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United States Environmental Protection Agency  
*Submitted via regulations.gov*

**Comments from the Clean Air Task Force on the Environmental Protection Agency's Proposed Rule: *Renewable Fuel Standard Program: Standards for 2017 and Biomass-Based Diesel Volume for 2018***; 81 Federal Register 34778 (May 31, 2016); EPA-HQ-OAR-2016-0004; FRL-9946-90-OAR

The Clean Air Task Force (CATF) is a non-profit environmental organization that works to help safeguard against the worst impacts of climate change by catalyzing the rapid global development and deployment of low carbon energy and other climate-protecting technologies through research and analysis, public advocacy leadership, and partnership with the private sector.

CATF has reviewed and commented on numerous proposals concerning the Environmental Protection Agency's (EPA) implementation of the Renewable Fuel Standard (RFS) since 2009, with a particular focus on the policy's impact on global climate change.<sup>1</sup> CATF appreciates the opportunity to comment on EPA's proposed rule concerning "Renewable Fuel Standard Program: Standards for 2017 and Biomass-Based Diesel Volume for 2018," 81 Federal Register 34778 (May 31, 2016); EPA-HQ-OAR-2016-0004; FRL-9946-90-OAR.

CATF submits these comments in addition to a separate set of more general comments filed in conjunction with three other public interest organizations: Environmental Working Group, National Wildlife Federation, and ActionAid.

## **[I] Summary of Comments**

- **Overall 2017 biofuel volumes:** CATF supports EPA's proposal to use its waiver authority to reduce 2017 biofuel volumes below the relevant statutory target levels in the RFS. Given corn ethanol's negative impact on the environment and constraints related to the E10 blend wall, EPA's proposal rightly reduces renewable volume obligations (RVOs) for the conventional (corn ethanol) mandate. EPA also appropriately proposes to waive down the cellulosic and advanced biofuel mandates due to their failure to meet statutory targets (particularly for cellulosic biofuels). However, EPA should reduce the

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<sup>1</sup> Previous comments by CATF on EPA's proposed rules concerning the RFS can be found here: <http://www.catf.us/resources/filings/biofuels/>

2017 RVOs further so they do not exceed the blend wall (for ethanol) or cause unintended consequences in the vegetable oil market (see below).

- **Palm oil and biomass-based diesel:** EPA should adopt 2017 and 2018 RVOs (the latter for biomass-based diesel) that do not further incentivize production of vegetable oils, such as palm, given palm oil's social and environmental problems. Even though palm biodiesel has rightly failed to qualify for the minimum 20% greenhouse gas (GHG) reduction threshold in the RFS, grandfathered biofuel (from facilities that were in production before 2007, which are not required to reduce GHGs by at least 20%) is still being imported to meet overall U.S. renewable fuel mandates.
- **"Reset" provision:** Given the criteria set forth in Clean Air Act Section 211(o)(7)(F), EPA must begin readjusting long-term RFS volumes after certain categories of biofuels in the RFS fail to meet their statutory mandates by 50% in one year or by 20% in two consecutive years. When making these adjustments, EPA is required to analyze six criteria set forth in CAA § 211(o)(2)(B)(ii), which support a more comprehensive analysis of the appropriate levels of RFS biofuel volumes in future years.
- **Renewable biomass definitions:** EPA should replace its current "aggregate compliance" approach with a more effective policy to ensure that all feedstocks used to produce RFS biofuels actually meet the statutory definition of "renewable biomass."

### **[II] EPA's Proposal to Set the 2017 RVOs Below the Statutory Volume Target Is Administratively Necessary and Environmentally Beneficial**

#### **[A] RFS Mandates Must Not Breach the Blend Wall or Incentivize Increased Corn Ethanol Production**

CATF supports EPA's proposal to use its waiver authority to reduce 2017 biofuel volumes below the relevant statutory target levels in the RFS. Given corn ethanol's negative impact on the environment and constraints related to the E10 blend wall, EPA's proposal rightly reduces RVOs for the conventional (corn ethanol) mandate. EPA also appropriately proposes to waive down the cellulosic and advanced biofuel mandates (and overall RFS volumes) due to the ongoing inability to meet statutory targets (particularly for cellulosic biofuels). However, EPA should reduce the 2017 RVOs further so they do not exceed the blend wall (for ethanol) or cause unintended consequences in the global vegetable oil market (see Section III for more information).

EPA proposes to reduce the implied corn ethanol mandate 200 million gallons below the statutory target of 15 billion gallons. However, the 2017 proposed volume of 14.8 billion gallons would not only increase the corn ethanol mandate by 300 million gallons over the final 2016 volume, it would also unnecessarily breach the blend wall. The blend wall is the maximum amount of ethanol that can be blended into the current gasoline supply given constraints including but not limited to the following: the limited uptake of higher blends of ethanol such as E15 and E85, potential for the use of E15 to void engine warranties and damage small and off-road engines, potential for ethanol to corrode storage tanks and other fueling

infrastructure, and lower fuel economy of ethanol. For these reasons, the market cannot safely absorb the volume of biofuels that would be eligible for Renewable Identification Numbers (RINs) if EPA were to pursue the full statutory target for total renewable fuel (24 billion gallons in 2017). Congress expected that gasoline consumption would continue to steadily increase, as it had in the decades that preceded the December 2007 enactment of the Energy Independence and Security Act (EISA). However, gasoline consumption in the United States has not kept pace with the long term consumption assumptions made a decade ago, making it effectively impossible to meet statutory RFS volumes.

Breaching the blend wall not only attempts to force more ethanol into the market than it can safely absorb, while also increasing the negative environmental and consumer impacts of corn ethanol production. While the RFS was enacted in an attempt to reduce GHG emissions, enhance energy security, and spur economic development in rural areas, the mandate has failed to achieve these goals while spurring numerous unintended negative consequences.

### **[B] Implied Corn Ethanol Mandate Should Be Reduced Further**

Setting the 2017 RVO implied volume for corn ethanol higher than the blend wall in addition to the 2016 volume would only increase incentives to expand corn ethanol production, with negative impacts on the climate, water quality, air quality, soil quality, wildlife habitat, and food security. Current corn ethanol production *increases* – not *decreases* – GHG emissions. In its 2010 Renewable Fuel Standard Implementation Rule, EPA concluded that corn ethanol produced during 2010-2015 (when production capacity was still ramping up) rather than corn ethanol produced in 2022 (seven years after EPA expects production to level off), corn ethanol’s net emissions over 30 years would be 28% higher than the emissions from gasoline over the same period.<sup>2</sup> Reports by the Congressional Budget Office<sup>3</sup> and National Academies of Science<sup>4</sup> have also questioned the GHG reduction potential of corn ethanol.

Moreover, the 2010 analysis conducted by EPA ignores much of the land use change impacts from current ethanol production. Increased demand for corn since the 2007 mandate was

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<sup>2</sup> A fuller description of CATF’s analysis of EPA’s lifecycle GHG emissions data can be found in a 2013 white paper titled “Corn Ethanol GHG Emissions Under Various RFS Implementation Scenarios,” as well as in CATF’s “Comments on Environmental Protection Agency Regulation of Fuels and Fuel Additives: 2013 Renewable Fuel Standards – Proposed Rule”

([http://www.catf.us/resources/whitepapers/files/20130405KCATF%20White%20PaperK Corn%20GHG%20Emissions%20Under%20Various%20RFS%20Scenarios.pdf](http://www.catf.us/resources/whitepapers/files/20130405KCATF%20White%20PaperK%20Corn%20GHG%20Emissions%20Under%20Various%20RFS%20Scenarios.pdf)).

<sup>3</sup> Congressional Budget Office. 2014. *The Renewable Fuel Standard: Issues for 2014 and Beyond* (internal citations omitted). (<https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/45477-Biofuels2.pdf>).

<sup>4</sup> Lester Lave, et al. 2011. *Renewable Fuel Standard: Potential Economic and Environmental Effects of U.S. Biofuel Policy 221* (Report by the National Research Council Committee on Economic and Environmental Impacts of Increasing Biofuels Production) ([http://www.nap.edu/openbook.php?record\\_id=13105](http://www.nap.edu/openbook.php?record_id=13105)).

enacted has increased incentives for farmers not only in the U.S. but also around the world to drain wetlands, cut down trees, and tear up grasslands to plant biofuel feedstocks such as corn and soybeans, again with negative impacts on the climate as more carbon is released into the atmosphere when these sensitive acres are converted into agricultural production. A 2015 study by researchers at the University of Wisconsin found that over seven million acres of uncultivated land (since at least 2001) were converted to agricultural production between 2008 and 2012.<sup>5</sup> Other studies have documented similar large land use changes since the 2007 mandate went into effect.<sup>6</sup> As EPA's own 2011 Triennial Report to Congress showed, this direct and indirect land conversion also negatively impacts wildlife habitat and water quality with more soil erosion and increased use of synthetic fertilizers for corn production (which is the most input-intensive crop in the United States).<sup>7</sup> For more information on land use change and other environmental impacts, please see CATF's comments on the proposed rule for the 2014-16 RVOs and the joint comments that CATF is submitting with other NGOs for the 2017 RVOs.<sup>8</sup>

### **[C] Reducing the Implied Corn Ethanol Mandate Will Create More Room for Environmentally Superior Biofuels**

Further reduction of the implied corn ethanol mandate would also create headroom under the E10 blend wall for environmentally superior types of cellulosic and other "advanced" ethanols. By ensuring there is space for advanced biofuels in the US fuel mix, EPA's proposal to reduce the implied corn ethanol mandate in 2017 is consistent with the environmental and market development objectives that Congress identified when it passed EISA. Congress wanted to reduce the negative environmental impacts associated with the transportation sector; as identified above, analyses conducted by EPA and others indicate that the production and consumption of corn ethanol exacerbates those impacts. Consequently, like EPA has indicated in the past, "we believe that a focus on growth in advanced biofuel is appropriate."<sup>9</sup>

Within the context of a blend wall-constrained market for ethanol, corn ethanol competes for market share against other types of ethanol that, for the most part, are environmentally superior. The competition is not being conducted on a level playing field, however. First,

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<sup>5</sup> Tyler Lark, et al. 2015. Cropland Expansion Outpaces Agricultural and Biofuel Policies in the United States. *Environmental Research Letters* 10. DOI: 10.1088.

(<http://iopscience.iop.org/article/10.1088/1748-9326/10/4/044003/meta>).

<sup>6</sup> C. K. Wright and M. C. Wimberly. 2013. Recent Land Use Change in the Western Corn Belt Threatens Grasslands and Wetlands. *Proc Natl Acad Sci USA* 110(10): 4134-9. DOI: 10.1073

(<http://www.ncbi.nlm.nih.gov/pubmed/23431143>).

<sup>7</sup> US Environmental Protection Agency. 2011. *Biofuels and the Environment: the First Triennial Report to Congress (2011 Final Report)* (<https://cfpub.epa.gov/ncea/biofuels/recordisplay.cfm?deid=235881>).

<sup>8</sup> CATF, Comments from the Clean Air Task Force on the Environmental Protection Agency's Proposed Rule: Renewable Fuel Standard: Standards for 2014, 2015, and 2016 and Biomass-Based Diesel for 2017, 80 Fed. Reg. 33100 (Filed July 27, 2015) (<http://www.catf.us/resources/filings/biofuels/20150727-CATF%20Comments%20on%202014-17%20RVO%20Proposal.pdf>).

<sup>9</sup> See 80 Fed. Reg. 33100, 33123/2 (July 27, 2015).

virtually all corn ethanol is produced by grandfathered facilities that are exempt from the GHG reductions set forth in EISA. (And, as explained above, any corn ethanol that is subject to EISA's base 20% GHG reduction requirement benefits from EPA's decision to assess the fuel's lifecycle GHG emissions based on optimistic assumptions about how the fuel might be produced in 2022 rather than how it is produced currently.) Second, EPA's highly negligent "aggregate compliance" approach has effectively nullified the provision in EISA that prohibits the use of biomass feedstocks grown on land cleared or cultivated after December 2007. (Please see Section V below for more information.) As a result, the internalized cost of corn ethanol production is artificially low.

Advanced biofuels are not yet able to outcompete corn ethanol for base level D6 RINs. As the availability of environmentally beneficial ethanol (including some ethanol made from cellulosic material) increases, EPA must create room for such fuels under the E10 blend wall by reducing the implied corn ethanol mandate further. Doing so might represent a departure from the long history of direct and indirect subsidies bestowed on corn ethanol, but it would be consistent with EISA's intersecting interests in reducing GHG emissions and promoting the deployment of innovative technologies.

#### **[D] Reducing the Implied Corn Ethanol Mandate Will Relieve Upward Pressure on Food Prices**

Finally, further reduction in the implied corn ethanol mandate would also alleviate some of the pressure that RFS-driven corn ethanol production has put on global food markets. Currently, 40% of U.S. corn production is sent to ethanol facilities. As the portion of the corn crop dedicated to ethanol increased after 2007 and the number of corn acres increased to record levels, acres of other food and feed crops decreased resulting in increased food and feed prices.<sup>10</sup> A 2011 National Academies of Sciences report on the RFS found that 20-40% of the increase in commodity prices during 2007 was a result of biofuels expansion around the world, which increases food prices in the United States and globally.<sup>11</sup> Acres of corn and soybeans in particular expanded after 2007 in response to record crop prices during the 2008-13 timeframe that were the result of several factors, including the 2012 drought and increased ethanol production. While prices of crops such as corn have dropped from record highs, the demand for corn dedicated to ethanol still requires a large portion of the crop.<sup>12</sup> This increased and

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<sup>10</sup> Food and Agricultural Policy Research Institute - University of Missouri, *U.S. Baseline Briefing Book Projections for Agricultural and Biofuel Markets* (March 2016) (<https://www.fapri.missouri.edu/wp-content/uploads/2016/03/FAPRI-MU-Report-02-16.pdf>); ActionAid USA, *Fueling the Food Crisis: The Cost to Developing Countries of US Corn Ethanol Expansion* (October 2012) ([http://www.ase.tufts.edu/gdae/Pubs/rp/ActionAid\\_Fueling\\_Food\\_Crisis.pdf](http://www.ase.tufts.edu/gdae/Pubs/rp/ActionAid_Fueling_Food_Crisis.pdf)).

<sup>11</sup> Lave, et al. at 132.

<sup>12</sup> US Department of Agriculture, *World Agricultural Supply and Demand Estimates* (June 10, 2016) (<http://www.usda.gov/oce/commodity/wasde/latest.pdf>).

inflexible demand creates volatility in food and feed markets and pushes food prices upward particularly during supply shocks such as droughts or floods.

**[E] EPA Appropriately Proposes to Reduce Advanced and Total Renewable Mandates by Nearly the Same Amount It Would Reduce Cellulosic Biofuel Mandates**

Each year since 2010, EPA has reduced the annual cellulosic biofuel mandate to account for substantial shortfalls in supply, as required by CAA §211(o)(7)(D)(1). That same section authorizes EPA to “also reduce the applicable volume of renewable fuel and advanced biofuels requirement established under paragraph (2)(B) by the same or a lesser volume.” EPA had not availed itself of that authority, however, until the Agency finalized the 2014-2016 RVOs. EPA again rightfully proposes to reduce the 2017 advanced biofuel RVO by close to the full amount that it plans to reduce the cellulosic RVO. In the past, EPA has allowed other kinds of advanced biofuels—mainly sugarcane ethanol imported from Brazil and biomass-based diesel—to make up for the shortfall. EPA’s approach of backfilling the cellulosic shortfall by requiring additional consumption of sugarcane ethanol and biodiesel posed a set of long-term environmental threats that were detailed in the comments submitted by CATF and other organizations on previous RVO proposals.<sup>13</sup>

**[III] Proposed RVOs and Their Impact on Palm Oil Production**

In its current proposal, EPA “request[s] comment on [its] proposal for increasing the [biomass-based diesel, or] BBD applicable volume in 2018 and whether a higher or lower volume requirement would be more appropriate.”<sup>14</sup> The Agency also seeks feedback on whether the proposed volume requirements for total renewable fuel<sup>15</sup> and advanced biofuel<sup>16</sup> are too high or too low.

All three of EPA’s proposed RVOs are too high, in part because they would exacerbate the environmental and social problems linked to the production of palm oil. First, the proposed biomass-based diesel RVO for 2018 would increase the overall demand for both biodiesel and, more generally, vegetable oil. Second, because the proposed total renewable fuel RVO for 2017 would create a gap in the implied mandate for conventional biofuels that cannot be met by ethanol, the proposal would likely further increase the reliance on biodiesel as an RFS compliance option. Both of these outcomes will indirectly encourage an environmentally and socially-damaging expansion of palm oil production.

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<sup>13</sup> See, e.g., CATF comments on EPA’s proposed RVOs for 2013 ([http://www.catf.us/resources/filings/biofuels/20130405K\\_CATF\\_Comments\\_on\\_EPA\\_RFS\\_2013\\_Volume\\_Adjustment\\_78FedReg9282.pdf](http://www.catf.us/resources/filings/biofuels/20130405K_CATF_Comments_on_EPA_RFS_2013_Volume_Adjustment_78FedReg9282.pdf)).

<sup>14</sup> 81 Fed. Reg. 34778, 34811/2 (May 31, 2016).

<sup>15</sup> *Id.* at 34796/3.

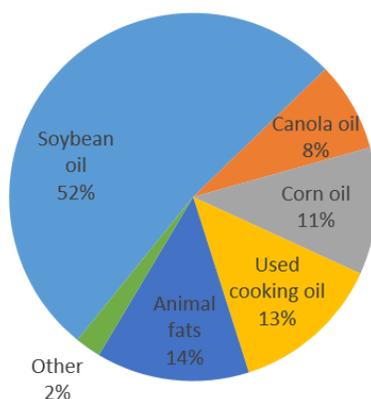
<sup>16</sup> *Id.* at 34798/3.

For these reasons (which are discussed in greater detail below), CATF urges EPA to finalize reductions to the final 2017 RVOs for advanced biofuels and total renewable biofuels as well as to the 2018 RVO for biomass-based diesel to ensure that the RFS does not directly or indirectly result in increased demand for biodiesel or vegetable oil.

### [A] Proposed BBD RVO Increase: Implications for Palm Oil Production

The various ways in which RFS mandates impact palm oil production, and the various ways in which RFS-related palm oil production impacts the environmental performance of the RFS, have not been adequately analyzed. EPA has not yet issued a final pathway determination for biofuels made from palm oil.<sup>17</sup> Nor has it revisited the 2010 lifecycle analyses that were used to determine the net GHG emissions associated with BBD made from soybeans and other oilseed crops, despite evidence that the 2010 LCA underestimates the extent to which BBD consumption drives GHG-intensive expansion of palm oil production.<sup>18</sup>

EPA's administration of the RFS affects palm oil primarily because palm oil is currently the marginal product in the highly fungible global vegetable oil market. About 60% of the biodiesel produced in the US is made from vegetable oil, per US Energy Information Administration data compiled by the Union of Concerned Scientists (UCS).



Oils and Fats Used to Produce Biodiesel in the United States in 2015  
(Chart: Union of Concerned Scientists / Data: US EIA)<sup>19</sup>

<sup>17</sup> EPA, Notice of Data Availability Concerning Renewable Fuels Produced from Palm Oil Under the RFS Program, 77 Fed. Reg. 4300, 4312-13 (January 27, 2012) (finding that BBD derived from palm oil “fails to meet the 20% reduction threshold [in lifecycle GHG emissions] required for the generation of conventional renewable fuel RINs,” and falls far short of the 50% reduction threshold for generation of BBD RINs).

<sup>18</sup> See EPA, Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program; Final Rule, 75 Fed. Reg. 14670 (March 26, 2010).

<sup>19</sup> Jeremy Martin/Union of Concerned Scientists, Everything You Ever Wanted to Know About Biodiesel (June 22, 2016) (<http://blog.ucsusa.org/jeremy-martin/all-about-biodiesel>) (citing US Energy Information

RFS-driven increases in the demand for biodiesel therefore increase the overall demand for vegetable oil. According to UCS,

Since soybean prices depend on the sum of oil and meal prices, the net result is that soybean prices are only weakly linked to soybean oil prices ... But while soybean production is not very responsive to soybean oil prices, other vegetable oils are more responsive, particularly canola and palm oil, which have a higher share of their value derived from vegetable oil. For this reason, increased use of soybean oil to make biodiesel does not lead to much increased production of soybeans, but primarily leads to substitutions among vegetable oils and ultimately more vegetable oil imports.<sup>20</sup>

As the marginal supplier of vegetable oil, palm oil producers are best positioned to expand their production to meet the new demand. Over the past decade, the increase in global demand for vegetable oil has been met primarily by an increase in the supply of palm oil.<sup>21</sup>

In turn, an increase in palm oil production increases the likelihood that peat forests in Southeast Asia will be converted into oil palm plantations, especially in Indonesia and Malaysia which together account for more than 85% of global palm oil production.<sup>22</sup> Regulators in Indonesia and Malaysia have so far shown limited capacity to stem the expansion of plantations onto peat forests. For example, although Indonesia's 2011 moratorium on new oil palm, timber, and logging concessions has reduced deforestation-related emissions when compared against a counterfactual (no-moratorium) scenario, the country's "deforestation rate has continued an upward trend from 2000 through 2012, even after the implementation of the moratorium in 2011."<sup>23</sup> And efforts to steer expansion by both large and small palm oil producers away from forested areas have been largely ineffective.<sup>24</sup>

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Administration, Monthly Biodiesel Production Report (May 31, 2016)  
(<http://www.eia.gov/biofuels/biodiesel/production/>).

<sup>20</sup> *Id.*

<sup>21</sup> Jannick H. Schmidt and Bo P. Weidema. 2008. Shift in the Marginal Supply of Vegetable Oil. *International Journal of Lifecycle Assessment* 2008 13:235 ("Based on market trends, a shift from rapeseed oil to palm oil as the marginal vegetable oil is identified around the year 2000, when palm oil turns out to be the most competitive oil. It is recommended to regard palm oil and its dependent co-product palm kernel oil as the marginal vegetable oil.") (<http://link.springer.com/article/10.1065%2F1ca2007.07.351>).

<sup>22</sup> USDA Foreign Agricultural Service, Oilseeds: World Markets and Trade—June 2016, Table 11  
(<http://www.fas.usda.gov/psdonline/circulars/oilseeds.pdf>).

<sup>23</sup> Jonah Busch, et al. 2015. Reductions in Emissions from Deforestation from Indonesia's Moratorium on New Oil Palm, Timber, and Logging Concessions, *PNAS* 2015 112: 1328-1333  
(<http://www.pnas.org/content/112/5/1328.full.pdf>).

<sup>24</sup> Janice Ser Huay Lee, et al. 2013. Environmental Impacts of Large-Scale Oil Palm Enterprises Exceed that of Smallholdings in Indonesia. *Conservation Letters* DOI: 10.1111/conl.12039  
(<http://onlinelibrary.wiley.com/doi/10.1111/conl.12039/full>).

Peatlands in Southeast Asia store enormous quantities of carbon. “When peatlands dry out, however, the underlying organic matter fully decomposes and the stored carbon escapes to the atmosphere,” reported Wetlands International and Delft Hydraulics in 2006. “Southeast Asian peatlands are currently releasing their carbon stocks at an astonishing rate, thanks in large part to the increased demand for biofuels.”<sup>25</sup>

CATF and other public interest groups have summarized our concerns about the CO<sub>2</sub> emissions from peatlands, as well as other negative environmental and social impacts of palm oil production, in comments previously submitted to EPA.<sup>26</sup>

Peatland oxidation—which is the largest component in palm oil’s lifecycle GHG score<sup>27</sup>—occurs regardless of whether the harvested oil is sold to food markets or refined into biodiesel.<sup>28</sup> Consequently, EPA’s current proposal to increase the volume requirement for biomass-based diesel in 2018 by 100 million gallons would, if finalized, contribute to the higher levels of palm oil production and higher net GHG emissions—even assuming that no palm oil-based biodiesel is used to comply with the RFS.

The problem is illustrated by BBD derived from US-grown soybean oil. Clean Air Act section 211(o)(1)(H) requires EPA to count “significant indirect emissions such as emissions from land use changes” when determining the lifecycle GHG emissions associated with any biofuels that would be used to comply with the RFS. In 2010, EPA determined that the lifecycle GHG

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<sup>25</sup> Wetlands International and Delft Hydraulics, *Assessment of CO<sub>2</sub> emissions from drained peatlands in SE Asia* 6 (December 7, 2006)

(<http://www.wetlands.org/LinkClick.aspx?fileticket=NYQUDJl5zt8%3D&tabid=56>); see also S.E. Page et al./International Council on Clean Transportation, *Review of Peat Surface Greenhouse Gas Emissions from Oil Palm Plantations in Southeast Asia*, at 26 (September 2011) ([http://www.theicct.org/sites/default/files/publications/ICCT\\_Peat-Emissions\\_Sept2011.pdf](http://www.theicct.org/sites/default/files/publications/ICCT_Peat-Emissions_Sept2011.pdf)).

<sup>26</sup> See, e.g., CATF, *Comments on EPA’s Proposed 2014 RFS Volume Requirements*, at 11-14 (January 28, 2014) (hereinafter “CATF 2014 RVO Comments”)

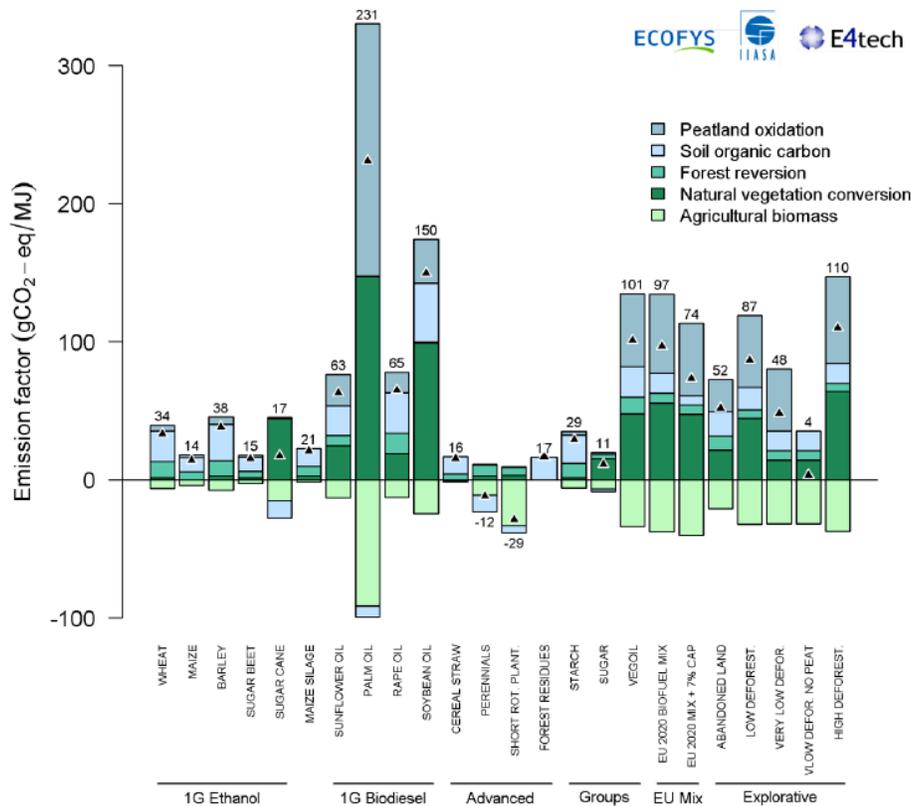
(<http://www.catf.us/resources/filings/biofuels/20140128-CATF%20Comments%20on%202014%20RFS%20Volume%20Adjustment%20Proposal.pdf>); National Wildlife Federation, et al., *Joint Science and Environmental Stakeholder Comments on: Docket No. EPA-HQ-OAR-2011-0542 – EPA’s analyses of palm oil used as a feedstock under the Renewable Fuel Standard (RFS) program* (submitted April 27, 2012) ([http://www.ucsusa.org/sites/default/files/legacy/assets/documents/global\\_warming/EPA-palm-oil-comments-final.pdf](http://www.ucsusa.org/sites/default/files/legacy/assets/documents/global_warming/EPA-palm-oil-comments-final.pdf)).

<sup>27</sup> See Hugo Valin, et al. 2015. *The Land Use Change Impact of Biofuels Consumed in the EU: Quantification of Area and Greenhouse Gas Impacts*, at 39 (Fig. 15). ([https://ec.europa.eu/energy/sites/ener/files/documents/Final%20Report\\_GLOBIOM\\_publication.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/Final%20Report_GLOBIOM_publication.pdf)).

<sup>28</sup> *Id.* at vi. The European Commission-supported analysis conducted by Valin and colleagues assesses emissions tied to land use changes only; “emissions resulting directly from the cultivation of crops (fertiliser production and use, machinery, etc.), conversion into biofuels, and product transport and distribution” are not included in their analysis.

emissions associated with BBD derived from soybeans are at least 50% lower than those of gasoline.<sup>29</sup>

However, a 2015 study for the European Commission by Hugo Valin and colleagues suggests that the net GHG emissions associated with soybean oil—the feedstock for more than half of the biodiesel produced in the United States last year—are much higher than EPA determined. Valin *et al.* (2015) finds that the net GHG emissions rate from the land use change associated with soybean oil production is 150gCO<sub>2</sub>e/MJ, which is over 50% *higher* than the lifecycle GHG emissions rate for petroleum diesel. Importantly, about 20% of soybean oil’s LUC GHG emissions are linked to peatland oxidation. In other words, the use of soybean oil for biofuel production is indirectly but significantly contributing to the expansion of new palm oil plantations onto peatlands.



Valin *et al.* (2015): Fig. 15: Overview of modelling results: LUC emissions per scenario. Source: GLOBIOM<sup>30</sup>

In its discussion of the proposed RVO for BBD, EPA is understandably ambivalent about increasing the volume requirement. EPA notes that although “Congress clearly intended to support development of BBD,” it granted the Agency considerable discretion with respect to

<sup>29</sup> 75 Fed. Reg. at 14788-89.

<sup>30</sup> Valin *et al.* (2015) at 39.

BBD by “specifically direct[ing] growth in BBD only through 2012.”<sup>31</sup> Concerned about the prospect of BBD capturing an outsize share of both R&D funding and the advanced biofuel market at the expense of other types of advanced biofuels, EPA has proposed “BBD volume requirements at levels lower than the advanced biofuel volume requirements (and lower than the expected production of BBD to satisfy the advanced biofuel requirement)[.]”<sup>32</sup>

CATF agrees with EPA’s decision to not propose a maximal RVO for BBD, but for the reasons described above—primarily, the likelihood that virtually any increase in the BBD RVO will indirectly encourage an increase in palm oil production—we urge the Agency to set the 2018 BBD RVO no higher than the 2017 requirement (*i.e.*, 2.0 billion gallons). EPA asserts it was charged by Congress with responsibly supporting the development of biomass based diesel,<sup>33</sup> a category of fuels required by Congress to achieve a 50% reduction in lifecycle GHG emissions. Finalizing an RVO that contributes to the further expansion of palm oil plantations onto peatland would instead perpetuate the use of environmentally compromised biofuels.

For the same basic structural reasons, EPA’s proposal to increase the biomass-based diesel RVO for 2018 would also exacerbate the social harms connected to palm oil production. By increasing the demand for both biodiesel and vegetable oil, EPA’s proposal would incentivize palm oil producers to expand production and, presumably, the incidence of land grabs and other socially-damaging production practices.<sup>34</sup>

**[B] Proposed Advanced Biofuel and Total Renewable Fuel RVO Increases:  
Implications for Palm Oil Production**

In its proposal, EPA notes that “because the BBD volume requirement is nested within both the advanced biofuel and the total renewable fuel volume requirements, any ‘excess’ BBD produced beyond the mandated BBD volume can be used to satisfy both of these other applicable volume requirements.”<sup>35</sup> And because the RVOs for advanced biofuels and total renewable fuels “can also influence BBD production and use,”<sup>36</sup> the level at which EPA sets those RVOs has an indirect impact on global demand for vegetable oil and, consequently, on the expansion of palm oil production.

EPA acknowledges as much. “Higher advanced biofuel and total renewable fuel standards ... create demand for BBD,” says the Agency in its proposal, “especially if there is an insufficient

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<sup>31</sup> 81 Fed. Reg. 34810/1.

<sup>32</sup> *Id.* at 34810/2-3.

<sup>33</sup> *Id.* at 34810/1.

<sup>34</sup> For more information on the social harms associated with palm oil production, see comments on the 2017/2018 RVO proposal submitted by ActionAid USA and The Hunger Project.

<sup>35</sup> 81 Fed. Reg. at 34807/2.

<sup>36</sup> *Id.*

supply of other advanced or conventional renewable fuels to satisfy the standards....<sup>37</sup> Scott Irwin and Darrel Good of the University of Illinois analyzed this effect and found that EPA's proposed 2017 RVOs will "push" the implied mandate for conventional biofuels beyond the projected E10 blend wall by 571-746 million gallons. (This portion of the mandate is referred to by Irwin as the "conventional ethanol gap," because it cannot be met with corn ethanol or other non-advanced ethanols).<sup>38</sup>

Regulated entities can fill the conventional ethanol gap by drawing down existing RIN stocks, by producing (and selling) greater volumes of gasoline blended with high levels of ethanol (e.g., E15 or E85), and/or by "increasing the use of non-ethanol biofuels such as biodiesel and renewable diesel."<sup>39</sup> But Irwin and Good write that "biodiesel is likely to be the 'marginal gallon' to fulfill the conventional gap" because "biodiesel is likely the only fuel that will be available in large enough quantities" that can also be used in current fuel infrastructure.<sup>40</sup> So in addition to increasing the BBD RVO by 100 million gallons, EPA's proposal would further incentivize increased biodiesel production by creating a conventional ethanol gap that will be partly filled by biodiesel. As discussed above, an increase in demand for biodiesel is likely to drive up demand for vegetable oil, which in turn will spur increased production of palm oil.

Scott and Irwin have also analyzed the "advanced gap," which they define as the difference between the total advanced mandate and the projection of total advanced biofuel use. The advanced gap "has to be filled by a drawdown in advanced RINs stocks and or additional usage of the advanced biofuel categories" [i.e., cellulosic biofuels, BBD, and/or non-cellulosic advanced biofuels such as sugarcane ethanol].<sup>41</sup> Scott and Irwin calculate that the advanced gap will grow rapidly over the next few years (if recent RVOs are an indication of future RVOs<sup>42</sup>) before plateauing at approximately 1 billion gallons per year during 2019-2022.

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<sup>37</sup> *Id.* at 34808/2.

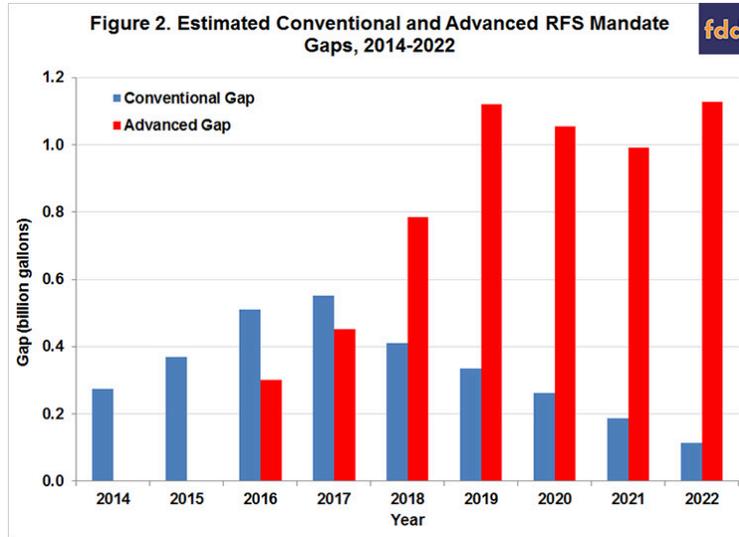
<sup>38</sup> Scott Irwin and Darrel Good. "EPA's Proposed 2017 RFS Standards: Is a Push Still a Push?" at 4, *farmdoc daily* (6):100, Dept. of Agricultural and Consumer Economics, Univ. of Illinois at Urbana-Champaign (May 26, 2016) (hereinafter "Irwin and Good, *Push*") (<http://farmdocdaily.illinois.edu/2016/05/epa-proposed-2017-rfs-standards.html>); Scott Irwin and Darrel Good. "RFS Standards Beyond 2017—Biodiesel or Bust?" *farmdoc daily* (6):104, Dept. of Agricultural and Consumer Economics, Univ. of Illinois at Urbana-Champaign (June 2, 2016) (hereinafter "Irwin and Good, *Bust*") (<http://farmdocdaily.illinois.edu/2016/06/rfs-standards-beyond-2017-biodiesel-or-bust.html>).

<sup>39</sup> Irwin and Good, *Push*, at 4.

<sup>40</sup> Irwin and Good, *Bust*, at 4.

<sup>41</sup> *Id.* at 2, 4.

<sup>42</sup> Irwin and Good assume in their projections through 2022 that the EPA would continue to enforce the RFS "in a manner that will include a push for conventional ethanol use above the E10 blend wall, expansion of the biodiesel mandate, and an increase in the requirement for undifferentiated advanced biofuels," Irwin and Good, *Bust*, at 4.



farmdoc daily: Observed and Projected Biofuel Gaps Under the RFS<sup>43</sup>

The gap is primarily due to growth in the undifferentiated advanced mandate, or “the minimum level for the advanced mandate after waiver of the cellulosic mandate,” which Scott and Irwin project will grow from 2 billion gallons in 2014 to 4.5 billion gallons in 2019.<sup>44</sup>

CATF and other public interest organizations have repeatedly warned EPA about the possible impact of the advanced gap on environmentally damaging palm oil production. In comments on the proposed 2014 RVO, for example, we urged EPA “to reduce the 2014 volume requirements for cellulosic biofuels, advanced biofuels, and total renewable fuels, and to keep the requirement for biomass-based diesel at the level mandated for 2013,” partly as a way to “reduce the likelihood of a dramatic expansion in biodiesel consumption.”<sup>45</sup> We wrote that in order to “ensure that biomass-based diesels and other non-cellulosic ‘advanced biofuels’ used to comply with the RFS have lifecycle GHG emissions ‘that are at least 50 percent less than baseline lifecycle greenhouse gas emissions,’” the Agency “should avoid compliance scenarios that directly or indirectly cause the production and use of palm biodiesel to increase.”<sup>46</sup>

Scott and Irwin’s recent analysis underscores these concerns about EPA’s management of the advanced gap, particularly with respect to the potential impact of palm oil production given that biodiesel is better positioned than Brazilian sugarcane ethanol to fill the gap. They write:

The rapid rise in the advanced mandate gap in the next few years raises the question of what will fill this other gap ... To date, the advanced gap has been filled mainly by biodiesel and that seems to be the most likely pathway moving forward ... Total

<sup>43</sup> *Id.* at 5.

<sup>44</sup> *Id.* at 4.

<sup>45</sup> CATF 2014 RVO Comments at 1, 11.

<sup>46</sup> *Id.* at 14.

biodiesel use for the biodiesel mandate, advanced gap, and conventional gap would increase from an estimated 1.63 billion gallons in 2014 to 3.31 billion gallons in 2022. Note how quickly total biodiesel use increases starting in 2018, when the projected total is 2.875 billion gallons. The total then crosses 3 billion gallons in 2019. These requirements could be met from a combination of existing foreign and domestic production capacity, but would require a substantial increase in capacity to transport and blend biodiesel.<sup>47</sup>

Greater utilization of “existing foreign and domestic [biodiesel] production capacity” would drive up demand for vegetable oil in general and palm oil in particular.

**[C] Use of Palm Oil-Based BBD to Comply with the RFS**

As noted above, EPA’s proposal to increase the BBD volume requirement for 2018 by 100 million gallons would contribute to the higher levels of palm oil production and higher net GHG emissions even if palm oil-based biodiesel was not used to comply with the RFS. Palm oil-based biodiesel is used to comply with the RFS, however, despite lifecycle GHG emissions that would disqualify it from generating RFS RINs but for the RFS grandfather provision.

Since 2013, the United States has imported approximately 4.4 million barrels (185 million gallons) of BBD from Indonesia. It is reasonable to assume that much of this fuel is made from palm oil.<sup>48</sup>

**U.S. Imports from Indonesia of Biomass-Based Diesel Fuel (Thousand Barrels)**

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2013			50	83	118	260	203	127	168	203	36	
2014		86				108	173	253	111	267	395	
2015		180	270	94	50	211	315	245	170	119		92
2016			99									

- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Release Date: 5/31/2016  
Next Release Date: 6/30/2016

US EIA: U.S. Imports from Indonesia of Biomass-Based Diesel Fuel<sup>49</sup>

<sup>47</sup> Irwin and Good, *Bust*, at 5.

<sup>48</sup> See Stephanie Searle/International Council on Clean Transportation, An Unexpected Tax Bill for Imported Palm Oil Biodiesel (January 25, 2016) (<http://www.theicct.org/blogs/staff/unexpected-tax-bill-for-imported-palm-oil-biodiesel>).

<sup>49</sup> US EIA, US Imports from Indonesia of Biomass-Based Diesel Fuel ([http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=m\\_epoordb\\_im0\\_nus-nid\\_mbbf&f=m](http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=m_epoordb_im0_nus-nid_mbbf&f=m)).

Palm oil is not eligible for advanced biodiesel RINs under the RFS,<sup>50</sup> so any palm oil-based biodiesel used to comply with the RFS must be produced at grandfathered facilities.<sup>51</sup> From the narrow perspective of RFS administration, the high lifecycle GHG emissions associated with the palm oil biodiesel produced at such facilities can be legally ignored, provided it is clear that the palm oil qualifies as “renewable biomass” per CAA §211(o)(1)(I). On a more practical level, though, those emissions negatively impact the atmosphere and aggravate the environmental damage caused by the RFS.

Furthermore, it is not clear that imported palm-derived BBD used to comply the RFS is made from palm oil that qualifies as “renewable biomass” per CAA §211(o)(1)(I), or that EPA is taking appropriate and necessary steps to determine whether and to what extent grandfathered BBD refineries are using palm oil harvested from recently cleared peatlands. Section 211(o)(1)(I) requires that RFS biofuel feedstocks meet the following definition: “planted crops and crop residue harvested from agricultural land cleared or cultivated at any time prior to December 19, 2007, that is either actively managed or fallow, and nonforested.”<sup>52</sup> To date, EPA has only allowed the U.S. and Canada to use an “aggregate compliance” approach in an attempt to ensure that biofuel feedstock production on land converted after 2007 does not qualify for the RFS. EPA has assumed, for instance, that other biofuel feedstocks such as jatropha planted in Brazil and Mexico would be produced on land cleared or cultivated prior to 2007. But as CATF stated in joint comments on the EPA’s “Notice of Opportunity To Comment on an Analysis of the Greenhouse Gas Emissions Attributable to Production and Transport of Jatropha Curcas Oil for Use in Biofuel Production,” EPA cannot simply assume that biofuel feedstocks will be produced on previously cleared agricultural land without any verification, monitoring, or further analysis.<sup>53</sup> In the past, EPA acknowledged there is limited data availability in other countries to attempt to enforce the renewable biomass definition.<sup>54</sup>

As discussed further in CATF’s joint comments with other NGOs on the proposed 2017 RVOs, EPA has shown little willingness to identify and disqualify from RFS eligibility any biofuels made from feedstocks grown on land that was cleared following the enactment of EISA, particularly in the United States and Canada but also in other countries around the world. Given EPA’s lack of enforcement of the “aggregate compliance” approach in the past, CATF looks forward to

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<sup>50</sup> EPA, Notice of Data Availability Concerning Renewable Fuels Produced from Palm Oil Under the RFS Program, 77 Fed. Reg. 4300, 4312-13 (January 27, 2012) (finding that BBD derived from palm oil “fails to meet the 20% reduction threshold [in lifecycle GHG emissions] required for the generation of conventional renewable fuel RINs,” and falls far short of the 50% reduction threshold for generation of BBD RINs).

<sup>51</sup> See CAA §211(o)(2)(A)(i).

<sup>52</sup> See CAA §211(o)(1)(I).

<sup>53</sup> See, CATF, Comments on EPA’s Notice of Opportunity to Comment on an Analysis of the Greenhouse Gas Emissions Attributable to Production and Transport of Jatropha Curcas Oil for Use in Biofuel Production at 8-9 (November 12, 2015) ([http://www.catf.us/resources/filings/biofuels/20151112-Joint\\_Enviro-Hunger\\_Comments\\_on\\_Jatropha\\_EPA-HQ-OAR-2015-0293.pdf](http://www.catf.us/resources/filings/biofuels/20151112-Joint_Enviro-Hunger_Comments_on_Jatropha_EPA-HQ-OAR-2015-0293.pdf)).

<sup>54</sup> 80 Fed. Reg. at 61410/3.

working with EPA on steps it can take to better fulfill its obligations under CAA §211(o)(1)(I), with respect to both domestic and imported biofuels and feedstocks. In the meantime, we urge the Agency to consider whether reductions to the proposed volume requirements would limit the importation of BBD made from palm oil harvested from peatlands cleared after December 2007.

#### **[IV] EPA Must Consider a Comprehensive Reassessment of Long-Term RFS Mandates**

As the advanced and total renewable volume targets set by Congress in 2007 become increasingly unreachable, EPA must consider all legally sound, environmentally protective, and socially responsible options for establishing a more rational and realistic set of annual volume requirements going forward. The “reset provision” outlined in CAA §§211(o)(7)(F) (establishing the trigger for multi-year volume adjustments) and 211(o)(2)(B)(ii) (listing six factors the Agency must analyze when making such adjustments) will play a critical role in this process.

As CATF has described in previous comments,<sup>55</sup> the criteria provide EPA with a framework for adjusting annual volume requirements that is more sensible and far more comprehensive than the Agency’s current approach:

- Managing the shortfall in cellulosic biofuels could lead to significant increases in the amount of BBD and/or sugarcane ethanol used to meet the annual volume requirements. The first criterion in CAA §211(o)(2)(B)(ii) details the environmental impacts that EPA must consider when analyzing the increased production of these fuels, including the impacts “on air quality, climate change, conversion of wetlands, ecosystems, wildlife habitat, water quality, and water supply.” Many of these impacts were examined in EPA’s 2011 Triennial Review, but an updated environmental analysis—one that accounts for the revised projections on the types and amounts of biofuels that may be used to comply with the RFS—would be necessary, especially with respect to climate impacts.
- The second criterion, pertaining to energy security, implicates the important developments in supply and demand that have occurred since EISA was enacted in 2007, including the increased production of tight oil and gas and the fuel efficiency savings attributable to stricter CAFE standards. In light of these developments and others, EPA would likely find that downward adjustments to the RVOs for advanced biofuel, BBD, and total renewable fuel will not materially affect the United States’ energy security.
- The third criterion—the “expected annual rate of future commercial production of renewable fuels, including advanced biofuels”—effectively directs EPA to consider the critically important issue of which biofuels will make up for the shortfall in cellulosic biofuel and fill the conventional biofuel and advanced biofuel gaps described in Part III of these comments.

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<sup>55</sup> See, e.g., CATF, Comments on EPA’s Proposed 2013 RFS Volume Requirements, at 28-29 (April 5, 2013) ([http://www.catf.us/resources/filings/biofuels/20130405-CATF\\_Comments\\_on\\_EPA\\_RFS\\_2013\\_Volume\\_Adjustment\\_78FedReg9282.pdf](http://www.catf.us/resources/filings/biofuels/20130405-CATF_Comments_on_EPA_RFS_2013_Volume_Adjustment_78FedReg9282.pdf)).

- The complex legal and logistical issues surrounding the E10 blend wall are teed up by the fourth criterion, which focuses on “the impact of renewable fuels on the infrastructure of the United States, including deliverability of materials, goods, and products other than renewable fuel, and the sufficiency of infrastructure to deliver and use renewable fuel.” For example, a key aspect of the blend wall challenge is that the “infrastructure to deliver and use” higher blends like E15 is insufficient in most parts of the United States, and will likely remain so for some time. The fourth criterion provides EPA with a strong additional basis for could relieve some of the pressure associated with the blend wall by making reductions to reducing the advanced biofuel and total renewable fuel volume requirements below the statutory targets.

Although CATF is encouraged by EPA’s consideration of the CAA §211(o)(2)(B)(ii) criteria in the context of deriving the proposed 2018 BBD RVO,<sup>56</sup> we expect that future analyses based on the criteria will be more complete and up-to-date. For example, in its assessment of climate change effects per Section 211(o)(2)(B)(ii)(I), EPA indicates that setting “a marginally lower or higher BBD nested volume requirement” would have “no significant GHG impact.”<sup>57</sup> There is no indication from the memorandum, however, that EPA considered the climate implications of relying heavily on BBD going forward, given that increased biodiesel consumption typically causes an increase in global demand for vegetable oil, which in turn incentivizes the expansion of palm oil production. As discussed in Part III of these comments, Scott Irwin and Darrel Good project that RFS-driven BBD use will grow 103% from 2014 to 2022 under EPA’s current approach to volume setting.<sup>58</sup> In light of this significant increase in BBD consumption and the possibility that it could contribute to GHG-intensive peatland conversion by palm oil producers in Southeast Asia, EPA’s failure to consider palm oil-related climate implications in its memorandum on the proposed BBD RVO is difficult to justify.

We look forward to working with EPA as it thinks through how to best utilize these criteria when it makes the multi-year adjustments to the advanced biofuel and total renewable fuel RVOs.

**[V] Strictly Implement “Renewable Biomass” Definitions in RFS to Ensure Biofuel Feedstocks Are Produced from Renewable Feedstocks, as Required by Law**

EPA should replace its current “aggregate compliance” approach with a more effective policy to ensure that all feedstocks used to produce RFS-compliant biofuels actually meet the statutory definition of “renewable biomass.” If EPA properly implemented this definition in the RFS, particularly CAA §211(o)(1)(I)(ii), carbon-rich wetlands and grasslands converted to biofuel crop production for the first time after December 2007 would no longer qualify for the RFS.

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<sup>56</sup> EPA OTAQ, Memorandum: Draft Statutory Factors Assessment for the 2018 Biomass Based Diesel (BBD) Applicable Volume (2016) (<https://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OAR-2016-0004-0080&attachmentNumber=8&disposition=attachment&contentType=pdf>).

<sup>57</sup> *Id.* at 4.

<sup>58</sup> Irwin and Good, *Bust*, at 5.

Previous land conversion partially a result of RFS expansion of biofuels has resulted in greater land use change GHG emissions and has negated any minimal GHG savings that may have otherwise resulted from using corn ethanol. More information on this important issue and relevant recommendations can be found in CATF's joint comments with other NGOs on the proposed 2017 RVO.

## **[VI] Conclusion**

CATF appreciates this opportunity to comment on EPA's RVO proposal for 2017-2018. We support a further reduction to the 2017 RVO for the overall renewable fuel mandate due to the practical constraints related to the E10 blend wall, the negative environmental impacts associated with corn ethanol, and the need to preserve market space for environmentally superior advanced biofuels. CATF supports EPA's proposal to reduce the advanced biofuel and cellulosic biofuel mandates, but urges EPA to ensure that the 2017 or 2018 RVOs (the latter for biomass-based diesel) do not require ethanol consumption to exceed the E10 blend wall and/or lead to a significant increase in the consumption of biodiesel made from vegetable oil which could directly or indirectly incentivize more production of palm oil.

The analytic criteria listed at section 211(o)(2)(B)(ii) of the Clean Air Act will usefully guide EPA as it establishes more appropriate biofuel consumption targets in future years, particularly given the RFS's failure to spur large-scale production of cellulosic and other advanced biofuels derived from non-food and environmentally sustainable feedstocks. EPA also should prioritize effective implementation of "renewable biomass" definitions in the RFS to ensure that unlawful conversion of previously unfarmed wetlands and grasslands are not converted into biofuel feedstock production, with resulting negative impacts on the climate.

We appreciate your consideration and hope that our comments provide useful guidance for EPA's final rule.

Respectfully submitted,

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