Response to Clean Air Taskforce, World Wildlife Fund, National Wildlife Federation, and Friends of the Earth's Petitions for Reconsideration of The Renewable Fuel Standards (RFS2)

I. Introduction

Changes to the Renewable Fuel Standard Program[1] (RFS2) were published in the Federal Register on March 26, 2010 and became effective in July 2010. On May 24, 2010, Friends of the Earth, World Wildlife Fund, the National Wildlife Federation, and the Clean Air Task Force submitted petitions for reconsideration of the renewable biomass aggregate compliance approach finalized in the RFS2. On the same day, the Clean Air Task force also petitioned for reconsideration regarding EPA's omission of the global rebound effect (GRE) from its lifecycle greenhouse gas emissions analyses. The petitioners other than CATF requested a stay of the aggregate compliance portion of the RFS2 regulations, while CATF requested a stay of the entire RFS2 final rule.

This document is EPA's response to all of these petitions. EPA is denying all petitions and all requests for a stay of implementation of the RFS2 regulations. As discussed below, petitioners have not shown that reconsideration is appropriate under Clean Air Act (CAA) section 307(d). Based on this determination, we are also denying the petitioners' request that we stay the RFS2 rules pending reconsideration.

II. Standard for Reconsideration

Section 307(d)(7)(B) of the Clean Air Act (CAA) strictly limits petitions for reconsideration both in time and scope. It states that: "Only an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment (including any public hearing) may be raised during judicial review. If the person raising an objection can demonstrate to the Administrator that it was impracticable to raise such objection within such time or if the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule, the Administrator shall convene a proceeding for reconsideration of the rule and provide the same procedural rights as would have been afforded had the information been available at the time the rule was proposed. If the Administrator refuses to convene such a proceeding, such person may seek review of such refusal in the United States court of appeals for the appropriate circuit (as provided in subsection (b)). Such reconsideration shall not postpone the effectiveness of the rule. The effectiveness of the rule may be stayed

[1] 75 14670 (March 26, 2010).

during such reconsideration, however, by the Administrator or the court for a period not to exceed three months."

Thus the requirement to convene a proceeding to reconsider a rule is based on the petitioner demonstrating to EPA: (1) that it was impracticable to raise the objection during the comment period, or that the grounds for such objection arose after the comment period but within the time specified for judicial review (i.e., within 60 days after publication of the final rulemaking notice in the Federal Register), see CAA section 307(b)(1); and (2) that the objection is of central relevance to the outcome of the rule.

As to the first procedural criterion for reconsideration, a petitioner must show why the issue could not have been presented during the comment period, either because it was impracticable to raise the issue during that time or because the grounds for the issue arose after the period for public comment (but within 60 days of publication of the final action). Thus, CAA section 307(d)(7)(B) does not provide a forum to request EPA to reconsider issues that actually were raised, or could have been raised, prior to promulgation of the final rule.

In EPA's view, an objection is of central relevance to the outcome of the rule only if it provides substantial support for the argument that the regulation should be revised. See Denial of Petitions to Reconsider Endangerment and Cause or Contribute Findings for Greenhouse Gases under section 202(a), 75 FR 49556, 49560 (August 13, 2010); Denial of Petition to Reconsider, 68 FR 63021 (November 7, 2003), Technical Support Document for Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Reconsideration at 5 (Oct. 30, 2003) (EPA-456/R-03-005) (available at http://www.epa.gov/nsr/documents/petitionresponses10-30-03.pdf); Denial of Petition to Reconsider NAAQS for PM, 53 FR 52698, 52700 (December 29, 1988), citing Denial of Petition to Revise NSPS for Stationary Gas Turbines, 45 FR 81653-54 (December 11, 1980), and decisions cited therein.

As discussed in this Decision, EPA is denying the petitions because they fail to meet these criteria. In all cases, the objections raised in the petitions to reconsider were or could have been raised during the comment period of the proposed rule. In all cases, the objections are not of central relevance to the outcome of the rule because they do not provide substantial support for the argument that the Renewable Fuel Standard Program regulations should be revised.

III. Petition to Reconsider Based on the Global Rebound Effect

In order to respond fully to the issues raised in the petition for reconsideration regarding the global rebound effect (GRE), we first summarize the main comments of the Clean Air Taskforce (CATF or the "Petitioner"). Second, we provide a detailed explanation of why EPA is denying the petition for reconsideration.

A. Summary of Petitioner's Principal Arguments

The CATF claimed that the GRE results in significant indirect lifecycle greenhouse gas emissions from renewable fuels, and that the definition of "lifecycle greenhouse gas emissions" in CAA section 211(o)(1) required EPA to take the GRE into account in determining the lifecycle GHG emissions of individual renewable fuels. CATF asserted that the EPA "provided no reasonable basis" for disregarding this effect. In addition, the CATF claimed they did not have an opportunity to comment on this issue based on two factors: (1) EPA created a "reasonable expectation that it would address the global rebound effect in its final analysis, making it impracticable for Petitioner to comment on the Agency's (eventual) failure to do so" and (2) since "EPA gave no indication of how it would quantify the rebound effect, Petitioner could not usefully comment on this analysis."

Furthermore, the CATF noted that it became aware of a new report that quantified the global rebound effect of renewable fuels. This report, entitled "Renewable Fuel and the Global Rebound Effect", was written by Dr. Steven Stoft of the Global Energy Policy Center (May 19, 2010). Since the report was completed after the close of the RFS2 comment period, the CATF asserted that it was "impracticable for Petitioners to raise its objections during the comment period because the grounds for doing so arose after the close of the comment period." As a result of its concerns, the CATF requested that EPA stay the rule and "convene a proceeding to reconsider its rule in light of its failure to properly account for the global rebound effect."

The Stoft report attempts to provide various imputed values of the global rebound effect from both EPA's own RFS2 analysis and from a variety of other studies from governmental, quasi-governmental and private research institutions such as the U.S. Department of Energy, Wharton Economic Forecasting Associates, the Electric Research Power Institute, MIT and the International Energy Agency. Dr. Stoft claims that the imputed values of the global "rebound" effect vary in these studies from 29% to 45%. One study with high world oil demand growth estimates a global "rebound" effect of 70%. Using estimates of oil market parameters provided in the background documentation by Oak Ridge National Laboratory for the Energy Security

Analysis for the RFS2, Dr. Stoft estimated a global rebound effect of roughly 32%.

In its petition to the agency the CATF assumes that application of the 32% rebound effect described in the Stoft paper to the RFS2 analyses would result in a comparable percent change in calculated GHG emissions for the different fuels analyzed. So, for example, soybean biodiesel that was determined to have a 57% reduction in GHG emissions compared to the baseline petroleum fuel would actually have only a 25% reduction. This type of adjustment would cause most of the fuels considered as part of the RFS2 final rule to not meet lifecycle GHG reduction thresholds specified in the Act.

B. EPA Response to the CATF Petition to Include the Global Rebound Effect

i. Background

As part of the notice of proposed rulemaking (NPRM) for the RFS2, EPA qualitatively discussed and solicited comments on a number of petroleum fuel and energy sector indirect effects that could result from the RFS2 program. In the NPRM and Draft Regulatory Impact Analysis (DRIA), EPA described the "international oil takeback effect" as the phenomenon that may occur if the world price of oil falls in response to lower U.S. demand for oil, leading to a potential increase in oil use outside the U.S.[2] EPA also described a "rebound effect" expected to occur in the U.S. where the increased price of transportation fuel resulting from RFS2 would impact domestic demand for oil.[3] As described in the DRIA, these effects work together to influence the overall change in global oil demand.[4] Although EPA did not use the term "global rebound effect", the global rebound effect is the sum of the international takeback effect (i.e., the impact on non-U.S. oil demand) and the rebound effect (impact on domestic oil demand) which were described in the NPRM and DRIA. EPA discussed these effects in three different contexts in the NPRM and DRIA: deriving the 2005 petroleum baseline; calculating lifecycle assessments for biofuels; and determining the costs and benefits of the proposed rule. In each context EPA made clear that the proposal did not include indirect energy sector impacts such as the international oil takeback effect or the rebound effect, and solicited comment on this omission and on ways that the effects could be included.

For the petroleum baseline, EPA described in the NPRM how the statute specifies use of a 2005 average for purposes of assessing biofuel

[2] 74 FR 25092-93; DRIA at 316-317.
[3] Id.
[4] DRIA at 317.

compliance with GHG reduction thresholds, and that EPA was precluded by the statute from conducting the type of "marginal" analysis that would allow incorporation of indirect effects such as the international oil takeback effect in its assessment of the baseline. Recognizing this limitation, we solicited "….comment on whether – strictly for purposes of assessing the benefits of the rule (and not for the purposes of determining whether certain renewable fuel pathways meet the GHG reduction thresholds set forth in EISA), we should assess benefits [of the rule] on a marginal displacement approach and, if so, what assumptions we should use for the marginal displacements." [5]

For the renewable fuel GHG assessments, we also discussed secondary impacts such as the international oil takeback effect and the rebound effect.[6] We explained in the NPRM that our proposed GHG assessments did not include such analyses, and we invited comment on how best to assess these potential impacts for the final rule.[7]

For our proposed assessment of costs and benefits in the NPRM, we explained the difficulty of capturing the impact of the international oil takeback effect and the domestic rebound effect due in part to different country-specific taxation and subsidy policies and possible future changes in those policies. We stated, however that we thought the effects "important to capture" and stated that we were "exploring methodologies for doing so." We specifically solicited comment on how to account for these effects.[8]

In response to its proposal, EPA did not receive any substantive comments related to the international takeback or global rebound effects, including no comments on the option described in the NPRM of including such effects through a marginal analysis in assessing the benefits of the rule but specifically excluding them from GHG threshold determinations. However, EPA received a number of comments on whether it was generally appropriate to include secondary or indirect petroleum fuel and energy sector impacts in the petroleum baseline determination. The CATF provided the following statement in its comments: "Second, we are also supportive of including all direct emissions and indirect emissions that are shown to be significant in the baseline for gasoline and diesel fuel."[9] Several other commenters highlighted the fact that we include "direct" and certain "indirect" emissions for renewable fuels but only "direct" emissions for petroleum fuel. The main concern was that by not including "indirect" emissions of petroleum fuels in the petroleum baseline we were underestimating their impacts. If baseline emissions were higher as a result of

[5] 74 FR at 25040 (col 2-3).
[6] DRIA at 317.
[7] 74 FR 25040-41.
[8] 74 FR at 25092-93.
[9] See EPA docket number EPA-HQ-OAR-2005-0161-2129.1, dated September 25, 2009.

including indirect petroleum sector effects in our analysis it would increase the perceived benefits of using renewable fuels and displacing petroleum fuels. One commenter also believed that EPA should credit renewable fuels with an indirect "avoidance credit" for mitigating petroleum indirect effects.[10] The avoidance credit for the renewable fuel, according to the commenter, would be based on renewable fuels displacing a marginal crude source (for example, tar sands, oil shale or coal-to-liquids) that would have higher GHG impacts than the 2005 baseline petroleum crude considered in establishing the 2005 baseline. Again the idea was that ------including the indirect emissions (which would be related to petroleum sector impacts) associated with petroleum fuel in the comparison of renewable fuels to baseline fuels would show larger GHG emissions reductions for renewable fuels.

EPA did not receive any comments suggesting, as CATF now does in its petition, that the renewable fuels assessments EPA proposed for purposes of GHG threshold determinations were inadequate because EPA had not included the GRE in its renewable fuel GHG threshold determinations.

In the final rulemaking (FRM), EPA determined that it was not appropriate to incorporate any secondary or indirect petroleum impacts into its GHG lifecycle analysis of the petroleum baseline. EPA based this decision on its interpretation of the definition of the petroleum baseline.[11] Similarly, EPA determined in the FRM that adding the avoidance credit to the GHG estimates of the renewable fuels would also be inappropriate.[12] EPA's final lifecycle GHG analyses for renewable fuels, like the proposed determinations, also omitted indirect energy sector impacts such as the GRE.

ii. CATF had ample opportunity to raise its concerns regarding the GRE during the comment period, but failed to do so

EPA disagrees that CATF did not have a reasonable opportunity to comment on EPA's omission of the global rebound/international takeback effect in its lifecycle GHG assessments for renewable fuels. All of the proposed lifecycle GHG assessments and GHG threshold determinations described in the NPRM were calculated without considering these effects. As noted above, the omission of these effects from the calculations was explicitly described in the preamble to the NPRM, and EPA specifically solicited comment on the option of including these types of indirect energy sector effects in its assessment of the costs, benefits and GHG impacts of the rule.

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[10] See EPA docket number EPA-HQ-OAR-2005-0161-2367.1, dated September 25, 2009.
[11] See 75 FR at 14784.
[12] See RFS2 Summary and Analysis of Comments, pages 7-34 and 7-35. http://www.epa.gov/otaq/renewablefuels/420r10003.pdf

The global rebound/international takeback effect was fully explained in both the NPRM and the DRIA. Thus, the Petitioner was clearly on notice of the issue and the possibility that EPA would exclude the effects from its final GHG threshold determinations, yet failed to submit comments raising the issues it now raises in its petition. Although EPA indicated in the NPRM that it intended to consider these effects further, and to consider the possibility of incorporating the effects in its analyses, EPA also indicated the difficulties it faced in doing so and specifically solicited comment to facilitate EPA's work in this area. However, with the exception of comments directed to the calculation of the 2005 petroleum baseline, no such comments were submitted by Petitioner or any other party. Based on all of these facts, EPA believes the claims and arguments included in the CATF petition could and should have been raised during the comment period.

iii. CATF has not asserted grounds for its objection that arose only after the public comment period

EPA also disagrees with the CATF assertion that the release of the October 1, 2009 analysis by Stoft represents grounds for its objection that arose only after the close of the comment period for the RFS2 Rule. The global rebound effect is not a new concept and, indeed, EPA itself described the effect (using somewhat different terminology) in the NPRM. Although the Stoft paper takes the position that the GRE should be accounted for in the context of California's low carbon fuel standard, the arguments that Stoft makes are all based on facts and theories that were known during the comment period, and which Stoft or CATF could have raised to EPA in timely comments on the NPRM. Thus, CATF has failed to demonstrate why it was impractical for it to raise its concerns regarding the GRE during the comment period, and has failed to show that its objections are based on grounds that arose only after the close of the comment period. For these reasons alone, the component of the CATF petition relating to the GRE is appropriately denied. In addition, as explained below, petitioners also fail to raise an issue of central relevance to the outcome of the rule, since EPA rejects CATF's proposition that the GRE should be included in EPA's lifecycle greenhouse gas assessments for renewable fuels.

iv. CATF's Assertions Regarding the GRE are Not of Central Relevance to the Outcome of the RFS2 Rule

EPA has prepared its lifecycle GHG assessments of renewable fuels for use in determining whether those fuels meet the GHG reduction thresholds specified in CAA section 211(o)(1) for the four types of renewable fuels. In each case, EPA is to compare the lifecycle GHG emissions of a renewable fuel to the "baseline lifecycle greenhouse gas emissions" to determine if the requisite GHG reductions are achieved. EPA has considered both the

definition of "lifecycle greenhouse gas emissions" and the definition of "baseline lifecycle greenhouse gas emissions" to identify the appropriate range of emissions impacts to include in its assessments. In its final RFS2 assessments, EPA excluded any indirect emissions related to the petroleum sector, and it applied this exclusion consistently in both its assessments of baseline fuels and renewable fuels. CATF now petitions us to include indirect emissions related to petroleum sector impacts, based on the definition of lifecycle greenhouse gas emissions, but neglecting the impact of the statutory definition of baseline lifecycle greenhouse gas emissions.

CAA section 211(o)(1) includes a specific definition of the petroleum fuel baseline that needs to be used for comparison purposes to renewable fuels in the GHG emissions threshold determinations.

> *The term 'baseline lifecycle greenhouse gas emissions' means the average lifecycle greenhouse gas emissions, as determined by the Administrator, after notice and opportunity for comment, for gasoline or diesel (whichever is being replaced by the renewable fuel) sold or distributed as transportation fuel in 2005.*

The RFS2 provisions require a GHG threshold determination that compares the lifecycle GHG results of renewable fuels to the lifecycle GHG results of the petroleum fuel baseline, using either a gasoline or a diesel fuel baseline, depending on which petroleum-based fuel the renewable fuel replaces. The comparison is to see if the renewable fuel meets the required minimum percentage reduction in GHG emissions compared to the baseline, to qualify as either renewable fuel, advanced renewable fuel, biomass based diesel, or cellulosic renewable fuel.

The CAA's definition of lifecycle GHG emissions explicitly mentions indirect emissions as part of the emissions that EPA includes in its lifecycle GHG assessments.

> *The term 'lifecycle greenhouse gas emissions' means the aggregate quantity of greenhouse gas emissions (including direct emissions and significant indirect emissions such as significant emissions from land use changes), as determined by the Administrator, related to the full fuel lifecycle, including all stages of fuel and feedstock production and distribution, from feedstock generation or extraction through the distribution and delivery and use of the finished fuel to the ultimate consumer, where the mass values for all greenhouse gases are adjusted to account for their relative global warming potential.*

These two definitions need to be reconciled when determining how to account for GHG emissions, including petroleum sector emissions, when

assessing and comparing the lifecycle GHG emissions of the renewable fuel and the petroleum baseline. EPA has taken a pragmatic approach in determining the petroleum baseline – interpreting the definition of baseline petroleum GHG emissions to include as many of the types of emissions referenced in the definition of "lifecycle greenhouse gas emissions" as it is practical and possible to incorporate in its analyses while also being consistent with the statutory directive that the baseline be determined by reference to average 2005 petroleum fuels.

The baseline methodology adopted by EPA is consistent with how EPA interpreted the definition of the petroleum baseline in the final RFS2 rulemaking. EPA interpreted this definition as precluding an assessment of indirect GHG emissions from the marginal barrel of crude oil expected to be produced in the future during CAA implementation, given the explicit use of the words "average" and "2005".[13] Indirect effects of a fuel arise because of a change in volume, and can only be calculated by analyzing the emissions impacts of a marginal fuel, based on comparing alternative volume scenarios. The indirect effects identified through such an analysis reflect the emissions impacts of the change in fuel volume, and reflect the marginal fuel associated with this change in fuel volume. Indirect effects do not reflect the emissions of the average fuel, and do not reflect a single specified fuel volume that is not changing, such as the 2005 gasoline and diesel volume. EPA interpreted the CAA reference to average 2005 petroleum fuels in the definition of "baseline lifecycle greenhouse gas emissions" as effectively precluding the inclusion of indirect petroleum sector emissions when determining the lifecycle GHG emissions of the petroleum baseline. Thus, even if there were indirect petroleum fuel and energy sector emissions attributable to baseline fuels, EPA determined that the reference to the average 2005 fuels in the definition of baseline lifecycle GHG emissions precluded their inclusion in the assessment.

In effect, EPA has interpreted the term "baseline lifecycle greenhouse gas emissions" to include all of the types of emissions that are listed in the separate definition of "lifecycle greenhouse gas emissions" that are not inconsistent with the specific reference in the definition of "baseline lifecycle GHG emissions" to 2005 average fuels. This has led us to exclude indirect petroleum sector impacts. As discussed below, this also has a critical limiting effect on the types of emissions that can reasonably be included in EPA's assessment of renewable fuel lifecycle GHG emissions and comparison of the renewable fuel to the baseline.

Having determined that the CAA precluded the incorporation of indirect petroleum sector emissions in its assessment of the petroleum baseline, EPA based its GHG baseline assessment solely on a direct

[13] 75 FR at 14784.

accounting of the emissions linked to the product by material, energy flows or services following supply-chain logic.[14] Thus, for the RFS2 FRM, EPA accounted for only the direct petroleum fuel and energy sector emissions associated with petroleum products in establishing the baseline lifecycle GHG emissions. EPA did not assess or include any potential GRE or other indirect effects from the petroleum fuel and energy sector in the baseline fuel emissions calculations.

Unlike the baseline fuels, the CAA does not specify that the lifecycle GHG emissions of renewable fuels are tied to a specific year or that they should be based on an average of any specified volumes. EPA determined that it would include both direct and indirect impacts in the lifecycle GHG emissions of producing and using renewable fuels to the extent feasible and appropriate. As noted above, assessing indirect effects requires using a marginal analysis that compares two different volume scenarios.[15] EPA analyzed the impact of a change in renewable fuel volumes in order to assess and include marginal or indirect impacts. For both the proposed and final rule EPA used a marginal analysis that compared two future renewable fuel volume scenarios. This allowed EPA to assess the indirect effects of increasing the production of renewable fuels and take into account market adjustments of the incremental volume change being analyzed in producing renewable fuels. This assessment included all direct and indirect emissions from the agricultural sector and also included all direct emissions from the petroleum fuel and energy sector. The direct emissions from the agriculture sector included GHG emissions such as those from the use of the fertilizer to grow the feedstock. The indirect emissions in the agriculture sector included emissions from indirect effects such as changes in the size of livestock herds or land use changes resulting from the market impact of using feedstocks for fuel as compared to other uses. The direct petroleum fuel and energy sector emissions included emissions such as the energy used to operate the plant that processes the feedstock into the fuel. For the purposes of our lifecycle analysis of renewable fuels, EPA compared the differences in total calculated GHG emissions of renewable fuels between two future scenarios in 2022, one with business as usual renewable fuel volumes and one with higher renewable fuel volumes. The results of this renewable fuel analysis were then compared to the 2005 average petroleum baseline to make the required GHG emissions threshold determination.

[14] This methodology is commonly referred to as an Attributional approach in lifecycle assessment terms.

[15] This methodology is commonly referred to as a Consequential analysis approach in lifecycle assessment terms. See Draft Regulatory Impact Analysis (DRIA) page 289 (pdf version) and Final Regulatory Impact Analysis (RIA) page 301 (pdf version) for more information.

The analytical approach that EPA established in the final RFS2 is consistent with the definitions of baseline lifecycle GHG emissions and lifecycle GHG emissions provided by Congress in CAA section 211(o). The approach provides values that are analytically sound and a process that is workable and implementable. As described in more detail below, attempting to include indirect petroleum fuel and energy sector emissions in the analysis of the renewable fuels would result in an analytically flawed and unworkable methodology that is not consistent with the use of the baseline petroleum fuel as defined in the CAA. EPA has determined that this is the case for including just the GRE, as CATF proposes, or including all indirect petroleum fuel and energy sector emissions as part of the lifecycle GHG estimates of each renewable fuel.

In their petition, the CATF suggests a methodology developed by Stephen Stoft for simply "adding" the global rebound effect to the total petroleum fuel and energy sector direct emissions associated with each individual renewable fuel when determining the lifecycle emissions for that renewable fuel. However, it would be technically inappropriate to incorporate just the global rebound effect into a renewable fuel GHG lifecycle assessment without also including other indirect petroleum fuel and energy sector impacts in such analyses. CATF proposes "cherry picking" a single indirect effect (which it presumes will be a disbenefit) for inclusion in the renewable fuel analyses. CATF does not provide any justification for doing so. This approach would certainly be analytically flawed, and this approach should be rejected on this ground alone. GRE is only one of the various energy market interactions and indirect petroleum fuel and energy sector impacts that are potentially associated with the increased volumes of each renewable fuel. It is not technically appropriate to consider just one potential indirect effect and ignore all others. The GRE addresses only one part of the petroleum fuel and energy sector impact, and these impacts are only one component of the complex demand response to a change in world oil prices.

As noted above, indirect effects are assessed by comparing two volume scenarios. Assessing indirect effects such as the GRE would therefore require a scenario-based analysis of the entire petroleum fuel and energy sector. It would be necessary to assess and include all of the other supply and demand interactions to determine a complete picture of net indirect petroleum fuel and energy sector impacts on emissions.

On the demand side of such an analysis, oil demand varies significantly by country and by use, therefore regional demand differences would need to be reflected in a full indirect petroleum fuel and energy sector analysis. For example, oil demand response is very different for industrial purposes compared to transportation purposes. Furthermore, understanding how a change in crude oil prices filters down to end user gasoline and diesel

prices is also an important aspect of an indirect petroleum fuel and energy sector analysis. However, these pump price effects are not uniformly or precisely dependant on a specific change in crude oil price. How the price of renewable fuels impacts the blended fuel (i.e., renewable fuel plus petroleum component) prices at the pump would need to be taken into account as well as how consumers would respond to any such price changes (with consumer response likely changing between the short term and longer term). In addition, how different countries adjust their taxes in response to a decline in world oil prices would also need to be incorporated into an indirect energy sector analysis. For example, to the extent that developing countries might reduce subsidies in the face of lower world oil prices, those countries may not see a change in demand.

On the supply side, a scenario-based analysis that included the petroleum fuel and energy sector within the system boundaries (i.e., as part of the scenario-based lifecycle GHG emissions estimates for renewable fuels) would also need to explicitly account for where the marginal barrel of oil would be produced. Depending on the type of crude impacted, different emission factors would be used to calculate the resulting change in GHG emissions. Similarly, modeling how OPEC would respond to a decline in world oil demand is also critical to a full scenario-based analysis. It is conceivable that oil producing countries could reduce the supply of oil to completely offset any reduced demand due to renewable fuels, in which case there would be no global rebound effect as CATF hypothesizes.

Finally, the change in all petroleum fuel and energy sector production and prices would also need to be included in a scenario-based analysis, not just the petroleum sector. One would need to know what fuels are being displaced from the increasing use of oil worldwide in order to calculate the GHG impacts. For example, if a decline in the world oil price causes an increase in oil use in China, India, or another country's industrial sector, this increase in oil consumption may displace natural gas usage. Alternatively, if the increased oil use results in a decrease in coal used to produce electricity, this increase in oil use could have significantly different GHG emissions impacts. Furthermore, the full interaction between the agricultural sector and the petroleum fuel and energy sector would need to be reflected (e.g., how changes in energy sector prices impact agricultural production).

Limiting the analysis to just the global rebound effect, as suggested by the CATF, would not be analytically sound, and would not reflect the real impact on GHG emissions. Looking at just the global rebound effect by itself fails to account for these other indirect effects. Without assessing all of the effects, it is not possible to know with confidence what the magnitude of any indirect emissions would be, or even whether there would directionally be a net increase or a decrease in emissions.

The only way to consider the indirect impacts of renewable fuel on the petroleum fuel and energy sector would be to undertake an expanded scenario-based analysis. As described above, this type of analysis looks at differences in total GHG emissions in both the transportation and energy sector between two future volume scenarios—one with a certain increased renewable fuel volume and one without the volume increase. For each individual renewable fuel, EPA would need to analyze the incremental GHG emission impacts of increasing the volume of that fuel on the transportation and energy sectors, including all resulting indirect and secondary impacts, including the global rebound effect, and the additional supply and demand responses described above.

The result of this kind of analysis is a comparison of total emissions for each of the two volume scenarios, that each include renewable and petroleum fuel use. The comparison between the scenarios shows the differences in total GHG emissions between the two scenarios. By its nature this comparison is not a comparison of the renewable fuels to a 2005 baseline that identifies a percent difference in emissions between the renewable fuel and the average 2005 baseline. It is a comparison of renewable fuels and future petroleum under one scenario to renewable fuels and future petroleum under another scenario. This kind of scenario analysis is thus not consistent with CAA section 211(o)'s requirement of a comparison to the average 2005 gasoline and diesel baselines.

In addition, this kind of comparison includes the change in emissions associated with the replacement of some volume of marginal petroleum fuel (gasoline or diesel) by a volume of renewable fuel, and the indirect effects that result from this replacement of the petroleum fuel. The scenarios would project what gasoline or diesel would be replaced by the renewable fuel, and a comparison of the scenarios would include a comparison of the emissions of the renewable fuel and the petroleum it directly replaces (e.g., all based on a 2022 analysis) as one part of the overall comparison of the scenarios. This type of scenario-based comparison therefore would also ignore the Congressional mandate that the emissions of the renewable fuel be compared to the emissions of a baseline fuel designated as a historic, average 2005 petroleum fuel. Instead, under this kind of analysis the emissions of the renewable fuel are compared to the emissions of the future marginal petroleum fuel it replaces. Although this kind of analysis could be used to attempt to assess indirect effects of increasing renewable fuel volumes on the petroleum fuel and energy sectors, for the reasons discussed above it could not be used as a way to incorporate global rebound effects into just the renewable fuels side of the lifecycle analysis.

Furthermore, adjustments that attempt to take into account the need to compare the renewable fuel to an average 2005 baseline petroleum fuel as defined by Congress would be analytically flawed and unworkable.

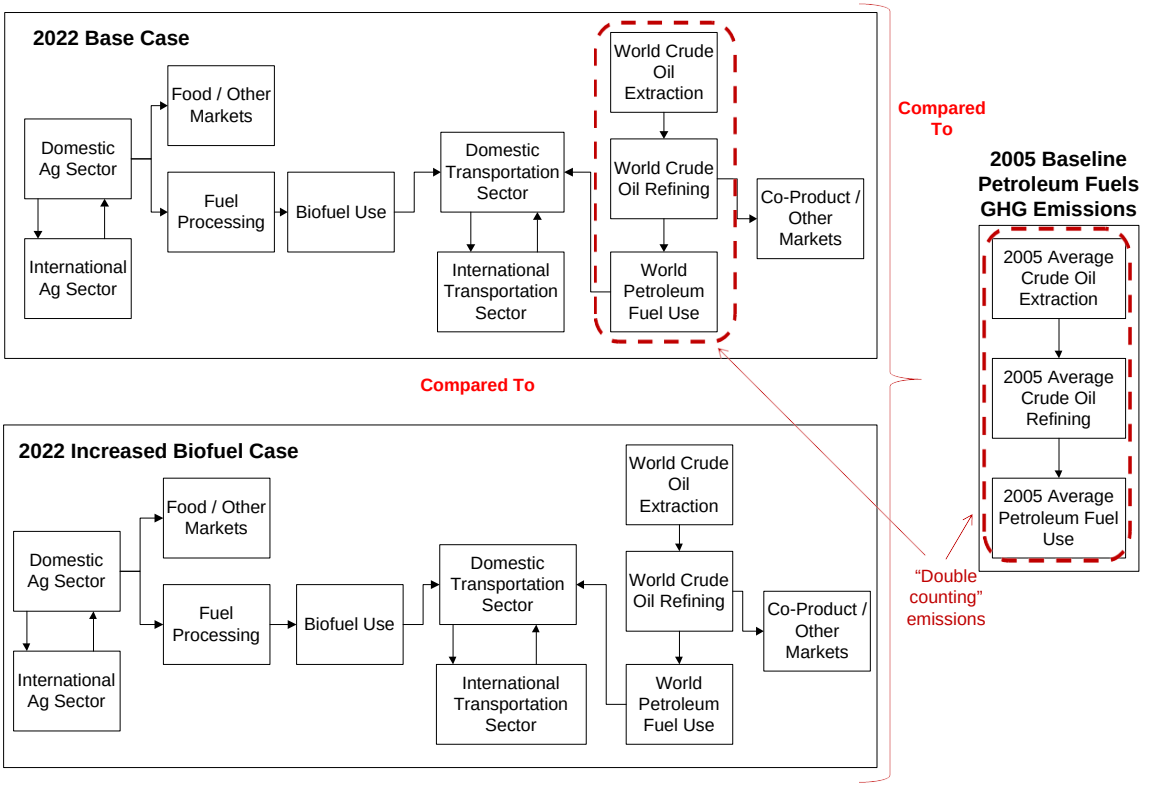

Figure 1. Scenario-Based Petroleum Fuel and Energy Sector Analysis Plus Comparison to 2005 Baseline

For example, one could attempt to take the difference in GHG emissions between the two volume scenarios discussed above and add an additional step comparing the net emissions of the two scenarios to the 2005 baseline lifecycle GHG emissions. However, such an approach would count impacts such as the crude oil extraction and refining emissions twice – once as part of the marginal analysis in the 2022 comparison of different volume scenarios and then again when comparing this result against the 2005 baseline. (See Figure 1) The fact that the marginal petroleum analysis is based on 2022 impacts while the petroleum average baseline is calculated for 2005 only exacerbates the technical inconsistency in accounting for crude oil extraction, refining and combustion.[16]

[16] As described in our final RFS2 rule, EPA's indirect analysis focuses on 2022 for two main reasons. The first reason is that it is appropriate to select a single year to analyze. The lifecycle GHG analysis is based on the use of various economic models, both domestic and international. These models estimate economic impacts on relevant sectors over a multi-year

It is also not feasible to correct for this double counting by trying to identify the direct and the indirect petroleum fuel and energy sector emissions and subtracting out the direct petroleum fuel and energy sector emissions from such a marginal analysis of renewable fuel impacts. It is impossible to differentiate the direct and indirect emissions impacts from a marginal analysis like this. The volume of petroleum produced and used and the direct emissions from crude oil extraction, refining and combustion of this volume of petroleum are dependent on the indirect impacts elsewhere in the petroleum fuel and energy sector. It is not technically possible to isolate the direct and indirect emissions in such a marginal analysis. Any attempt to estimate and separate the direct impacts from the indirect petroleum impacts in the marginal analysis would at best be an arbitrary estimate and not derived analytically.

Finally, these problems could not be avoided by trying to use the 2005 average baseline values for gasoline and diesel as part of the marginal analysis itself, instead of the future petroleum fuels projected in the volume scenarios. This would also be analytically unsound and unworkable.

In summary, petitioners' suggestion to just add a GRE effect to the current lifecycle analysis of the renewable fuels is analytically flawed as it addresses only one possible indirect effect and ignores all others. Conceptually, the way to assess and determine potential indirect effects outside the agriculture sector is to compare two future volumes scenarios that each include the renewable fuel and the petroleum fuel and energy sectors. However the result of this comparison is a total amount of net GHG emissions between the two volume scenarios. The result is not consistent with CAA section 211(o) as it does not include any comparison to the average 2005 baseline petroleum fuel, and it includes a comparison of the renewable fuel to the future marginal petroleum fuel it is projected to replace. Various attempts can be made to try and address these failures, such as adding a step that compares the results to the petroleum baseline, or distorting the results of the volume scenario analysis to attempt to avoid double counting of emissions or

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time period, and rely on assumptions or projections as to the various renewable fuel volumes out into the future. The results are dependent in part on the renewable fuel volumes that are used, and the modeling requires a stable prediction of the specific volumes and types of fuels used from year to year. This reflects the current status of the models available to perform this analysis. If there were changes in volumes in interim years in the modeling, this would have impacts on the later years of the modeling. The lack of a stable projection or assumption in the year to year fuel volumes would make it impossible to accurately model the predicted lifecycle GHG reductions for the different fuels. Analytically it would not be possible to model in advance the GHG impacts and make lifecycle determinations on renewable fuels. Second, 2022 is the year when all of the renewable fuel requirements of EISA are fully phased-in. Thus, year 2022 will yield a reasonable time frame for assessing the full impacts of the RFS2 program on lifecycle GHG emissions.

avoid comparing the renewable fuel to a future marginal petroleum fuel, but all of these attempts are analytically flawed and unworkable, and fail to address the inconsistency with the required comparison to an average 2005 petroleum fuel.

Instead of attempting these kinds of analytical distortions, EPA's RFS2 rule took a much more straightforward and analytically sound approach. EPA determined the lifecycle GHG emissions of the baseline fuel by analyzing the direct emissions effects associated with the 2005 fuel, on average. Indirect effects of the 2005 petroleum fuel were not assessed as this would require use of a marginal volume analysis that was inconsistent with the required use of an average 2005 fuel. EPA determined the lifecycle emissions of the renewable fuels by evaluating the direct and indirect effects of the increased use of the renewable fuel on emissions in the agricultural sector. EPA also calculated the direct emissions effects from the energy sector for the renewable fuel. However EPA did not try to include indirect effects from the petroleum fuel and energy sector as it could not be done in a way that was analytically sound and consistent with the use of the defined average 2005 petroleum baseline fuel.[17] This approach uses a consistent analytical approach for both the renewable fuel and the baseline fuel with respect to emissions from the agriculture, petroleum fuel, and energy sector, and is most consistent with the requirements of section 211(o).

C. Conclusions

Congress' definition of the baseline GHG emissions against which renewable fuels must be compared imposes limits on the kind of analysis EPA can do. It limits how EPA determines baseline GHG emissions, and precludes inclusion in the baseline of the kind of indirect effects that can only be determined using a marginal analysis of alternative volume scenarios. This also impacts the kind of analysis of the renewable fuel that can be performed for purposes of comparing the renewable fuel to the baseline petroleum fuel.

EPA is not aware of an analytically sound way to include potential marginal petroleum fuel and energy sector effects in the lifecycle analysis of the renewable fuels, and then compare the result to a historic average 2005 petroleum baseline, as required by Congress. Instead of a flawed and unworkable methodology that is much more complicated and no more robust, EPA chose to use the same analytical system boundary in analyzing the petroleum fuel and energy sector, for both the renewable fuel and baseline fuel analyses. This allowed EPA to compare the renewable fuels direct energy sector emissions and direct and significant indirect agricultural sector

[17] There are no direct or indirect agricultural sector emissions associated with the baseline petroleum fuel.

emissions to the direct energy sector emissions of the 2005 average petroleum baseline emissions. This approach is superior to the alternatives because it leads to a comparison between similarly-analyzed fuels, including those factors associated with renewable fuel and baseline fuel which we can reasonably account for while honoring the statutory directive to calculate and use for comparison a baseline defined in terms of 2005 average fuels.

Any attempt at this time to include an additional factor for global rebound effects as part of the lifecycle analysis of the renewable fuels would require a flawed analysis and various arbitrary adjustments not based on sound science and clearly would not reflect the total energy sector impacts on which global rebound is only one part. Therefore, EPA has concluded that the most technically sound and appropriate way of calculating the lifecycle GHG emissions of both the baseline and renewable fuels is to exclude all indirect energy sector impacts associated with the future displacement of petroleum fuel by the renewable fuel.

Based on all of the above, EPA has concluded that the CATF comments and arguments are not of central relevance to the outcome of the rulemaking as they do not provide substantial support for the argument that the final rule should be revised.

D. Denial of Petition to Reconsider and Request for Administrative Stay

EPA is therefore denying the Petition to Reconsider on the issue of the GRE, as the criteria for reconsideration under section 307(d) have not been met. Since we are denying the petition to reconsider, we are also denying the request for an administrative stay pending reconsideration.

IV. Petitions to Reconsider Aggregate Compliance Approach

A. EPA response to petitions for reconsideration of the aggregate compliance approach.

i. Background

EISA changed the definition of "renewable fuel" in the Clean Air Act Section 211(o) renewable fuels program to specify that renewable fuels must be "produced from renewable biomass."[18] The term "renewable biomass" is defined in the Act to include seven categories of biomass feedstock, including "planted crops and crop residue harvested from agricultural land cleared or cultivated at any time prior to the enactment of [EISA] that is either actively

[18] CAA 211(o)(1)(J).

managed or fallow, and nonforested."[19] EPA discussed this new renewable biomass requirement at length in the NPRM for the RFS2 rule, and solicited comment on how the new provision should be interpreted and implemented.[20]

In a section of the NPRM addressing the renewable biomass requirement for domestic renewable fuel, EPA identified a number of possible implementation approaches, and solicited comment on how the various options could be combined or altered with possible superior approaches.[21] The alternatives discussed in the NPRM included : (1) requiring that renewable fuel producers obtain specific types of documentation from their feedstock suppliers that would be used to demonstrate to EPA that their feedstocks satisfy the definition of renewable biomass; (2) requiring that renewable fuel producers keep records sufficient to support their claim that feedstocks qualify as renewable biomass, without specifying in the regulations the types of required records; (3) establishment of a chain-of-custody tracking system from feedstock producer to renewable fuel producer, resulting in tracking records being made available to fuel producers that would enable them to verify feedstock origin; (4) a "quality assurance program" whereby an independent third party would inspect a renewable fuel producer's facility and any intermediary feedstock supplier's facility to investigate compliance with the renewable biomass requirement; (5) an industry-wide quality assurance plan involving all renewable fuel producers and feedstock producers and suppliers that would be carried out by an independent surveyor funded by industry; (6) an EPA-developed website with an interactive map that would allow renewable feedstock producers to trace the boundaries of their property and create an electronic file with information regarding the land where feedstocks are produced, and which could be accessed by renewable fuel producers to determine if feedstocks they intend to purchase qualify as renewable biomass; (7) establishment of a baseline level of production of biofuel feedstocks such that reporting and recordkeeping requirements would be triggered only when the baseline production levels of feedstocks used for biofuels were exceeded.[22]

In the context of the first two possible approaches, we solicited comment on the feasibility of EPA using publicly available USDA data "to keep track of significant land use changes in the U.S. . . and to note general increases in feedstock supplier productivity that might signal cultivation of new agricultural land for renewable fuel feedstock production."[23]

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[19] CAA 211(o)(1)(I).
[20] 74 Fed.Reg. 24904, 24930-24941 (May 26, 2009).
[21] Id. at 24940.
[22] Id. at 24938-24941.

[23] Id. at 24939.

For the final rule, EPA responded to public comments and input from USDA to establish a blend of two of the concepts identified in the NPRM. Instead of establishing baseline levels of feedstock production such that individual reporting and recordkeeping would only be triggered when feedstock production levels exceeded the baseline, EPA instead established a baseline level of qualifying domestic agricultural land that qualifies under EISA for the production of crop and crop residue, and only requires individual recordkeeping and reporting if that baseline level of agricultural land is found through an annual EPA determination to have been exceeded. As noted above, EPA had identified this aggregate land approach in the NPRM as a possible supplemental investigatory tool for verifying compliance with renewable biomass requirements, but determined in the final rule that it provided a reasonable implementation approach standing alone, and was superior to the feedstock baseline approach.

The proposed aggregate feedstock approach was modified for several reasons. Under an aggregate approach that establishes a baseline level of feedstock production, feedstock volumes would have to be feedstock specific, which poses a number of logistical problems for an aggregate approach. It would be difficult to determine whether an exceedance of a feedstock baseline represented simply an increase in yield or the growth of the feedstock on existing agricultural lands that had previously been devoted to other agricultural purposes. By changing the focus of the aggregate approach to the number of acres used for agricultural purposes, EPA was able to shift the inquiry more closely to the issue in question – whether new lands may be introduced for growth of biofuel feedstocks. The approach allows increases in yields and shifting in acres of land devoted to growing various agricultural products without presenting a "false positive" result.

ii. Petitioners should have raised their concerns regarding the aggregate compliance approach during the comment period, but failed to do so

Petitioners assert that the aggregate compliance approach, as finalized, differed substantially from any of the approaches upon which EPA sought comment in the proposed RFS2 rule. However, EPA discussed and solicited comment in the proposed RFS2 rule on several different approaches to implementing the renewable biomass provisions, and specifically solicited comment on ways that the options could be combined to form the most feasible approach. Two of the concepts described in the NPRM were the basis for the final aggregate compliance approach. First, EPA solicited comment on the feasibility of using publicly available USDA data to keep track of significant land use changes in the U.S. to determine whether new agricultural

lands were being brought into cultivation.[24] EPA also took comment on the option of utilizing existing agricultural data to establish a baseline level of production of biomass feedstocks such that reporting and recordkeeping requirements would only be triggered when the baseline production levels of feedstocks used for biofuels were exceeded. The aggregate compliance approach combines elements of these two proposals to yield an implementation system very similar in effect. The final approach involves determining the total baseline number of acres used for agricultural production in 2007 that could qualify for the production of renewable biomass under EISA, provides for annual determinations of total domestic agricultural land in succeeding years, and provides that as long as the total in any given year does not exceed baseline levels, that renewable fuel producers using domestic crops and crop residue for biofuel production can assume that their feedstock satisfies the renewable biomass requirement.

The final rule reflected comments received on the proposal,[25] and was a logical outgrowth of it. Petitioners could have commented on EPA's proposed feedstock-based aggregate compliance approach and helped EPA to modify it into its final form, but failed to do so. Petitioners' central objection to the final aggregate compliance approach – that it fails to provide a perfect guarantee against the use of non-renewable biomass for renewable fuel production – could have been raised in the context of the proposed feedstock-based aggregate approach or other proposed approaches, but it never was. Similarly, their concern regarding shifts in land use undermining an aggregate approach was also relevant in the context of concepts discussed in the proposal, but Petitioners did not raise this concern during the comment period. Thus, EPA believes that Petitioners' concerns regarding the aggregate compliance approach could and should have been raised during the comment period.

iii. Petitioners have not asserted grounds for their objections that arose only after the public comment period.

Petitioners reference a November 2009 USDA study entitled "Ethanol and a Changing Agricultural Landscape" and USDA's March 31, 2010 release of its annual "Prospective Plantings" report as grounds for their objections that they claim arose only after the close of the comment period. Petitioners note that the first study found that U.S. cropland is expected to expand 1.6%

[24] Id.
[25] See, e.g., EPA-HQ-OAR-2005-0161-2419, EPA-HQ-OAR-2005-0161-2087, EPA-HQ-OAR-2005-0161-2104 .

between 2008 and 2015, including increases in acres devoted to the key biofuel feedstocks, corn and soy. Petitioners claim that the study calls into question "EPA's determination that the RFS2 will not result in increased cropland expansion ..."[26] However, EPA never made such a claim. Rather, EPA has asserted that for a number of reasons it believes that the total acres of cropland, plus pastureland and CRP land, will not exceed the 2007 baseline. EPA acknowledges that there may be increases in cropland acres,[27] but believes that those additional acres are likely to come from CRP land or pastureland. EPA also acknowledges that there may be increases in plantings of corn and soy, but believes that such additional acreage will likely come from farmers switching crops to grow these commodities instead of growing others, such as wheat. Thus, Petitioners have mischaracterized EPA's assertions and appears to have misunderstood the basis of the aggregate compliance approach. The referenced USDA study does not present new grounds for concern regarding the aggregate compliance approach, so it is irrelevant that it was released after the close of the comment period.

Petitioners also cite USDA's March 31 annual "Prospective Plantings" report. They note that the report indicates that farmers intend to plant more corn and soy than in the past, and that the anticipated soy plantings, if realized, could be the largest on record. The report also documents past increases in corn and soy production. Petitioners once again say that this study undermines "EPA's assumption that cropland will not increase in response to the RFS2."[28] As noted above, EPA does not assume that cropland acres will not increase, and an increase in cropland acres is not inconsistent with the aggregate compliance approach. Thus, Petitioners have failed to identify meaningful grounds for their objections that arose after the close of the comment period.

iv. Petitioners' assertions regarding the aggregate compliance approach are not of central relevance to the outcome of the RFS2 rule

Petitioners argue that the aggregate compliance approach is contrary to law because it permits violations of the statutory requirement that all eligible biofuels be derived from "renewable biomass." EPA disagrees. We believe that an aggregate compliance approach is appropriate for planted crops and crop residue from U.S. agricultural land for several reasons. First, based on our analysis of USDA data, as well as expected economic incentives for feedstock producers, we have high confidence that the aggregate compliance

[26] See, e.g., CATF Petition at 28

[27] See, e.g., RIA at 883.

[28] E.g., CATF Petition at 29.

approach will ensure that EISA's renewable biomass provisions related to crops and crop residue will be satisfied, as long as the 2007 baseline acreage is not exceeded. In the event that the baseline is exceeded, the aggregate compliance approach will be discontinued, and renewable fuel producers using domestically grown crops and crop residue will need to comply with the same individual recordkeeping and reporting requirements as producers using other types of feedstocks. EPA acknowledged in the final RFS2 preamble that it is possible that under the aggregate compliance approach some of the land available under EISA for crop production in 2007 could be retired and other land brought into agricultural production without altering the aggregate number of acres that are cropland, pastureland and CRP land or causing an exceedance of the 2007 baseline. [29] However, we also noted in the preamble that we believed that if such shifts were to occur, that they would be in de minimis levels, for reasons described in the preamble, regarding which Petitioners take issue. As described in more detail below, the arguments presented in the petitions, and the additional information cited therein, have not led us to alter our assessment. Indeed, additional information provided by USDA in the context of their assistance in preparing this petition response provides further support for the aggregate compliance approach. EPA thus remains satisfied that its approach is well tailored to reasonably implement the renewable biomass requirement for domestic crops and crop residues.

Petitioners first assert that EPA's acknowledgement that it is possible that de minimis land shifts could occur demonstrates that EPA's rule will not ensure that renewable fuel is made with renewable biomass. In response, we first note that EPA does not believe it is required under Section 211(o)(2)(A)(iii) or any other statutory provision to develop compliance provisions that would absolutely preclude any potential for non-compliance with the renewable biomass provision, regardless of how trivial the potential for noncompliance. Thus, the fact that EPA acknowledged a possibility of de minimis levels of land shifts under the aggregate compliance approach does not mean that the approach is legally deficient. EPA believes that the aggregate compliance approach is a common-sense and effective method of implementing the renewable biomass requirement in the U.S. that reasonably implements the statutory renewable biomass requirement and satisfies EPA's obligations under the statute.

EPA is not persuaded by Petitioners' arguments to the effect that there is more than a trivial possibility of non-compliance with renewable biomass requirements under the aggregate compliance approach. EPA believes that the number of acres involved in possible land shifts will be de minimis (providing the 2007 baseline is not exceeded) and, based on information from

[29] Regulation of Fuels and Fuel Additives: Changes to the Renewable Fuel Standard Program; Final Rule, 75 Fed. Reg. 14670, 14703 (March 26, 2010).

USDA, also believes that to the extent land shifts occur, only a very small amount of produce from such lands is likely to be used for biofuel production. These two factors combined confirm EPA's view that the aggregate compliance approach provides an effective and reasonable means to implement the renewable biomass requirement for domestic crop and crop residue.

Petitioners do not agree that existing evidence and reasonable assumptions indicate that land shifts that could undermine the aggregate compliance approach will occur in only de minimis levels. They argue that EPA's analysis of the trend of agricultural land contraction between 1997 and 2007 cannot be applied to subsequent years as EISA's total mandated volume of renewable fuel increases. EPA first notes that the estimated 41 million acre contraction in total agricultural lands between 1997 and 2007 occurred despite increases in population and increases in demand from expanding markets such as China. Thus, EPA believes that the historical trend is indeed informative in attempting to predict a future where additional demands on agricultural commodities from EISA and from elsewhere will come into play.[30] However, in addition to the historical data showing agricultural land contraction, EPA also noted economic factors, discussed below, that would tend to lead farmers to use existing agricultural land rather than clearing new land for additional crop growth. Finally, we note that under EISA the expected use of crops for biofuel production rises significantly in the early years of the program, when most of the qualifying fuel is expected to be produced from corn and soybeans, and then reaches a plateau as the Act calls for additional renewable fuels to be made from cellulosic materials such as forestry residues and crop residues such as corn stover. A large proportion of the volumes of crop-based fuels that are expected to be produced under full EISA implementation is already being produced today. EPA believes that the historical trend of U.S. agricultural land contraction, , economic factors that can be expected to encourage farmers to use existing agricultural land for expanded crop production, and the fact that much of the crop-based biofuel feedstock expected to be needed on an annual basis for full EISA implementation is already being devoted to that purpose, support the assumption underlying the aggregate compliance approach that new U.S.

[30] This information also supports EPA's aggregate approach in another way. It is possible that a substantial portion of the 41 million additional agricultural acres in 1997 that do not appear in the 2007 aggregate agricultural land estimate, still qualify for renewable biomass production under EISA. Such acres were likely "cleared or cultivated" prior to EISA, and would be eligible for renewable biomass production providing they were actively managed, and not forested, as of the date of EISA enactment. However, EPA calculated the baseline for use in the aggregate approach using the much lower 2007 value of 402 million acres, without providing any upward adjustment to reflect the possibility that additional historically-utilized acres would also qualify. This conservative approach provides another reason for confidence that the aggregate compliance approach will effectively implement EISA's renewable biomass requirements.

agricultural lands are unlikely to be devoted to crop production to make biofuels into 2022. EPA's annual assessment of total agricultural acres, and comparison of that value to the 2007 baseline, will provide a regular check on whether more land is being devoted to agricultural purposes over time.

Petitioners claim that EPA's assessment that cropland acres may increase under EISA may underestimate the potential for such changes because EPA modeling results are based on projections of increased crop yields over time and that these projections are "optimistic and uncertain at best. They claim that the projections for corn and soy are based on "uncertain technological advances and economic models."[31] Petitioners fail to suggest any alternative projected yield values. EPA first notes that projected increases in cropland acreage, or acres devoted to corn or soy, are not relevant to determining the reasonableness of the aggregate approach, since the approach is based on the total of cropland, pastureland and CRP land, and nothing in EISA prevents a growth in cropland at the expense of the other two categories or an increase in acres to corn and soy as opposed to other crops. Furthermore, as described in the RFS2 Regulatory Impact Analysis, EPA's projected domestic yields were based on USDA projections through 2018 (the last year of the USDA baseline projections report at the time) and then extrapolated to the year 2022.[32] In light of USDA's expertise in domestic agricultural matters, EPA believes it was justified in relying on USDA projections for the final rule, and that its extrapolation from available USDA data was reasonable. The USDA yield projections for major crops, such as corn and soybeans, are based on relatively stable trends from recent years. Since yields for these crops are projected to maintain these stable trends, it is reasonable to extrapolate these trends from 2018-2022. Petitioners' specific complaint with EPA's modeling approach is that it is based on technological advances "over the next twelve years, as opposed to what is actually likely to happen in the near term." Thus, Petitioners appear to be concerned that EPA's modeling results were based on full implementation of the statutorily-prescribed volumes in 2022, rather than on some prior year. In essence, they raise the concern that even if crop yields improve as projected by 2022, and the corresponding estimate of 2022 cropland acres is accurate, this may not be the case in prior years, before crop yields have improved to the extent projected for 2022. In response, EPA reiterates that even if cropland acres increase more than EPA has projected, that does not mean that total agricultural acres will exceed the 2007 baseline. The historical trend in agricultural land contraction, the fact that much of the crop-based fuel expected to be produced under full EISA implementation is already being produced, and economic factors related to developing new land for agricultural production, would still suggest that the total of cropland plus

[31] See, e.g., CATF Petition at 26.
[32] RIA at 874.

pastureland plus CRP land will not exceed the 2007 baseline acreage. . Furthermore, EPA will review USDA data annually to determine whether EPA's assumptions remain valid and will discontinue the aggregate compliance approach when and if it is determined that the 2007 baseline is exceeded. Therefore, EPA does not believe that the lack of modeling results for years prior to 2022 justify modification of the current approach.

Petitioners contest EPA's assumption that undeveloped land not used as agricultural land in 2007 is generally not suitable for agricultural purposes. EPA noted in the preamble to the final RFS2 rule that this assumption supported our determination that the aggregate compliance approach is appropriate for verifying compliance with the renewable biomass requirement for domestic crops and crop residue. Petitioners argue, citing a 2007 Government Accountability Office report,[33] that price support and risk protection available to crop producers under the Farm Bill provide substantial economic incentives for farmers to convert undeveloped land to cropland. However, EPA has consulted with USDA on this matter, and USDA has informed us that price supports and crop insurance should not significantly affect planting decisions on undeveloped land since direct payments and crop insurance are generally not available for land on which crops were not grown within the last three years.[34] Exceptions exist for land previously enrolled in the CRP (which in any case is eligible under EISA for renewable biomass production); where new acreage constitutes five percent or less of the insured planted acreage in the unit; or where a "new breakings" or "NB" written agreement specifically allows insurance for such acreage.[35] USDA's Risk Management Agency has provided data showing that, for the past three years, the number of acres covered by a NB written agreement ranged from 0.03 to 0.06 percent of total insured acres.[36] Furthermore, USDA notes that crop insurance is not likely to create an economic incentive for farmers to clear new land because the coverage provided has a deductible between 25 and 35 percent, which ensures that crop insurance does not create a profit where it would otherwise not exist.[37] USDA maintains that there are no USDA program payments encouraging corn and soybean planting in recent years, citing its Commodity Estimates Book for FY2011.[38] Moreover, USDA confirms that increased crop yields, which have been projected by both USDA and EPA, may cause farmers to switch from lower yield crops (such as wheat)

[33] http://www.gao.gov/new.items/d071054.pdf

[34] EPA Questions and USDA (ERS, FSA, WAOB, RMA) Responses Related to Petitions for EPA Reconsideration of the Aggregate Approach for Renewable Biomass under the RFS2 Program ("EPA/USDA Q&A Document"), Q&A #1.

[35] Id.

[36] Id.

[37] Id.

[38] Id., citing http://www.fsa.usda.gov/Internet/FSA_File/pb11_commodity_estimates_book.pdf

to higher yield crops (such as corn), but is unlikely to cause farmers to expand agricultural production to new land in the U.S.[39] USDA believes that if there is pressure to develop new lands for farming purposes, such pressure is more likely to lead to land clearing overseas.[40] However, EPA has instituted individual reporting and recordkeeping related to implementing the renewable biomass requirement overseas, so any new agricultural land development overseas will not be devoted to biofuel feedstock production for export to the U.S. EPA has recently finalized a petition process that parties may use in seeking the approval of an aggregate compliance approach in a foreign country, but each such petition will be evaluated on its merits, after an opportunity for public comment, and will only be approved if the circumstances indicate that an aggregate compliance approach is appropriate for the country in question.

Petitioners argue that "advances in herbicides, genetically engineered crops, and large farm equipment continue to provide an incentive to break new ground." [41] However, USDA has informed us that such advances typically lead farmers to switch from crops with lower returns, such as wheat, to those with higher returns, such as corn and soy. [42] Furthermore, to the extent that such advances do lead to the use of what had previously been considered marginal lands for crop production, EPA believes it likely that the marginal lands that will be brought into production will be pastureland, CRP land or those that have been brought out of production during the recent period of agricultural land contraction. Such lands either qualify, or are likely to qualify, for renewable biomass production. [43]

Finally, Petitioners argue that new studies undermine EPA's central assumption in developing the aggregate compliance approach, that existing agricultural land is sufficient to meet the increased volumes of biofuel and other foreseeable demands. However, the data and studies submitted do not support their claim that EPA's assumptions are incorrect.

Some of the studies cited show increases in cropland as well as in corn plantings. However, this data is not directly relevant to consideration of the validity of the aggregate compliance approach. The aggregate compliance approach is applicable to all "existing agricultural land" in the United States. The term "existing agricultural land" is defined in RFS2 as cropland, pastureland, and Conservation Reserve Program (CRP) land.[44] The studies

[39] Id., Q&A #2.
[40] Id.
[41] See, e.g., CATF Petition at 24-25.
[42] EPA/USDA Q&A Document, Q&A #2.
[43] See footnote 30.
[44] 40 C.F.R. § 80.1401 (2010).

Petitioners have cited that show increases in cropland[45][46] or acres of corn or soy planted[47] do not indicate that "existing agricultural land" as a whole has increased. The aggregate compliance approach is based on the premise that the amount of existing agricultural land in the U.S. is sufficient for biofuel production as well as for other agricultural purposes. The aggregate compliance approach is not invalidated by an increase in cropland or in acres of corn or soy planted, but only by an increase in total agricultural land. It is possible that total cropland or acres of corn or soy planted may increase over time, but the increase may be offset by a decrease in pastureland, CRP land, or cropland devoted to crops other than corn or soy, to yield no increase in total agricultural land.

For example, the prospective plantings study Petitioners cite shows a 3% increase in corn plantings for 2010, but also shows a 9% decrease in wheat acres that will be planted.[48] These numbers do not provide any indication that overall agricultural land is increasing, but indicate only that the market has recently favored corn and soy planting over other agricultural commodities. As further evidence of this, USDA has provided data that indicates that, at least in the major wheat-producing counties in the Midwest, decreases in plantings of wheat alone, since 1990, can account for at least half of the increase in corn and soy acres. [49]

Finally, none of the studies the Petitioners cited indicate that the increases in cropland or corn planting has been or will be occurring on land that does not qualify under the RFS2 definition of existing agricultural land. In fact, one study indicates that cropland could expand due to corn ethanol production, but suggests that the source of the expansion will be pastureland and CRP land,[50] both of which are considered existing agricultural land and could be the source of qualifying crop or crop residue feedstocks under RFS2. USDA confirms this, stating that rather than clearing new, non-agricultural land for planting crops, farmers are likely to convert pastureland into cropland because it requires fewer inputs to be suitably productive as cropland.[51]

Petitioners also cite a study showing the conversion of agricultural acres in California and Oregon to development between 1982 and 2000,

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[45] U.S. EPA, Renewable Fuel Standard Program (RFS2) Regulatory Impact Analysis (Feb. 2010), pdf p. 357.
[46] USDA, *Ethanol and a Changing Agricultural Landscape* (Nov. 2009), *available at* http://www.ers.usda.gov/Publications/ERR86/ERR86.pdf.
[47] USDA, *Prospective Plantings* (Mar. 31, 2010) *available at* http://usda.mannlib.cornell.edu/usda/current/ProsPlan/ProsPlan-03-31-2010.pdf.
[48] *Id.* at 1.
[49] EPA/USDA Q&A Document, Q&A #2
[50] USDA, *Ethanol and a Changing Agricultural Landscape* (Nov. 2009), available at http://www.ers.usda.gov/Publications/ERR86/ERR86.pdf, p. 7.
[51] EPA/USDA Q&A Document, Q&A #2

including roughly 665,000 acres that were converted from cropland to urban and built-up uses. They also cite a study by USDA's National Resources Inventory ("NRI") showing that more than four million acres of agricultural land has been lost to development between 2002 and 2007, although Petitioners acknowledge that this figure includes rangeland.[52] Petitioners cite these studies to support an assertion that "there is indeed a substantial acreage of farmland converted to developed land," and, therefore, that EPA's statement that is possible that land switches could occur in de minimis levels, lacks support.[53] EPA notes, first, that the conversion of rangeland to developed uses is irrelevant to any evaluation of the adequacy of the aggregate approach, since rangeland is not included within the definition of "existing agricultural land" and, therefore, cannot be used to produce renewable biomass. Since there are vast quantities of rangeland in the United States, EPA expects that a substantial part of the 4 million acres covered by the NRI study were indeed rangeland. Also, any expansion of agricultural land that occurred prior to December 19, 2007 is also irrelevant, since all agricultural land existing as of that date qualifies for renewable biomass production under EISA. As to the 665,000 acres of cropland that were lost to development in California and Oregon over roughly two decades, EPA believes that such losses may have contributed to the overall contraction in total agricultural acres that was documented through its historical analysis. To the extent these or similar croplands lost after 2007 were or will be replaced , we believe it likely that they were or will be replaced with pastureland or CRP land, as described above, rather than with newly cleared land that does not qualify for renewable biomass production under RFS2. Finally, even if some portion of this type of cropland were or will be replaced with newly cleared land, such a shift would likely be de minimis when viewed in the context of the 402 million acre total that is the 2007 baseline. Moreover, since biofuels are only expected to be produced on a small fraction of total U.S agricultural land, there is only a trivial potential that non-qualifying biofuel feedstocks would be produced on such lands.

Petitioners also reference data from three Midwest states which they argue illustrates the conversion of native grasslands to cropland.[54] However, it is unclear from the information provided whether the grasslands that were converted were previously classified as pastureland or CRP land, in which case the conversion to cropland would simply represent a shift from one type of land within the definition of "existing agricultural land" to another. Such a

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[52] Natural Resources Conservation Service, *State of Oregon 1997 National Resources Inventory Results: Conversion of Prime Farmland Soils on Natural Resource Lands to Urban Lands Findings* (Revised December 2000), *available at* http://www.or.nrcs.usda.gov/technical/nri/archive/res2urbprime.html.

[53] See, e.g., CATF Petition at 22.

[54] See, e.g., CATF Petition at 25.

shift could occur, and the resulting crops and crop residue from those lands would qualify as renewable biomass. In addition USDA has informed us that a "new breaking" for purposes of the referenced data gathering would include any land that simply did not have a crop history for the prior three years. Thus, some of the land may have been cropped four or more years prior to the data gathering effort, and therefore would qualify under EISA for the production of renewable biomass, contrary to Petitioners' assumptions. Finally, USDA informs us that the total number of acres reported as "new breakings" is likely an overestimate, since if any portion of a planted area was "newly broken," then the entire acreage would have been categorized as such, rather than just the portion that was actually newly broken.[55]

In the context of preparing this petition response, USDA provided us with data showing the percentage of agricultural land devoted to producing feedstock for biofuel production for the decade beginning in 2000/2001.[56] After adjusting acreage to account for co-products from corn and soy cultivation, USDA estimates that only 4.9% of total agricultural land was directly attributable to biofuel production in 2009/2010.[57] Because only a relatively small percentage of existing agricultural land is devoted to growing feedstock for biofuel production, it is likely that only a correspondingly small percentage of the production from the type of de minimis land shifts that EPA acknowledged could occur is likely to be used in biofuel production. In light of the expectation that any potential land switches would involve at most a de minimis number of acres, this means that there is a theoretically exceedingly small level of possible noncompliance under the aggregate compliance approach. Thus, EPA believes that the aggregate compliance approach provides a reasonable and effective means for implementing the renewable biomass requirement for domestic crops and crop residue.

B. Conclusions

For the foregoing reasons, EPA has concluded that the concerns expressed by Petitioners should have been raised during the comment period and that their arguments and newly-submitted data and information are not of central relevance to the outcome of the rulemaking, as they do not provide substantial support of the argument that the final rule should be revised.

[55] EPA/USDA Q&A Document, Q&A #3.
[56] EPA/USDA Q&A Document, Q&A #4
[57] Id.

C. Denial of Petitions for Reconsideration and Requests for Administrative Stay

EPA is therefore denying the Petitions for Reconsideration regarding the aggregate compliance approach, as the criteria for reconsideration under section 307(d) have not been met. Since we are denying the petition for reconsideration, we are also denying the requests for an administrative stay pending reconsideration.