting poor and hungry households that spend a larger percentage of their income on food.<sup>27</sup>

## Environmental Considerations

In addition to production challenges, ethanol has been proven to corrode metals and to contribute to higher rates of stress corrosion cracking (SCC) in pipelines. When stored in underground storage tanks, ethanol can cause parts to deteriorate and tanks to leak. Because of ethanol's unique chemical properties, current detection devices are not suited to identify leaking tanks. Drinking water supplies can be compromised and public health placed at risk if a leak occurs and gasoline/ethanol leaches into groundwater.<sup>28</sup>

Overall, the assumptions underlying the pipeline proposal are overly optimistic and environmental and cost considerations have been largely overlooked.

### (3) Locking in Corn Ethanol

The route of POET's and Magellan Partners' proposed 1,700-mile corn ethanol pipeline runs directly from northwest Iowa, the largest corn ethanol-producing state, to the East Coast near Linden, N.J. One of the original companies that researched the pipeline's feasibility, Buckeye Partners, has one of its business operations, Buckeye Pipe Line Co., in Linden. The proposed route runs directly along an existing Buckeye pipeline through five states – New York, New Jersey, Pennsylvania, Ohio, and Indiana.<sup>29</sup>

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<sup>25</sup> Baker, Allen and Steven Zahniser. "Ethanol Reshapes the Corn Market." April 2006. USDA Economic Research Service. Accessed online 17 January 2011 at [www.ers.usda.gov/AmberWaves/April06/.../Ethanol.htm](http://www.ers.usda.gov/AmberWaves/April06/.../Ethanol.htm).

<sup>26</sup> Tyner, Wallace, et al. "Land Use Changes and Consequent CO2 Emissions due to US Corn Ethanol Production: A Comprehensive Analysis." July 2010. Purdue University. Accessed online 17 January 2011 at <http://www.transportation.anl.gov/pdfs/MC/625.PDF>

<sup>27</sup> ActionAid USA and Environmental Working Group. "Hot Spots in the Emerging Global Food Crisis." March 2011. Accessed 6 April 2011 at <http://www.ewg.org/hot-spots-emerging-global-food-crisis>.

<sup>28</sup> Ellis, Patricia. "New England Interstate Water Pollution Control Commission." December 2010. Accessed online January 17 2011 at [http://www.neiwpc.org/lustline/lustline\\_pdf/lustline\\_current.pdf](http://www.neiwpc.org/lustline/lustline_pdf/lustline_current.pdf).

<sup>29</sup> "Magellan Midstream Partners and Buckeye Partners Announce Joint Assessment of Dedicated Ethanol Pipeline." 19 February 2008. Accessed online 17 January 2011 at <http://www.buckeye.com/LinkClick.aspx?link=News+Releases/2008/08-05+BPL-MMP+Ethanol+Pipeline+Assessment.pdf&tabid=36&mid=540>.

Kinder Morgan Inc., the “largest independent transporter of refined petroleum products in North America,” also has a facility – Kinder Morgan Terminals – a few miles from Linden.<sup>30</sup> Kinder Morgan is the first and only company currently operating a (very short) ethanol pipeline in the U.S. Its website states, “We are moving batches of denatured ethanol along with gasoline shipments through our Central Florida Pipeline from Tampa to Orlando.”<sup>31</sup> <sup>32</sup> On its face, it appears that the proposed pipeline was strategically placed to benefit these companies, including POET.

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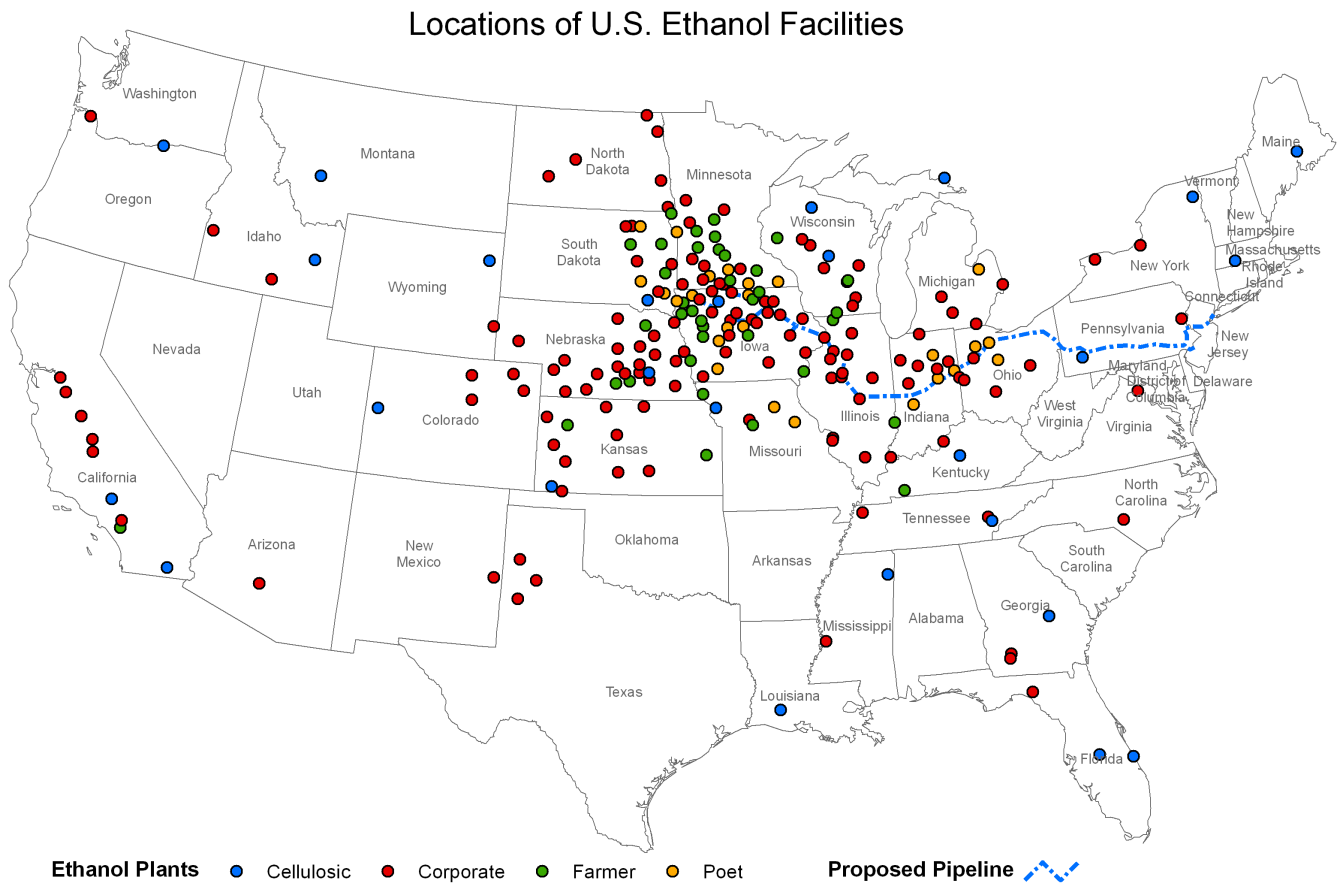
<sup>30</sup> Kinder Morgan. “Products Pipelines.” 2010. Accessed online 17 January 2011 at [http://www.kne.com/business/products\\_pipelines/](http://www.kne.com/business/products_pipelines/).

<sup>31</sup> Ibid.

<sup>32</sup> Rapier, Robert. “The Midwest Should Use Its Own Ethanol.” 11 August 2010. Forbes. Accessed online January 17 2011 at [blogs.forbes.com/.../2010/.../the-midwest-should-use-its-own-ethanol/](http://blogs.forbes.com/.../2010/.../the-midwest-should-use-its-own-ethanol/).

Figure 1 shows the proposed route of the POET-Magellan ethanol pipeline (blue-dotted line) and the location of ethanol plants in these four categories: cellulosic or advanced ethanol (blue dots); corporate-owned corn ethanol (red dots); farmer-/locally-owned corn ethanol (green dots); POET’s corn ethanol facilities (yellow dots). More than half of POET’s 27 corn ethanol plants are located directly on the route, but only two existing or proposed cellulosic/advanced biofuels facilities are near it.<sup>33</sup> Clearly, the pipeline would lock in corn ethanol and lock out alternatives.<sup>34</sup>

**Figure 1: Proposed Route for POET-Magellan Dedicated Ethanol Pipeline<sup>35</sup>**



The only cellulosic ethanol plants that would benefit from the pipeline are POET’s. Most cellulosic ethanol feedstock is located in the West, Northeast and Southwest. It’s hardly surprising that POET/Growth Energy and Magellan Partners have been lobbying heavily, although not yet successfully,

<sup>33</sup> POET. “POET Biorefining Plant Locations.” Accessed online 17 January 2011 at <http://www.POET.com/inspiration/plants.asp>.

<sup>34</sup> Renewable Fuels Association. “Climate of Opportunity.” February 2010. Accessed online 17 January 2011 at [http://ethanolrfa.org/page/-/objects/pdf/outlook/RFAoutlook2010\\_fin.pdf?nocdn=1](http://ethanolrfa.org/page/-/objects/pdf/outlook/RFAoutlook2010_fin.pdf?nocdn=1).

<sup>35</sup> “Dedicated Ethanol Pipeline Feasibility Study.” March 2010. U.S. Department of Energy. Accessed online January 17 2011 at [http://www1.eere.energy.gov/biomass/pdfs/report\\_to\\_congress\\_ethanol\\_pipeline.pdf](http://www1.eere.energy.gov/biomass/pdfs/report_to_congress_ethanol_pipeline.pdf).

for legislation that would direct American taxpayer dollars and federal loan guarantees to corn ethanol pipelines and blender pumps.<sup>36</sup>

POET has proposed retrofitting its corn ethanol facilities with technology to produce ethanol from corn stover. It has already received \$20 million from the Iowa Power Fund, \$6 million from the Iowa Department of Economic Development and \$100 million from DOE for its planned cellulosic ethanol facility in Emmetsburg, Iowa.<sup>37 38</sup> (Corn stover consists of stalks, cobs and leaves left on fields after harvest.) For decades, experts have encouraged farmers to leave stover on farmland to help retain soil moisture, reduce soil erosion, enhance carbon sequestration, prevent pesticides and fertilizers from entering the water supply and improve soil productivity.

Now, however, the federal Biomass Crop Assistance Program (BCAP), created under the 2008 Farm Bill to encourage establishment of cellulosic bioenergy crops, is paying farmers to ship corn stover to facilities such as POET's proposed cellulosic plants. This feedstock can only be obtained from corn country, and removing it in excessive quantities will reduce soil quality and crop yields. Researchers have shown that removing as little as 25 percent of corn stover can have a detrimental effect on air, water and soil on farmland with steeper slopes and poorer soil quality.<sup>39</sup> Building the proposed pipeline near POET's proposed corn stover ethanol plants would contribute to locking in not only the worst form of ethanol but also the worst source of cellulosic ethanol.

Even more troublesome is Growth Energy's goal, described on its website, of increasing ethanol production twelve-fold over the next 20 years in order to replace about 90 percent of current gasoline consumption - without any mention of reducing fuel consumption overall. Producing this volume of ethanol would require four times the entire U.S. annual corn crop. It could not be achieved even with POET's plan to produce corn stover ethanol. And removing excess crop residue would damage the environment. These goals make clear that Growth Energy's intention is to produce more than the RFS mandate of 15 billion gallons of corn ethanol by 2015 with little concern for soil or water quality.<sup>40</sup>

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<sup>36</sup> "Clients Lobbying on H.R. 864." OpenSecrets.org. 2011. Accessed 6 April 2011 at <http://www.opensecrets.org/lobby/billsum.php?id=103723&lname=H.R.864>.

<sup>37</sup> Biofuels Digest. "POET's Emmetsburg Cellulosic Ethanol Project, In Review." 3 February 2011. Accessed 4 Apr. 2011 at <http://biofuelsdigest.com/bdigest/2011/02/03/iowa-grants-20m-to-POET-emmettsburg-cellulosic-ethanol-project/>.

<sup>38</sup> Austin, Anna. "Cellulosic Snapshot." 10 June 2010. *Ethanol Producer Magazine*. Accessed 4 April 2011 at <http://www.ethanolproducer.com/articles/6695/cellulosic-snapshot>.

<sup>39</sup> Blanco-Canqui, Humberto. "Energy Crops and Their Implications on Soil and Environment." 2010. *Agronomy Journal* 102: pp. 403-419. Accessed online 31 Marc. 2011 at <http://www.wearemichigan.com/JobsAndEnergy/documents/EnergyCropsEnvironment.pdf>

<sup>40</sup> Growth Energy. "Intro." Accessed online January 17 2011 at <http://www.growthenergy.org/ethanol-issues-policy/policy-intro/>.

#### **(4) Locking Out Local Farmers**

The Renewable Fuels Association (RFA), an industry trade group, categorizes ethanol plants into two mutually exclusive groups: (1) corporate or (2) farmer-/locally-owned.<sup>41</sup> Mapping farmer-/locally-owned ethanol plants in relation to the proposed ethanol pipeline route shows that the pipeline would favor corporate-owned facilities.

Only 13 (35 percent) of the 37 ethanol plants classified as farmer-/locally-owned are located in states along the proposed pipeline route. The pipeline would run through Illinois, which has two farmer-/locally-owned plants, and Iowa, which has 11.

But the route almost entirely avoids the states where the majority of farmer-/locally-owned ethanol plants are located. These tables show the number of such plants in each:

**Table 2: Ethanol Plants Not Along Pipeline Route**

State	Number of Corn Ethanol Plants
Minnesota (pipeline barely enters)	8
South Dakota	4
Nebraska	3
Wisconsin	3
Missouri	2
Kansas	2
Kentucky	1
California	1

**Table 3: Summary of Ethanol Plant Locations Relative to Proposed Pipeline Route**

Group	In states on route	Total number of ethanol plants in each category
Locally-owned plants	35%	37
Proposed or existing cellulosic plants	7%	28

#### **(5) Findings and Recommendations**

Growth Energy's "Fueling Freedom" subsidy plan would put consumers and taxpayers on the hook while locking in the worst biofuels option at a time when the nation faces record deficits. The proposed corn ethanol pipeline would only benefit a handful of companies that have already reaped significant government support while excluding farmer- and locally-owned ethanol plants and other biofuels options. DOE found that the companies' assumptions were overly optimistic; EWG's analysis shows that the pipeline is unfeasible and the entire subsidy plan would be a major step in the wrong direction.

<sup>41</sup> Renewable Fuels Association. "Climate of Opportunity." February 2010. Accessed online 17 January 2011 at [http://ethanolrfa.org/page/-/objects/pdf/outlook/RFAoutlook2010\\_fin.pdf?nocdn=1](http://ethanolrfa.org/page/-/objects/pdf/outlook/RFAoutlook2010_fin.pdf?nocdn=1).

EWG specifically recommends:

1. Allow VEETC to expire in 2011.
2. Eliminate other oil subsidies and tax breaks.
3. Reject the entire “Fueling Freedom” subsidy plan.
4. Invest in dedicated research on advanced biofuels that significantly reduce greenhouse gases, do not compete with or displace food crops and are environmentally sustainable in both the short- and long-term, including those recommended by the Interagency Biofuels Task Force.
5. Reform the Renewable Fuels Standard by freezing and then phasing out conventional biofuels mandates and adding significant and enforceable environmental safeguards to the advanced biofuels mandate.
6. Focus on cutting gasoline consumption by steps such as reducing vehicle trips, encouraging carpooling and investment in vehicles or forms of transportation that actually reduce dependence on fossil fuels.

To have any hope of protecting the environment, reducing dependence on fossil fuels and feeding the world, the time to reverse course on ethanol policy is now.