copa cogeca

european farmers european agri-cooperatives

BI(11)4019:3

Monsieur Dacian Ciolos
Membre de la Commission
européenne
200, rue de la Loi
B-1049 Bruxelles

Bruxelles, le 7 juin 2011

Objet : phénomène de changements indirects d'affectation des sols liés aux biocarburants et aux bioliquides (iLUC)

Monsieur le Commissaire,

La Commission européenne prépare d'ici à juillet 2011 son rapport concernant l'étude d'impact du phénomène des changements indirects d'affectation des sols liés aux biocarburants et aux bioliquides (iLUC), qui sera assorti le cas échéant d'une proposition législative. Dans ce contexte, le Copa-Cogeca souhaite vous faire part de sa position.

Le Copa-Cogeca prend note de l'opinion de la Commission européenne selon laquelle le phénomène des changements indirects d'affectation des sols liés aux biocarburants et aux bioliquides n'est ni observable ni mesurable ainsi que de sa décision d'évaluer ce phénomène à l'aide de modèles. Pour le Copa-Cogeca, une évaluation de ce phénomène à l'aide de modèles ne fournira pas des résultats suffisamment fiables. Le Copa-Cogeca constate d'une part que les modèles d'équilibre général présentent des résultats extrêmement variables et en baisse continue au fur et à mesure qu'ils améliorent leur fonctionnement et d'autre part que les modèles causals-descriptifs conduisent selon les cas à des résultats qui pourraient permettre de conclure à l'inexistence de l'iLUC voire à un iLUC négatif. Par ailleurs, aucun de ces modèles ne prend en compte ni les effets des critères de durabilité établis par la directive 2009/28/CE ni la gouvernance environnementale dans les régions où le phénomène de changement d'affectation des sols est susceptible de se produire.

Bien que la production alimentaire constitue l'objectif principal de l'agriculture de l'UE, le Copa-Cogeca fait remarquer que :

- L'agriculture européenne n'exploite pas la totalité des terres arables cultivées antérieurement dans l'UE ;
- Seule une partie des oléagineux, des céréales et des betteraves à sucre utilisés pour fabriquer des biocarburants est réellement convertie en énergie. La plus grande partie reste dans le secteur de l'alimentation comme aliments pour animaux. Le remplacement des oléagineux, des céréales et des betteraves à sucre par des cultures destinées à des fins uniquement non alimentaires constituerait une réelle menace pour la sécurité alimentaire. Par contre, les biocarburants de première génération à base d'oléagineux, de céréales et de betteraves à sucre conduiront à stimuler le développement de ces cultures, générant une offre supplémentaire de résidus de cultures disponibles pour la fabrication de biocarburants de deuxième génération ;

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EC Register Number | Copa 44856881231-49 | Cogeca 09586631237-74

- Le phénomène des changements indirects d'affectation des sols n'est pas seulement lié aux biocarburants et aux bioliquides. Il existe des changements indirects d'affectation des sols bien plus évidents que ceux liés aux biocarburants et aux bioliquides, notamment ceux liés aux politiques d'aménagement du territoire, environnementales, commerciales et agricoles. D'ailleurs, la réduction importante du défrichement de la forêt tropicale au Brésil démontre l'efficacité des mesures entreprises par le gouvernement brésilien.

Le Copa-Cogeca s'oppose à une proposition législative concernant le phénomène des changements indirects d'affectation des sols liés aux biocarburants et aux bioliquides fondée sur des modèles inexacts et contradictoires, qui pénaliserait la production de biocarburants d'origine communautaire. En effet, le phénomène des changements indirects d'affectation des sols est fortement influencé par de nombreuses mesures politiques qui ne sont pas mutuellement liées.

Pour le Copa-Cogeca, l'efficacité des critères de durabilité établis par l'Article 17.2 à 17.6 de la directive 2009/28/CE permettra de garantir la durabilité des biocarburants d'origine communautaire dès lors qu'ils seront pleinement mis en œuvre dans tous les Etats membres. L'UE devrait encourager l'application de législations environnementales efficaces dans les pays tiers afin de prévenir le phénomène des changements d'affectation des sols. C'est pourquoi le Copa-Cogeca appelle la Commission européenne à protéger les terres riches en carbone ainsi que la biodiversité dans les pays tiers via des accords bilatéraux, un soutien financier et des conseils juridiques. Cette approche serait bien plus efficace que celle des facteurs iLUC, lesquels auraient des effets préjudiciables pour la production européenne et ne garantiraient pas l'atténuation du phénomène de changement d'affectation des sols dans les pays tiers.

En outre, une évaluation plus juste des émissions de gaz à effet de serre nécessite une révision de la valeur pour le combustible fossile de référence, qui sous-estime les émissions de gaz à effet de serre des carburants d'origine fossile.

Enfin, l'UE devrait mettre sur pied des incitations au développement et à la multiplication de biocarburants avancés et de la prochaine génération.

Nous espérons que ces remarques retiendront votre bienveillante attention et nous vous prions de croire, Monsieur le Commissaire, à l'assurance de notre haute considération.

Cette lettre est également envoyée à Messieurs Janez Potocnik, Karel De Gucht, Günter Oettinger et à Madame Connie Hedegaard.

[redacted]

[redacted]

Copies : Georg Haeusler, [redacted] José Manuel Silva Rodriguez, Loretta Dormal-Marino,

[redacted]

Annexe

L'agriculture de l'UE n'exploite pas la totalité des terres arables cultivées antérieurement dans l'UE. Depuis 2008, la surface totale pour les grains (céréales, oléagineux, protéagineux) a baissé de 1,6 millions d'hectares, passant de 71,2 à 69,6 millions d'hectares. En outre, les restrictions à l'exportation du sucre imposées à l'UE par l'OMC et l'augmentation des importations de sucre ont libéré 700 000 hectares de betteraves sucrières.

L'UE importe plus de 80 % de ses besoins en protéines destinées à l'alimentation animale, soit 35 millions de tonnes équivalent tourteau de soja pour une valeur de 14 milliards d'euros. Les coproduits riches en protéines issus de la fabrication des biocarburants permettront à l'UE de réduire sa forte dépendance vis-à-vis des importations d'aliments pour animaux.

- Par litre de bioéthanol produit dans l'UE, on obtient entre 1 et 1,2 kg de coproduits destinés à l'alimentation animale. La production de 16 millions de tonnes de bioéthanol nécessaires pour remplacer 10% des essences dans l'UE en 2020 génèrera jusqu'à 21 millions de tonnes d'aliments pour animaux comme les DDGS, qui se substitueront à 6,6 millions d'hectares de soja dans les pays tiers.

- Entre 2003 et 2008, la production de colza est passée de 12 millions de tonnes à 19 millions de tonnes, générant 4 millions de tonnes supplémentaires de tourteaux de colza. Ces 4 millions de tonnes de tourteaux de colza se substituent déjà à 2 millions d'hectares de soja dans les pays tiers. Dans l'UE-27, le potentiel de production d'oléagineux est estimé à 39 millions de tonnes, soit 7,3 millions de tonnes de tourteaux supplémentaires. Au total, ces 11,3 millions de tonnes de tourteaux supplémentaires se substitueront à 5,6 millions d'hectares de soja dans les pays tiers.

Les coproduits riches en protéines issus de la production de biocarburants de première génération dans l'UE permettraient de remplacer 12,6 millions d'hectares de soja, soit 11% de la superficie mondiale de soja, estimée à 110,6 millions d'hectares en 2025 (FAPRI, 2011).

Même si la production de soja n'engendre pas directement la déforestation, l'on a constaté un transfert de la production brésilienne de viande bovine vers des zones boisées afin de laisser la place à la production de soja.

La production de biocarburants dans l'UE contribuera par conséquent à réduire non seulement la superficie nécessaire pour des cultures destinées principalement à la production d'aliments pour animaux, mais par là même également à compenser le phénomène des changements indirects d'affectation des sols causés par nos importations de soja. D'ailleurs, le rapport[1] de la Commission montre que la production de viande bovine au Brésil a pour conséquence deux fois plus d'émissions de gaz à effet de serre que la production de viande bovine dans l'UE. Si l'on tient compte de la déforestation causée par la production brésilienne de viande bovine, cette dernière a pour effet quatre fois plus d'émissions.

En conclusion, pour le Copa-Cogeca, le phénomène des changements d'affectation des sols liés aux biocarburants et aux bioliquides n'existe pas.

[1] Rapport final CCR/IPSC/IPTS sur l'évaluation de la contribution du secteur de l'élevage aux émissions de gaz à effet de serre de l'UE, novembre 2010

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Subject: Lettre à l'attention de M. Dacian Ciolos. Le phénomène de changements indirects d'affectation des sols liés aux biocarburants et aux bioliquides (iLUC).

Monsieur le Commissaire,
Veuillez trouver ci-joint une lettre concernant le phénomène de changements indirects d'affectation des sols liés aux biocarburants et aux bioliquides (iLUC).

Pour [redacted]

[redacted]

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Visit our web site :
www.copa-cogeca.eu<http://www.copa-cogeca.eu>

Copa - European farmers
Cogeca - European agri-cooperatives

EBB
European Biodiesel Board

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Ref: 488/PRO/11

Brussels, June 29th, 2011

TO: Mr. Dacian CIOLOS
Commissioner for Agriculture and Rural Development
European Commission
B-1049 Brussels
BELGIUM

CC: *Mr. Jose Manuel SILVA RODRIGUEZ, Director General, DG AGRI*
Ms. Maria Angeles BENITEZ SALAS, Director, DG AGRI H
[redacted]

RE: Commission approach on Indirect Land Use Change (ILUC) is putting at risk the Renewable Energy Directive objectives

Dear Sir,

EBB, the European Biodiesel Board, representing the majority of EU biodiesel producers and about 80% of EU biodiesel output, is committed to the highest sustainability of the products it releases on the market, in line with the Renewable Energy Directive 2009/28 (the RED).

The RED currently represents the most comprehensive and stringent set of sustainability criteria applying to biofuels production worldwide, guaranteeing that only biofuels with a high sustainability profile are placed on the European market. European biodiesel will contribute the most towards the RED target of 10% renewable energy consumption in transport by 2020, as it currently represents more than ¾ of all biofuels consumed in the EU.

Yet, EBB is deeply concerned by the way in which Commission services are currently addressing the issue of Indirect Land Use Change (ILUC), which risks nullifying the positive objectives set out by Directive 2009/28.

Article 19-6 of the RED requires the Commission to review the impact of ILUC on biofuels greenhouse gas emissions and to propose ways to minimize that impact, if appropriate by putting forward a legislative proposal. The Commission has been developing an Impact Assessment based on four policy options presented in the report published last December 22nd 2010.

We understand that the current version of the Impact Assessment reflects a very high ILUC impact for the biodiesel pathways, and specifically rapeseed-based biodiesel. In our view, this is all the more difficult to understand as rapeseed biodiesel has intrinsically a low ILUC risk. Rapeseed cultivation increases yields of other crops in the rotation. In addition, biodiesel production from rapeseed generates large volumes of animal feeding substituting imports of proteins from South America. More generally, rapeseed biodiesel appears as one of the most sustainable biofuels pathways, due to already stringent CAP requirements and good agricultural practices adopted by EU farmers.

If the latest Commission modelling exercise was to be used as a basis for future legislative actions, this could eliminate most biodiesel and specifically European biodiesel from the market. In the view of EBB, this would be both illogical and totally unjustified, considering the following:

- Biodiesel currently represents more than 75% of all biofuels and will therefore bring the largest contribution to the 10% transport target of Directive 2009/28. The strong need for EU biodiesel is unambiguously reflected in the Member States National Action Plans (NAPs) submitted in 2010, showing that biodiesel will meet at least 66% of the 2020 transport target. This is all the more true as Member States also expect a modest contribution from "2nd Generation" biofuels by 2020.

- Another major driver for biodiesel consumption is the strong dieselization of the EU transport sector. According to Commission DG Energy own projections, diesel will represent close to 60% of energy used in road transport in 2020-2030[1]. In this perspective, large volumes of EU produced biodiesel will be needed in order for the EU to meet the 10% transport target of Directive 2009/28. The EU is also largely dependent upon imports (from Russia and the Middle East) to cover its increasing diesel demand. Therefore, EU biodiesel is a critical tool to reduce the EU mineral diesel deficit and to improve the EU's security of energy supply.

In view of the above, the European Commission cannot reasonably let its 2020 objectives of climate change mitigation and energy security being knocked-off course by artificially penalizing the European biodiesel sector. This is all the more true as ILUC is still today recognized as a very elusive concept that largely fails to be properly captured by econometric modelling. In the view of EBB, it would be highly unacceptable to base future EU policy decisions on questionable modelling exercises, especially if this was to result in eliminating the most needed European biofuel.

The oilseeds supply chain has already shared with your services substantial scientific work demonstrating that rapeseed biodiesel presents a low ILUC risk, provided key factors such as co-products substitution and yield increases are properly taken into account. Without denying the considerable uncertainly attached to any modelling exercise, this work illustrates that the ILUC impact of biodiesel pathways can be substantially lower than what has been modelled by Commission services until now.

The merit of imposing an ILUC penalty on biofuels remains totally unproven, as it would purely and simply penalize the industry without creating any corresponding sustainability benefit. Indeed, operators involved in the biodiesel supply chain (farmers, crushers, biodiesel producers, etc) do not have direct control over land use policies implemented in countries situated outside the EU.

Moreover, it is particularly disturbing to think that the EU is actually disregarding the positive impact of the measures already provided under Directive 2009/28 such as the ban of high carbon stocks area and the requirements for a minimum GHG saving level.

Finally, there is also a more general concern about the way in which the ILUC Impact Assessment is being conducted. It appears that the revised version of the IFPRI study commissioned in 2010 has been taken as the main basis for the ILUC calculations, with no possibility for stakeholders to actually review and comment the content of this study. This raises a major issue of transparency and democratic decision-making. Let us once again emphasis that in case the Commission decides to propose ILUC penalties for the different biofuels pathways, this will have wide-ranging implications for an entire industrial sector and ultimately for the overall EU climate change strategy.

Against this background, I would like to ask for an opportunity to meet with you at your earliest convenience, in order to present you further the perspective of the biodiesel industry on the ILUC file.

I hope that you will consider favourably our request and remain,

Yours faithfully,

[redacted]

CC: Mr. Günther Oettinger, Commissioner for Energy
Ms. Connie Hedegaard, Commissioner for Climate Action
Mr. Karel De Gucht, Commissioner for Trade

[1] http://ec.europa.eu/dgs/energy_transport/figures/trends_2030_update_2007/energy_transport_trends_2030_update_2007_en.pdf, p.54.

[redacted]

[redacted] Ref. Ares(2011)757377 - 12/07/2011

[redacted]
Assistant to Peter Vis, Head of Cabinet
Cabinet Connie Hedegaard
BERL 9/372
Ph.: +[redacted]
Fax: +[redacted]
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From: [redacted] [mailto:[redacted]@europarl.europa.eu]
Sent: Tuesday, July 12, 2011 11:00 AM
To: HEDEGAARD Connie (CAB-HEDEGAARD); OETTINGER Guenther (CAB-OETTINGER); POTOCNIK Janez (CAB-POTOCNIK); CIOLOS Dacian (CAB-CIOLOS); DAMANAKI Maria (CAB-DAMANAKI); HAHN Johannes (CAB-HAHN); KALLAS Siim (CAB-KALLAS); PIEBALGS Andris (CAB-PIEBALGS); TAJANI Antonio (CAB-TAJANI); DE GUCHT Karel (CAB-DE GUCHT)
Cc: [redacted]
Subject: Joint MEP letter - Concerns: Pending Commission decision on Indirect Land Use Change (ILUC)
Importance: High

To:

Commissioner Hedegaard

Commissioner Oettinger

Commissioner Potocnik

Commissioner Ciolos

Commissioner Damanaki

Commissioner Hahn

Commissioner Kallas

Commissioner Piebalgs

Commissioner Tajani

Commissioner De Gucht

Concerns: Pending Commission decision on Indirect Land Use Change (ILUC)

Dear Commissioner,

Attached you will find a joint letter by Members of the European Parliament regarding the pending Commission decision on emissions from indirect land use change (ILUC).

We are looking forward to your response.

Sincerely yours,

[redacted] on behalf of the undersigning MEPs

Office of [redacted] MEP
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European Parliament
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Annexe [redacted]

[redacted] Ref. Ares(2011)757377 - 12/07/2011

To:
Commissioner Hedegaard
Commissioner Oettinger
Commissioner Potocnik
Commissioner Ciolos
Commissioner Damanaki
Commissioner Hahn
Commissioner Kallas
Commissioner Piebalgs
Commissioner Tajani
Commissioner De Gucht

Brussels, 12th July 2011

Concerns: Pending Commission decision on Indirect Land Use Change (ILUC)

Dear Commissioner,

As Members of the European Parliament, active in the Committees responsible for the policy on climate and energy, we would like to express our concern about your upcoming decision on addressing the emissions from indirect land use change (ILUC) as required by the legislative mandate in the Renewable Energy and Fuel Quality Directives. We understand that you will be debating this in a group of climate Commissioners next week.

We would like to remind you that it was at the insistence of the European Parliament that the article 19 (6) to address ILUC was included in the Directives. We would like to congratulate you for a large amount of research that the Commission has conducted since 2009 and encourage you to take action on the basis of the best available science. It is imperative that the Commission comes up with a meaningful proposal on ILUC, which reflects the existing science that responds to the variation of level of risk regarding indirect GHG impact of different feedstocks for biofuels.

The only way to ensure that this is accurately dealt with and reflected by the RED and FQD is by attributing ILUC factors specific to each feedstock and in accordance with the precautionary principle.

This approach was already put forward by ENVI and ITRE committees at the time the legislation was under deliberation. An independent study on ILUC commissioned by the European Parliament's Environment Committee supported the approach and concluded: *"Option (4) "Attribute a quantity of greenhouse gas emissions to biofuels reflecting the estimated indirect land-use impact" is the only valid option which should be explored further, as it represents the quantitative approach towards GHG emissions from ILUC, as recommended in this study."*[1]

A similar approach is already implemented with good results in the world's 8th biggest economy California and in the US federal legislation. The values have been

[1] Fritsche et al. (2011): Indirect land use change and biofuels.
http://www.europarl.europa.eu/activities/committees/studies/download.do?language=en&file=35128#search=%20indirect%20land%20use%20change%20

inserted and will be subject to a regular review, as science progresses. This could be the way forward for the European Commission as well.

We would like to emphasize that all the other options (including increasing GHG thresholds) would not address the issue of ILUC by introducing "a concrete methodology for emissions from carbon stock changes caused by indirect land-use changes" and thus not correspond to the mandate given in the RED and FQD. Going for any other option will severely undermine the ability of the European Commission to deal with the phenomenon of ILUC. Studies suggest that option 2 of raising thresholds of GHG will result in even more concentration of growing biofuels crops on arable land - which has the lowest direct LUC impacts - thus raising the risk of displacement even further (Fritsche et al.).

Not going for a crop specific ILUC factor would also be detrimental to the investment security needed now to get large amount of investments into second and third generation biofuels that do not compete for arable land with food production. More sophisticated second and third generation biofuels will be more expensive than environmental harmful first generation. Not introducing ILUC factors will enshrine this unfair level playing field towards the more innovative biofuel investments.

EU policy on biofuels is at a cross road. If the Commission and EU Institutions are not able to address now the underlying problems of sustainability of biofuels policy, this will question its credibility when it comes to the promotion of biofuels. It would also fail to send the right investment signal and thus fail to drive the markets towards good biofuels with low ILUC risk that we will need in our fight against climate change in the future.

As key climate change Commissioners meet to discuss how to proceed on ILUC, the EU cannot afford to let its standards slip by ignoring science. We look forward to seeing appropriate action from the Commissioners in the coming days in opting for option 4 and publishing a legislative proposal on ILUC, as requested by the European Parliament.

Yours sincerely,

[redacted] S&D, ENVI Committee Chairman
[redacted] Greens/EFA, Rapporteur of the RES-D
[redacted] ALDE coordinator for the ENVI Committee
[redacted] S&D coordinator for the ENVI Committee
[redacted] Greens/EFA, coordinator for the ENVI Committee
[redacted] EPP
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[redacted] S&D
[redacted] Greens/EFA
[redacted] ALDE
[redacted] ALDE
[redacted] GUE/NGL

COCERAL

FEDIOL

TO: Mr. Dacian CIOLOS
Commissioner for Agriculture and Rural Development
European Commission
B-1049 Brussels
BELGIUM

Brussels, 19 July 2011

CC: Mr. Georg HAEUSLER, Head of Cabinet
Mr. Yves MADRE, Member of the Cabinet
Ms. Alina UJUPAN, Member of the Cabinet
Mr. Jose Manuel SILVA RODRIGUEZ, Director General, DG AGRI
Mr. Joao PACHECO, Deputy Director General, DG AGRI
Ms. Loretta DORMAL MARINO, Deputy Director General, DG AGRI

Re: Impact of a potential iLUC proposal on the European agricultural and biofuels supply chain

Dear Commissioner,

As an integral part of the biofuels supply chain, FEDIOL[1] and COCERAL[2] are committed to promote biofuels from sustainable raw materials responding to the stringent criteria set out under the Renewable Energies Directive (RED). FEDIOL and COCERAL are, however, highly concerned about the implications of a likely proposal to address ways to minimize indirect land use change (iLUC).

The 10% EU target for renewable energies in transport took into account the environmental concerns as well as strategic needs of the EU, including security of energy supply and European agriculture. A proposal for addressing indirect land-use change in the RED will fundamentally change the balance of the present legislation; therefore we are asking the European Commission to carefully examine the economic and strategic consequences of such a change for all the operators in the biofuels supply chain (farmers, traders, crushers, refiners, biofuel producers); the EU 2020 competitiveness strategy; and the impact on vital EU trade with third countries.

- FEDIOL and COCERAL concur with the Directive according to which any decision should be based on best available scientific evidence. However, based on the currently available studies, including the IFPRI study leaked to the press, we believe that there is insufficient converging evidence to draw undisputable conclusions on the extent of iLUC. The science relative to iLUC is not mature enough and given that iLUC is global in its nature, the data available today is incomplete and inconsistent. In literature, there are a number of studies on iLUC which draw substantially different conclusions on the extent of indirect land-use change emissions. Moreover, the IFPRI study also admits that its model parameters are based on weak estimates and that an accurate range of iLUC could only be measured by systematic sensitivity analyses. Other limitations of the IFPRI study arise from its core assumptions. IFPRI presumes that 80% of biofuels production would come from extensification; however this hypothesis neglects the improvements in agricultural productivity and the possibility of reintegrating abandoned farmland into cultivation. Another key weakness is the failure to take account of essential co-products such as protein meal for animal feed resulting from oilseeds/ processing, casting serious doubts on the validity of this study to support a fundamental policy change. Furthermore, the study ignores the

[1] *FEDIOL is the European Federation of European seed and bean crushers, protein meals producers and vegetable oils producers/processors. FEDIOL members represent 85% of the EU industry which corresponds to over 147 oilseeds processing and vegetable oils and fats production facilities across Europe, employing more than 20,000 people.*

[2] *COCERAL is the voice representing the European cereals, rice, feedstuffs, oilseeds, olive oil, oils and fats and agrosupply trade. The members of COCERAL are the national trade organisations of most of the EU-27 Member States, who for their part represent collectors, distributors, exporters, importers and agribulk storers of the above mentioned commodities.*

existing environmental provisions of the RED, even though the EU Directive rules out biofuels made from raw materials obtained from high carbon stock land, including peatland and forests.

- For a successful and sustainable energy strategy, multi-feedstock sourcing is absolutely critical to meet the EU's 10% target for biofuels. Should the Commission rely on the findings of the IFPRI study to introduce provisions addressing iLUC in the Directive, EU industries' viability would be jeopardised. Moreover, this would put the pressure of reaching the 2020 targets on a reduced number of crops, concentrating demand and significantly increase volatility for those commodities. If biodiesel production in Europe were to suddenly decrease, the EU would also likely suffer a serious shortage of feed products which are currently made available through the often integrated oilseeds crushing, refining and biodiesel production process.
- Introducing an ILUC factor would be contrary to the customary "polluter-pays" principle, according to which every producer will be held accountable for activities that he controls directly, and not for changes in behaviour of others caused by market demand. Moreover, the ILUC factor may not even reach the desired effect of preventing land displacement, since those primarily responsible would not be held accountable.
- In the past years, our industries have made considerable investments relying on the legal framework coming into force in December 2010. Introducing radical iLUC provisions to the renewable energy policy would not only compromise the investments made, but it would also have a detrimental effect on the industry's investments in innovative biofuels. Long term predictability, transparency and stability are vital for the European biofuels supply chain.
- The supply chain would like to emphasise the necessity for any Commission proposal on iLUC to be compatible with the rules of the WTO and other international law. Since the iLUC effect cannot be proven empirically and there is no scientific consensus on this topic, attributing a crop specific iLUC factor will be contested by the major trading partners of the EU and risks being challenged under the WTO rules.

In the light of the observations presented in this letter, we urge the Commission to reflect on the entire rationale behind the Renewable Energies Directive (RED) and not to reach any conclusion based on inconclusive and scientifically incomplete studies and methodologies. The variation of results in the scientific literature on iLUC is quite dramatic, as the Commission itself has acknowledged previously. We therefore do not believe that reference to the precautionary principle should be taken as sufficient justification for legislation. We ask the Commission to continue efforts in monitoring the extent of iLUC and increase knowledge on this emerging scientific field.

FEDIOL and COCERAL remain at your disposal to provide further information and meet with you and your services at your convenience.

Yours Sincerely,

[redacted]

FEDIOL

[redacted]

COCERAL

[redacted]

CC: Mr. Karel DE GUCHT, Commissioner for Trade
Ms. Connie HEDEGAARD, Commissioner for Climate Action
Mr. Gunther OETTINGER, Commissioner for Energy
Mr. Janez POTOCNIK, Commissioner for Environment
Mr. Antonio TAJANI, Commissioner for Industry and Entrepreneurship

[redacted]

From: UJUPAN Alina-Stefania (CAB-CIOLOS)
Sent: 19 July 2011 15:27
To: CAB CIOLOS ARCHIVES
Subject: FW: FEDIOL and COCERAL letter on iLUC
Attachments: FEDIOL-COCERAL Letter to Commissioner Ciolos_iLUC_19072011.pdf

pour registration

From: FEDIOL [mailto:fediol@fediol.eu]
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To: CIOLOS Dacian (CAB-CIOLOS)
Cc: HAEUSLER Georg (CAB-CIOLOS); MADRE Yves (CAB-CIOLOS); UJUPAN Alina-Stefania (CAB-CIOLOS); SILVA RODRIGUEZ Jose Manuel (AGRI); PACHECO Joao Jose (AGRI); DORMAL-MARINO Loretta (AGRI); BENITEZ SALAS Maria Angeles (AGRI); VERSTEIJLEN Hermanus (AGRI)
Subject: FEDIOL and COCERAL letter on iLUC

Dear Commissioner,

Please find enclosed the joint letter of FEDIOL and COCERAL on the impact of a potential "Indirect Land Use Change" proposal on the European agricultural and biofuels supply chain.

FEDIOL and COCERAL remain at your disposal to provide further information and to meet with you and your services at your convenience.

Best Regards,

[redacted] COCERAL - [redacted]
[redacted] FEDIOL - [redacted]

[redacted] Ref. Ares(2011)798493 - 22/07/2011

From: [redacted] [mailto:[redacted]
Sent: Friday, July 22, 2011 8:23 AM
To: HEDEGAARD Connie (CAB-HEDEGAARD)
Cc: MUELLER Juergen (CAB-HEDEGAARD)
Subject: Biofuels and indirect land use change

Dear Commissionner Hedegaard,

Please find attached a joint letter from [redacted] the European Oilseed Association (EOA); [redacted] the European Biodiesel Board (EBB); [redacted] UFOP (Union zur Förderung von Oel- und Proteinpflanzen e.V.); and [redacted] President of National Farmers Union (NFU) about indirect land use change.

A copy of this letter is also being sent to you by mail.

Yours sincerely,

[redacted]

[redacted]
partner

mob.

[redacted]

tel.

[redacted]

fax

[redacted]

42 rue Breydel
B-1040 Brussels

www.gpluseurope.com

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Annexe [redacted]

EOA European Oilseed Alliance

EBB European Biodiesel Board

ufop NFU DIESTER Industrie

Ms Connie Hedegaard
Commissioner for Climate Change

Subject: Biofuels and Indirect Land Use Change (ILUC)

Brussels, 21st July 2011

Dear Commissioner Hedegaard,

As representatives of the European biodiesel sector, we wish to bring to your attention an upcoming decision by the European Commission that could jeopardise the future of the biodiesel industry in Europe.

This decision concerns the Indirect Land Use Change (ILUC) effect attributed to biofuels, a phenomenon widely recognised as difficult to define and quantify. However, it currently threatens to do unjustified reputational damage and commercial harm to producers who have invested and continue to invest much effort in ensuring a sustainable alternative for the transport sector.

ILUC is a legacy of last-minute negotiations on the December 2008 energy and climate change package. At the time, the Renewable Energy Directive (Directive 2009/28/CE, dated 23 April 2009) required the Commission to prepare a report on the subject and, where appropriate, to make legislative proposals on how to address the issue. It was completed in December 2010, and the Commission suggested four options to potentially remedy ILUC.

These options are now subject to an impact assessment, due to be finalised by the summer. Amongst them, it appears that the favoured option would be an ILUC penalty – i.e. the incorporation of an ILUC-emission factor in the calculation of greenhouse gas impact of biofuels. IFPRI, a Washington-based research institute, is currently updating its study from July 2010 and the impact assessment is expected to be largely based on the results of this study.

In the context of scientific exchanges, we contacted IFPRI on this subject. We understand that results for the biodiesel industry would be particularly high, in particular for rapeseed-based biodiesel. Furthermore, several aspects of the study raise questions as to the credibility of its results:

1. The high sensitivity of the results: Between the first study published in 2010 and the current one, some results - ILUC impact of biofuels – could be divided by three whilst others increase.

2. The "peatland effect": new hypotheses (linked to substitution between different oils), which seem questionable to us, forecast a 30% palm oil development on Indonesian virgin peatlands. This would penalise the biodiesel industry by sharply increasing its ILUC impact.

3. The modelling of animal feed: in the study, the animal feed sector is modelled according to the North-American market which strongly differs from European standards.

Therefore, any ILUC quantification seems very difficult, if not impossible, because the results are extremely sensitive to chosen parameters. The ILUC debate should not be limited to biofuels only, but be addressed in a comprehensive way, looking into the energy and environmental performance of both biofuels and fossil fuels.

The biodiesel industry has invested heavily over the past years to help meet Europe's target for greener transport by 2020. Biofuels contribute to decreasing greenhouse gas emissions , reducing Europe's energy dependence, developing a sustainable agricultural sector, creating jobs in rural areas, and ultimately having a positive impact on our external trade balance. Last but not least, producing biofuels allows for the production of large quantities of vegetable protein used for animal feed. These co-products have helped and will continue to help the EU reduce its protein deficit and ultimately substitute other crops grown for animal feed. It is therefore particularly disturbing that any decision on ILUC could potentially lead to the end of the industry in Europe.

At a time when diesel fuel represents 65% of energy used in road transport, we are concerned that the European Union's ability to fulfil its 10% renewable energy target could fall short if European biodiesel production were stopped.

In conclusion, while biofuels are subject to the most stringent sustainability criteria in the world, we fear that a single academic study might set in motion a legislative process at the expense of Europe's interests.

We are therefore turning to you in the hope that you may be able to restore balance and fairness to the ILUC debate in Europe.

Yours sincerely,

[redacted]
President of the European Biodiesel Board (EBB)

[redacted]
Director of UFOP (Union zur Förderung von Oel- und Proteinpflanzen e.V.)

[redacted]
President of National Farmers Union (NFU)

[redacted]
Chairman of Diester Industrie and Spokesperson for the European Oilseed Association (EOA)

Cc: Eva Gerhards, Member of the Cabinet

The letter has also been sent to:
Commissioner Barnier
Commissioner Ciolos
Commission de Gucht
Commissioner Hedegaard
Commissioner Tajani

Mail address: European Oilseed Association (EAO), 12 avenue George V, 75008 Paris

From: [redacted] on behalf of UJUPAN Alina-Stefania (CAB-CIOLOS)
Sent: 22 July 2011 19:52
To: 'info@ebb-eu.org'
Subject: Re: Commission approach on Indirect Land Use Change (ILUC) is putting at risk the Renewable Energy Directive objectives

Dear [redacted],

I am writing on behalf of Commissioner Ciolos to thank you for your request for meeting.

The Commissioner has asked me to answer on his behalf.

He would have enjoyed meeting you, but, much to his regret, he will not be in a position to do so, due to a very charged agenda for the coming months.

Should you wish to have a participant to your conference from the Directorate General for Agriculture and Rural Development, please do not hesitate to contact [redacted] (tel.: +32.[redacted]@ec.europa.eu) who is coordinating DG AGRI's requests of participation.

I wish you every success with your event.

Kind regards,

Alina-Stefania UJUPAN
Member of Cabinet
European Commission
Cabinet of Commissioner Dacian CIOLOS
Agriculture and Rural Development

Office: BERL [redacted] 200 Rue de la Loi,
B-1049 Brussels – Belgium
[redacted]

[redacted]

Department for
Transport

From the Parliamentary
Under Secretary of State

Great Minster House
76 Marsham Street
London SW1P 4DR

Tel: [redacted]
Fax: [redacted]
E-Mail: [redacted]

Web site: www.dft.gov.uk

Commissioner Oettinger (Energy
Commissioner Hedegaard (Climate Action)
European Commission
B-1049 Brussels

29 July 2011

Dear Commissioners,

I am writing to you regarding the Indirect Land Use Change (ILUC) impacts of biofuels and the European Commission's current work to assess how this issue should be addressed.

ILUC is the single largest outstanding issue around the sustainability of biofuels. Until ILUC is adequately addressed very real uncertainty will remain over whether biofuels policy in Europe can achieve its stated aim of reducing emissions from transport.

I am clear that, if sustainability concerns can genuinely be addressed, biofuels can make an important contribution to reducing the climate change impact of transport fuels. A sustainable biofuel industry also has the potential to bolster low carbon innovation and businesses within the EU. I recognise that many EU biofuel producers and transport fuel suppliers have made significant efforts in recent years to provide biofuels which report excellent direct greenhouse gas savings. For example the latest (unverified) data indicate that biofuels produced in the UK from wastes, the largest source of biofuel in the UK, achieved an average direct emissions saving of 83% compared to the fossil fuels they replaced and UK grown wheat and sugar beet biofuels achieved direct emissions savings of 60% and 77% respectively.

However, the emissions saving performance for biofuels used in the EU is calculated using only direct emissions and the British Government remains concerned that there are significant indirect impacts from some biofuels that are not included and are not being addressed.

I welcome the work that the Commission and JRC have led to date to develop the evidence base on the scale of ILUC emissions and I encourage such work to continue. However, at present ILUC impacts can only be

determined through modelling. This means that the results of ILUC modelling are highly uncertain. Much of the current uncertainty cannot be removed through improved modelling: ILUC is the outcome of complex global interactions and the modelling of these interactions requires that simplifying assumptions are made. ILUC emissions from both land use and land management change (in other words, an increase in the land area cultivated or the increased intensity of production on already cultivated land) must both be considered. In addition the impact of individual fuel chains may well change through time as more or less of the feedstock is used and production practices change.

As a result of the uncertainty, precise figures on greenhouse gas emissions cannot be calculated. However, the scale of the risk associated with different feedstocks can be identified.

The evidence that ILUC poses a risk to achieving emissions savings from some biofuels is now substantial. The current Renewable Energy Directive and Fuel Quality Directive targets are driving a rapid increase in biofuel use across the EU and that rate of increase must be consistent with production rates for sustainable feedstocks in order to avoid displacing other agricultural production and increasing food prices. A **suite of measures is required to robustly address ILUC risk**. The efforts that many producers have made to drive up the greenhouse gas performance of their biofuels will only be widely recognised once ILUC is addressed. It is vital that action is taken now to address ILUC in a robust, practical and proportionate way.

The first measure is to ensure that ILUC is accounted for. Until ILUC is explicitly addressed there will be uncertainty and doubt that the European renewable energy policy is achieving GHG savings. Failing to address ILUC will not provide the assurance needed to develop public and investor confidence in the sustainability of biofuels. Similarly attempting to address the risk by increasing the direct emissions saving requirements, for example by raising the minimum greenhouse gas threshold, while providing some safety net against ILUC, will not fully and robustly address the issue and would not provide the incentives to reduce ILUC risk.

Options that internalise ILUC, for example the inclusion of ILUC factors in the life cycle analysis are likely to be more effective at addressing the risk ILUC poses and may be more appropriate solutions to the issue.

Any proposal to address ILUC, for example through ILUC factors, should recognise the risk posed by ILUC and reflect the uncertainty in the modelling results. At present the uncertainty in modelling is such that differentiating between individual crop-based feedstocks would push the limit of the

evidence. However, there is sufficiently strong evidence now to differentiate oil crops from sugar and starch crops.

There is also a risk that measures introduced to ensure ILUC is accounted for may inadvertently drive increases in biofuel use by requiring Member States try to source sufficient biofuels to meet the greenhouse gas savings required under the Fuel Quality Directive. It is important, therefore, that ILUC mitigation measures are applied in a way which avoids that outcome.

The second measure is to ensure that biofuels with low ILUC risk are encouraged and innovation is supported. The inclusion of measure to account for ILUC does not, by itself, recognise actions that can be taken to reduce ILUC risk. Biofuels that are produced in ways that avoid damaging indirect effects should be supported and innovation encouraged. **An appropriate route for such support could be through the extension of the existing support measures in article 21(2) and Annex V of the Renewable Energy Directive.** These measures introduce double counting of the contribution to targets from wastes, residues and certain advanced biofuels, and for greenhouse gas emissions bonuses for biofuels produced on unused, contaminated or degraded land.

Promising emerging technologies for advanced biofuels that compete less directly with food production, such as lignocellulosic biofuels and algae based biofuels, should continue to be supported at a European level.

In summary, a robust and proportionate response is needed to address the risk posed by ILUC. This should:

- Ensure ILUC is accounted for and recognise the differences in indirect impacts between oil crops and sugar/starch crops. The introduction of ILUC factors for crop-based biofuels may be an appropriate action to achieve this. Changes to the direct sustainability criteria are highly unlikely to fulfil this requirement.
- Encourage innovation, for example by strengthening current incentives to include crop-based biofuels with low-ILUC risk.

Such measures should be introduced in such a way as to minimise the additional regulatory burden on industry.

Producers in the EU and third countries who have introduced innovative practices along their supply chains to drive down the emissions and maximise the sustainability of their biofuels will benefit from tougher standards that drive out less sustainable biofuels and reinstall public and investor confidence in their products.

My officials are undertaking a detailed analysis of the options to address ILUC and I would welcome the opportunity to discuss this with you after the summer. I have copied this letter to Commissioner Potočnik (Environment), Commissioner Piebalgs (Development) and Commissioner Ciolos (Agriculture and Rural Development)].

Yours sincerely

From: on behalf of CAB CIOLOS MAIL
Subject: FW: Commission approach on Indirect Land Use Change (ILUC) - EBB position
Attachments: image001.png; EBB Position Paper ILUC.pdf

From: European Biodiesel Board -
Sent: Friday, August 05, 2011 4:34:02 PM
To: CIOLOS Dacian (CAB-CIOLOS)
Cc: BENITEZ SALAS Maria Angeles (AGRI); SILVA RODRIGUEZ Jose Manuel (AGRI);
Subject: Commission approach on Indirect Land Use Change (ILUC) - EBB position
Auto forwarded by a Rule

EBB
European Biodiesel Board
Boulevard Saint Michel, 34 - 1040 Bruxelles
Tel: *Fax:*
E-mail: *Website: www.ebb-eu.org*

Ref: 527/PRO/11

Brussels, August 5th, 2011

TO: Mr. Dacian CIOLOS
Commissioner for Agriculture and Rural Development
European Commission
B-1049 Brussels
BELGIUM

CC: Mr. Jose Manuel SILVA RODRIGUEZ, Director General, DG AGRI
Ms. Maria Angeles BENITEZ SALAS, Director, DG AGRI H

RE: Commission approach on Indirect Land Use Change (ILUC) – EBB position

Dear Sir,

Following our letter dated June 29th, 2011, in which we brought to your attention the industry concerns that the Commission approach on ILUC would risk nullifying the positive objectives set out by Directive 2009/28/EC, we wish to present you with the position of the biodiesel industry, which you will find attached to this email.

We look forward to the opportunity to meet with you at your earliest convenience, in order to present you further the perspective of the biodiesel industry on the ILUC file.

I hope that you will consider favourably our request and remain,

Yours faithfully,

CC: Mr. Günther Oettinger, Commissioner for Energy
Ms. Connie Hedegaard, Commissioner for Climate Action
Mr. Karel De Gucht, Commissioner for Trade

EBB
European Biodiesel Board
Boulevard Saint Michel, 34 - 1040 Bruxelles
Tel: [redacted] - Fax: [redacted]
E-mail: [redacted] - Website: www.ebb-eu.org

530/PRO/11

Brussels, August 5th, 2011

EBB POSITION

Latest developments in the Indirect Land-Use Change (ILUC) debate

The Renewable Energy Directive 2009/28 (the RED) currently represents the most comprehensive and stringent set of sustainability criteria applying to biofuels production worldwide, guaranteeing that only biofuels with a high sustainability profile are placed on the European market. Yet, EBB is deeply concerned by the way in which the European Commission could be addressing the issue of biofuels Indirect Land Use Change (ILUC), by relying heavily on the recent IFPRI report on ILUC, which could nullifying the positive objectives set out by Directive 2009/28.

1. The concept of ILUC is scientifically unproven

The concept of ILUC and its modelling lacks scientific clarity or consensus. . An environmental-friendly sector such as the European biodiesel industry should not be penalised (putting at risk its capability to survive) with a legislative proposal based on non-verified assumptions and subjective methodologies There are various studies on ILUC which come to substantially different conclusions on the extent of ILUC emissions. Even the IFPRI reports itself makes note of the lack of data/evidence and its weak assumptions.
The European Commission has the duty to issue legislative proposals based only on verified and confirmed facts, which on ILUC do not exist. For this same reason US authorities have postponed all decision on ILUC, waiting for clearer facts and evidence.
EBB urges the European Commission to take into account that any additional restrictive measure on biofuels production:

- would be disproportionate (the RED Directive already contains very restrictive measures on biofuels sustainability which do not apply to other sectors like olechemistry or food using same raw materials)

would have as an effect the progressive death of the EU biodiesel industry (i.e. of the only world industry producing the very largest part of its biodiesel product from EU agricultural raw materials).

2. The revised IFPRI study cannot be an appropriate basis for EU policy-making on ILUC

More in detail EBB is concerned about the way in which the Commission ILUC Impact Assessment has been conducted. It appears that the revised version of the IFPRI study commissioned in 2010 has been taken as the main basis for this work, with no possibility for stakeholders to actually review and comment its main findings.

Most importantly, several key underlying assumptions of the IFPRI study are particularly questionable, for instance:

- **Co-products modelling**: the positive impact of oilseeds co-products in reducing land use change from animal feed production is largely underestimated. In relation to this, the modelling of the animal feed sector developed by IFPRI is largely debatable as it is based on US rather than EU standards.
- **Vegetable oils substitution rates**: the study assumes important substitutions effects between vegetable oils, which does not to correspond to the reality of the European biodiesel market (technical limitation on palm oil use for instance).
- Extensification: the IFPRI study assumes that 80% of biofuels production would come from land extensification, ignoring fully the improvements in agricultural productivity and bringing abandoned farmland back into cultivation.

It is all the more difficult to understand why IFPRI finds high indirect emissions related to biodiesel production, as EU biodiesel has intrinsically a low ILUC risk. For instance, rapeseed cultivation increases yields of other crops in rotation.

In addition, biodiesel production from rapeseed generates large volumes of animal feeding substituting imports of proteins from South America. More generally, the fact that the EU is relying exclusively on a study performed by a US research bodies in way that could penalize an entire European industry is alarming.

3. Biofuels contribution to energy security and economic growth should also be part of the assessment

It is highly regrettable that the assessment of biofuels impacts has been until now exclusively approached as a GHG accountancy exercise. This biased and reductionist approach does not look at the other benefits of biofuels, for instance in terms of energy security, economic growth and EU industry competitiveness. A major driver behind biodiesel consumption is indeed the strong dieselization of the EU transport sector. The European Union is also largely dependent upon diesel imports (from Russia and the Middle East) to cover its increasing diesel demand. Therefore, EU biodiesel can critically reduce the EU mineral diesel deficit and improve the European Union's security of energy supply. At the same time, the 22 million tons biodiesel productive capacity currently in place is the result of substantial investments committed in reliance of the 10% target. This investment is generating substantial economic activity along the supply chain, not least in the agricultural sector and ILUC legislation by setting a new regulatory framework would jeopardize these investments, whatever 'safeguards' were offered.

***

It cannot be a reasonable way forward for the EU to let its 2020 objectives of climate change mitigation and energy security being knocked-off course on the basis of the elusive ILUC concept and questionable modelling exercises.

In this perspective, EBB has commissioned two internationally renowned experts, Dr. Don O'Connor of (S&T)^2 Consultants Inc. and Prof. Gernot Klepper, Kiel Institute for World Economy, to perform a critical review of the IFPRI study. The findings of this review will be presented in September 2011, when the College of Commissioners will consider the findings of the Commission impact assessment.

EBB urges the European Commission to guarantee the continuity and development of the biofuels sector instead of penalizing it on the basis of questionable scientific models. At the same time, the European Union should adopt a more comprehensive approach to biofuels benefits, taking in due consideration their contribution to energy security and economic growth.

Ref. Ares(2011)1257297 - 24/11/2011

[redacted]

From: [redacted] (CAB-CIOLOS)
Sent: 23 November 2011 15:44
To: CAB CIOLOS MAIL
Subject: FW: Biocarburants, ILUC
Attachments: 111012 Argumentaire sur les biocarburants_EOA_FR.pdf; Review of the IFPRI study 2011_A. Faaij.pdf; LCFS Final regulation order.pdf; 111110 Article by A. Faaij in European Voice - Barking up the wrong tree.docx

Please, for registration and attribution please. Many thanks.

From: [redacted]
Sent: Friday, November 18, 2011 2:06 PM
To: MADRE Yves (CAB-CIOLOS); UJUPAN Alina-Stefania (CAB-CIOLOS)
Cc: [redacted]
Subject: Biocarburants, ILUC

Madame,
Monsieur,

Nous conseillons à Bruxelles depuis plusieurs années Proléa-Sofiprotéol, la filière française des huiles et protéines végétales, et l'un des principaux producteurs de biodiesel en Europe.

La Commission, à l'initiative des Commissaires Oettinger et Hedegaard, devrait adopter très prochainement une proposition sur le changement indirect d'affectation des sols (CASI ou *ILUC* en anglais) lié à la production des biocarburants. Une telle initiative fait peser une sérieuse menace sur l'avenir de la filière européenne du biodiesel, trente mois seulement après l'adoption de la directive sources d'énergie renouvelable (EnR). Les enjeux en termes de politiques industrielle, énergétique et agricole sont considérables.

Le phénomène du changement indirect d'affectation des sols reste difficile à quantifier ; la science qui l'entoure incertaine. La modélisation existante peine, en dépit de certains ajustements, à rendre compte de certaines caractéristiques du biodiesel, en particulier du rôle joué par les coproduits (tourteaux de colza) dans l'alimentation animale. L'option d'une pénalité CASI, particulièrement élevée pour le biodiesel si l'on se base sur l'étude de l'IFPRI récemment publiée par la DG Commerce, pourrait s'avérer fatale à la production européenne de biodiesel à base d'oléagineux, pourtant le fer de lance des Européens. Les biocarburants en Europe sont déjà soumis à des critères de durabilité parmi les plus stricts au monde. Des PMEs issus du monde agricole ont beaucoup investi sous l'impulsion du paquet énergie et climat.

Dans ce contexte, [redacted] de Sofiprotéol, souhaiterais vous faire parvenir plusieurs documents fort éclairants sur le sujet :

- Un argumentaire du European Biodiesel Board (EBB – l'association européenne des producteurs de biodiesel) et de la European Oilseed Alliance (EOA – l'association des producteurs d'oléagineux)
- Une tribune du Professeur André Faaij, publiée dans European Voice, dans laquelle il rappelle l'importance considérable de l'agriculture dans ce dossier. André Faaij, professeur à l'Université d'Utrecht, coordonne le groupe de travail sur les bioénergies pour le International Panel for Climate Change (IPCC).
- Une critique de l'étude d'IFPRI 2011 réalisée par ce même Andre Faaij.
- L'exemple de la mise en place de facteurs CASI en Californie étant souvent mentionné dans les débats, nous croyons intéressants d'ajouter le règlement californien correspondant. Il est important de noter que les seuils obligatoires de réductions des émissions de CO2, fixés pour les biocarburants, sont extrêmement faibles et absolument non comparables avec les seuils européens.

Nous espérons que ces documents vous seront utiles et nous sommes à votre disposition pour répondre à toute question ou en discuter plus avant.

Veuillez agréer, Madame, Monsieur, l'expression de mes sentiments respectueux

[redacted]

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tel.

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Annexe [redacted]

[redacted] Ref. Ares(2011)1257297 - 24/11/2011

EBB
European Biodiesel Board

Les biocarburants et la question du changement indirect d'affectation des sols (CASI, ou ILUC en anglais) : la perspective de la filière du biodiesel

L'Union européenne (UE) se trouve devant des décisions importantes qui auront un impact déterminant sur l'avenir de la filière des biocarburants en Europe. L'enjeu est la réalisation de 400 000 emplois et la capacité des Etats Membres à atteindre l'objectif de 10% d'énergies renouvelables dans les transports, fixé par la Directive Energie Renouvelable de 2009. Rappelons que cet objectif a été adopté pour réduire les émissions de CO2 du secteur transport, d'améliorer notre sécurité d'approvisionnement et de soutenir l'économie agricole.

La directive demande à la Commission d'examiner l'impact des émissions indirectes causées par la production de biocarburants et, le cas échéant, de proposer des moyens de le réduire. Elle travaille activement sur ce sujet, et ses conclusions pourraient être influencées par une étude américaine qui a reçu une large circulation informelle.

Cette étude, préparée par un institut américain, IFPRI, est basée sur des hypothèses et options d'actions qui, à notre avis, ne constituent pas une base adéquate pour une prise de décision bien informée, « ...s'appuyant (comme le demande la directive Energie renouvelable) sur les meilleures preuves scientifiques disponibles ». Au contraire, elle risque d'amener l'UE à prendre des décisions qui auraient des effets très négatifs sur le plan environnemental, climatique, économique ainsi que sur l'emploi, cassant l'essor d'un secteur de production de biocarburants qui a fait de très lourds investissements depuis dix ans. Ces options rendraient par ailleurs impossible d'atteindre l'objectif de 10% dans le secteur des transports en 2020.

Les faiblesses principales de l'étude d'IFPRI

1) Celles-ci découlent, en premier lieu, des *grandes incertitudes qui entourent la question de l'évaluation des changements indirects d'affectation des sols* (CASI, ILUC en anglais). Ces incertitudes ont, par exemple, amené IFPRI, basé à Washington, à sensiblement modifier les prévisions découlant de ses exercices économétriques d'une année sur l'autre. C'est ainsi qu'IFPRI a réduit en 2011 son évaluation de l'année précédente de l'impact CASI de l'utilisation du maïs, du blé et de la betterave pour la fabrication de bioéthanol d'un facteur de 3 à 5. Donc, si les décisions de l'UE avaient été prises il y a un an sur cette base, ces produits n'auraient plus été qualifiés pour faire du bioéthanol puisqu'ils auraient été considérés comme trop polluants. Or, tout d'un coup en 2011, le maïs se trouve parmi les meilleurs de la classe et la production (essentiellement européenne) de biodiesel à base d'oléagineux se trouve reléguée parmi les derniers (alors qu'au contraire en Californie le biodiesel est considéré par le gouvernement comme un « advanced fuel » et soumis à un facteur CASI bien moins important que celui du bioéthanol). Il y a un an, « la meilleure preuve scientifique disponible » condamnait ces productions tandis qu'à présent, elle les exonère. Un tel changement de cap dans l'espace d'un an devrait déjà induire les décideurs à appliquer le principe de précaution et ne pas tirer des conclusions de théories économétriques instables qui sont très loin de faire l'unanimité parmi les analystes (en effet, la plupart arrivent à des conclusions très différentes).

2) La modélisation est extrêmement compliquée. IFPRI tire la conclusion surprenante que la production d'oléagineux en Europe provoquerait la destruction de la forêt en Indonésie car elle encouragerait l'importation d'huile de palme à consommation humaine pour remplacer la production européenne d'huile qui serait détournée aux fins de biocarburants. Dit autrement, la culture du colza en Europe aurait été détournée de la transformation en huile à consommation humaine au bénéfice des biocarburants. Cette hypothèse est basée sur un modèle économétrique prévisionnel très théorique, complètement contredit par l'expérience européenne depuis dix ans (ce qui est confirmé par une autre partie de l'étude, sans qu'IFPRI n'en tire les conséquences).

Les faits démontrent, au contraire, que l'augmentation remarquable de la production européenne d'oléagineux a permis le développement du biodiesel pendant cette période, sans que ceci n'ait été au détriment de la production de nourriture et qu'elle a été atteinte grâce à la capacité de l'agriculture européenne de mobiliser des terres non cultivées, soutenue en cela par la Commission grâce à la suppression de l'obligation de jachère. Cette décision a contribué à l'utilisation de 3 millions d'hectares de terres autrefois mises en jachère ; or, il reste aujourd'hui 3 à 4 millions d'hectares disponibles et il suffirait d'en mobiliser la moitié pour permettre à l'Europe d'atteindre les 10%, sans réduire pour autant la disponibilité d'huiles ou d'autres produits agricoles à consommation humaine. Par conséquent, aucun changement indirect de l'affectation des sols, en Europe ou ailleurs, n'a pu être causé par la production européenne de biodiesel. Cela fait dix ans que la filière fait la démonstration concrète que les objectifs en termes d'énergies renouvelables peuvent être atteints, de façon durable et sans CASI. Il y a donc une contradiction fondamentale entre une modélisation très théorique et les faits. Puisque les faits contredisent les théories d'IFPRI, elles ne devraient pas servir de pierre angulaire pour avancer des options radicales et destructrices.

3) L'impact positif des co-produits protéiques du biodiesel est sous-estimé par l'étude. La méthode utilisée par IFPRI repose en partie sur des données spécifiques à l'agriculture américaine. Ceci l'amène à ne pas tenir compte du grand apport que fait ce secteur en Europe en produisant de vastes quantités de tourteaux, passant de 10,5 MT en 2003 à 16,5 MT en 2010. La production européenne de biodiesel a donc permis au cours de ces années de remplacer 6 MT d'apport en protéines qui auraient autrement dû être importées avec de grandes émissions lors du transport maritime et dont la production au Brésil ou aux Etats Unis aurait aussi causé d'importantes émissions de CO2. L'étude admet pourtant que ceci «...greatly influenc(es) model results », mais sans en tirer les conséquences au niveau des estimations d'émissions.

4) Nous apprécions toutefois le fait que les incertitudes scientifiques de l'étude d'IFPRI aient été clairement identifiées. En effet, le projet qui circule insiste, page après page, sur les faiblesses et les incertitudes des modèles. Exemples : « ...in reality, the estimated indirect land-use change emissions could be higher or lower...there are still uncertainties...and considerable limitations related to estimating ILUC. However, given the need to analyse the issue in a quantitative manner, it has been necessary to use the latest results from IFPRI as the base line »; ou « the level of uncertainty of the indirect land use change emission estimates included in the base line is already high »; etc. etc.).
On ne peut qu'espérer que les institutions européennes tiendront compte de ces incertitudes lorsqu'elles seront appelées à décider d'une action éventuelle sur le CASI. En effet, la directive demande que des recommandations soient faites par la Commission. Nous pensons toutefois que la précaution prévaut et qu'il faut se garder de toute décision hâtive, sachant, p.ex. que le modèle d'IFPRI a connu des variations extrêmes dans l'espace d'un an - en témoigne l'écart de 3 à 5 pour le maïs et les betteraves entre 2010 et 2011 et le fait que de nombreux modèles autres que celui d'IFPRI soient arrivés à des résultats très différents. Le bon sens voudrait que l'on ne décide pas de l'avenir de dizaines de milliers d'emplois en Europe sur la base d'une seule étude controversée.

Conséquences pour la filière européenne des biocarburants

La Commission européenne estime dans un autre contexte que la continuation de l'effort actuel d'investissement et de production en Europe dans la filière biocarburants permettrait d'atteindre 400,000 emplois dans le secteur en Europe d'ici 2020.La filière des biocarburants a déjà généré des dizaines de milliers d'emploi en Europe, l'une des démonstrations les plus concrètes de l'impact bénéfique de « l'économie verte ». Par ailleurs, elle n'aura aucun problème à réaliser l'objectif de 10% d'énergie renouvelable dans le secteur des transports en 2020 (vs. 7% aujourd'hui en France et en Allemagne).

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Or, les principales options d'action examinées par IFPRI donnent la préférence à deux approches radicales qui détruiraient une bonne partie de la filière européenne des biocarburants, soit en augmentant le seuil de réduction des émissions directes de CO2 de façon drastique, soit en appliquant à terme des facteurs CASI qui auraient le même effet : dans les deux cas, il n'y aurait presque plus de production européenne de biodiesel. Celle-ci serait remplacée par des importations, surtout de bioéthanol, en provenance de pays aux critères de durabilité et aux certifications bien moins sévères que les normes européennes. Le risque est que cette augmentation des importations augmenterait les émissions globales de CO2 par des effets CASI au Brésil et ailleurs, empiétant à terme sur la forêt amazonienne. Ce risque n'est pour l'instant pas du tout abordé dans le débat.

Les conséquences de l'adoption des deux principales options sont clairement identifies dans l'étude: elles mèneraient à l' « exclusion of all oilseeds produced in the EU... » ,...« The viability of existing investments could be affected in the long run, as the availability of conventional biodiesel feedstocks would be extremely reduced. This would have significant implications for the existing EU biodiesel industry, and it implies that Member States and industry cannot continue to follow the submitted National Renewable Action Plans...Impacts on security of supply can be adversely affected ». L'on ne pourrait mieux dire. De plus, aucune évaluation de l'impact très dommageable sur l'industrie et sur l'agriculture européenne n'est effectuée. L'étude se limite à conclure que ceci nécessiterait un « (major) industrial adjustment (sic) ». Le risque d'une mise en cause à l'OMC est également souligné, sans aller plus loin dans -l'analyse. Finalement, il n'y aucune mention que ceci *(l' « exclusion of all oilseeds produced in the EU »)*aurait un impact très négatif sur la biodiversité en Europe, sachant qu'elle est favorisée par la culture des plantes oléagineuses et qu'elle pâtirait d'un retour aux cultures traditionnelles de céréales.

Conclusion

L'étude d'IFPRI représente une étape importante dans la recherche d'une approche qui, après des études bien plus approfondies, apporterait des réponses convaincantes à la problématique du changement indirect d'affectation des sols. Au mieux, elle sera le départ d'une évaluation plus proche de la réalité et plus respectueuse des incertitudes scientifiques, permettant à l'Union européenne de prendre ses décisions sur une base scientifiquement solide. Au pire, elle nous mènera dans une impasse dans l'hypothèse où les options les plus radicales seraient retenues par la Commission pour une proposition législative. Même si ceci semble loin d'être acquis (et nous espérons que la Commission basera ses recommandations éventuelles sur une étude d'impact objective et « précautionneuse »), il ne serait dans l'intérêt de personne de déclencher un processus long et à l'issue incertaine au sein des institutions européennes, qui découragerait tout nouvel investissement en raison de l'hypothèque qui planerait au-dessus de l'avenir de la filière. Toute décision devra être fondée sur le principe de précaution. En l'occurrence, la précaution consisterait à n'adopter aucune décision qui ne soit pas fondée sur une science claire, transparente et convaincante et qui tiendrait compte des autres objectifs de l'Union européenne en la matière, à savoir la sécurité d'approvisionnement et la politique agricole.

Annexe 2 [redacted]

REVIEW OF THE LATEST IFPRI/ATLASS STUDY ON LAND USE CHANGE IMPACTS OF EUROPEAN BIOFUEL POLICIES

By Prof. Dr. Andre Faaij, Copernicus Institute – Utrecht University

This document provides a review of the latest study of the Atlass consortium (IFPRI) entitled "*Assessing the Land Use Change Consequences of European Biofuel policies and its uncertainties*", and provides founded criticism and subsequent recommendations for policy and further research.

André Faaij is also the convening lead author for bioenergy workshop of the UN's International Panel for Climate Change.

1. General remarks

Improvements compared to the 2010 study:

- Compared to the earlier study by the same consortium in 2010, one remarkable result is that **the overall LUC values are lower in the new study,** in particular for sugar cane based ethanol. This is partly due to more refined data on Brazil and more detailed description of the whole production chain (with the inclusion of electricity production and subsequent assumed replacement of fossil fuels being an important aspect).
- There is more attention for uncertainties in general.
- More specific insight on the influence of various parameters is delivered.

Weak points are:

- There is **minimal justification of the data** used for the analysis (quality of the underlying database of the CGE model, land-use data, carbon stock data, GHG performance data on biofuel chains, assumed improvements of agriculture, etc). At the same time, it is acknowledged that data quality is a key determining factor for the outcomes of the analysis. It is very strange (and not up to acceptable academic standards) that a study of this calibre does not give a full justification and review of the data used, including an assessment of the data quality and subsequent implications for calculated results. The improved (lower) values on LUC for sugar cane based ethanol production in Brazil are a clear example that data quality is crucial.
- The focus of the study is on determining LUC, both direct and indirect, excluding the incorporation of policy measures, supporting policies and certification/sustainability frameworks.
- The approach is based on a classic demand increase (ie. shock) and evaluation of subsequent model outcomes. **More gradual introduction and longer term effects including more structural changes in agricultural management are not investigated.**
- **The modelling of the animal feed sector is largely debatable and seems to be based on US rather than EU standards**. Yet, EU and US animal feed standard are very different in terms of raw materials mix.
- Price effects: the study assumes that price increases of commodities are positive since they lead to a reduction in crops consumption (which is positive from a land use perspective). However, this approach totally disregards the wider impact for consumers. Similarly, the lower LUC impact for ethanol is achieved via a reduction in cereals consumption due to an

increase in prices. This cannot be reasonably considered as a desirable outcome of EU policy.
- Amortization of carbon emissions: the study assumes that emissions from land use should be split over 20 years. However, taking a different figure (for instance 30 years) would largely change the final results.

Striking outcomes:

- Values for sugar cane based ethanol are remarkably low.
- The main reason for a high LUC factor for biodiesel is that it is assumed that palm oil from Indonesia, cultivated on former peat lands, plays a very important role in future supplies. This is a remarkable scenario assumption that could easily be avoided by GHG balance requirements for imported biofuel and focusing on palm oil supplies that meet relevant sustainability criteria.
- It should be noted that all outcomes for LUC factors and subsequent calculated carbon emissions per MJ/biofuel are based on 20 year periods. After this period, the iLUC factor automatically becomes zero.
- The **results on rapeseed oil produced in the EU display remarkably high LUC values and are most certainly disputable in general terms** (see the Brazil example). The possible yield responses, in Central and Eastern Europe especially, to increased demand and sustained investment in agricultural production are remarkably conservative. Furthermore, improvements in livestock management are hardly mentioned, while these play a major role in the total footprint of agricultural (arable land + pastures).

2. General comments on the approach of the IFPRI study

This study is a state-of-the-art effort to determine global trade, land-use and GHG impacts of increased biofuel use (and import) by the EU, deploying a specifically updated General Equilibrium model (MIRAGE). The study focuses on the impacts of realizing the EU biofuels mandate (2020) with production of first generation biofuels, and includes a number of sensitivity analyses (e.g. with respect to chosen modelling parameters and increased or reduced targets for biofuel production and use).

Clearly, the study incorporates a number of important methodological improvements and improved level of detail with respect to biofuel production that make it a significant step forward compared to earlier but comparable studies from a methodological point of view.

It is for example clearly acknowledged that:
- Yield responses and land elasticities play a critical role in the assessment and are explicitly modelled.
- The quality of various databases (including Social Accounting Matrices) is often poor.
- It is important to incorporate technological details of biofuel production systems with respect to production efficiency, delivery of co-products, etc.
- The response of agriculture to increased demand (and prices) by applying more fertilizers (specifically addressed) and improved management (not addressed in broader sense) is an import factor. A similar mechanism is included for possible improvements for livestock management.
- Calculated land-use change is translated into GHG emissions using region specific land-use data (land supply curves based on AEZ) and related carbon stock date (based on recent IPCC data). This is overall a sound approach for the used modelling approach but it is

acknowledged that assessing the impact of biofuel policies and LUC coefficients is challenging due to a large number of uncertainties.

However a large number of remarks can be made on methodological choices, data-input used and definition of selected scenario's that (strongly) impact the obtained results. These remarks are listed below in section 3.

Actual reported results and overall impression:

With respect to the quantitative results; the main outputs being estimates of (direct and indirect) land-use impacts and GHG impacts of realizing an EU Biofuels mandate, the report presents a working framework that is in principle able to calculate such impacts, which is an achievement as such.

The differences between the two IFPRI reports (2010 vs. 2011) are not always easy to understand. During the short period between the publication dates, there were no new findings in the land use change science that could have reasonably triggered such a change. The LUC impact of bioethanol pathways improves in the second version of the IFPRI study, while biodiesel pathways still presents high LUC values (palm biodiesel and rapeseed biodiesel values increase).

The combination of precise LUC results with a considerable list of significant uncertainties due to limited data quality, assumptions made, or lacking relations in the modelling framework, causes a fundamental discrepancy. The calculated impacts are so marginal and the uncertainties so large that it is doubtful whether the conclusions provide a solid basis for estimating full GHG balances of biofuels and to what extent production of biofuels will result in the type of price, land-use and GHG impacts foreseen. One of the dominant factors is clearly the extent of rationalization in agriculture and livestock management and the impact of targeted policies and (sustainability) frameworks on it. This is not the fault of the authors of the IFPRI study. In fact they should be praised for providing thorough and transparent work that represents major progress in the field. However, considerable work and different modelling and analysis methods are required to underpin future biofuel policies and strategies. Suggestions for such analyses are given in section 3.

Overall, the revised 2011 IFPRI study finds that the global LUC impact of the 10% EU mandate in terms of GHG emissions (computed over 20 years) remains large. It is estimated between 38.4grCO2eq/MJ and 39.5grCO2eq/MJ. In the previous version of the IFPRI report, the global LUC impact of the 10% mandate was 17grCO2eq/MJ.

Some factors explain these results:

- In the IFPRI model, contrary to biodiesel crops, cereals do not need to be completely replaced by other crops (for livestock feed use), and therefore do not require additional land; cereals are essentially taken away from the livestock sector and replaced by their co-products. On the contrary, **it is assumed that oilseed production generates additional meals, which leads to an increased consumptions of meals for the livestock sector and an increase of livestock production (requiring more land to be used). This seems a remarkably arbitrary set of assumptions, especially the assumption that livestock production itself will increase as another indirect effect; this seems implausible**.

- There is a "substitution effect" between the vegetable oils which leads to a situation where the LUC impact of the different biodiesel pathways is practically the same. Also this underlying principle can be strongly debated because policies can directly steer the

amounts of biofuel produced from different feedstocks (and therefore prefer the ones with the best GHG balance; this is actually the objective of the RED to support this!)

- There is a very large greenhouse gas emissions associated with land use change from palm oil cultivation in South East Asia (peat land conversion). According to IFPRI, peat land emissions represent a very significant share of total emissions given the share of biodiesel and vegetable oils in the mandate. This assumption can also be criticized fundamentally, because biofuels that do not meet the GHG criterion are not counted in the fulfilment of the EU target. The modelling assumption that such feedstock will nevertheless be used on a large scale is inherently inconsistent. In addition, ongoing certification efforts are likely to drive producers to more efficient and low carbon management and locations (such as deployment of marginal grasslands for palm oil production and expansion of palm oil production in areas where conflicts with high carbon stock lands can be avoided (and example could be Colombia).

3. General criticism on iLUC modelling and recommendations for improvements

i. UNCERTAINTIES AND SHORTCOMINGS IN EXISTING MODELLING EFFORTS

Methods used to estimate the global land use impacts of bioenergy utilization are under continuous development to address discovered weaknesses. But despite recent improvements and refinements of the models, still large uncertainties and shortcomings exist in the current modelling efforts. **Modelling LUC requires a large amount of parameters of which many are uncertain and poorly supported by empirical evidence** (Plevin et al 2010, supporting information). Key uncertainties relate to the underlying datasets, the amount, location and type of LUC, future production and trade patterns of bioenergy, technological change over time and dynamic nature of LUC.

Below is an overview of the main shortcomings of the existing modelling activities surrounding iLUC:

Underlying datasets:
The quality of key underlying datasets is in many cases low. For example, Al-Riffai et al. (2010) describe strange intersectoral linkages in the social accounting matrices (SAM) of the European Union in the commonly used GTAP7 database while the general quality of the SAMs for Europe is low. Furthermore, yield responses and land elasticities play a critical role in the assessment and are explicitly modelled, but the underlying data to determine elasticities are poorly described and understood. Generally, **elasticity factors are based on historic data, implying that future projections extrapolate what happened in the past. Moreover, elasticities are often not specified per crop although regional differences exist**. For example, the elasticity that denotes the relative change in agricultural area in response to relative change in agricultural supply varies significantly across crops and time, Zilberman et al. (2010). However, Searchinger et al. (2008) and the GTAP-BIO and GTAP-BIO-ADV models apply only one average figure for all crops and all regions and in both cases they are different from the average computed by Zilberman and colleagues (2010). Another example illustrating the differences in elasticities applied by the models is given by the global price yield elasticity. This elasticity is given as 0.32 in the GTAP model used for CARB and 0.25 in later GTAP model runs (Hertel et al. 2010 and Tyner et al. 2010) while EPA (2010) used 0.013 for the short term and 0.074 for the long term. In addition to these uncertainties in the input data of the economic models, Plevin et al. (2010, supporting materials) raise the issue of unpredictability and complexity of the global economy and thus conclude that more accurate models are not likely to

become available. Another example of low quality and/or low spatial and temporal resolution of underlying datasets is the learning rates in agriculture, livestock and bioenergy production.
SRREN: "Edwards et al. (2010) state that the marginal area requirement per additional unit output of a particular biofuel should increase due to decreasing productivity of additional land converted to biofuel feedstock production (also reflected in, e.g., R. Keeney and Hertel, 2005; Tabeau et al., 2006). Lywood et al. (2009b), however, state that in the case of EU cereals and US corn, there is no evidence that average yields decline as more land is used. The assumed or modelled displacement effect of process co-products used as feed can also have a strong influence on LUC values.

Amount, location and type of LUC:
As a result of the uncertainties in the economic models, also **the amount and approximate location of LUC is uncertain. But the specific location and type of LUC is even more uncertain**. **Firstly, LUC is a complex and dynamic system that is affected by different drivers (including policy) and is changing over time** – characteristics that economic models cannot accurately represent (Plevin et al. 2010, supporting materials). Based on the complexity of factors and drivers of LUC, Plevin et al. (2010) conclude that "the ability to predict LUC from a single driver such as commodity price increases may be quite limited, and thus a core assumption underlying iLUC modelling is called into question, resulting in model uncertainty that is impossible to quantify." **Secondly, modelling LUC and the resulting emissions depends on the chosen spatial resolution, time scale and type of the data used in the analysis. Thirdly, the specific location and type of LUC depends on many other factors**. For example, deforestation does not take place randomly but is likely based on criteria such as tree density, road access and salability (Plevin et al. 2010, supporting information) while the expansion of bioenergy production also depends on other factors such as distance to road, water and cities, as well as land suitability and yields (van der Hilst et al. forthcoming). As a result, the use of average forest carbon stocks may not be representative of the type of forestland that is being converted to bioenergy production. **Fourthly, in the future there may be land use and land zoning policies that are better able to steer LUC and that, for example, do not allow deforestation. And fifthly, an argument for why the amount, location and type of LUC are uncertain is that partly highly productive land may already be available but is not taken into production because of high logistical costs** (Plevin et al. 2010, supporting information). However, when prices rise, these constraints may be overcome. As a result, bioenergy crop yields may not be as low projected based on marginal agricultural extension. Similarly, double cropping may become more interesting with higher prices and that would not require any additional land to be converted. However, economic models cannot account for double cropping (Plevin et al. 2010, supporting information; O'Connor 2011). Kim and Dale, 2011: no evidence of iLUC in US?

Future production and trade patterns of bioenergy:
Historical patterns and datasets are not available for the bioenergy section and the LUC models use various approaches to calibrate these patterns over time.

By-products from bioenergy, which can be used to meet regional food and feed demands, are **not widely included in models yet**. A lot of work on corn (Tyner et al.) but O'Connor: biodiesel byproducts still a problem!

Technology changes over time:
Models differ in their capability and assumptions to include technology changes over time 1) The response of agriculture to increased demand (and prices) by applying more fertilizers (specifically addressed) and improved management (not addressed in broader sense) is an important factor. A similar mechanism is included for possible improvements for livestock management. 2) Models use various assumptions on productivity changes. 3) Few models have included second generation crops in their model database.

Dynamic nature of iLUC:
iLUC of a specific feedstock-conversion route can change with increasing use of this route or bioenergy in general and over time as a result to changes in agriculture and land use management in general (Bauen et al., 2010; Zilberman et al., 2010). However, LUC factors as determined for use in policies such as LCFS in California and RFS for the US federal government cannot reflect the dynamic nature of iLUC associated with bioenergy production.

The main shortcomings of existing modelling efforts relate to testing the effect of the described uncertainties on the results as well as to the focus on first generation biofuels and the effect of introducing sustainability criteria, as described next.

Uncertainty analysis:
As mentioned above, many aspects of previous LUC models are highly uncertain. But although most studies conduct some kind of sensitivity analysis to check the sensitivity of the results to ranges in input parameters, **no comprehensive sensitivity and uncertainty analyses have been conducted**. For example, EPA (2010) assessed the uncertainty in the international iLUC emissions caused by the 1) satellite data uncertainty of land use and 2) land conversion GHG emission factor uncertainty. Although this uncertainty analysis shows the range of possible international iLUC GHG emissions, considerable uncertainties exist also for other parts of the analysis, most importantly in the amount and location of LUC as determined by the economic model (Plevin, 2010). Another example of uncertainty analysis is given by Plevin and colleagues who define a reduced-form model of iLUC from US corn ethanol with nine parameters (net displacement factor, fuel yield, emission factors for forest, grassland and wetland, fractions for forest, grassland and wetland and production period) and apply Monte Carlo simulations to test the propagation of uncertainties in these parameters (Plevin et al., 2010). The main findings of the study show a range of iLUC GHG emissions of US corn ethanol of 10 to 340 g CO_2eq MJ^{-1} (95% central interval: 21 to 142 g CO_2eq MJ^{-1}) and find the most significant factor to be the net displacement factor, i.e., the ratio of hectares iLUC to hectares dLUC (Plevin et al., 2010). Similar studies on other crops can further improve the understanding of the most uncertain factors and their impacts on iLUC GHG emission factors. Another example is by Al-Riffai et al. (2010) who test uncertainties in the economic model MIRAGE related to parameter uncertainties[1] and the size of the EU biofuel target (Al-Riffai et al., 2010). Other uncertainties related to effects of introducing second generation biofuels, the extent to which higher yield crops are used and the crop yields themselves are recommended to be included in future assessments (Al-Riffai et al., 2010).

Focus on first generation biofuels:
An important shortcoming of existing modelling is that most studies have focused on first generation biofuels and the iLUC effects of second generation biofuels are hardly assessed. EPA (2010) investigated LUC GHG emissions of switch grass (Table 1) and indeed found lower emissions than for corn ethanol and soy biodiesel. However, switch grass does not score better than sugarcane while there are also large uncertainties related mainly to the yield of switch grass (Plevin, 2010). Particularly interesting is also the overall effect of carbon sequestration from woody and grassy feedstock production on degraded and marginal land.

The study is also not accounting for scenarios with sustainability criteria and optimized bioenergy chains.

[1] Parameter uncertainties are checked for 1) alternative values for the elasticities of land type substitution (how easily land can be shifted from one crop or pasture to another crop), 2) land/fertilizer substitution (how additional land expansion can be substituted by increased fertilizer use), 3) land extension supply curves (how new land is converted to agricultural uses when land rental prices increase), and 4) technology pathways, i.e. CO_2 emission reductions for different biofuel feedstocks (Al-Riffai et al. 2010)

Impacts of LUC:
Existing modelling of LUC have focused primarily on the resulting CO_2 emissions, although there are also N_2O and CH_4 emissions from agriculture and agricultural intensification (Stehfest 2010) and black carbon from fossil and biofuel combustion (Plevin et al. 2010, supporting material). In addition, LUC not only has an effects on GHG emissions but also on, for example, biodiversity, land tenure and food security but these impacts have hardly been investigated (van Oorschot et al., 2010). With respect to food security, it is important to mention that, as a result of higher food prices, the economic models find lower food consumption, which induces a GHG benefit for biofuels. Although this may not necessarily cause a nutritional deficit among wealthy households, it may do so for poor, already malnourished households (Hertel et al. 2010). Testing the effect of keeping food consumption constant, Hertel et al. (2010) then find that the GHG emission factor of LUC caused by US corn ethanol production would increase by 41%.

ii. FURTHER ANALYSIS WORK ON iLUC

Based on the description of uncertainties and shortcomings of the existing modelling efforts for assessing iLUC, several recommendations for further analysis and improvements of the iLUC models can be given.

Use the models in a pro-active manner: The basic approach of using macro-economic models to date is to simulate impacts on land, prices and (eventually) GHG emissions of iLUC as a consequence of increasing biomass production for energy. Remarkably, very few studies have focused on avoiding or at least minimizing these undesired effects altogether. In current studies **iLUC is a reactive concept while the alternative is to be pro-active via proper policies so to minimize iLUC or even avoiding it altogether**. Studies that show how this can be achieved, may now be more useful than studies that attempt to deliver more detailed, but still highly uncertain results on iLUC. Such an assessment can then deliver more concrete input for developing proper policy strategies. Therefore, iLUC modelling should include different scenarios to determine under which conditions iLUC effects are minimized. Important to include in these scenarios should be sustainability criteria as well as the different strategies for minimizing iLUC, such as optimized bioenergy chains, the use of degraded and marginal land, bioenergy production from residues and waste, perennial crop (see section 5). Investigating the different mitigation options by the models allows determining the actual effect these strategies may have for iLUC.

Include perennial crops as feedstock for bioenergy production in iLUC modelling: Second generation biofuels are not included in most analyses although they are thought to reverse carbon impacts on soils and produce on average a factor three better energy yield per hectare compared to first generation biofuels on the same land type. Projections up to 2020 should now include a possible market entry of second generation biofuels (following the scenarios of e.g., IEA Energy Technology Perspectives 2010 (OECD/IEA, 2010a) and IEA World Energy Outlook 2010 (OECD/IEA, 2010b)) while further growth of biofuels production and use beyond 2020 is likely to be dominated by second generation once they become competitive with projected oil prices of 80-100 U$/barrel.

Improve key feedback on relations of price, innovation and policy to productivity increases: Insights in, data of and simulation of yield responses and management changes in agriculture and livestock in relation to demand, prices as well as R&D and various policy strategies (including agricultural subsidies) are still underdeveloped and require further improvements. Particularly, more regional and crop-specific (and possibly temporal) differentiation of elasticities is needed (Zilberman et al., 2010).

Improve input data and further refine modelling approach: In addition to key feedback relations, other aspects of the iLUC models need improvements to allow modelling iLUC as accurately as possible. Most important examples for improvements are 1) inclusion of technological learning for agricultural crop, livestock and bioenergy production, 2) better integration of macro-economic and biophysical models, and 3) improve quality of underlying datasets: improvements of underlying datasets such as those described in Section 3. *Field measurements and model validation are needed to reduce uncertainties of analyses and models. Eg. Kim and Dale 2011*
It is important to incorporate technological details of biofuel production systems with respect to production efficiency, delivery of co-products, etc.

Further harmonize different modelling efforts: In a first harmonization effort, Edwards et al. (2010) have compared LUC results from different economic models for marginal increases in biofuels production. They found significant LUC for all scenarios (ethanol vs. biodiesel, demand in US vs. EU) but also large ranges in LUC within each scenario (see Section 2). Further harmonization of parameters, databases and assumptions used in the models are needed to come to comparable outcomes between initiatives. However, based on a review of existing literature on iLUC, Khanna et al. (2011) conclude that as a result of the "differences among modeling approaches, it is unlikely that estimates will converge to a single number".

Conduct comprehensive uncertainty analyses: As described in Section 3, comprehensive uncertainty analyses of the different economic models combined with biophysical models are needed to better understand uncertainties and uncertainty propagation in LUC modelling. Especially important are uncertainty assessments of the 1) economic models (Plevin, 2010), where factors such as regional specific yield developments due to learning and climate change as well as technological change, e.g. penetration of second generation bioenergy crops, must be investigated, and 2) effect of sustainability criteria on direct and indirect LUC (Al-Riffai et al., 2010). A better understanding of the uncertainties and the sensitivity of the results to them is important for dealing with LUC and helps identifying the conditions under which low (i)LUC can be achieved.

Further investigate the drivers of LUC and LUC mitigation options: Consistent monitoring and data collection of land use changes - particularly for forestry, cropland and pastureland - and its impacts on a regional level are required in order to better understand the dynamics and complexity of LUC and its drivers. Establishing appropriate social, economic and environmental indicators of LUC, with measurements that are simple to obtain, would enable a more in-depth analysis of development options for biomass. A starting point for developing bioenergy resources sustainably is an interlinked integral governance of land use, land use planning and zoning, and development of agriculture and livestock. Moreover, LUC mitigation options and their potential effects must be investigated in more detail and included in scenarios of LUC models. An overview of such mitigation strategies follows next.

iii. STRATEGIES FOR MITIGATING iLUC

Besides tackling iLUC by means of including an iLUC GHG emission factor, it may also be possible to minimize (i)LUC and its environmental and social impacts. There are several different strategies within two categories: 1) controlling the extent of LUC and 2) controlling the type of LUC.

The main strategies for controlling the extent of LUC are to:

1) **Increase efficiencies in agricultural crop and livestock production**. Agricultural crop yield increases can be achieved by improved fertilizer application (e.g., through increasing the amount and/or improving the timing of nitrogen fertilizer application (Stehfest et al. 2010)), better weed and pest management, switching varieties grown, investments in agricultural research and development, and multiple rotations (such as conventional crops in the summer and cool season grasses in the winter) (Bauen et al., 2010). Increasing livestock production efficiencies is possible through increasing grazing density (example of Brazil, Lapola et al. (2010) more details), increasing pasture productivity by, for example, fertilization or introduction of higher productivity grasses (Smith et al., 2008), improved feeding practices (e.g., partially replacing forage by more concentrated fodder and higher protein diets (Smith et al., 2008), and landless livestock production (Smeets et al., 2007). Sustainability initiatives, such as the Roundtable for Sustainable Biofuels (RSB) and Better Sugarcane Initiative (BSI), have already included measures to promote the intensification and increased efficiency of agricultural production in their standard.

2) **Use of by-products of bioenergy production to replace land-based products**. Using by-products to replace other land-based products (e.g. feed) gives higher GHG emission savings than co-firing them for heat and power generation (Bauen et al., 2010).

3) **Integrate food, feed and fuel production to increase total biomass production per hectare.** Examples of integration are agroforestry and silvopastoral production systems, such as intercropping (or alley cropping), rotational woodlots and hedge rows, that combine agricultural crop, fodder crop and fuel crop production. In addition to the integration of the production of various feedstocks, also the integration of biomass conversion processes and the production of multiple products such as fuels, power, heat, chemicals as well as feed (a concept generally referred to as biorefining) is important for increasing the per hectare output. Examples range from conventional biorefining systems (i.e. feeding residues from bioenergy production to animals, see e.g. Egeskog et al. (2011)) to newer types of biorefineries (e.g. lignocellulosic feedstock biorefinery, thermo-chemical biorefinery) (van Ree and Annevelink, 2007; Bauen et al., 2010). Another option for the integration is biomass cascading, i.e. the subsequent use of biomass for materials, recycling and energy recovery (see Dornburg and Faaij (2005) for the example of cascading chains of short rotation poplar).

4) **Use agricultural and forestry residues**. Agricultural and forestry residues that are not currently used will not cause iLUC. However, if by-products that are already used are diverted to bioenergy production, they are likely to have negative impact (including iLUC)(Brander et al., 2009). Brander et al. (2009) found that the indirect GHG effects of residues show large ranges and that the effect strongly depends on the residue considered, existing region- and temporal-specific uses of the residue and possible substitutes and their emission factors. Particularly regional differences must be investigated in better assessing the bioenergy potential of residues and their iLUC mitigation effect.

5) **Improve supply chain efficiencies of agricultural, forestry and bioenergy chains.** Examples of improving chain efficiencies are better storage and transport, processing and conversion.

6) **Minimize degradation and abandonment of current agricultural land in production.** Degradation and abandonment of agricultural land often occurs as a result of agricultural mismanagement, such as irrigation-induced salinization and soil compaction due to overgrazing. By improving agricultural management, degradation and abandonment of agricultural land can be minimized and subsequent conversion of e.g. forest land can be avoided.

After minimizing the extent of (i)LUC, the impacts of (i)LUC can be minimized by controlling the type of LUC. The main strategies are to:

1) **Implement more appropriate zoning of land use and land cover and improved monitoring.** More appropriate zoning of land use and land cover is needed to better steer any land use change. This is only possible if more and higher quality data with respect to accuracy and resolution on land use and land use change is available. In addition, improved monitoring of land use is needed in order to ensure compliance with land use planning. *Eexamples (Gibbs et al., 2010) and (Lapola et al., 2010).*

2) **Exclude high carbon stock areas and important biodiversity areas.** Better zoning of land use and land cover should specifically address the exclusion of high carbon stocks such as forests and peat land and important biodiversity areas from conversion to other uses (including bioenergy feedstock production) in order to minimize GHG emissions and biodiversity losses. Degradation of forest and deforestation could be addressed by the REDD+ (Reducing Emissions from Deforestation and Forest Degradation) program proposed for inclusion in a post-Kyoto climate mitigation strategy.

3) **Promote the use of marginal or degraded lands.** The use of marginal and degraded land for perennial bioenergy crop production is often promoted in order to reduce the pressure on agricultural land and nature areas. Several studies have indicated a small but not insignificant global potential while in particular regions, such as Africa, the potential contribution to current energy supply is large (Nijsen et al., 2011; Wicke et al., 2011). Moreover, the use of marginal and degraded land for bioenergy production can provide additional ecosystem services and functions, such as erosion control, improved water retention, phytoremediation (e.g., salt-affected soils), buffer zones (both for nature reserves and pollution control) and (soil) carbon sequestration (Gibbs et al., 2008; Wicke, 2011). However, some aspects surrounding the use of marginal or degraded land are still uncertain, for example, defining degraded lands and translating this into policy measures, potential yields and the current uses and functions of degraded land (Bauen et al., 2010; Wicke, 2011). The often lower yields on degraded and marginal land result in more land required than with highly productive land, which is an additional issue to be considered.

4) **Promote the use of abandoned agricultural land.** Similar to degraded and marginal land, using abandoned agricultural land may reduce the competition for land with agricultural crop production and the conversion of nature areas. However, abandoned agricultural land may still provide important ecosystem and other service functions to rural communities and the actual availability for bioenergy feedstock production must therefore be assessed further.

The iLUC modelling exercises should also investigate how the above mentioned strategies affect iLUC so to determine the most effective strategies.

Annexe [redacted]

Final Regulation Order

Adopt new sections 95480, 95480.1, 95481, 95482, 95483, 95484, 95485, 95486, 95487, 95488, 95489, and 95490, title 17, California Code of Regulations (CCR), to read as follows:

(Note: The entire text of Subarticle 7 and sections 95480, 95480.1, 95481, 95482, 95483, 95484, 95485, 95486, 95487, 95488, 95489, and 95490 is new language. Subsection headings are shown in *italics* and are to be italicized in Barclays California Code of Regulations.)

Subchapter 10. Climate Change
Article 4. Regulations to Achieve Greenhouse Gas Emission Reductions

Subarticle 7. Low Carbon Fuel Standard

Section 95480. Purpose

The purpose of this regulation is to implement a low carbon fuel standard, which will reduce greenhouse gas emissions by reducing the full fuel-cycle, carbon intensity of the transportation fuel pool used in California, pursuant to the California Global Warming Solutions Act of 2006 (Health & Safety Code (H&S), section 38500 et.seq.).

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95480.1. Applicability

(a) *Applicability of the Low Carbon Fuel Standard.*

Except as provided in this section, the California Low Carbon Fuel Standard regulation, title 17, California Code of Regulations (CCR), sections 95480 through 95490 (collectively referred to as the "LCFS") applies to any transportation fuel, as defined in section 95481, that is sold, supplied, or offered for sale in California, and to any person who, as a regulated party defined in section 95481 and specified in section 95484(a), is responsible for a transportation fuel in a calendar year. The types of transportation fuels to which the LCFS applies include:

(1) California reformulated gasoline ("gasoline" or "CaRFG");
(2) California diesel fuel ("diesel fuel" or "ULSD");

(3) Fossil compressed natural gas ("Fossil CNG") or fossil liquefied natural gas ("Fossil LNG");
(4) Biogas CNG or biogas LNG;
(5) Electricity;
(6) Compressed or liquefied hydrogen ("hydrogen");
(7) A fuel blend containing hydrogen ("hydrogen blend");
(8) A fuel blend containing greater than 10 percent ethanol by volume;
(9) A fuel blend containing biomass-based diesel;
(10) Denatured fuel ethanol ("E100");
(11) Neat biomass-based diesel ("B100"); and
(12) Any other liquid or non-liquid fuel.

The provisions and requirements in section 95484(c), (d) and (e) apply starting January 1, 2010. All other provisions and requirements of the LCFS regulation apply starting January 1, 2011.

(b) *Credit Generation Opt-In Provision for Specific Alternative Fuels.* Each of the following alternative fuels is presumed to have a full fuel-cycle, carbon intensity that meets the compliance schedules set forth in section 95482(b) and (c) through December 31, 2020. With regard to an alternative fuel listed below, the regulated party for the fuel must meet the requirements of the LCFS regulation only if the regulated party elects to generate LCFS credits:

(1) Electricity;
(2) Hydrogen;
(3) A hydrogen blend;
(4) Fossil CNG derived from North American sources;
(5) Biogas CNG; and
(6) Biogas LNG.

(c) *Exemption for Specific Alternative Fuels.* The LCFS regulation does not apply to an alternative fuel that meets the criteria in either (c)(1) or (2) below:

(1) An alternative fuel that:

(A) is not a biomass-based fuel; and
(B) is supplied in California by all providers of that particular fuel for transportation use at an aggregated volume of less than 420 million MJ (3.6 million gasoline gallon equivalent) per year;

A regulated party that believes it is subject to this exemption has the sole burden of proving to the Executive Officer's satisfaction that the exemption applies to the regulated party.

(2) Liquefied petroleum gas (LPG or "propane").

(d) *Exemption for Specific Applications.* The LCFS regulation does not apply to any transportation fuel used in the following applications:

(1) Aircraft;
(2) Racing vehicles, as defined in H&S section 39048;
(3) Military tactical vehicles and tactical support equipment, as defined in title 13, CCR, section 1905(a) and title 17, CCR, section 93116.2(a)(36), respectively;
(4) Locomotives not subject to the requirements specified in title 17, CCR, section 93117; and
(5) Ocean-going vessels, as defined in title 17, CCR, section 93118.5(d). This exemption does not apply to recreational and commercial harbor craft, as defined in title 17, CCR, section 93118.5(d).

(e) Nothing in this LCFS regulation (title 17, CCR, § 95480 et seq.) may be construed to amend, repeal, modify, or change in any way the California reformulated gasoline regulations (CaRFG, title 13, CCR, § 2260 et seq.), the California diesel fuel regulations (title 13, CCR, §§ 2281-2285 and title 17, CCR, § 93114), or any other applicable State or federal requirements. A person, including but not limited to the regulated party as that term is defined in the LCFS regulation, who is subject to the LCFS regulation or other State and federal regulations shall be solely responsible for ensuring compliance with all applicable LCFS requirements and other State and federal requirements, including but not limited to the CaRFG requirements and obtaining any necessary approvals, exemptions, or orders from either the State or federal government.

(f) *Severability.* Each part of this subarticle shall be deemed severable, and in the event that any part of this subarticle is held to be invalid, the remainder of this subarticle shall continue in full force and effect.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95481. Definitions and Acronyms

(a) *Definitions.* For the purposes of sections 95480 through 95489, the definitions in Health and Safety Code sections 39010 through 39060 shall apply, except as otherwise specified in this section, section 95480.1, or sections 95482 through 95489:

(1) "Alternative fuel" means any transportation fuel that is not CaRFG or a diesel fuel, including but not limited to, those fuels specified in section 95480.1(a)(3) through (a)(12).

(2) ~~"B100" means biodiesel meeting ASTM D6751-08 (October 1, 2008)~~ (*Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels*), which is incorporated herein by reference.

(3) "Biodiesel" means a diesel fuel substitute produced from nonpetroleum renewable resources that meet the registration requirements for fuels and fuel additives established by the Environmental Protection Agency under section 211 of the Clean Air Act. It includes biodiesel meeting all the following:

(A) Registered as a motor vehicle fuel or fuel additive under 40 CFR part 79;
(B) A mono-alkyl ester;
(C) Meets ASTM D 6751-08 (October 1, 2008), *Standard Specification for Biodiesel Fuel Blendstock (B100) for Middle Distillate Fuels,* which is incorporated herein by reference;
(D) Intended for use in engines that are designed to run on conventional diesel fuel; and
(E) Derived from nonpetroleum renewable resources.

(4) "Biodiesel Blend" means a blend of biodiesel and diesel fuel containing 6% (B6) to 20% (B20) biodiesel and meeting ASTM D7467-08 (October 1, 2008), *Specification for Diesel Fuel Oil, Biodiesel Blend (B6 to 20)*, which is incorporated herein by reference.

(5) "Biogas (also called biomethane) means natural gas that meets the requirements of 13 CCR §2292.5 and is produced from the breakdown of organic material in the absence of oxygen. Biogas is produced in processes including, but not limited to, anaerobic digestion, anaerobic decomposition, and thermo-chemical decomposition. These processes are applied to biodegradable biomass materials, such as manure, sewage, municipal solid waste, green waste, and waste from energy crops, to produce landfill gas, digester gas, and other forms of biogas.

(6) "Biogas CNG" means CNG consisting solely of compressed biogas.

(7) "Biogas LNG" means LNG consisting solely of liquefied biogas.

(8) "Biomass" has the same meaning as defined in "Renewable Energy Program: Overall Program Guidebook," 2nd Ed., California Energy Commission, Report No. CEC-300-2007-003-ED2-CMF, January 2008, which is incorporated herein by reference.

(9) "Biomass-based diesel" means a biodiesel (mono-alkyl ester) or a renewable diesel that complies with ASTM D975-08ae1, (edited December 2008), *Specification for Diesel Fuel Oils*, which is incorporated herein by reference. This includes a renewable fuel derived from co-processing biomass with a petroleum feedstock.

(10) "Blendstock" means a component that is either used alone or is blended with another component(s) to produce a finished fuel used in a motor vehicle. Each blendstock corresponds to a fuel pathway in the California-modified GREET. A blendstock that is used directly as a transportation fuel in a vehicle is considered a finished fuel.

(11) "Carbon intensity" means the amount of lifecycle greenhouse gas emissions, per unit of energy of fuel delivered, expressed in grams of carbon dioxide equivalent per megajoule (gCO2E/MJ).

(12) "Compressed Natural Gas (CNG)" means natural gas that has been compressed to a pressure greater than ambient pressure and meets the requirements of title 13, CCR, section 2292.5.

(13) "Credits" and "deficits" means the measures used for determining a regulated party's compliance with the average carbon intensity requirements in sections 95482 and 95483. Credits and deficits are denominated in units of metric tons of carbon dioxide equivalent (CO2E), and are calculated pursuant to section 95485(a).

(14) "Diesel Fuel" (also called conventional diesel fuel) has the same meaning as specified in title 13, CCR, section 2281(b).

(15) "Diesel Fuel Blend" means a blend of diesel fuel and biodiesel containing no more than 5% (B5) biodiesel by weight and meeting ASTM D975-08ae1, (edited December 2008), *Specification for Diesel Fuel Oils*, which is incorporated herein by reference.

(16) "E100," also known as "Denatured Fuel Ethanol," means nominally anhydrous ethyl alcohol meeting ASTM D4806-08 (July 1, 2008), *Standard Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel*, which is incorporated herein by reference.

(17) "Executive Officer" means the Executive Officer of the Air Resources Board, or his or her designee.

(18) "Final Distribution Facility" means the stationary finished fuel transfer point from which the finished fuel is transferred into the cargo tank truck,

pipeline, or other delivery vessel for delivery to the facility at which the finished fuel will be dispensed into motor vehicles.

(19) "Finished fuel" means a fuel that is used directly in a vehicle for ~~transportation purposes without requiring additional chemical or physical~~ processing.

(20) "Fossil CNG" means CNG that is derived solely from petroleum or fossil sources, such as oil fields and coal beds.

(20.5) "GTAP" or "GTAP Model" means the Global Trade Analysis Project Model (January 2010), which is hereby incorporated by reference, and is a software package comprised of:

(A) RunGTAP (February 2009), a visual interface for use with the GTAP databases (posted at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm in February 2009 and available for download at https://www.gtap.agecon.purdue.edu/products/rungtap/default.asp), which is hereby incorporated by reference;

(B) GTAP-BIO (February 2009), the GTAP model customized for corn ethanol (posted at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm in February 2009 and available with its components as a .zip file for download at http://www.arb.ca.gov/fuels/lcfs/gtapbio.zip); which is hereby incorporated by reference;

(C) GTP-SGR (February 2009), the GTAP model customized for sugarcane ethanol (posted at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm in February 2009 and available with its components as a .zip file for download at http://www.arb.ca.gov/fuels/lcfs/gtpsgr.zip), which is hereby incorporated by reference; and

(D) GTAP-SOY (January 2010), the compressed file containing the GTAP model customized for Midwest soybeans (posted at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm in January 2010 and available with its components as a .zip file for download at http://www.arb.ca.gov/fuels/lcfs/gtap-soy.zip), which is hereby incorporated by reference.

(21) "HDV" means a heavy-duty vehicle that is rated at 14,001 or more pounds gross vehicle weight rating (GVWR).

(22) "Home fueling" means the dispensing of fuel by use of a fueling appliance that is located on or within a residential property with access limited to a single household.

(23) "Import" means to bring a product from outside California into California.

(24) "Importer" means the person who owns an imported product when it is received at the import facility in California.

(25) "Import facility" means, with respect to any imported liquid product, the storage tank in which the product was first delivered from outside California into California, including, in the case of liquid product imported by cargo tank and delivered directly to a facility for dispensing the product into motor vehicles, the cargo tank in which the product was imported.

(26) "Intermediate calculated value" means a value that is used in the calculation of a reported value but does not by itself meet the reporting requirement under section 95484(c).

(27) "LDV & MDV" means a vehicle category that includes both light-duty (LDV) and medium-duty vehicles (MDV).

(A) "LDV" means a vehicle that is rated at 8500 pounds or less GVWR.
(B) "MDV" means a vehicle that is rated between 8501 and 14,000 pounds GVWR.

(28) "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 Executive Officer, 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.

(29) "Liquefied Natural Gas (LNG)" means natural gas that has been liquefied and meets the requirements of title 13, CCR, section 2292.5.

(30) "Liquefied petroleum gas (LPG or propane)" has the same meaning as defined in Vehicle Code section 380.

(31) "Motor vehicle" has the same meaning as defined in section 415 of the Vehicle Code.

(32) "Multi-fuel vehicle" means a vehicle that uses two or more distinct fuels for its operation. A multi-fuel vehicle (also called a vehicle operating in blended-mode) includes a bi-fuel vehicle and can have two or more fueling ports onboard the vehicle. A fueling port can be an electrical plug or a receptacle for liquid or gaseous fuel. As an example, a plug-in hybrid hydrogen internal combustion engine vehicle (ICEV) uses both electricity and hydrogen as the fuel source and can be "refueled" using two separately distinct fueling ports.

(33) "Multimedia evaluation" has the same meaning as specified in H&S section 43830.8(b) and (c).

(34) "Natural gas" means a mixture of gaseous hydrocarbons and other compounds, with at least 80 percent methane (by volume), and typically sold or distributed by utilities, such as any utility company regulated by the California Public Utilities Commission.

(35) "Private access fueling facility" means a fueling facility with access restricted to privately-distributed electronic cards ("cardlock") or is located in a secure area not accessible to the public.

(36) "Producer" means, with respect to any liquid fuel, the person who owns the liquid fuel when it is supplied from the production facility.

(37) "Production facility" means, with respect to any liquid fuel (other than LNG), a facility in California at which the fuel is produced. "Production facility" means, with respect to natural gas (CNG, LNG or biogas), a facility in California at which fuel is converted, compressed, liquefied, refined, treated, or otherwise processed into CNG, LNG, biogas, or biogas-natural gas blend that is ready for transportation use in a vehicle without further physical or chemical processing.

(38) "Public access fueling facility" means a fueling facility that is not a private access fueling dispenser.

(39) "Regulated party" means a person who, pursuant to section 95484(a), must meet the average carbon intensity requirements in section 95482 or 95483.

(40) "Renewable diesel" means a motor vehicle fuel or fuel additive that is all the following:

(A) Registered as a motor vehicle fuel or fuel additive under 40 CFR part 79;
(B) Not a mono-alkyl ester;

(C) Intended for use in engines that are designed to run on conventional diesel fuel; and
(D) Derived from nonpetroleum renewable resources.

(41) "Single fuel vehicle" means a vehicle that uses a single external source of fuel for its operation. The fuel can be a pure fuel, such as gasoline, or a blended fuel such as E85 or a diesel fuel containing biomass-based diesel. A dedicated fuel vehicle has one fueling port onboard the vehicle. Examples include BEV, E85 FFV, vehicles running on a biomass-based diesel blend, and grid-independent hybrids such as a Toyota Prius.®

(42) "Transportation fuel" means any fuel used or intended for use as a motor vehicle fuel or for transportation purposes in a nonvehicular source.

(b) *Acronyms.* For the purposes of sections 95480 through 95489, the following acronyms apply.

(1) "ASTM" means ASTM International (formerly American Society for Testing and Materials).
(2) "BEV" means battery electric vehicles.
(3) "CARBOB" means California reformulated gasoline blendstock for oxygenate blending
(4) "CaRFG" means California reformulated gasoline.
(5) "CEC" means California Energy Commission.
(6) "CFR" means code of federal regulations.
(7) "CI" means carbon intensity.
(8) "CNG" means compressed natural gas.
(9) "EER" means energy economy ratio.
(10) "FCV" means fuel cell vehicles.
(11) "FFV" means flex fuel vehicles.
(12) "gCO2E/MJ" means grams of carbon dioxide equivalent per mega joule.
(13) "GREET" means the Greenhouse gases, Regulated Emissions, and Energy use in Transportation model.
(14) "GVWR" means gross vehicle weight rating.
(15) "HDV" means heavy-duty vehicles.
(16) "ICEV" means internal combustion engine vehicle.
(17) "LCFS" means Low Carbon Fuel Standard.
(18) "LDV" means light-duty vehicles.
(19) "LNG" means liquefied natural gas.
(20) "LPG" means liquefied petroleum gas.
(21) "MDV" means medium-duty vehicles.
(22) "MT" means metric tons of carbon dioxide equivalent.
(23) "PHEV" means plug-in hybrid vehicles.
(24) "ULSD" means California ultra low sulfur diesel.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95482. Average Carbon Intensity Requirements for Gasoline and Diesel

(a) Starting January 1, 2011 and for each year thereafter, a regulated party must meet the average carbon intensity requirements set forth in Table 1 and Table 2 of this section for its transportation gasoline and diesel fuel, respectively, in each calendar year. For 2010 only, a regulated party does not need to meet a carbon intensity requirement, but it must meet the reporting requirements set forth in section 95484(c).

(b) *Requirements for gasoline and fuels used as a substitute for gasoline.*

Table 1. LCFS Compliance Schedule for 2011 to 2020 for Gasoline and Fuels Used as a Substitute for Gasoline.

Year	Average Carbon Intensity (gCO2E/MJ)	% Reduction
2010	Reporting Only	
2011	95.61	0.25%
2012	95.37	0.5%
2013	94.89	1.0%
2014	94.41	1.5%
2015	93.45	2.5%
2016	92.50	3.5%
2017	91.06	5.0%
2018	89.62	6.5%
2019	88.18	8.0%
2020 and subsequent years	86.27	10.0%

(c) *Requirements for diesel fuel and fuels used as a substitute for diesel fuel.*

Table 2. LCFS Compliance Schedule for 2011 to 2020 for Diesel Fuel and Fuels Used as a Substitute for Diesel Fuel.

Year	Average Carbon Intensity (gCO2E/MJ)	% Reduction
2010	Reporting Only	
2011	94.47	0.25%
2012	94.24	0.5%
2013	93.76	1.0%
2014	93.29	1.5%
2015	92.34	2.5%
2016	91.40	3.5%
2017	89.97	5.0%
2018	88.55	6.5%
2019	87.13	8.0%
2020 and subsequent years	85.24	10.0%

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5,

38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95483. Average Carbon Intensity Requirements for Alternative Fuels

(a) The requirements of this section apply to a regulated party that provides an alternative fuel as a transportation fuel in California.

(b) *Carbon Intensity Requirements for an Alternative Fuel Other Than a Biomass-Based Diesel Fuel -Intended for Use in a Single Fuel Vehicle.*

(1) A regulated party must use the average carbon intensity value for gasoline set forth in section 95482(b) for its alternative fuel, other than biomass-based diesel fuel, if the alternative fuel is used or intended to be used in any single-fuel:

(A) light-duty vehicle, or

(B) medium-duty vehicle.

(2) A regulated party must use the average carbon intensity value for diesel fuel set forth in section 95482(c) for its alternative fuel, other than biomass-based diesel fuel, that is used or intended to be used in any single-fuel application not identified in section 95483(b)(1).

(c) *Carbon Intensity Requirements for Biomass-Based Diesel Fuel Provided for Use in a Single Fuel Vehicle.* A regulated party must use the average carbon intensity value for diesel fuel set forth in section 95482(c) if its biomass-based diesel fuel is used or intended to be used in any single-fuel:

(1) light-duty vehicle;

(2) medium-duty vehicle;

(3) heavy-duty vehicle;

(4) off-road transportation application;

(5) off-road equipment application;

(6) locomotive or commercial harbor craft application; or

(7) non-stationary source application not otherwise specified in 1-6 above.

(d) *Carbon Intensity Requirements for Transportation Fuels Intended for Use in Multi-Fuel Vehicles.*

(1) For an alternative fuel provided for use in a multi-fueled vehicle, a regulated party must use:

(A) the average carbon intensity value for gasoline set forth in section 95482(b) if one of the fuels used in the multi-fuel vehicle is gasoline; or

(B) the average carbon intensity value for diesel fuel set forth in section 95482(c) if one of the fuels used in the multi-fuel vehicle is diesel fuel.

(2) For an alternative fuel provided for use in a multi-fueled vehicle (including a bi-fuel vehicle) that does not use gasoline or diesel fuel, a regulated party must use:

(A) the average carbon intensity value for gasoline set forth in section 95482(b) if that alternative fuel is used or intended to be used in:

1. light-duty vehicle, or

2. medium-duty vehicle.

(B) the average carbon intensity value for diesel set forth in section 95482(c) if that alternative fuel is used or intended to be used in an application not identified in section 95483(d)(2)(A).

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95484. Requirements for Regulated Parties

(a) *Identification of Regulated Parties.* The purpose of this part is to establish the criteria by which a regulated party is determined. The regulated party is initially ~~established for each type of transportation fuel, but this part provides for the~~ transfer of regulated party status and the associated compliance obligations by agreement, notification, or other means, as specified below.

(1) *Regulated Parties for Gasoline.*

(A) *Designation of Producers and Importers as Regulated Parties.*

1. *Where Oxygenate Is Added to Downstream CARBOB.*

For gasoline consisting of CARBOB and an oxygenate added downstream from the California facility at which the CARBOB was produced or imported, the regulated party is initially the following:

a. With respect to the CARBOB, the regulated party is the producer or importer of the CARBOB; and

b. With respect to the oxygenate, the regulated party is the producer or importer of the oxygenate.

2. *Where No Separate CARBOB.* For gasoline that does not include CARBOB that had previously been supplied from the facility at which was produced or imported, the regulated party for the gasoline is the producer or importer of the gasoline.

(B) *Effect of Transfer of CARBOB by Regulated Party.*

1. *Threshold Determination Whether Recipient of CARBOB is a Producer or Importer.* Whenever a person who is the regulated party for CARBOB transfers ownership of the CARBOB, the recipient must notify the transferor whether the recipient is a producer or importer for purposes of this section 95484(a)(1)(B).

2. *Producer or Importer Acquiring CARBOB Becomes the Regulated Party Unless Specified Conditions Are Met.* Except as provided for in section 95484(a)(1)(B)3., when a person who is the regulated party transfers ownership of the CARBOB to a producer or importer, the recipient of ownership of the CARBOB (i.e., the transferee) becomes the

regulated party for it. The transferor must provide the recipient a product transfer document that prominently states the information specified in paragraphs a. and b. below, and the transferor and recipient must meet the requirements specified in paragraph c., as set forth below:

a. the volume and average carbon intensity of the transferred CARBOB. For a transferor that is a regulated party subject to section 95486(b)(2)(A)2., the transferor of CARBOB may report as the "average carbon intensity" on the product transfer document the total carbon intensity value for CARBOB as shown in the Carbon Intensity Lookup Table; and

b. the recipient is now the regulated party for the acquired CARBOB and accordingly is responsible for meeting the requirements of the LCFS regulation with respect to the CARBOB.

c. For purposes of section 95485(a), except as provided in paragraph c.iii. of this provision:

   i. the transferor under a. above must include the $Deficits^{XD}_{Incremental}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the transferor's annual credits and deficits balance calculation set forth in section 95485(a)(2); and

   ii. the recipient under b. above must include $Deficits^{XD}_{Base}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the recipient's annual credits and deficits balance calculation set forth in section 95485(a)(2).

   iii. Paragraphs c.i and c.ii. above notwithstanding, the transferor and recipient of CARBOB may, by the time the ownership is transferred, specify by written contract which party is responsible for accounting for the base deficit and incremental deficit In the annual credits and deficits balance calculation set forth in section 95485(a)(2).

3. *Transfer of CARBOB or Gasoline to a Producer or Importer and Retaining Compliance Obligation.*

Section 95484(a)(1)(B)2. notwithstanding, a regulated party transferring ownership of CARBOB to a producer or importer may elect to remain the regulated party and retain the LCFS compliance obligation for the transferred CARBOB by providing the recipient at the time of transfer with a product transfer document that prominently states that the transferor has elected to remain the regulated party with respect to the CARBOB.

4. *If Recipient Is Not a Producer or Importer, Regulated Party Transferring CARBOB Remains Regulated Party Unless Specified Conditions Are Met.* When a person who is the regulated party for CARBOB transfers ownership of the CARBOB to a person who is not a producer or importer, the transferor remains the regulated party unless the conditions of section 95484(a)(1)(B)5. are met.

5. *Conditions Under Which a Non-Producer and Non-Importer Acquiring Ownership of CARBOB Becomes the Regulated Party.* A person, who is neither a producer nor an importer and who acquires ownership of CARBOB from the regulated party, becomes the regulated party for the CARBOB if, by the time ownership is transferred, the two parties agree by written contract that the person acquiring ownership accepts the LCFS compliance obligation as the regulated party. For the transfer of regulated party obligations to be effective, the transferor must also provide the recipient a product transfer document that prominently states the information specified in paragraphs a. and b. below, and the transferor and recipient must meet the requirements specified in paragraph c., as set forth below::

a. the volume and average carbon intensity of the transferred CARBOB. For a transferor that is a regulated party subject to section 95486(b)(2)(A)2., the transferor of CARBOB may report as the "average carbon intensity" on the product transfer document the total carbon intensity value for CARBOB as shown in the Carbon Intensity Lookup Table; and

b. the recipient is now the regulated party for the acquired CARBOB and accordingly is responsible for meeting the requirements of the LCFS regulation with respect to the CARBOB.

c. For purposes of section 95485(a), except as provided in paragraph c.iii. of this provision:

i. the transferor under a. above must include the $Deficits^{XD}_{Incremental}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the transferor's annual credits and deficits balance calculation set forth in section 95485(a)(2); and

ii. the recipient under b. above must include $Deficits^{XD}_{Base}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the recipient's annual credits and deficits balance calculation set forth in section 95485(a)(2).

iii. Paragraphs c.i and c.ii. above notwithstanding, the transferor and recipient of CARBOB may, by the time the ownership is transferred, specify by written contract which party is responsible for accounting for the base deficit and incremental deficit In the annual credits and deficits balance calculation set forth in section 95485(a)(2).

(C) *Effect of Transfer By Regulated Party of Oxygenate to Be Blended With CARBOB.*

1. *Person Acquiring the Oxygenate Becomes the Regulated Party Unless Specified Conditions Are Met.* Except as provided in section 95484(a)(1)(C)2., when a person who is the regulated party for oxygenate to be blended with CARBOB transfers ownership of the oxygenate before it has been blended with CARBOB, the recipient of ownership of the oxygenate (i.e., the transferee) becomes the regulated party for it. The transferor must provide the recipient a product transfer document that prominently states:

a. the volume and carbon intensity of the transferred oxygenate; and

b. the recipient is now the regulated party for the acquired oxygenate and accordingly is responsible for meeting the requirements of the LCFS with respect to the oxygenate.

2. *Transfer of Oxygenate and Retaining Compliance Obligation.* Section 95484(a)(1)(C)1. notwithstanding, a regulated party transferring ownership of oxygenate may elect to remain the regulated party and retain the LCFS compliance obligation for the transferred oxygenate by providing the recipient at the time of transfer with a product transfer document that prominently states that the transferor has elected to remain the regulated party with respect to the oxygenate.

(D) *Effect of Transfer by a Regulated Party of Gasoline to be Blended With Additional Oxygenate.* A person who is the sole regulated party for a batch of gasoline and is transferring ownership of the gasoline to another party that will be combining it with additional oxygenate may transfer his or her obligations as a regulated party if all of the conditions set forth below are met.

1. Blending the additional oxygenate into the gasoline is not prohibited by title 13, California Code of Regulations, section 2262.5(d).

2. By the time ownership is transferred the two parties agree by written contract that the person acquiring ownership accepts the LCFS compliance obligations as a regulated party with respect to the gasoline.

3. The transferor provides the recipient a product transfer document that prominently states the information specified in paragraphs a. and b. below, and the transferor and recipient must meet the requirements specified in paragraph c., as set forth below:

   a. the volume and average carbon intensity of the transferred gasoline. For a transferor that is a regulated party subject to section 95486(b)(2)(A)2., the transferor may use the total carbon intensity value for CARBOB along with the carbon intensity for the oxygenate, as shown in the Carbon Intensity Lookup Table, for calculating the "average carbon intensity" on the product transfer document; and

   b. the recipient is now the regulated party for the acquired gasoline and accordingly is responsible for meeting the requirements of the LCFS regulation with respect to the gasoline.

c. For purposes of section 95485(a), except as provided in paragraph c.iii. of this provision:

i. the transferor under a. above must include the $Deficits^{XD}_{Incremental}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the transferor's annual credits and deficits balance calculation set forth in section 95485(a)(2); and

ii. the recipient under b. above must include $Deficits^{XD}_{Base}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the recipient's annual credits and deficits balance calculation set forth in section 95485(a)(2).

iii. Paragraphs c.i and c.ii. above notwithstanding, the transferor and recipient of CARBOB may, by the time the ownership is transferred, specify by written contract which party is responsible for accounting for the base deficit and incremental deficit In the annual credits and deficits balance calculation set forth in section 95485(a)(2).

4. The written contract between the parties includes an agreement that the recipient of the gasoline will be blending additional oxygenate into the gasoline.

(E) *Effect of Transfer by a Regulated Party of Oxygenate to be Blended With Gasoline.* Where oxygenate is added to gasoline, the regulated party with respect to the oxygenate is initially the producer or importer of the oxygenate. Transfers of the oxygenate are subject to section 95484(a)(1)(C).

(2) *Regulated Party for Diesel Fuel and Diesel Fuel Blends.*

(A) *Designation of Producers and Importers as Regulated Parties.*

1. *Where Biomass-Based Diesel Is Added to Downstream Diesel Fuel.*

For a diesel fuel blend consisting of diesel fuel and biomass-based diesel added downstream from the California facility at which the diesel fuel was produced or imported, the regulated party is initially the following:

a. With respect to the diesel fuel, the regulated party is the producer or importer of the diesel fuel; and

b. With respect to the biomass-based diesel, the regulated party is the producer or importer of the biomass-based diesel.

2. *All Other Diesel Fuels.* For any other diesel fuel that does not fall within section 95484(a)(2)(A)1., the regulated party is the producer or importer of the diesel fuel.

(B) *Effect of Transfer of Diesel Fuel and Diesel Fuel Blends by Regulated Party.*

1. *Threshold Determination Whether Recipient of Diesel Fuel or Diesel Fuel Blend is a Producer or Importer.*

Whenever a person who is the regulated party for diesel fuel or a diesel fuel blend transfers ownership before it has been transferred from its final distribution facility, the recipient must notify the transferor whether the recipient is a producer or importer for purposes of this section 95484(a)(2)(B).

2. *Producer or Importer Acquiring Diesel Fuel or Diesel Fuel Blend Becomes the Regulated Party Unless Specified Conditions Are Met.* Except as provided for in section 95484(a)(2)(B)3., when a person who is the regulated party for diesel fuel or a diesel fuel blend transfers ownership to a producer or importer before it has been transferred from its final distribution facility, the recipient of ownership of the diesel fuel or diesel fuel blend (i.e., the transferee) becomes the regulated party for it. The transferor must provide the recipient a product transfer document that prominently states the information specified in paragraphs a. and b. below, and the transferor and recipient must meet the requirements specified in paragraph c., as set forth below:

a. the volume and average carbon intensity of the transferred diesel fuel or diesel fuel blend. For a transferor that is a regulated party subject to section 95486(b)(2)(A)2., the transferor of diesel fuel or diesel fuel blend may report as the "average carbon intensity" on the product transfer document the total carbon intensity value for "diesel" (ULSD) as shown in the Carbon Intensity Lookup Table; and

b. the recipient is now the regulated party for the acquired diesel fuel or diesel fuel blend and accordingly is responsible for meeting the requirements of the LCFS regulation with respect to it.

c. For purposes of section 95485(a), except as provided in paragraph c.iii. of this provision:

i. the transferor under a. above must include the $Deficits^{XD}_{Incremental}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the transferor's annual credits and deficits balance calculation set forth in section 95485(a)(2); and

ii. the recipient under b. above must include $Deficits^{XD}_{Base}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the recipient's annual credits and deficits balance calculation set forth in section 95485(a)(2).

iii. Paragraphs c.i and c.ii. above notwithstanding, the transferor and recipient of diesel fuel or diesel fuel blend may, by the time the ownership is transferred, specify by written contract which party is responsible for accounting for the base deficit and incremental deficit In the annual credits and deficits balance calculation set forth in section 95485(a)(2).

3. *Transfer of Diesel Fuel or Diesel Fuel Blend to a Producer or Importer and Retaining Compliance Obligation.* Section 95484(a)(2)(B)2. notwithstanding, a regulated party transferring ownership of diesel fuel or diesel fuel blend to a producer or importer may elect to remain the regulated party and retain the LCFS compliance obligation for the transferred diesel fuel or diesel fuel blend by providing the recipient at the time of transfer with a product transfer document that prominently states that the transferor has elected to remain the regulated party with respect to the diesel fuel or diesel fuel blend.

4. *If Recipient Is Not a Producer or Importer, Regulated Party Transferring Diesel Fuel or Diesel Fuel Blend Remains Regulated Party Unless Specified Conditions Are Met.*

When a person who is the regulated party for diesel fuel or a diesel fuel blend transfers ownership of the diesel fuel or diesel fuel blend to a person who is not a producer or importer, the transferor remains the regulated party unless the conditions of section 95484(a)(2)(B)5. are met.

5. *Conditions Under Which a Non-Producer and Non-Importer Acquiring Ownership of Diesel Fuel or Diesel Fuel Blend Becomes the Regulated Party.* A person, who is neither a producer nor an importer and who acquires ownership of diesel fuel or a diesel fuel blend from the regulated party, becomes the regulated party for the diesel fuel or diesel fuel blend if, by the time ownership is transferred, the two parties agree by written contract that the person acquiring ownership accepts the LCFS compliance obligation as the regulated party. For the transfer of regulated party obligations to be effective, the transferor must also provide the recipient a product transfer document that prominently states the information specified in paragraphs a. and b. below, and the transferor and recipient must meet the requirements specified in paragraph c., as set forth below:

   a. the volume and average carbon intensity of the transferred diesel fuel or diesel fuel blend. For a transferor that is a regulated party subject to section 95486(b)(2)(A)2., the transferor of diesel fuel or diesel fuel blend may report as the "average carbon intensity" on the product transfer document the total carbon intensity value for "diesel" (ULSD) as shown in the Carbon Intensity Lookup Table; and

   b. the recipient is now the regulated party for the acquired diesel fuel or diesel fuel blend and accordingly is responsible for meeting the requirements of the LCFS regulation with respect to the diesel fuel or diesel fuel blend.

   c. For purposes of section 95485(a), except as provided in paragraph c.iii. of this provision:

      i. the transferor under a. above must include the $Deficits^{XD}_{Incremental}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the transferor's annual credits and deficits balance calculation set forth in section 95485(a)(2); and

ii. the recipient under b. above must include $Deficits^{XD}_{Base}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the recipient's annual credits and deficits balance calculation set forth in section 95485(a)(2).

iii. Paragraphs c.i and c.ii. above notwithstanding, the transferor and recipient of diesel fuel or diesel fuel blend may, by the time the ownership is transferred, specify by written contract which party is responsible for accounting for the base deficit and incremental deficit In the annual credits and deficits balance calculation set forth in section 95485(a)(2).

(C) *Effect of Transfer By Regulated Party of Biomass-Based Diesel to Be Blended With Diesel Fuel.*

1. *Person Acquiring the Biomass-Based Diesel Becomes the Regulated Party Unless Specified Conditions Are Met.*

Except as provided in section 95484(a)(2)(C)2., when a person who is the regulated party for biomass-based diesel to be blended with diesel fuel transfers ownership of the biomass-based diesel before it has been blended with diesel fuel, the recipient of ownership of the biomass-based diesel (i.e., the transferee) becomes the regulated party for it. The transferor must provide the recipient a product transfer document that prominently states:

a. the volume and carbon intensity of the transferred biomass-based diesel; and

b. the recipient is now the regulated party for the acquired biomass-based diesel and accordingly is responsible for meeting the requirements of the LCFS with respect to the biomass-based diesel.

2. *Transfer of Biomass-Based Diesel and Retaining Compliance Obligation.*

Section 95484(a)(2)(C)1. notwithstanding, the transferor may elect to remain the regulated party and retain the LCFS compliance obligation for the transferred biomass-based diesel by providing the recipient at the time of transfer with a product transfer document that prominently states that the

transferor has elected to remain the regulated party with respect to the biomass-based diesel.

(3) *Regulated Party For Liquid Alternative Fuels Not Blended With Gasoline Or Diesel Fuel.* For a liquid alternative fuel, including but not limited to neat denatured ethanol and neat biomass-based diesel, that is not blended with gasoline or diesel fuel, or with any other petroleum-derived fuel, the regulated party is the producer or importer of the liquid alternative fuel.

(4) *Regulated Party For Blends Of Liquid Alternative Fuels And Gasoline Or Diesel Fuel.*

(A) *Designation of producers and Importers as regulated parties.* For a transportation fuel that is a blend of liquid alternative fuel and gasoline or diesel fuel – but that does not itself constitute gasoline or diesel fuel – the regulated party is the following:

(1) With respect to the alternative fuel component, the regulated party is the person who produced the liquid alternative fuel in California or imported it into California; and

(2) With respect to the gasoline or diesel fuel component, the regulated party is the person who produced the gasoline or diesel fuel in California or imported it into California.

(B) *Transfer Of A Blend Of Liquid Alternative Fuel And Gasoline Or Diesel Fuel And Compliance Obligation.* Except as provided for in section 95484(a)(4)(C), on each occasion that a person transfers ownership of fuel that falls within section 95484(a)(4) ("alternative liquid fuel blend") before it has been transferred from its final distribution facility, the recipient of ownership of such an alternative liquid fuel blend (i.e., the transferee) becomes the regulated party for that alternative liquid fuel blend. The transferor shall provide the recipient a product transfer document that prominently states:

1. the volume and average carbon intensity of the transferred alternative liquid fuel blend; and

2. the recipient is now the regulated party for the acquired alternative liquid fuel blend and accordingly is responsible for meeting the requirements of the LCFS regulation with respect to the alternative liquid fuel blend.

(C) *Transfer Of A Blend Of Liquid Alternative Fuel And Gasoline Or Diesel Fuel And Retaining Compliance Obligation.* Section 95484(a)(4)(B) notwithstanding, the transferor may elect to remain

the regulated party and retain the LCFS compliance obligation for the transferred alternative liquid fuel blend by written contract with the recipient. The transferor shall provide the recipient with a product transfer document that identifies the volume and average carbon intensity of the transferred alternative liquid fuel blend.

(5) *Regulated Parties for Natural Gas (Including CNG, LNG, and Biogas).*

(A) *Designation of Regulated Parties for Fossil CNG and Biogas CNG.*

1. *Where Biogas CNG is Added to Fossil CNG.*

For fuel consisting of a fossil CNG and biogas CNG blend, the regulated party is initially the following:

a. With respect to the fossil CNG, the regulated party is the person that owns the natural gas fueling equipment at the facility at which the fossil CNG and biogas CNG blend is dispensed to motor vehicles for their transportation use; and

b. With respect to the biogas CNG, the regulated party is the producer or importer of the biogas CNG.

2. *Where No Biogas CNG is Added to Fossil CNG.* For fuel consisting solely of fossil CNG, the regulated party is the person that owns the natural gas fueling equipment at the facility at which the fossil CNG is dispensed to motor vehicles for their transportation use.

(B) *Designation of Regulated Parties for Fossil LNG and Biogas LNG.*

1. *Where Biogas LNG is Added to Fossil LNG.*

For a fuel consisting of a fossil LNG and biogas LNG blend, the regulated party is initially the following:

a. With respect to the fossil LNG, the regulated party is the person that owns the fossil LNG when it is transferred to the facility at which the liquefied blend is dispensed to motor vehicles for their transportation use; and

b. With respect to the biogas, the regulated party is the producer or importer of the biogas LNG.

2. *Where No Biogas LNG is Added to Fossil LNG.* For fuel consisting solely of fossil LNG, the regulated party is initially the person that owns the fossil LNG when it is transferred to the facility at which the fossil LNG is dispensed to motor vehicles for their transportation use.

(C) *Designation of Regulated Party for Biogas CNG or Biogas LNG Supplied Directly to Vehicles for Transportation Use.* For fuel consisting solely of biogas CNG or biogas LNG that is produced in California and supplied directly to vehicles in California for their transportation use without first being blended into fossil CNG or fossil LNG, the regulated party is initially the producer of the biogas CNG or biogas LNG.

(D) *Effect of Transfer of Fuel by Regulated Party.*

1. *Transferor Remains Regulated Party Unless Conditions Are Met.*

   When a person who is the regulated party for a fuel specified in section 95484(a)(5)(A), (B), or (C) transfers ownership of the fuel, the transferor remains the regulated party unless the conditions of section 95484(a)(5)(D)2. are met.

2. *Conditions Under Which a Person Acquiring Ownership of a Fuel Becomes the Regulated Party.* Section 95484(a)(5)(D)1. notwithstanding, a person acquiring ownership of a fuel specified in section 95484(a)(5)(A), (B), or (C) from the regulated party becomes the regulated party for that fuel if, by the time ownership is transferred, the two parties agree by written contract that the person acquiring ownership accepts the LCFS compliance obligation as the regulated party. For the transfer of regulated party obligations to be effective, the transferor must also provide the recipient a product transfer document that prominently states:

   a. the volume and average carbon intensity of the transferred fuel; and

   b. the recipient is now the regulated party for the acquired fuel and accordingly is responsible for meeting the requirements of the LCFS regulation with respect to the acquired fuel.

(6) *Regulated Parties for Electricity*. For electricity used as a transportation fuel, the regulated party is determined in the order specified below:

(A) The load-serving entity or other provider of electricity services, unless section 95484(a)(6)(B), (C), or (D) below applies. "Load-serving entity" has the same meaning specified in Public Utilities Code (PUC) section 380. "Provider of electricity services" means a local publicly-owned utility, retail seller (as defined in PUC section 399.12(g)), or any other person that supplies electricity to the vehicle charging equipment;

(B) The electricity services supplier, where "electricity services supplier" means any person or entity that provides bundled charging infrastructure and other electric transportation services and provides access to vehicle charging under contract with the vehicle owner or operator;

(C) The owner and operator of the electric-charging equipment, provided there is a contract between the charging equipment owner-operator and the provider of electricity services specifying that the charging equipment owner-operator is the regulated party;

(D) The owner of a home with electric vehicle-charging equipment, provided there is a contract between the homeowner and provider of electricity services specifying that the homeowner may acquire credits.

(7) *Regulated Parties for Hydrogen Or A Hydrogen Blend.*

(A) *Designation of Regulated Party at Time Finished Fuel is Created.*

For a volume of finished fuel consisting of hydrogen or a blend of hydrogen and another fuel ("finished hydrogen fuel"), the regulated party is initially the person who owns the finished hydrogen fuel at the time the blendstocks are blended to make the finished hydrogen fuel.

(B) *Transfer of Ownership and Retaining Compliance Obligation.* Except as provided for in section 95484(a)(7)(C), when a person who is the regulated party transfers ownership of a finished hydrogen fuel to another person, the transferor remains the regulated party.

(C) *Conditions Under Which a Person Acquiring Ownership of Finished Hydrogen Fuel Becomes the Regulated Party*. Section 95484(a)(7)(B) notwithstanding, a person who acquires ownership

of finished hydrogen fuel becomes the regulated party for the fuel if, by the time ownership is transferred, the two parties (transferor and recipient) agree by written contract that the person acquiring ownership accepts the LCFS compliance obligation as the regulated party. For the transfer of regulated party obligations to be effective, the transferor must also provide the recipient a product transfer document that prominently states:

1. the volume and average carbon intensity of the transferred finished hydrogen fuel; and

2. the recipient is now the regulated party for the acquired finished hydrogen fuel and accordingly is responsible for meeting the requirements of the LCFS regulation with respect to the acquired finished hydrogen fuel.

(b) *Calculation of Credit Balance.*

(1) *Compliance Period.* Beginning in 2011 and every year thereafter, the compliance period is January 1 through December 31 of each year.

(2) *Calculation of Credit Balance at the End of A Compliance Period.* A regulated party must calculate the credit balance at the end of a compliance period as follows:

$$CreditBalance = Credits^{Gen} + Credits^{CarriedOver} + Credits^{Acquired} + Deficits^{Gen} - Credits^{Sold} - Credits^{Exported} - Credits^{Retired}$$

where:

$Credits^{Gen}$ is the total credits generated pursuant to section 95485(a) for the current compliance period;

$Credits^{CarriedOver}$ is the credits or deficits carried over from the previous compliance period;

$Credits^{Acquired}$ is the credits purchased or otherwise acquired in the current compliance period;

$Deficits^{Gen}$ is the total deficits generated pursuant to section 95485(a) for the current compliance period;

$Credits^{Sold}$ is the credits sold or otherwise transferred in the current compliance period;

$Credits^{Exported}$ is the credits exported to programs outside the LCFS for the current compliance period; and

$Credits^{Retired}$ is the credits retired within the LCFS for the current compliance period.

(3) *Deficit Carryover.* A regulated party with a negative credit balance in a compliance period may carry over the deficit to the next compliance period, without penalty, if both the following conditions are met:

(A) the regulated party has a credit balance greater than or equal to zero in the previous compliance period; and

(B) the sum of the magnitude of $Credits^{Gen}$, $Credits^{CarriedOver}$, and $Credits^{Acquired}$ is greater than or equal to 90 percent of the sum of the magnitude of $Deficits^{Gen}$, $Credits^{Sold}$, $Credits^{Exported}$, $Credits^{Retired}$ and for the current compliance period.

(4) *Deficit Reconciliation.*

(A) A regulated party that meets the conditions of deficit carryover, as specified in section 95481(b)(3), must eliminate any deficit generated in a given compliance period by the end of the next compliance period. A deficit may be eliminated only by retirement of an equal amount of retained credits ($Credits^{CarriedOver}$), by purchase of an equal amount of credits from another regulated party, or by any combination of these two methods.

(B) If the conditions of deficit carryover as specified in section 95481(b)(3) are not met, a regulated party must eliminate any deficit generated in a given compliance period by the end of the next compliance period. A deficit may be eliminated only by retirement of an equal amount of retained credits ($Credits^{CarriedOver}$), by purchase of an equal amount of credits from another regulated party, or by any combination of these two methods. In addition, the regulated party is subject to penalties to the extent permitted under State law.

(C) A regulated party that is reconciling in the current compliance period a deficit from the previous compliance period under (A) or (B) above remains responsible for meeting the LCFS regulation requirements during the current compliance period.

(c) *Reporting Requirements.*

(1) *Reporting Frequency.* A regulated party must submit to the Executive Officer quarterly progress reports and annual compliance reports, as specified in sections 95484(c)(3) and 95484(c)(4). The reporting frequencies for these reports are set forth below:

(A) *Quarterly Progress Reports For All Regulated Parties.* Beginning 2010 and each year thereafter, a regulated party must submit quarterly progress reports to the Executive Officer by:

1. May 31st – for the first calendar quarter covering January through March;

2. August 31st – for the second calendar quarter covering April through June;

3. November 30th – for the third calendar quarter covering July through September; and

4. February 28th (29th in a leap year) – for the fourth calendar quarter covering October through December.

(B) *Annual Compliance Reports.* By April 30th of 2011, a regulated party must submit an annual report for calendar year 2010. By April 30th of 2012 and each year thereafter, a regulated party must provide an annual compliance report for the prior calendar year.

(2) *How To Report.* A regulated party must submit an annual compliance and quarterly progress report by using an interactive, secured internet web-based form.

The regulated party is solely responsible for ensuring that the Executive Officer receives its progress and compliance reports by the dates specified in section 95484(c)(1). The Executive Officer shall not be responsible for failure of electronically submitted reports to be transmitted to the Executive Officer. The report must contain a statement attesting to the report's accuracy and validity. The Executive Officer shall not deem an electronically submitted report to be valid unless the report is accompanied by a digital signature that meets the requirements of title 2, California Code of Regulations, section 22000 et seq.

(3) *General and Specific Reporting Requirements for Quarterly Progress Reports.* For each of its transportation fuels, a regulated party must submit a quarterly progress report that contains the information specified in Table 3 and meets the additional specific requirements set forth below:

(A) *Specific Quarterly Reporting Requirements (Except As Otherwise Noted) for Gasoline and Diesel Fuel.*

1. For each transfer of gasoline or diesel fuel that results in a transfer of the compliance obligation or retention of the compliance obligation by written contract, the regulated party must provide to the Executive Officer, within 10 business days of a request, the product transfer document containing the information identified in section 95484(a)(1)(B), (a)(1)(C), (a)(1)(D), (a)(2)(B), (a)(2)(C), (a)(4)(B), (a)(4)(C), (a)(5)(D), or (a)(7)(C), whichever applies.

2. The carbon intensity value of each blendstock determined pursuant to section 95486.

3. The volume of each blendstock (in gal) per compliance period. For purposes of this provision only, the regulated party may report the total volume of each blendstock aggregated for each distinct carbon intensity value (e.g., X gallons of blendstock with A gCO2e/MJ, Y gallons of blendstock with B gCO2e/MJ, etc.). Further, if the regulated party is subject to section 95486(b)(2)(A)2. for fuel or blendstock derived from high carbon-intensity crude oil (HCICO), regulated party must report the E_{HCICO}^{XD} per compliance period, where E_{HCICO}^{XD} is defined in section 95486(b)(2)(A)2.a.

4. All Renewable Identification Numbers (RINs) that are retired for facilities in California.

(B) *Specific Quarterly Reporting Requirements for Natural Gas (including CNG, LNG, and Biogas).* For each private access, public access, or home fueling facility to which the regulated party supplies CNG, LNG or biogas as a transportation fuel:

1. For CNG, the regulated party must report the amount of fuel dispensed (in scf) per compliance period for all light/medium-duty vehicles (LDV & MDV) and heavy-duty vehicles (HDV). For LNG, the regulated party must report the amount of fuel dispensed (in gal) per compliance period for all LDV & MDV and HDV;

2. Except as provided for in section 95484(c)(3)(B)3., the regulated party must report the amount of fuel dispensed

based on the use of separate fuel dispenser meters at each fuel dispenser;

3. In lieu of using separate meters at each fuel dispenser, the regulated party may report the amount of fuel dispensed at each facility using any other method that the regulated party demonstrates to the Executive Officer's satisfaction as being equivalent to or better than the use of separate fuel meters at each fuel dispenser in each fueling facility;

4. The carbon intensity value of the CNG, LNG, or biogas determined pursuant to section 95486.

(C) *Specific Quarterly Reporting Requirements for Electricity.* For electricity used as a transportation fuel, a regulated party must also submit the following:

1. For residential charging stations, the total electricity dispensed (in kWh) to all vehicles at each residence based on direct metering, which distinguishes electricity delivered for transportation use. Before January 1, 2015, "based on direct metering" means either:

   a. the use of direct metering (also called submetering) to measure the electricity directly dispensed to all vehicles at each residential charging station; or

   b. for households and residences only where direct metering has not been installed, the regulated party may report the total electricity dispensed at each residential charging station using another method that the regulated party demonstrates to the Executive Officer's satisfaction is substantially similar to the use of direct metering under section (c)(3)(C)1.a..

   Effective January 1, 2015, "based on direct metering" means only the use of direct metering as specified in section (c)(3)(C)1.a. above;

2. For each public access charging facility, the amount of electricity dispensed (in kW-hr);

3. For each fleet charging facility, the amount of fuel dispensed (in kW-hr).

4. The carbon intensity value of the electricity determined pursuant to section 95486.

(D) *Specific Quarterly Reporting Requirements for Hydrogen or a Hydrogen Blend.* For hydrogen or a hydrogen blend used as a transportation fuel, a regulated party must also submit the following:

1. For each private access fueling facility, the amount of fuel dispensed (in kg) by vehicle weight category: LDV & MDV and HDV.

2. For each public access filling station, the amount of fuel dispensed (in kg) by vehicle weight category: LDV & MDV and HDV.

3. The carbon intensity value of the hydrogen or the blendstocks used to produce the hydrogen blend determined pursuant to section 95486.

(4) *General and Specific Reporting Requirements for Annual Compliance Reports*. A regulated party must submit an annual compliance report that meets, at minimum, the general and specific requirements specified in section 95484(c)(3) above and the additional requirements set forth below:

(A) A regulated party must report the following:

1. The total credits and deficits generated by the regulated party in the current compliance period, calculated as per equations in section 95485(a);

2. Any credits carried over from the previous compliance period;

3. Any deficits carried over from the previous compliance period;

4. The total credits acquired from another party and identify the party from whom the credits were acquired;

5. The total credits sold or otherwise transferred and identify each party to whom those credits were transferred;

6. The total credits retired within the LCFS; and

7. The total credits exported to programs outside the LCFS.

(5) *Significant Figures.* The regulated party must report the following quantities as specified below:

(A) carbon intensity, expressed to the same number of significant figures as shown in the carbon intensity lookup table (Method 1);

(B) credits, expressed to the nearest whole metric ton CO2 equivalent;

(C) fuel volume, expressed as follows:

1. a fuel volume greater than 1 million gasoline gallon equivalent (gge) must be expressed to the nearest 10,000 gge;

2. a fuel volume between 100,000 gge and 1 million gge, inclusive, must be expressed to the nearest 1,000 gge;

3. a fuel volume between 10,000 gge and 99,999 gge, inclusive, must be expressed to the nearest 100 gge; and

4. a fuel volume less than 9,999 gge must be expressed to the nearest 10 gge.

(D) any other quantity not specified in section 95484(c)(5)(A) to 95484(c)(5)(C) must be expressed to the nearest whole unit applicable for that quantity.

(E) *Rounding Intermediate Calculated Values.* A regulated party must use one of the following procedures for rounding intermediate calculated values for fuel quantity dispensed, blended, or sold in California; calculated carbon intensity values; calculated LCFS credits and deficits; and any other calculated or measured quantity required to be used, recorded, maintained, provided, or reported for the purpose determining a reported value under the LCFS regulation (17 CCR section 95480 et seq.):

1. ASTM E 29-08 (October 1, 2008), *Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications*, which is incorporated herein by reference; or

2. Any other practice that the regulated party has demonstrated to the Executive Officer's written satisfaction provides equivalent or better results as compared with the method specified in subsection 95484(c)(5)(E)1. above.

Table 3. Summary Checklist of Quarterly and Annual Reporting Requirements for LCFS Transportation Fuels.

Parameters to Report	Gasoline & Diesel fuel	CNG & LNG	Electricity	Hydrogen Or Hydrogen Blends	Neat Ethanol or Biomass-Based Diesel Fuels
Company or organization name	x	x	x	x	x
Reporting period	x	x	x	x	x
Type of fuel	x	x	x	x	x
Blended fuel (yes/no)	x	x	x	x	x
If yes, number of blendstocks	x	x	n/a	x	x
Type(s) of blendstock	x	x	n/a	x	x
RIN numbers	x	n/a	n/a	n/a	x
Blendstock feedstock	x	x	n/a	x	x
Feedstock origin	x	x	n/a	x	x
Production process	x	x	x*	x	x
Amount of each blendstock (MJ)	x	x	n/a	x	x
**The CI of the fuel or blendstock ($CI^{XD}_{reported}$)	x	x	x	x	x
Amount of each fuel used as gasoline replacement (MJ)	x	x	x	x	x
Amount of each fuel used as diesel fuel replacement (MJ)	x	x	x	x	x
**Credits/deficits generated per quarter (MT)	x	x	x	x	x
For Annual Reporting (in addition to the items above)					
**Credits and Deficits generated per year (MT)	x	x	x	x	x
**Credits/deficits carried over from the previous year (MT), if any	x	x	x	x	x
**Credits acquired from another party (MT), if any	x	x	x	x	x
**Credits sold to another party (MT), if any	x	x	x	x	x
**Credits exported to another program (MT), if any	x	x	x	x	x
**Credits retired within LCFS (MT) , if any	x	x	x	x	x

** Optional. However if qualifying the CI value of electricity, under method 2A, that is different from CA Marginal electricity value, production process must be reported. **Value will be calculated or stored in the compliance tool.*

(d) *Recordkeeping and Auditing.*

(1) A regulated party must retain all of the following records for at least 3 years and must provide such records within 20 days of a written request received from the Executive Officer or his/her designee before expiration of the period during which the records are required to be retained:

(A) product transfer documents;

(B) copies of all data and reports submitted to the Executive Officer;

(C) records related to each fuel transaction; and

(D) records used for compliance or credit calculations.

(2) *Evidence of Physical Pathway.* A regulated party may not generate credits pursuant to section 95485 unless it has demonstrated or provided a demonstration to the Executive Officer that a physical pathway exists, for each of the transportation fuels and blendstocks for which it is responsible under the LCFS regulation, and that each physical pathway has been approved by the Executive Officer pursuant to this section 95484(d)(2). For purposes of this provision, "demonstrated" and "demonstration" includes any combination of either (i) a showing by the regulated party using its own documentation; or (ii) a showing by the regulated party that incorporates by reference documentation voluntarily submitted by another regulated party or a non-regulated party fuel producer, provided the documentation applies to and accurately represents the regulated party's transportation fuel or blendstock;

"Physical pathway" means the applicable combination of actual fuel delivery methods, such as truck routes, rail lines, gas/liquid pipelines, electricity transmission lines, and any other fuel distribution methods, through which the regulated party reasonably expects the fuel to be transported under contract from the entity that generated or produced the fuel, to any intermediate entities, and ending at the fuel blender, producer, importer, or provider in California.

The Executive Officer shall not approve a physical pathway demonstration unless the demonstration meets the following requirements:

(A) *Initial Demonstration of Delivery Methods.* The regulated party must provide an initial demonstration of the delivery methods comprising the physical pathway for each of the regulated party's fuels. The initial demonstration must include documentation in sufficient detail for the Executive Officer to verify the existence of the physical pathway's delivery methods.

The documentation must include a map(s) that shows the truck/rail lines or routes, pipelines, transmission lines, and other delivery methods (segments) that, together, comprise the physical pathway. If more than one company is involved in the delivery, each segment on the map must be linked to a specific company that is expected to transport the fuel through each segment of the physical pathway. The regulated party must provide the contact information for each such company, including the contact name, mailing address, phone number, and company name.

(B) *Initial Demonstration of Fuel Introduced Into the Physical Pathway.*

For each blendstock or alternative fuel for which LCFS credit is being claimed, the regulated party must provide evidence showing that a specific volume of that blendstock or fuel was introduced by its provider into the physical pathway identified in section 95484(d)(2)(A). The evidence may include, but is not limited to, a written purchase contract or transfer document for the volume of blendstock or alternative fuel that was introduced or otherwise delivered into the physical pathway.

(C) *Initial Demonstration of Fuel Removed From the Physical Pathway.* For each specific volume of blendstock or alternative fuel identified in section 95484(d)(2)(B), the regulated party must provide evidence showing that the same volume of blendstock or fuel was removed from the physical pathway in California by the regulated party and provided for transportation use in California. The evidence may include, but is not limited to, a written sales contract or transfer document for the volume of blendstock or alternative fuel that was removed from or otherwise extracted out of the physical pathway in California.

(D) *Subsequent Demonstration of Physical Pathway.* Once the Executive Officer has approved the initial demonstrations specified in section 95484(d)(2)(A) through (C), the regulated party does not need to resubmit the demonstrations for Executive Officer approval in any subsequent year, unless there is a material change to any of the information submitted under section 95484(d)(2)(A) through (C).

"Material change" means any change to the initially submitted information involving a change in the basic mode of transport for the fuel. For example, if an approved pathway using rail transport is changed to add to or replace the rail with truck or ship transport, that change would be deemed a material change.

If there is a material change to an approved physical pathway, the regulated party must notify the Executive Officer in writing within 30 business days after the material change has occurred, and the approved physical pathway shall become invalid 30 business days after the material change has occurred. A regulated party that wishes to generate credits after an approved physical pathway has become invalid must submit for Executive Officer approval a new initial demonstrations, pursuant to section 95484(d)(2)(A) through (C), which includes the material change(s) to the physical pathway.

(E) *Submittal and Review of and Final Action on Submitted Demonstrations*

1. The regulated party may not receive credit for any fuel or blendstock until the Executive Officer has approved the regulated party's submitted physical-pathway demonstration pursuant to section 95484(d)(2)(A) through (C). Upon receiving Executive Officer approval of a physical pathway, the regulated party may claim LCFS credits based on that pathway that are calculated retroactive to the date when the regulated party's use of the pathway began but no earlier than January 1, 2011.

2. Within 15 business days of receipt of a physical pathway demonstration, the Executive Officer shall determine if the physical pathway demonstration is complete and notify the regulated party accordingly. If incomplete, the Executive Officer shall notify the regulated party and identify the information needed to complete the demonstrations identified in section 95484(d)(2)(A) through (C). Once the Executive Officer deems the demonstrations to be complete, the Executive Officer shall, within 15 business days, take final action to either approve or disapprove a physical pathway demonstration and notify the regulated party of the final action.

(3) *Data Verification.* All data and calculations submitted by a regulated party for demonstrating compliance or claiming credit are subject to verification by the Executive Officer or a third party approved by the Executive Officer.

(4) *Access To Facility And Data.* Pursuant to H&S section 41510, if necessary under the circumstances, after obtaining a warrant, the Executive Officer has the right of entry to any premises owned, operated, used, leased, or rented by an owner or operator of a facility in order to inspect and copy records relevant to the determination of compliance.

(5) The Executive Officer shall post on the ARB's website at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm the names and contact information for each regulated party and non-regulated party fuel producer that has obtained Executive Officer approval of its physical pathway demonstration; the transportation fuels and blendstocks covered by such Executive Officer approval; and details of the approved physical pathways disclosed in accordance with 17 CCR §§ 91000 – 91022 and the California Public Records Act (Government Code section 6250 et seq.).

(e) *Violations and Penalties.*

(1) Pursuant to H&S section 38580 (part of the California Global Warming Solutions Act of 2006), any violation of the provisions of the LCFS regulation (title 17, CCR, § 95480 et seq.) may be enjoined pursuant to H&S section 41513, and the violation is subject to those penalties set forth in Article 3 (commencing with § 42400) of Chapter 4 of Part 4 of, and Chapter 1.5 (commencing with § 43025) of Part 5 of, Division 26.

(2) Pursuant to H&S section 38580, any violation of the provisions of the LCFS regulation shall be deemed to result in an emission of an air contaminant for the purposes of the penalty provisions of Article 3 (commencing with § 42400) of Chapter 4 of Part 4 of, and Chapter 1.5 (commencing with § 43025) of Part 5 of, Division 26.

(3) Any violation of the provisions of the LCFS regulation shall be subject to all other penalties and remedies permitted under State law.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95485. LCFS Credits and Deficits

(a) *Calculation of Credits and Deficits Generated.* A regulated party must calculate the amount of credits and deficits generated in a compliance period for an LCFS fuel using the methods specified below in section 95485(a)(1) through (3). The total credits and deficits generated are used in determining the overall credit balance for a compliance period, pursuant to section 95484(b). All credits and deficits are denominated in units of metric tons (MT) of carbon dioxide equivalent.

(1) All LCFS fuel quantities used for credit calculation must be in energy units of megajoules (MJ).

Fuel quantities denominated in other units, such as those shown in Table 4, must be converted to MJ by multiplying by the corresponding energy density[1]:

Table 4. Energy Densities of LCFS Fuels and Blendstocks.

Fuel (units)	Energy Density
CARBOB (gal)	119.53 (MJ/gal)
CaRFG (gal)	115.63 (MJ/gal)
Diesel fuel (gal)	134.47 (MJ/gal)
CNG (scf)	0.98 (MJ/scf)
LNG (gal)	78.83 (MJ/gal)
Electricity (KWh)	3.60 (MJ/KWh)
Hydrogen (kg)	120.00 (MJ/kg)
Anhydrous Ethanol (gal)	80.53 (MJ/gal)
Neat Biomass-based diesel (gal)	126.13 (MJ/gal)

(2) The total credits and deficits generated by a regulated party in a compliance period must be calculated as follows:

$$Credits^{Gen}(MT) = \sum_{i}^{n} Credits_i^{gasoline} + \sum_{i}^{n} Credits_i^{diesel}$$

$$Deficits^{Gen}(MT) = \sum_{i}^{n} Deficits_i^{gasoline} + \sum_{i}^{n} Deficits_i^{diesel}$$

where:

[1] Energy density factors are based on the lower heating values of fuels in CA-GREET using BTU to MJ conversion of 1055 J/Btu.

$Credits^{Gen}$ represents the total credits (a zero or positive value), in units of metric tons ("MT"), for all fuels and blendstocks determined from the credits generated under either or both of the gasoline and diesel fuel average carbon intensity requirements;

$Deficits^{Gen}$ represents the total deficits (a negative value), in units of metric tons ("MT"), for all fuels and blendstocks determined from the deficits generated under either or both of the gasoline and diesel fuel average carbon intensity requirements;

i is the finished fuel or blendstock index; and

n is the total number of finished fuels and blendstocks provided by a regulated party in a compliance period.

(3) LCFS credits or deficits for each fuel or blendstock supplied by a regulated party must be calculated according to the following equations:

(A) $$Credits_i^{XD} / Deficits_i^{XD}(MT) = \left(CI_{s\tan dard}^{XD} - CI_{reported}^{XD}\right) \times E_{displaced}^{XD} \times C$$

where:

$Credits_i^{XD} / Deficits_i^{XD}$ *(MT)* is either the amount of LCFS credits generated (a zero or positive value), or deficits incurred (a negative value), in metric tons, by a fuel or blendstock under the average carbon intensity requirement for gasoline (*XD*="gasoline") or diesel (*XD*="diesel");

$CI_{s\tan dard}^{XD}$ is the average carbon intensity requirement of either gasoline (*XD*= "gasoline") or diesel fuel (*XD*= "diesel") for a given year as provided in section 95482 (b) and (c), respectively;

$CI_{reported}^{XD}$ is the adjusted carbon intensity value of a fuel or blendstock, in gCO2E/MJ, calculated pursuant to section 95485(a)(3)(B);

$E_{displaced}^{XD}$ is the total amount of gasoline (*XD*="gasoline") or diesel (*XD*="diesel") fuel energy displaced, in MJ, by the use of an alternative fuel, calculated pursuant to section 95485(a)(3)(C); and

C is a factor used to convert credits to units of metric tons from gCO2E and has the value of:

$$C = 1.0x10^{-6} \frac{(MT)}{(gCO_2E)}$$

(B) $$CI_{reported}^{XD} = \frac{CI_i}{EER^{XD}}$$

where:

CI_i is the carbon intensity of the fuel or blendstock, measured in gCO2E/MJ, determined by a California-modified GREET pathway or a custom pathway and incorporates a land use modifier (if applicable); and

EER^{XD} is the dimensionless Energy Economy Ratio (EER) relative to gasoline (*XD*="gasoline") or diesel fuel (*XD*= "diesel") as listed in Table 5. For a vehicle-fuel combination not listed in Table 5, EER^{XD} =1 must be used.

(C) $$E_{displaced}^{XD} = E_i \times EER^{XD}$$

where:

E_i is the energy of the fuel or blendstock, in MJ, determined from the energy density conversion factors in Table 4.

Table 5. EER Values for Fuels Used in Light- and Medium-Duty, and Heavy-Duty Applications.

Light/Medium-Duty Applications (Fuels used as gasoline replacement)		**Heavy-Duty/Off-Road Applications (Fuels used as diesel replacement)**	
Fuel/Vehicle Combination	**EER Values Relative to Gasoline**	**Fuel/Vehicle Combination**	**EER Values Relative to Diesel**
Gasoline (incl. E6 and E10) or E85 (and other ethanol blends)	1.0	Diesel fuel or Biomass-based diesel blends	1.0
CNG / ICEV	1.0	CNG or LNG	0.9
Electricity / BEV, or PHEV	3.0	Electricity / BEV, or PHEV	2.7
H2 / FCV	2.3	H2 / FCV	1.9

(BEV = battery electric vehicle, PHEV=plug-in hybrid electric vehicle, FCV = fuel cell vehicle, ICEV = internal combustion engine vehicle)

(b) *Credit Generation Frequency.* Beginning 2011 and every year afterwards, a regulated party may generate credits quarterly.

(c) *Credit Acquisition, Banking, Borrowing, and Trading.*

(1) A regulated party may:

(A) retain LCFS credits without expiration for use within the LCFS market;

(B) acquire or transfer LCFS credits. A third-party entity, which is not a regulated party or acting on behalf of a regulated party, may not purchase, sell, or trade LCFS credits, except as otherwise specified in (C) below; and

(C) export credits for compliance with other greenhouse gas reduction initiatives including, but not limited to, programs established pursuant to AB 32 (Nunez, Stats. 2006, ch. 488), subject to the authorities and requirements of those programs.

(2) A regulated party may not:

(A) use credits in the LCFS program that are generated outside the LCFS program, including, but not limited to, credits generated in other AB 32 programs.

(B) borrow or use credits from anticipated future carbon intensity reductions.

(C) generate LCFS credits from fuels exempted from the LCFS under section 95480.1(d) or are otherwise not one of the transportation fuels specified in section 95480.1(a).

(d) *Nature of Credits.* LCFS credits shall not constitute instruments, securities, or any other form of property.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95486. Determination of Carbon Intensity Values

(a) *Selection of Method.*

(1) A regulated party for CARBOB, gasoline, or diesel fuel must use Method 1, as set forth in section 95486(b)(2)(A), to determine the carbon intensity of each fuel or blendstock for which it is responsible ("regulated party's fuel").

(2) A regulated party for any other fuel or blendstock must use Method 1, as set forth in section 95486(b)(2)(B), to determine the carbon intensity of each fuel for the regulated party's fuels, unless the regulated party is approved for using either Method 2A or Method 2B, as provided in section 95486(c) or (d).

(3) A regulated party's choice of carbon intensity value under Method 1 in either (a)(1) or (a)(2) above is subject in all cases to Executive Officer approval, as specified in this provision. If the Executive Officer has reason to believe that the regulated party's choice is not the value that most closely corresponds to its fuel or blendstock, the Executive Officer shall choose a carbon intensity value, in the Carbon Intensity Lookup Tables for the fuel or blendstock, which the Executive Officer determines is the one that most closely corresponds to the pathway for that fuel or blendstock. The Executive Officer shall provide the rationale for his/her determination to the regulated party in writing within 10 business days of the determination. The regulated party shall be responsible for reconciling any deficits, in accordance with section 95485, that were incurred as a result of its initial choice of carbon intensity values. In determining whether a carbon intensity value that is different than the one chosen by

the regulated party is more appropriate, the Executive Officer may consider any information submitted by the regulated party in support of its choice of carbon intensity value.

(b) *Method 1 – ARB Lookup Table.*

(1) To generate carbon intensity values, ARB uses the California-modified GREET (CA-GREET) model (version 1.8b, February 2009, updated December 2009)), which is incorporated herein by reference, and a land-use change (LUC) modifier (when applicable). The CA-GREET model is available for downloading on ARB's website at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm.

The Carbon-Intensity Lookup Tables, shown below, specify the carbon intensity values for the enumerated fuel pathways that are described in the following supporting documents, all of which are incorporated herein by reference:

(A) Stationary Source Division, Air Resources Board (February 27, 2009, v.2.1), "Detailed California-Modified GREET Pathway for California Reformulated Gasoline Blendstock for Oxygenate Blending (CARBOB) from Average Crude Refined in California;"

(B) Stationary Source Division, Air Resources Board (February 27, 2009, v.2.1), "Detailed California-Modified GREET Pathway for California Reformulated Gasoline (CaRFG);"

(C) Stationary Source Division, Air Resources Board (February 28, 2009, v.2.1), "Detailed California-Modified GREET Pathway for Ultra Low Sulfur Diesel (ULSD) from Average Crude Refined in California;"

(D) Stationary Source Division, Air Resources Board (February 27, 2009, v.2.1), "Detailed California-Modified GREET Pathway for Corn Ethanol;"

(E) Stationary Source Division, Air Resources Board (February 27, 2009, v.2.1), "Detailed California-Modified GREET Pathway for Brazilian Sugarcane Ethanol;"

(F) Stationary Source Division, Air Resources Board (February 28, 2009, v.2.1), "Detailed California-Modified GREET Pathway for Compressed Natural Gas (CNG) from North American Natural Gas;"

(G) Stationary Source Division, Air Resources Board (February 28, 2009, v.2.1), "Detailed California-Modified GREET Pathway for Compressed Natural Gas (CNG) from Landfill Gas;"

(H) Stationary Source Division, Air Resources Board (February 27, 2009, v.2.1), "Detailed California-Modified GREET Pathway for California Average and Marginal Electricity;"

(I) Stationary Source Division, Air Resources Board (February 27, 2009, v.2.1), "Detailed California-Modified GREET Pathway for Compressed Gaseous Hydrogen from North American Natural Gas;"

(J) Stationary Source Division, Air Resources Board (September 23, 2009, v.2.0), "Detailed California-Modified GREET Pathways for Liquefied Natural Gas (LNG) from North American and Remote Natural Gas Sources;"

(K) Stationary Source Division, Air Resources Board (September 23, 2009, v.2.0), "Detailed California-Modified GREET Pathway for Liquefied Natural Gas (LNG) from Landfill Gas (LFG);"

(L) Stationary Source Division, Air Resources Board (July 20, 2009, v.1.0), "Detailed California-Modified GREET Pathway for Compressed Natural Gas (CNG) from Dairy Digester Biogas;"

(M) Stationary Source Division, Air Resources Board (September 23, 2009, v.2.0), "Detailed California-Modified GREET Pathway for Liquefied Natural Gas (LNG) from Dairy Digester Biogas;"

(N) Stationary Source Division, Air Resources Board (September 23, 2009, v.2.0), "Detailed California-Modified GREET Pathway for Biodiesel from Used Cooking Oil;"

(O) Stationary Source Division, Air Resources Board (September 23, 2009, v.2.0), "Detailed California-Modified GREET Pathway for Co-Processed Renewable Diesel from Tallow (U.S. Sourced);"

(P) Stationary Source Division, Air Resources Board (September 23, 2009, v.2.3), "Detailed California-Modified GREET Pathways for Brazilian Sugarcane Ethanol: Average Brazilian Ethanol, With Mechanized Harvesting and Electricity Co-product Credit, With Electricity Co-product Credit;"

(Q) Stationary Source Division, Air Resources Board (December 14, 2009, v.3.0), "Detailed California-Modified GREET Pathway for Biodiesel from Midwest Soybeans; and

(R) Stationary Source Division, Air Resources Board (December 14, 2009, v.3.0), "Detailed California-Modified GREET Pathway for Renewable Diesel from Midwest Soybeans.

Table 6. Carbon Intensity Lookup Table for Gasoline and Fuels that Substitute for Gasoline.

Fuel	Pathway Description	Carbon Intensity Values (gCO_2e/MJ)		
		Direct Emissions	Land Use or Other Indirect Effect	Total
Gasoline	CARBOB – based on the average crude oil delivered to California refineries and average California refinery efficiencies	95.86	0	95.86
Ethanol from Corn	Midwest average; 80% Dry Mill; 20% Wet Mill; Dry DGS	69.40	30	99.40
	California average; 80% Midwest Average; 20% California; Dry Mill; Wet DGS; NG	65.66	30	95.66
	California; Dry Mill; Wet DGS; NG	50.70	30	80.70
	Midwest; Dry Mill; Dry DGS, NG	68.40	30	98.40
	Midwest; Wet Mill, 60% NG, 40% coal	75.10	30	105.10
	Midwest; Wet Mill, 100% NG	64.52	30	94.52
	Midwest; Wet Mill, 100% coal	90.99	30	120.99
	Midwest; Dry Mill; Wet DGS	60.10	30	90.10
	California; Dry Mill; Dry DGS, NG	58.90	30	88.90
	Midwest; Dry Mill; Dry DGS; 80% NG; 20% Biomass	63.60	30	93.60
	Midwest; Dry Mill; Wet DGS; 80% NG; 20% Biomass	56.80	30	86.80
	California; Dry Mill; Dry DGS; 80% NG; 20% Biomass	54.20	30	84.20
	California; Dry Mill; Wet DGS; 80% NG; 20% Biomass	47.44	30	77.44
Ethanol from Sugarcane	Brazilian sugarcane using average production processes	27.40	46	73.40
	Brazilian sugarcane with average production process, mechanized harvesting and electricity co-product credit	12.40	46	58.40
	Brazilian sugarcane with average production process and electricity co-product credit	20.40	46	66.40
Compressed Natural Gas	California NG via pipeline; compressed in CA	67.70	0	67.70
	North American NG delivered via pipeline; compressed in CA	68.00	0	68.00
	Landfill gas (bio-methane) cleaned up to pipeline quality NG; compressed in CA	11.26	0	11.26
	Dairy Digester Biogas to CNG	13.45	0	13.45

	North American NG delivered via pipeline; liquefied in CA using liquefaction with 80% efficiency	83.13	0	83.13
	North American NG delivered via pipeline; liquefied in CA using liquefaction with 90% efficiency	72.38	0	72.38
Liquefied Natural Gas	Overseas-sourced LNG delivered as LNG to Baja; re-gasified then re-liquefied in CA using liquefaction with 80% efficiency	93.37	0	93.37
	Overseas-sourced LNG delivered as LNG to CA; re-gasified then re-liquefied in CA using liquefaction with 90% efficiency	82.62	0	82.62
	Overseas-sourced LNG delivered as LNG to CA; no re-gasification or re-liquefaction in CA	77.50	0	77.50
	Landfill Gas (bio-methane) to LNG liquefied in CA using liquefaction with 80% efficiency	26.31	0	26.31
	Landfill Gas (bio-methane) to LNG liquefied in CA using liquefaction with 90% efficiency	15.56	0	15.56
	Dairy Digester Biogas to LNG liquefied in CA using liquefaction with 80% efficiency	28.53	0	28.53
	Dairy Digester Biogas to LNG liquefied in CA using liquefaction with 90% efficiency	17.78	0	17.78
Electricity	California average electricity mix	124.10	0	124.10
	California marginal electricity mix of natural gas and renewable energy sources	104.71	0	104.71
Hydrogen	Compressed H_2 from central reforming of NG (includes liquefaction and re-gasification steps)	142.20	0	142.20
	Liquid H_2 from central reforming of NG	133.00	0	133.00
	Compressed H_2 from central reforming of NG (no liquefaction and re-gasification steps)	98.80	0	98.80
	Compressed H_2 from on-site reforming of NG	98.30	0	98.30
	Compressed H_2 from on-site reforming with renewable feedstocks	76.10	0	76.10

Table 7. Carbon Intensity Lookup Table for Diesel and Fuels that Substitute for Diesel.

Fuel	Pathway Description	Carbon Intensity Values (gCO_2e/MJ)		
		Direct Emissions	Land Use or Other Indirect Effect	Total
Diesel	ULSD – based on the average crude oil delivered to California refineries and average California refinery efficiencies	94.71	0	94.71
Biodiesel	Conversion of waste oils (Used Cooking Oil) to biodiesel (fatty acid methyl esters -FAME) where "cooking" is required	15.84	0	15.84
	Conversion of waste oils (Used Cooking Oil) to biodiesel (fatty acid methyl esters -FAME) where "cooking" is not required	11.76	0	11.76
	Conversion of Midwest soybeans to biodiesel (fatty acid methyl esters -FAME)	21.25	62	83.25
Renewable Diesel	Conversion of tallow to renewable diesel using higher energy use for rendering	39.33	0	39.33
	Conversion of tallow to renewable diesel using lower energy use for rendering	19.65	0	19.65
	Conversion of Midwest soybeans to renewable diesel	20.16	62	82.16
Compressed Natural Gas	California NG via pipeline; compressed in CA	67.70	0	67.70
	North American NG delivered via pipeline; compressed in CA	68.00	0	68.00
	Landfill gas (bio-methane) cleaned up to pipeline quality NG; compressed in CA	11.26	0	11.26
	Dairy Digester Biogas to CNG	13.45	0	13.45
Liquefied Natural Gas	North American NG delivered via pipeline; liquefied in CA using liquefaction with 80% efficiency	83.13	0	83.13
	North American NG delivered via pipeline; liquefied in CA using liquefaction with 90% efficiency	72.38	0	72.38
	Overseas-sourced LNG delivered as LNG to Baja; re-gasified then re-liquefied in CA using liquefaction with 80% efficiency	93.37	0	93.37
	Overseas-sourced LNG delivered as LNG to CA; re-gasified then re-liquefied in CA using liquefaction with 90% efficiency	82.62	0	82.62
	Overseas-sourced LNG delivered as LNG to CA; no re-gasification or re-liquefaction in CA	77.50	0	77.50

	Landfill Gas (bio-methane) to LNG liquefied in CA using liquefaction with 80% efficiency	26.31	0	26.31
	Landfill Gas (bio-methane) to LNG liquefied in CA using liquefaction with 90% efficiency	15.56	0	15.56
	Dairy Digester Biogas to LNG liquefied in CA using liquefaction with 80% efficiency	28.53	0	28.53
	Dairy Digester Biogas to LNG liquefied in CA using liquefaction with 90% efficiency	17.78	0	17.78
Electricity	California average electricity mix	124.10	0	124.10
	California marginal electricity mix of natural gas and renewable energy sources	104.71	0	104. 71
Hydrogen	Compressed H_2 from central reforming of NG (includes liquefaction and re-gasification steps)	142.20	0	142.20
	Liquid H_2 from central reforming of NG	133.00	0	133.00
	Compressed H_2 from central reforming of NG (no liquefaction and re-gasification steps)	98.80	0	98.80
	Compressed H_2 from on-site reforming of NG	98.30	0	98.30
	Compressed H_2 from on-site reforming with renewable feedstocks	76.10	0	76.10

(2) *Use of Lookup-Table Carbon-Intensity Values.*

(A) *For CARBOB, Gasoline and Diesel Fuel.*

For purposes of this section 95486(b)(2)(A), "2006 California baseline crude mix" means the total pool of crude oil supplied to California refiners in 2006; "included in the 2006 California baseline crude mix" means the crude oil constituted at least 2.0% of the 2006 California baseline crude mix, by volume, as shown by California Energy Commission records for 2006; and "high carbon-intensity crude oil" means any crude oil that has a total production and transport carbon-intensity value greater than 15.00 grams CO2e/MJ.

The carbon intensity for a regulated party's CARBOB, gasoline or a diesel fuel is determined as specified in section 95486(b)(2)(A)1. or 2. below, whichever applies:

1. *For CARBOB, Gasoline or Diesel Fuel Derived from Crude Oil That Is Either Included in the 2006 California Baseline Crude Mix or Is Not a High Carbon Intensity Crude Oil.*

   If all of a regulated party's CARBOB, gasoline or diesel fuel is derived from crude oil that is either:

   a. included in the 2006 California baseline crude mix, or

   b. not a high carbon-intensity crude oil,

   the regulated party must use the average carbon intensity value shown in the Carbon Intensity Lookup Table for CARBOB, gasoline or diesel fuel.

2. *For All Other CARBOB, Gasoline or Diesel Fuel, Including Those Derived from High Carbon-Intensity Crude Oil (HCICO).*

   Except as set forth in this provision, if any portion of a regulated party's CARBOB, gasoline, or diesel fuel does not fall within section 95486(b)(2)(A)1. above (including those derived from high carbon-intensity crude oil), the regulated party must calculate the deficits for CARBOB, gasoline, or diesel fuel, derived wholly or in part from crude oil subject to this provision, using the deficit calculation methodology and the process for determining the carbon intensity value described in paragraphs a. and b., respectively, below:

a. *Deficit Calculation When HCICO Is Used.*

i. *Calculation Methodology.* For purposes of this section, a regulated party for CARBOB, gasoline or diesel fuel, derived wholly or in part from HCICO feedstock, must calculate separately the base deficit and incremental deficit for each fuel or blendstock, as specified in this provision. The base deficit must be calculated for the entire volume of fuel or blendstock derived from the mix of HCICO and all other crude, and the incremental deficit must be calculated only for the volume of fuel or blendstock derived from the HCICO, as follows:

$$Deficits^{XD}_{Base_i}(MT) = (CI^{XD}_{S\tan dard_i} - CI^{XD}_{Avg_i}) \times E^{XD}_{Total_i} \times C$$

and

$$Deficits^{XD}_{Incremental_i}(MT) = (CI^{XD}_{Avg_i} - CI^{XD}_{HCICO_i}) \times E^{XD}_{HCICO_i} \times C$$

where,

i is the finished fuel or blendstock index;

$Deficits^{XD}_{Base}$ *(MT)* means the amount of LCFS deficits incurred (a negative value), in metric tons, by the volume of gasoline, CARBOB, or diesel fuel that is derived from all petroleum feedstock, including HCICO, produced in or imported into California during a specific calendar year;

$Deficits^{XD}_{Incremental}$ *(MT)* means the amount of LCFS deficits incurred (a negative value), in metric tons, by the volume of a fuel or blendstock that is derived wholly from HCICO feedstock produced in or imported into California during a specific calendar year;

$CI^{XD}_{S\tan dard}$ has the same meaning as specified in section 95485(a)(3)(A);

CI^{XD}_{Avg} is the adjusted average carbon-intensity value of a fuel or blendstock, in gCO2E/MJ, derived from all petroleum feedstock, including HCICO, produced in or imported into California during a specific calendar year, where the carbon intensity of the fuel or blendstock is adjusted by dividing it

with the EER as described in section 95485(a)(3)(B). For purposes of this provision, CI_{Avg}^{XD} for CARBOB (*XD* = "gasoline") and diesel fuel (*XD* = "diesel") is the total carbon intensity value for CARBOB and diesel (ULSD) set forth in the Carbon Intensity Lookup Table, respectively;

CI_{HCICO}^{XD} is the adjusted actual carbon-intensity value of a fuel or blendstock, in gCO2E/MJ, derived from HCICO feedstock produced in or imported into California during a specific calendar year, where the carbon intensity of the fuel or blendstock, as determined pursuant to paragraph ii. below, is adjusted by dividing it with the EER as described in section 95485(a)(3)(B);

E_{Total}^{XD} is the adjusted total amount of fuel energy, in MJ, from gasoline (*XD*="gasoline") or diesel (*XD*="diesel"), derived from all petroleum feedstock produced in or imported into California during a specific calendar year, where the total amount of fuel energy of the fuel is adjusted by multiplying it with the EER as described in section 95485(a)(3)(C). Where the petroleum feedstock is comprised entirely of HCICO, E_{Total}^{XD} equals E_{HCICO}^{XD};

E_{HCICO}^{XD} is the adjusted total amount of fuel energy, in MJ, from gasoline (*XD*="gasoline") or diesel (*XD*="diesel"), derived from HCICO feedstock produced in or imported into California during a specific calendar year, where the total amount of fuel energy of the fuel is adjusted by multiplying it with the EER as described in section 95485(a)(3)(C); and

C has the same meaning as specified in section 95485(a)(3)(A).

ii. *Determination of Carbon Intensity Value for HCICO-derived Products,* CI_{HCICO}^{XD}.

A regulated party subject to section 95486(b)(2)(A) must determine the carbon intensity value for its CARBOB, gasoline or diesel fuel using any of the following that applies, subject to Executive Officer approval as specified in section 95485(a)(2) or as otherwise specified.

I. The carbon intensity value shown in the Carbon Intensity Lookup Table corresponding to the HCICO's pathway; or

II. Except as provided in paragraph III. below, if there is no carbon intensity value shown in the Carbon Intensity Lookup Table corresponding to the HCICO's pathway, the regulated party must propose a new pathway for its HCICO and obtain approval from the Executive Officer for the resulting pathway's carbon intensity pursuant to Method 2B as set forth in section 95486(d) and (f); or

III. The regulated party may, upon written Executive Officer approval pursuant to section 95486(f), use the average carbon intensity value in the Carbon Intensity Lookup Table for CARBOB, gasoline or diesel fuel, provided the GHG emissions from the fuel's crude production and transport steps are subject to control measures, such as carbon capture-and-sequestration (CCS) or other methods, which reduce the crude oil's production and transport carbon-intensity value to 15.00 grams CO2e/MJ or less, as determined by the Executive Officer.

(B) *For All Other Fuels and Blendstocks.*

Except as provided in section 95486(c) and (d), for each of a regulated party's fuels, the regulated party must use the carbon intensity value in Lookup Table that most closely corresponds to the production process used to produce the regulated party's fuel. The Lookup Table carbon intensity value selected by the regulated party is subject to approval by the Executive Officer.

[Note: For example, if one of the regulated party's fuels is compressed natural gas (CNG) used in a light-duty vehicle, and the CNG is derived from dairy digester biogas, the regulated party would use the total carbon intensity value in Carbon Intensity Lookup Table 6 (i.e., the last column in Lookup Table 6) corresponding to the applicable Fuel (compressed natural gas) and Pathway Description (Dairy Digester Biogas to CNG). The result in this example would be a total carbon intensity value of 13.45 gC02e/MJ.]

(c) *Method 2A – Customized Lookup Table Values (Modified Method 1).*

Under Method 2A, the regulated party may propose, for the Executive Officer's written approval pursuant to section 95486(f), modifications to one or more inputs to the CA-GREET model used to generate the carbon intensity values in the Method 1 Lookup Table.

For any of its transportation fuels subject to the LCFS regulation, a regulated party may propose the use of Method 2A to determine the fuel's carbon intensity, as provided in this section 95486(c). For each fuel subject to a proposed Method 2A, the regulated party must obtain written approval from the Executive Officer for its proposed Method 2A before the regulated party may use Method 2A for determining the carbon intensity of the fuel. The Executive Officer's written approval may include more than one of a regulated party's fuels under Method 2A.

The Executive Officer may not approve a proposed Method 2A unless the regulated party and its proposed Method 2A meet the scientific defensibility, "5-10" substantiality, and data submittal requirements specified in section 95486(e)(1) through (3) and the following requirements:

(1) The proposed modified CA-GREET inputs must accurately reflect the conditions specific to the regulated party's production and distribution process;

(2) The proposed Method 2A uses only the inputs that are already incorporated in CA-GREET and does not add any new inputs (e.g., refinery efficiency); and

(3) The regulated party must request the Executive Officer to conduct an analysis or modeling to determine the new pathway's impact on total carbon intensity due to indirect effects, including land-use changes, as the Executive Officer deems appropriate. The Executive Officer will use the GTAP Model (February 2009), which is incorporated by reference, or other model determined by the Executive Officer to be at least equivalent to the GTAP Model (February 2009).

(d) *Method 2B – New Pathway Generated by California-Modified GREET (v.1.8b).* Under Method 2B, the regulated party proposes for the Executive Officer's written approval the generation of a new pathway using the CA-GREET as provided for in this provision. The Executive Officer's approval is subject to the requirements as specified in section 95486(f) and the following requirements:

(1) For purposes of this provision, "new pathway" means the proposed full fuel-cycle (well-to-wheel) pathway is not already in the ARB Lookup Table specified in section 95486(b)(1), as determined by the Executive Officer;

(2) The regulated party must demonstrate to the Executive Officer's satisfaction that the CA-GREET can be modified successfully to generate the proposed new pathway. If the Executive Officer determines that the CA-GREET model cannot successfully generate the proposed new pathway, the proponent-regulated party must use either Method 1 or Method 2A to determine its fuel's carbon intensity;

(3) The regulated party must identify all modified parameters for use in the CA-GREET for generating the new pathway;

(4) The CA-GREET inputs used to generate the new pathway must accurately reflect the conditions specific to the regulated party's production and marketing process; and

(5) The regulated party must request the Executive Officer to conduct an analysis or modeling to determine the new pathway's impact on total carbon intensity due to indirect effects, including land-use changes, as the Executive Officer deems appropriate. The Executive Officer will use the GTAP Model (February 2009), which is incorporated by reference, or other model determined by the Executive Officer to be at least equivalent to the GTAP Model (February 2009).

(e) *Scientific Defensibility, Burden of Proof, Substantiality, and Data Submittal Requirements and Procedure for Approval of Method 2A or 2B.* For a proposed Method 2A or 2B to be approved by the Executive Officer, the regulated party must demonstrate that the method is both scientifically defensible and, for Method 2A, meets the substantiality requirement, as specified below:

(1) *Scientific Defensibility and Burden of Proof.* This requirement applies to both Method 2A and 2B. A regulated party that proposes to use Method 2A or 2B bears the sole burden of demonstrating to the Executive Officer's satisfaction, that the proposed method is scientifically defensible.

(A) For purposes of this regulation, "scientifically defensible" means the method has been demonstrated to the Executive Officer as being at least as valid and robust as Method 1 for calculating the fuel's carbon intensity.

(B) Proof that a proposed method is scientifically defensible may rely on, but is not limited to, publication of the proposed Method 2A or 2B in a major, well-established and peer-reviewed scientific journal (e.g., Science, Nature, Journal of the Air and Waste Management Association, Proceedings of the National Academies of Science).

(2) *"5-10" Substantiality Requirement.* This requirement applies only to a proposed use of Method 2A, as provided in section 95486(c). For each of its transportation fuels for which a regulated party is proposing to use Method 2A, the regulated party must demonstrate, to the Executive Officer's satisfaction, that the proposed Method 2A meets both of the following substantiality requirements:

(A) The source-to-tank carbon intensity for the fuel under the proposed Method 2A is at least 5.00 grams CO2-eq/MJ less than the source-to-tank carbon intensity for the fuel as calculated under Method 1. "Source-to-tank" means all the steps involved in the growing/extraction, production and transport of the fuel to California, but it does not include the carbon intensity due to the vehicle's use of the fuel; "source-to-tank" may also be referred to as "well-to-tank" or "field-to-tank."

(B) The regulated party can and expects to provide in California more than 10 million gasoline gallon equivalents per year (1,156 MJ) of the regulated fuel. This requirement applies to a transportation fuel only if the total amount of the fuel sold in California from all providers of that fuel exceeds 10 million gasoline gallon equivalents per year.

(3) *Data Submittal.* This requirement applies to both Method 2A and 2B. A regulated party proposing Method 2A or 2B for a fuel's carbon intensity value must meet all the following requirements:

(A) Submit to the Executive Officer all supporting data, calculations, and other documentation, including but not limited to, flow diagrams, flow rates, CA-GREET calculations, equipment description, maps, and other information that the Executive Officer determines is necessary to verify the proposed fuel pathway and how the carbon intensity value proposed for that pathway was derived;

(B) All relevant data, calculations, and other documentation in (A) above must be submitted electronically, such as via email or an online web-based interface, whenever possible;

(C) The regulated party must specifically identify all information submitted pursuant to this provision that is a trade secret; "trade secret" has the same meaning as defined in Government Code section 6254.7; and

(D) The regulated party must not convert spreadsheets in CA-GREET containing formulas into other file formats.

(f) *Approval Process.* To obtain Executive Officer approval of a proposed Method 2A or 2B, the regulated party must submit an application as follows:

(1) *General Information Requirements.*

(A) For a proposed use of Method 2A, the regulated party's application must contain all the information specified in section 95486(c), (e), and (f)(2);

(B) For a proposed use of Method 2B, the regulated party's application must contain all the information specified in section 95486(d), (e)(1), (e)(3), and (f)(2).

(2) *Use of Method 2A or 2B Prohibited Without Executive Officer Approval.* The regulated party must obtain the Executive Officer's written approval pursuant to section 95486(f)(5) of its application submitted pursuant to section 95486(f)(1) above before using a proposed Method 2A or 2B for any purpose under the LCFS regulation. Any use of a proposed Method 2A or 2B before Executive Officer approval is granted shall constitute a violation of this regulation for each day that the violation occurs. A regulated party that submits any information or documentation in support of a proposed Method 2A or 2B must include a written statement clearly showing that the regulated party understands and agrees to the following:

(A) All information not identified in 95486(e)(3)(C) as trade secrets are subject to public disclosure pursuant to title 17, CCR, sections 91000-91022 and the California Public Records Act (Government Code § 6250 et seq.); and

(B) If the application is approved by the Executive Officer, the carbon intensity values, associated parameters, and other fuel pathway-related information obtained or derived from the application will be incorporated into the Method 1 Lookup Table for use on a free, unlimited license, and otherwise unrestricted basis by any person;

(3) *Completeness/Incompleteness Determination.* After receiving an application submitted under this section, the Executive Officer shall determine whether the application is complete within 15 work days. If the Executive Officer determines the application is incomplete, the Executive Officer shall notify the regulated party accordingly and identify the deficiencies in the application. The deadline set forth in this provision shall also apply to supplemental information submitted in response to an incompleteness determination by the Executive Officer.

(4) *Public Review.* After determining an application is complete, the Executive Officer shall publish the application and its details on ARB's website at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm and make it available for public review. The Executive Officer shall treat all trade secrets specifically identified by the regulated party under section 95486(e)(3)(C) above in accordance with 17 CCR §§ 91000-91022 and the California Public Records Act (Government Code section 6250 et seq.).

(5) *Final Action.* The Executive Officer shall take final action to approve an application for approval of a new carbon intensity value and associated fuel pathway submitted pursuant to this subsection (f) by amending the Lookup Table(s) in accordance with the rulemaking provisions of the Administrative Procedure Act (Government Code section 11340 et seq.). The Executive Officer shall notify the regulated party accordingly and publish the final action on ARB's website at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm. If the Executive Officer disapproves an application, the disapproval shall identify the basis for the disapproval.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95487. Requirements for Multimedia Evaluation

(a) *Pre-Sale Approval Requirement.* Except as provided for in section 95487(c), a regulated party must not sell, supply, distribute, import, offer for sale, or offer for use in California a regulated fuel unless one of the following conditions has first been met:

(1) a multimedia evaluation for the regulated fuel has been conducted pursuant to the requirements specified in this regulation, and that evaluation has been approved by the Executive Officer; or

(2) a multimedia evaluation for the regulated fuel has been conducted, and that evaluation was approved by the Executive Officer prior to the date the Office of Administrative Law (OAL) approves the LCFS regulation.

(b) *Requirements.*

(1) The Executive Officer, or his or her designee, shall not approve a multimedia evaluation subject to this section 95487(b) unless the evaluation has undergone the process for review and approval specified in H&S section 43830.8, including but not limited to, receiving peer review and approval by the California Environmental Policy Council pursuant to H&S section 43830.8(d)-(g). For purposes of H&S section 43830.8(a), each Executive Officer approval of a regulated fuel for compliance with the LCFS regulation under section 95487(a)(1) shall constitute compliance with the requirement in H&S section 43830.8(a) for conducting a multimedia evaluation prior to adoption of a "regulation that establishes a specification for motor vehicle fuel."

(2) All multimedia evaluations subject to this section 95487 shall be evaluated in accordance with the California Environmental Protection Agency (Cal/EPA) guidance document entitled, *Guidance Document and Recommendations on the Types of Scientific Information Submitted by Applicants for California Fuels Environmental Multimedia Evaluations (June 2008)*, which can be downloaded at http://www.arb.ca.gov/fuels/multimedia/080608guidance.pdf, and which is incorporated herein by reference.

(c) *Exemptions.*

(1) *Negative Declaration For ARB-Adopted New Or Amended Fuel Specifications.* The requirements of this section 95487 do not apply to a regulated fuel if:

(A) the regulated fuel is subject to a proposed ARB regulation establishing a new or amending an existing fuel specification, which ARB adopts after the date OAL approves the LCFS regulation; and

(B) the California Environmental Policy Council, following an initial evaluation of the proposed regulation, conclusively determines that the regulation will not have any significant adverse impact on public health or the environment.

(2) *CaRFG, Diesel Fuel, E100, E85, CNG, LNG, and Hydrogen.* The requirements of this section 95487 do not apply to a regulated fuel if:

(A) the fuel is subject to an ARB-adopted fuel specification; and

(B) the Executive Officer does not amend that fuel specification after OAL approves the LCFS regulation.

Fuels subject to this section 95487(c)(2) include CaRFG, diesel fuel, E100, E85, CNG, LNG, and hydrogen. The exemption applies only to the extent that the Executive Officer does not amend the fuel specification for any of the above fuels. When OAL approves an ARB amendment to a fuel specification identified above, the exemption shall no longer apply for that fuel.

(3) *Biomass-Based Diesel and Electricity.* The requirements of this section 95487 do not apply to a regulated fuel that:

(A) is subject to the Division of Measurement Standards' Engine Fuels Standards (4 CCR §4140 et seq.); but

(B) is not subject to an ARB-adopted fuel specification.

Fuels subject to this section 95487(c)(3) include biomass-based diesel and electricity. The exemption applies only to the extent that the Executive Officer does not adopt a fuel specification for any of the above fuels. When OAL approves an ARB-adopted fuel specification for a fuel identified above, the exemption shall no longer apply for that fuel.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, 43830.8, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95488. [Reserved]

Section 95489. Regulation Review

As provided in this section, the Executive Officer shall conduct two reviews of the implementation of the LCFS program. The first review shall be completed and presented to the Board by January 1, 2012; the second review shall be completed and presented to the Board by January 1, 2015.

(a) The scope of each review shall include, at a minimum, consideration of the following areas:

(1) The LCFS program's progress against LCFS targets;
(2) Adjustments to the compliance schedule, if needed;
(3) Advances in full, fuel-lifecycle assessments;
(4) Advances in fuels and production technologies, including the feasibility

and cost-effectiveness of such advances;

(5) The availability and use of ultralow carbon fuels to achieve the LCFS standards and advisability of establishing additional mechanisms to incentivize higher volumes of these fuels to be used;

(6) An assessment of supply availabilities and the rates of commercialization of fuels and vehicles;

(7) The LCFS program's impact on the State's fuel supplies;

(8) The LCFS program's impact on state revenues, consumers, and economic growth;

(9) An analysis of the public health impacts of the LCFS at the state and local level, including the impacts of local infrastructure or fuel production facilities in place or under development to deliver low carbon fuels, using an ARB approved method of analysis developed in consultation with public health experts from academia and other government agencies;

(10) An assessment of the air quality impacts on California associated with the implementation of the LCFS; whether the use of the fuel in the State will affect progress towards achieving State or federal air quality standards, or results in any significant changes in toxic air contaminant emissions; and recommendations for mitigation to address adverse air quality impacts identified;

(11) Identification of hurdles or barriers (e.g., permitting issues, infrastructure adequacy, research funds) and recommendations for addressing such hurdles or barriers;

(12) Significant economic issues; fuel adequacy, reliability, and supply issues; and environmental issues that have arisen; and

(13) The advisability of harmonizing with international, federal, regional, and state LCFS and lifecycle assessments.

(b) The Executive Officer shall establish an LCFS advisory panel by July 1, 2010. Panel participants should include representatives of the California Energy Commission; the California Public Utilities Commission; fuel providers; storage and distribution infrastructure owner/operators; consumers; engine and vehicle manufacturers; environmental justice organizations; environmental groups; academia; public health; and other stakeholders and government agencies as deemed appropriate by the Executive Officer. The advisory panel shall participate in the reviews of the LCFS program required by this section, and the Executive Officer shall solicit comments and evaluations from the panel on the ARB staff's assessments of the areas and elements specified in section (a) above, as well as on other topics relevant to the periodic reviews.

(c) The Executive Officer shall conduct the reviews specified above in a public process and shall conduct at least two public workshops for each review prior to presenting the reports to the Board. In presenting the results of each program review to the Board, the Executive Officer shall propose any amendments or such other action as the Executive Officer determines is warranted.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

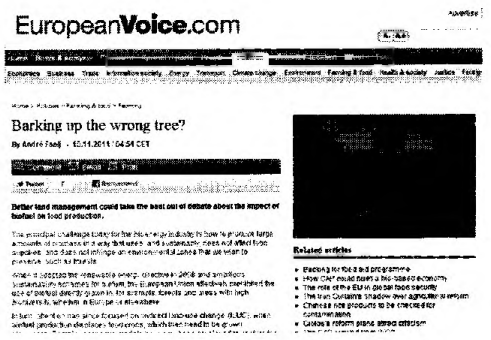
Section 95490. Enforcement Protocols

Notwithstanding section 95484(c) and (d), the Executive Officer may enter into an enforceable written protocol with any person to identify conditions under which the person may lawfully meet the recordkeeping, reporting, or demonstration of physical pathway requirements in section 95484(c) and (d). The Executive Officer may only enter into such a protocol if he or she reasonably determines that the provisions in the protocol are necessary under the circumstances and at least as effective as the applicable provisions specified in section 95484(c) and (d). Any such protocol shall include the person's agreement to be bound by the terms of the protocol.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Annexe 4

Barking up the wrong tree?
European Voice, 10/11/11, André Faaij
http://www.europeanvoice.com/article/imported/barking-up-the-wrong-tree-/72578.aspx


EuropeanVoice.com

Barking up the wrong tree?

Better land management could take the heat out of debate about the impact of biofuel on food production.

The principal challenge today for the bioenergy industry is how to produce large amounts of biomass in a way that uses land sustainably, does not affect food supplies, and does not infringe on environmental zones that we wish to preserve, such as forests.

When it adopted the renewable energy directive in 2008 and ambitious sustainability schemes for biofuel, the European Union effectively prohibited the use of biofuel directly grown in, for example, forests and areas with high biodiversity, whether in Europe or elsewhere.

In turn, attention has since focused on 'indirect land-use change' (ILUC), when biofuel production displaces food crops, which then need to be grown elsewhere. Complex economic models have now been developed to capture the wide-ranging impact of global trade in biofuel on the availability of agricultural land worldwide. And yet, despite sustained efforts, large shortcomings and uncertainties persist in the models, particularly relating to the underlying data that the models use.

It is time to ask whether it might be more useful to focus thinking on how to minimise or avoid indirect land-use change, rather than to focus on delivering more detailed but still highly uncertain data.

Studies for a report on renewable energy published this year by the UN's International Panel for Climate Change (IPCC), for which I served as convening lead author, have demonstrated that substantial amounts of biomass – potentially up to one-third of future global energy demand – could be supplied by more effective farming and livestock management, by residues, and by using fallow, abandoned, marginal or degraded land. Good agricultural practices could substantially reduce the footprint of food production, even if, as projected, the world's population climbs to nine billion in 2050.

Such improvements are critical, a point highlighted in calls by leaders of the G20 group of large economies for a sharp increase in agricultural production and productivity.

It is possible both to stabilise land use and to produce more per hectare. For this, what is needed is an integrated strategy that modernises agriculture and increases biomass production. Indeed, a balanced, integrated strategy would provide a major opportunity for rural development and would encourage investment in the agricultural sector. Development and investment could, in turn, increase rural incomes, food production and food security, and also improve the management of soil and other natural resources. This could avert a conflict between food supplies and ILUC.

A proactive strategy aimed at improving governance of land use and agriculture could reduce or even avoid indirect land-use change. Assigning emissions values to biofuel based on its projected indirect impact on land use is unlikely to change agricultural practice on the ground and makes debate hostage to persistent questions about numbers.

A policy and public debate that keeps zooming in on ILUC is unlikely to result in satisfactory results. It also increases the danger that we will overlook a large opportunity to merge the development of a bio-

based economy with sustainable development of the world's agricultural system. It is high time to zoom out to take a more rounded view.

André Faaij is a convening lead author for the UN's International Panel for Climate Change and a professor of energy system analysis at Utrecht University's Copernicus Institute.

[redacted]

From: HAEUSLER Georg (CAB-CIOLOS)
Sent: 13 December 2011 18:00
To: UJUPAN Alina-Stefania (CAB-CIOLOS)
Cc: CAB CIOLOS ARCHIVES
Subject: FW: Arguments supporting biodiesel in the iLUC debate
Attachments: FEDIOL iLUC Economic Impact Assessment - FINAL 2011_09_28.doc

A: AU
C: GH, SM

Georg Häusler
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E-mail address: Georg.Haeusler@ec.europa.eu

From: [redacted]@fediol.eu]
Sent: Tuesday, December 13, 2011 5:49 PM
To: HAEUSLER Georg (CAB-CIOLOS)
Cc: UJUPAN Alina-Stefania (CAB-CIOLOS)
Subject: Arguments supporting biodiesel in the iLUC debate

Dear Mr. Häusler,

FEDIOL is working with COPA-COGECA and other members of the Biofuels Chain, like COCERAL and EBB, on the iLUC issue and we have on several occasions expressed our concerns.

I have now been made aware by COPA [redacted] of your interest in enhancing the argumentation about the impact of any iLUC related provision on the food sector. The vegetable oils and fats industry is typically supplying both the food and non food markets.

Some of the arguments you are interested in are explained in the enclosed FEDIOL impact assessment. We have had the opportunity to present this and discuss it with [redacted], from DG Agri services recently. But, I would be pleased to meet with you, also on short notice, and expand on these arguments.
Looking forward to hearing from you.

Mit freundlichen Grüssen

[redacted]

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FEDIOL

6 December 2011
11ENV232

Economic Impact Assessment of a likely Indirect Land Use Change Proposal by the European Commission

Executive Summary

As the European Commission is due to release a policy proposal to consider indirect land use change (iLUC) in the Renewable Energy Directive (RED – 2009/28/EC), FEDIOL, on behalf of the EU vegetable oil and proteinmeal industry, has analysed the four policy options in order to assess the consequences they bear for the future of the biofuels supply chain as well as for the feasibility of reaching the renewable energy targets as laid down in the RED.

For the purpose of this impact assessment, FEDIOL[1] has used the findings of the revised IFPRI study on iLUC, used by the European Commission as the main impact assessment, despite admitted criticism as to the weakness of the model parameters and of the resulting estimates.

Even though the Commission report of December 2010 pointed out four policy options, the options to develop a more reliable scientific basis (option A) and to test additional sustainability standards (option C) have been largely neglected.

The two other options that have been given more attention entail serious consequences for the biofuels supply chain, EU competitiveness and the attainability of EU2020 targets as a whole. The option to increase greenhouse gas emissions savings thresholds (option B) would rapidly exclude major biodiesel pathways. The option to incorporate iLUC penalties by type of biofuels (option D) would lead to a complete halt of vegetable oil use for the biodiesel production in the EU.

Under current circumstances and unchanged fossil fuel comparator, none of the economically viable biodiesel production could comply with RED. This would hamper the multi-feedstock approach, which is crucial for mitigating commodity price volatilities and supply shocks.

For the industry, options B and D entail that all crushing units across Europe would need to operate below full capacity (at 75% for soybean and 30% for rapeseed crushing and processing activities). It can be expected that an important part of the processing activities would become redundant totalling annual turnover losses between 11.2 and 13.4 billion Euros.

By abandoning the muiti-feedstock approach, no other crop would be able to replace the sharp decrease in oil supply of 2.8 million tonnes of soybean oil and 3.7 million tonnes of rapeseed oil and allow meeting the 10% target for renewable energy use in transport.

A policy proposal, based on inconclusive and disputable evidence, would fundamentally change the balance of the present legislation and would lead to a major restructuring in the EU industry. Thus, the EU should consider practical and economic consequences of such a change.

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FEDIOL

Economic Impact Assessment of a likely Indirect Land Use Change Proposal by the European Commission

The European Commission is due to release a proposal to include iLUC into the Renewable Energy Directive (RED). In the meantime, the reference study for the European Commission's impact assessment has already been commented in the press. The aforementioned study, commissioned by the European Commission and prepared by IFPRI, reaches the conclusion that certain types of biofuels have worse environmental impacts than fossil fuels.

IFPRI's methodology is considered to be developed on insufficient converging evidence to draw undisputable conclusions on the extent of iLUC. Moreover, the IFPRI study also admits that its model parameters are based on weak estimates and that an accurate range of iLUC could only be measured by systematic sensitivity analyses. There are also major oversimplifications regarding the impact of co-products, future yields, food and feed consumption, types of land converted and carbon stocks, which lead to flaws in calculation assumptions and thus affect the scientific credibility of the findings.

The Commission Report of 22 December 2010 has identified four policy options for the future of sustainable biofuels in Europe:

A. Monitoring and developing expertise on iLUC
B. Increasing GHG savings thresholds
C. Introducing additional sustainability criteria for biofuels
D. Introducing differentiated iLUC factors per biofuels type

FEDIOL has considered the four policy options as to their implications on the EU vegetable oil and protein meal industry. FEDIOL has analyzed in further detail options B and D to assess the consequences they bear for the oilseed crushing and processing industry, as well as for the feasibility of reaching the renewable energy targets as defined by the Directive 2009/28/EC.

Comments on options A and C

Opting for option A, i.e. monitoring the development on iLUC, would enable the European Commission to collect more accurate information/data and allow the scholars to increase the knowledge on this new scientific field. Furthermore, the development of a more reliable scientific basis and the collection of more accurate data would enhance the EU's ability to pin down the problematic and thus develop more accurate policy tools to prevent unwanted GHG emissions.

As far as option C is concerned, it has not been given much opportunity to develop and to test form and feasibility of additional criteria. In order to formulate an efficient policy proposal in addressing the concerns about iLUC, the EU should devote equal effort to every option and assess them in detail.

Hence, the European Commission, environmental scientists as well as the industry need more time to collect useful information/data, to assess the effectiveness of measures that been put in place (RED requirements, Sustainability Schemes etc.) and to allow the science to develop reliable methodologies for policy use.

Option B: Increasing the minimum GHG thresholds for biofuels

The second option in the Commission's December report suggests increasing the GHG emissions savings threshold. According to the proponents of this option, increased thresholds could help cover possible additional GHG emissions linked to iLUC without quantifying iLUC per feedstock.

Assuming that this policy option would move the savings threshold from 35% to 45%[ii] in the short term (until 2017) and from 50% to 60% after 2017. With a fossil fuel comparator of 83.8 grCO2eq/MJ, the table below presents how biodiesel will be completely phased out in Europe by 2017.

As can be seen from the table 1, it may still be possible to continue producing rapeseed biodiesel until 2017, although it will not be possible to use default values of RED Annex V for several pathways. Actual[iii] calculations need to be developed by operators to demonstrate their compliance with the GHG emissions and savings threshold criteria, which do not necessarily lead to the same results as the typical values. This will require further improvements in the transport, processing and cultivation

practices while continuously investing in new technologies. For palm oil biodiesel with methane capture at oil mill, the pathway would also be open until 2017 and beyond, only if the industry could attain similar savings to typical emissions level in the RED Annex V.

Table 1 – Outlook for biodiesel reaching increased thresholds in Europe by 2017

Pathway	Default [iv] GHG emissions savings	Typical [v] GHG emissions savings	Current savings threshold until 2017	*Increase current savings threshold to 45% until 2017*	*Increase savings threshold to 60% post 2017*
Soybean Biodiesel	31%	40%			
Rapeseed Biodiesel	38%	45%			
Palm Oil Biodiesel	19%	36%			
Palm Oil Biodiesel w/ CH4 capture	56%	62%			
Sunflower Biodiesel	51%	58%			

Option D: Introduction of ILUC factors

This option proposes introducing iLUC penalties for different types of biofuels. Looking at the Commission's assessment based on the IFPRI study's findings, iLUC factors' addition to the typical GHG emissions would lead to a complete halt of biodiesel use in the EU.

The illustration below uses the iLUC factors as suggested by the IFPRI study. With a number of scientifically challengeable assumptions, the study concludes that biodiesels have worse environmental effects than fossil fuels. It is also worth mentioning that available studies are giving contradictory results, regarding whether biofuels cause environmental impacts in terms of iLUC. Introduction of biofuel specific iLUC factors would also fail in taking into account the existing legal provisions in 3rd countries, regarding the protection of forests, peatlands and high carbon stock land.

Based on the Annex V of the RED and using the iLUC factor calculations of the IFPRI study, the carbon profile of the biodiesel pathways are calculated in table 2 below.

Table 2 - Impact of iLUC factors (penalties) on European Biodiesel

Pathway	Default savings (RED)	Typical savings (RED)	Typ. GHG emissions (RED)	Proposed iLUC factors (IFPRI)	GHG emissions after iLUC factors	Typical savings with ILUC factor
Soybean Biodiesel	31%	40%	50 grCO2eq/MJ	55.8 grCO2eq/MJ	105.8 grCO2eq/MJ	
Rapeseed Biodiesel	38%	45%	46 grCO2eq/MJ	53.8 grCO2eq/MJ	99.8 grCO2eq/MJ	
Palm Oil Biodiesel	19%	36%	54 grCO2eq/MJ	54.3 grCO2eq/MJ	108.3 grCO2eq/MJ	
Palm Oil Biodiesel w/ CH4 capture	56%	62%	32 grCO2eq[vi]/MJ	54.3 grCO2eq/MJ	86.3 grCO2eq/MJ	
Sunflower Biodiesel	51%	58%	35 grCO2eq/MJ	51.8 grCO2eq/MJ	86.8 grCO2eq/MJ	

Note: The value for the fossil for comparator is taken 83.8 grCO2eq/MJ (Ref: RED). The iLUC penalties are added to typical GHG emission savings and the new GHG emissions savings are calculated on this basis: GHG_{iLUC} Emission Savings = [(FFC - GHG_e) x 100] / FFC

Should this policy option be preferred, none of the economically viable biodiesel production would comply with the RED, which requires a minimum greenhouse gas emissions savings of 35%. Using default values as the basis for the calculation would even further worsen the GHG profile:

Unless changes are made to the fossil fuel comparator or to the method to calculate default greenhouse gas emissions savings, the introduction of an ILUC factor/penalty would essentially disqualify all vegetable oils pathways for the production and use of first generation biodiesel in Europe altogether.

Consequences of Options B and D

For meeting the 10% target for biofuels, multi-feedstock sourcing is absolutely essential. Both policy options entail the threat of eliminating the use of major feedstocks for the production of biodiesel. This would have immediate consequences for the vegetable oil and proteinmeal industry and would severely undermine the political objectives of the Renewable Energies Directive.

Soybean Crushing and Consumption

Today the EU vegetable oil and proteinmeal industry crushes approximately 12.83 million tonnes of soybeans, producing 2.38 million tons of soybean oil for food, feed and biofuel use (see Table 3 below). Moreover, the EU imports 0.7m tonnes of soybean oil per year to meet the biodiesel demand (total biodiesel demand is 1.3 million tonnes of soybean oil). If soybeans are excluded from the production of biodiesel, this would mean that the EU will stop importing soybean oil and will have an excess of 0.6 million tonnes of soybean oil from the EU crushing. Since the EU food and feed markets are saturated, the excess would need to be exported. However, due to the drop of 0.7 million tonnes in EU imports, the worldwide competition for export destinations of soybean oil will drive prices down. It will not be economically viable to export the 0.6 million tonnes (which would normally have gone into biodiesel) from the EU (lower prices, transport and storage costs, etc.).

Stripped from the biofuel outlet and without economically viable alternative of export, all crushing units across Europe would need to operate under-capacity (at only 75% of the current capacity utilization). This is unworkable and unsustainable as soybean crushing has very low margins and almost 100% of the capacity needs to be in use, for the soybean crushing to reach the necessary economies of scale.

Since soybean crushing represents one third of the European operations, the imposition of an ILUC factor or a GHG threshold would jeopardise the economic viability of the soybean crushing plants and threaten the industry as a whole.

Table 3 – Distribution of soybean crushing and soybean products according to end-use

<table>
<tr><td rowspan="4">12.83 million tonnes of soybeans</td><td rowspan="2">9.6 million tonnes of soybeans
(75% of current EU capacity-use)</td><td colspan="2">7.7 million tonnes of soybean meal</td></tr>
<tr><td rowspan="2">1.78 million tonnes of soybean oil</td><td>0.95m tonne for food use</td></tr>
<tr><td>0.83m tonne for feed and non-energy technical use</td></tr>
<tr><td rowspan="2">3.23 million tonnes of soybeans
(25% of current EU capacity-use)</td><td colspan="2">2.6 million tonnes of soybean meal</td></tr>
<tr><td>0.6m tonne of soybean oil</td><td>0.6m tonne for biodiesel use</td></tr>
</table>

Rapeseed Crushing and Consumption

Both options also threaten the rapeseed crushing for biofuel purposes. Rapeseed is the crop that requires less imports and which can meet the demand with local EU production. Today, about 70% of the rapeseed crushing goes into the biofuel outlet (see table 4 below). Should rapeseed oil be excluded as raw material for biodiesel, delivering the 6.6 million tonnes of rapeseed oil to food, feed or export would not be a workable alternative.

As rapeseed crushing would fall to 31% of its current capacity-use, which is not economically viable, a large number of plants would become redundant. A total of at least 15.8 million tonnes of EU

rapeseed production would no longer find its way onto the biodiesel market and would find no export outlet at workable prices.

The collapse of the EU rapeseed market would lead to a sharp reduction in rapeseed cultivation in the EU with detrimental effects not only on the oilseed growers and processors but on the agricultural sector as a whole and on other downstream sectors.

Table 4 – Distribution of rapeseed crushing and rapeseed products according to end-use

<table>
<tr><td rowspan="4">22.9 million tonnes of rapeseed</td><td rowspan="2">7.1 million tonnes of rapeseed
(31% of current EU capacity-use)</td><td colspan="2">4.1 million tonnes of rapeseed meal</td></tr>
<tr><td rowspan="2">2.96 million tonnes of rapeseed oil</td><td>2.90m tonnes for food use</td></tr>
<tr><td>0.06m tonne for feed and non-energy technical use</td></tr>
<tr><td rowspan="2">15.8 million tonnes of rapeseed
(69% of current EU capacity-use)</td><td colspan="2">8.8 million tonnes of rapeseed meal</td></tr>
<tr><td>6.6m tonnes of rapeseed oil</td><td>6.6m tonnes for biodiesel use</td></tr>
</table>

Palm Oil Consumption

The EU is a net importer of palm oil and refines 4.8 million tonnes (2010) of imported crude palm oil. The refining in the EU would not necessarily be threatened if palm was to be excluded as a potential biofuels feedstock. However, taking out palm oil would reduce the flexibility in multi-feedstock sourcing. Today, only 3.2% of total palm oil consumption goes into biofuels production. The substitution of palm oil removes pressure from other feedstock, in particular rapeseed, and prevents price fluctuations.

Table 5 – Global Palm oil consumption and demand

	2010 (1000T)	% Share in Total Demand (2010)	Demand Growth (2006-2010)	Share in global demand increase
EU27	5733,8	12	29 %	12.7 %
CIS	822,7	1.7	6 %	0.5 %
Nigeria	1665	3.6	36.5 %	4.3 %
USA	880,1	1.9	52.1 %	3 %
Colombia	783,7	1.7	66 %	3 %
China	5902,6	12.7	8 %	4.5 %
India	6714,3	14.5	118.4 %	35.5 %
Indonesia	5468,6	12	47.1 %	17 %
Malaysia	2065,2	4.5	-4,3 %	-0.9 %
Pakistan	1894,7	4	18.5 %	2.9 %
Thailand	1230	2.7	77.1 %	5.2 %
Rest of the World	13327.7	29.7	11%	12.7 %
World TOTAL	**46468,5**	**100**	**29 %**	**n/a**

Table 5 shows that demand for palm oil has grown by 29% between 2006 and 2010. Today, the EU use of palm oil corresponds to only 12% of global palm oil consumption, with a linear demand growth of 29%. As can be seen from the data above, India, Thailand, Colombia, the USA, Indonesia and Nigeria have been the main drivers behind increased palm oil demand. India alone accounts for the consumption of 35% of extra palm oil consumption since 2006.

Moreover, the current level of palm oil use for biodiesel in the EU is insignificant (3.2% of total EU biodiesel production). Thus the EU biofuels policy cannot be considered as a driver for increased global palm oil consumption and production. One of IFPRI's key assumptions is that the RED would push the EU to use mainly palm oil for biodiesel production and more peatlands would be converted in South-East Asia, causing GHG emissions from high carbon stock lands. Looking at the figures above, it can be concluded that increased palm oil consumption and potential peatland conversions are unfounded and not correlated to the EU consumption (only 12% of total global consumption).

Sunflower seed Crushing and Consumption

According to the IFPRI study, sunflower has the least detrimental effect, but nonetheless still worse than fossil fuel use. Sunflower oil is currently primarily used for food use (>90% of total use) and any attempts to change the end-use towards biodiesel would have negative effects on food prices (as sunflower seed is a relatively small crop, with limited extension potential) as well as on the affordability of biodiesel (because of the necessary additional de-waxing step in the refining).

Multi-feedstock Sourcing and RED Targets

According to the NREAPs (National Renewable Energy Action Plan), roughly 78% of the renewable fuels demand will be met by biodiesel. In fact, no crop will be able to replace roughly 14 Million tonnes of soybeans (or 2.8 million tons of soybean oil), since neither palm nor rapeseed and sunflower seed will be meeting GHG emissions thresholds for biofuels.

Even if the rapeseed pathway may be open until 2017 under Option 2, an additional crush of 7 million tonnes of rapeseed would be required to cover the shortfall in oil supply. The EU rapeseed crop for 2010 was 22 million tonnes and making-up for the deficit in soybean oil would be impossible, even if imports of rapeseed from Canada, Australia and Kazakhstan were to increase significantly.

Multi-feedstock sourcing for biodiesel is the only way to mitigate price volatility and supply shocks.

Conclusion

The proposal to revise the RED, in view of a precautionary measure will be based on inconclusive and disputable evidence. Such revision will fundamentally change the balance of the present legislation and restrict or suspend multi-feedstock sourcing with considerable repercussions on sectors in the biofuels chain. The practical and economic consequences of this change must be considered for all operators in the supply chain, downstream and up-stream.

For the vegetable oils crushing and refining industry this change could put into question 25% of its soybean crushing and refining activity and about 70% of the rapeseed crushing and refining. The loss would range between 11.2 billion and 13.4 billion euro of turnover out of a current total turnover of 20 billion euro.

Furthermore, a proposal to amend the Renewable Energy Directive on the basis of iLUC is likely to offer an occasion for opponents to the biofuels policy not only to reopen the debate on first generation biodiesel, but to challenge the future of the RED altogether in particular the 10% targets. The revision will follow the co-decision procedure and thus will bring risks of opening up new debates for changing the direction of the legislation.

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[i] **FEDIOL** represents the interests of the European seed and bean crushers, protein meal producers and vegetable oil producers/processors. FEDIOL members amount to 85% of the EU industry and represent 147 oilseeds processing and vegetable oils and fats production facilities across Europe, employing approximately 20,000 people.

[ii] The proponents of this policy option even expect a more radical approach from the Commission, so to increase the threshold to 50% until 2017 and to 65% beyond 1 January 2017.

[iii] **'actual value'** means the greenhouse gas emission saving for some or all of the steps of a specific biofuel production process calculated in accordance with the methodology laid down in part C of Annex V.

[iv] **'default value'** means a value derived from a typical value by the application of pre-determined factors and that may, in circumstances specified in this Directive, be used in place of an actual value.

[v] **'typical value'** means an estimate of the representative greenhouse gas emission saving for a particular biofuel production pathway.

From: [redacted] [mailto:[redacted]
Sent: Monday, December 19, 2011 5:37 PM
To: OETTINGER Guenther (CAB-OETTINGER); HEDEGAARD Connie (CAB-HEDEGAARD); POTOCNIK Janez (CAB-POTOCNIK); CAB KALLAS WEB FEEDBACK; KALLAS Siim (CAB-KALLAS); DE GUCHT Karel (CAB-DE GUCHT); BARNIER Michel (CAB-BARNIER); CIOLOS Dacian (CAB-CIOLOS); PIEBALGS Andris (CAB-PIEBALGS); TAJANI Antonio (CAB-TAJANI)
Cc: [redacted]
Subject: Biofuels and ILUC: securing an effective response

Dear Commissioners,

We are writing as a group of companies, trade associations and NGOs who believe that a practical and effective solution needs to be agreed to address the ongoing debate about Indirect Land Use Change in European biofuels policy, in the interests of:

- Meeting EU renewables targets
- Helping to deliver energy security
- Fostering rural economic development and
- Developing a sustainable bioenergy system that can help towards decarbonising transport in Europe and beyond.

Collectively, we represent several billions of Euros of investment into the biofuels sector in Europe.

Please find enclosed a letter conveying our collective views. We are keen to meet with you or your teams to discuss these ideas in further detail at the earliest opportunity.

Yours sincerely,

Coceral

Downstream Fuel Association

European Biodiesel Board

FEDIOL

Neste Oil

PANGEA (Partners for Euro-African Green Energy)

Riverstone Holdings

Royal Dutch Shell

UPEI, (Union Petroliere Europeene Independante)

<<FINAL ILUC letter to EU PolicymakersDec2011.pdf>>

[redacted] Downstream Policy and Stakeholder Engagement
Shell International Petroleum Company Ltd
Direct: [redacted] **Mobile:** [redacted]
Email: [redacted]

Shell Centre, London SE1 7NA, United Kingdom
The registered office of Shell International Limited is Shell Centre, London, SE1 7NA.
Registered in England and Wales. Company number 03075807. Shell website

Annexe [redacted]

[redacted] Ref. Ares(2011)1383110 - 20/12/2011

Mr. Gunther Oettinger, Commissioner for Energy
Ms. Connie Hedegaard, Commissioner for Climate Action
Mr. Janez Potočnik, Commissioner for Environment
Mr. Siim Kallas, Commissioner for Transport
Mr. Karel de Gucht, Commissioner for Trade
Mr. Antonio Tajani, Commissioner for Industry and Entrepreneurship
Mr. Dacian Cioloş, Commissioner for Agriculture
Mr. Andris Piebalgs, Commissioner for Development
Mr. Michel Barnier, Commissioner for Internal Market

European Commission
1049 Brussels
Belgium

Brussels, 19 December 2011

Dear Commissioners

RE: Securing an effective response to Indirect Land Use Change (ILUC) debate in EU biofuels policy

We are writing as a group of companies, trade associations and NGOs who believe that a practical and effective solution needs to be agreed to address the ongoing debate about ILUC in European biofuels policy, in the interests of:

- Meeting EU renewables targets
- Helping to deliver energy security
- Fostering rural economic development and
- Developing a sustainable bioenergy system that can help towards decarbonising transport in Europe and beyond.

Collectively, we represent several billions of Euros of investment into the biofuels sector in Europe. We agree that:

The EU has taken a progressive lead in adopting the world's strictest biofuels sustainability criteria.
Over 65 countries have some form of biofuels policies. However, the EU's sustainability scheme remains world-class. Our organisations support and adhere to this sustainability policy for biofuels. We call for more focus on its sound implementation in the EU and on enabling the investments that will make these standards work in other countries and regions.

The lack of an effective resolution to the ILUC debate for biofuels is threatening investments.
It is threatening both existing and future investments into the sector and undermining delivery towards the EU's renewable energy ambitions. Many studies show that scientific modelling efforts to calculate ILUC have been inconclusive[i]. Also, a growing body of research suggests that there are agricultural and biofuels production practices that prevent or reduce potential ILUC risk[ii] but these have been largely overlooked in the studies undertaken for the EU Commission so far.

Each of the four policy options assessed so far could have significant drawbacks.
Some of these options would perversely cause more ILUC rather than preventing it. For example, the adoption of uncertain CO_2 penalties would reduce the range of feedstocks that can be used to comply with renewable targets and place more volume pressure on those that remain. This could drive more

ILUC risk for the remaining feedstocks. Any feedstocks penalised by ILUC factors would have no opportunity to make further sustainability improvements.

None of the four policy options encourage greater adoption of ILUC mitigation practices.
Most importantly, none of the four policy options being assessed encourage producers to adopt additional practices that reduce ILUC risks, nor do they improve investor confidence for biofuel development. A combination of any of the four policy options under assessment would not only exacerbate their negative effects but also deliver no overall reduction in the carbon emissions of transport fuels.

Recent studies show there are a range of ILUC mitigation practices.
These can include: the use of co-products for animal feed purposes, crop production on degraded lands, improved agricultural production practices that lead to increased yields, other land management measures, negotiation of effective bilateral agreements with third countries and the development of certain advanced generation biofuels. We believe these areas of agricultural science and biofuel technology could make a significant contribution to the development of a more sustainable bioenergy system. A market-driven approach to introducing incentives for ILUC mitigation would not require additional public funding.

We urge you to consider the value of adopting a more holistic approach in your decision-making.
We would be concerned by any disproportionate approach that penalises the biofuels sector on the basis of inconclusive science. We believe the Commission's decision-making should consider the potential role of ILUC mitigation practices. There is no 'silver bullet' solution. However, a sensible approach to encouraging greater uptake of ILUC mitigation practices could also yield additional environmental benefits that may go much further beyond the biofuels sector. We are keen to meet with you or your teams to discuss these ideas in further detail at the earliest opportunity.

Yours sincerely,

UPEI
Union Pétrolière Européenne Indépendante

pangea

DFA
Downstream Fuel Association

EBB
European Biodiesel Board

RIVER STONE

COCERAL

FEDIOL

NESTE OIL

For further enquiries about our organisations, please contact:

[redacted] **Coceral**

[redacted] **Downstream Fuel Association**

[redacted] **European Biodiesel Board**

[redacted] **FEDIOL**

[redacted] **Neste Oil**

[redacted] **PANGEA (Partners for Euro-African Green Energy)**

[redacted] **Riverstone Holdings**

[redacted] **Royal Dutch Shell**

[redacted] **UPEI, (Union Petroliere Europeene Independante)**

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[i] These include, but are not restricted to, the *E4Tech report, 'A causal descriptive approach to modelling to modelling indirect land use change impacts of biofuels'* (October 2010, http://www.dft.gov.uk/publications/modelling-indirect-land-use-change-impacts-of-biofuels); *Review of IFPRI Reports on Land Use Change for European Biodiesel Policies, (S&T)² Consultants Inc* (http://www.ebb-eu.org/EBBpressreleases/IFPRI_EBB_OConnor_final_report.pdf) and the *European Forum for Sustainable Development report, 'The Missing Indirect Land Use Change Factors: How to Make Decisions When Science Is Incomplete?'* (August 2011, http://www.efne.eu/fileadmin/user_upload/142201_Copenhagen_Economics_-_Indirect_land_use_change.pdf)

[ii] These include, but are not restricted to, the recently published report by Ernst and Young, 'Biofuels and Indirect Land Use Change: The Case for Mitigation' (October 2011, http://pangealink.org/archives/1505); the Ecofys report, 'Responsible Cultivation Areas' (September 2010, http://www.ecofys.com/en/publications/17/) and the E4Tech report, 'A causal descriptive approach to modelling to modelling indirect land use change impacts of biofuels' (October 2010, http://www.dft.gov.uk/publications/modelling-indirect-land-use-change-impacts-of-biofuels).

14.

18124 - nr 14.txt

FEDIOL ILUC Economic Impact AssessmentFrom: [redacted](CAB-CIOLOS)
Sent: lundi 9 janvier 2012 9:31
To: [redacted]@fediol.eu'
Cc: UJUPAN Alina-Stefania (CAB-CIOLOS); [redacted](CAB-CIOLOS)
Subject: FEDIOL ILUC Economic Impact Assessment / Ares (2012)19768

Dear Ms [redacted]
Mr Häusler has asked me to thank you for your e-mail message of 13 December and the enclosed Fediol impact assessment.
[redacted] whom you met recently has duly informed the Cabinet about the different elements related to the impact of ILUC related provision on the food sector.
Kind regards,

[redacted]
Assistant to Mr Häusler
Head of Cabinet
Cabinet of Commissioner Ciolo
Tel.: (+32/2 [redacted]
Fax: (+32/2 2[redacted]

(CAB-HEDEGAARD)

From: (CAB-HEDEGAARD) on behalf of HEDEGAARD Connie (CAB-HEDEGAARD)
Sent: lundi 23 janvier 2012 17:40
To: CAB HEDEGAARD ARCHIVES
Cc: MUELLER Juergen (CAB-HEDEGAARD)
Subject: FW: INDIRECT LAND USE CHANGE
Attachments: scanned correspondence001.pdf

From: [mailto:
Sent: Monday, January 23, 2012 4:34 PM
To: HEDEGAARD Connie (CAB-HEDEGAARD)
Cc: POTOCNIK Janez (CAB-POTOCNIK); CIOLOS Dacian (CAB-CIOLOS); PIEBALGS Andris (CAB-PIEBALGS); ASHTON Catherine (CAB-ASHTON)
Subject: INDIRECT LAND USE CHANGE

See attached letter from MP, Parliamentary Under Secretary of State for Transport.

Department for
Transport

From the Parliamentary
Under Secretary of State

Great Minster House
33 Horseferry Road
London SW1P 4DR

Tel: [redacted]
Fax:
E-Mail: [redacted]

Web site: www.dft.gov.uk

Commissioner Hedegaard
European Commissioner for Climate Action
B-1049 Brussels
Belgium

23 January 2012

Dear Commissioner Hedegaard,

Indirect Land Use Change

I am writing regarding the Commission's current work on addressing the Indirect Land Use Change (ILUC) impacts of biofuels. I would like to take this opportunity to outline the approach that the UK considers would be the most robust and appropriate response to this issue.

The UK considers that the introduction of 'ILUC factors', in both the Renewable Energy Directive (RED) and the Fuel Quality Directive (FQD), to be the most appropriate response to the risk posed by ILUC. We would support factors that are consistent with the 2011 IFPRI analysis carried out on behalf of the Commission. This analysis shows that ILUC factors are most appropriately applied to feedstock groups (such that a factor is applied to all oil crops, one to sugar crops and one to starch crops).

We do not consider that the introduction of ILUC factors into just one Directive would be an appropriate response. The two directives should work together to drive the use of truly sustainable biofuels. Differences between the directives must be reduced not increased.

Biofuels with low-risk of ILUC should be recognised and provision should be made for such biofuels to be exempt from ILUC factors. However, care must be taken to ensure that adequate assurances of the sustainability of such 'low ILUC risk' biofuel are introduced. The production of feedstocks that is additional to the baseline agricultural production must be done in a sustainable way, with safeguards for local

communities, biodiversity, the wider environment and with full accounting of GHG emissions.

In forming this view the UK has undertaken a detailed review of the policy options, including developing Impact Assessments, and my officials or I would be most happy to discuss this further.

To avoid significantly increasing the costs of biofuels in response to addressing ILUC, some flexibility in meeting EU renewable energy targets should be considered by the Commission. At the time of adoption of these targets the potential scale of the negative impacts of ILUC was not as well understood as it now is. The promotion of sustainable biofuels to sufficient levels to meet the targets is likely to incur very great costs and require rapidly breaking through technical barriers (such as the blend wall for conventional biofuels).

I look forward to meeting you on 6 February to discuss this and other issues. I am writing in similar terms to Commissioner Oettinger and have copied this letter to Commissioners Potočnik, Ciolos, Piebalgs and Ashton.

Yours sincerely

[redacted]

[redacted] Ref. Ares(2012)101665 - 30/01/2012

[redacted] (CAB-CIOLOS)

From: [redacted] (CAB-CIOLOS) on behalf of CIOLOS Dacian (CAB-CIOLOS)
Sent: vendredi 27 janvier 2012 18:09
To: CAB CIOLOS MAIL
Subject: FW: EBB request for a meeting on Commission legislative proposal on Indirect Land Use Change (ILUC)

For registration and attribution please. Thanks,

[redacted]

From: European Biodiesel Board - [redacted] [mailto: [redacted]
Sent: Friday, January 27, 2012 5:45 PM
To: CIOLOS Dacian (CAB-CIOLOS); Alina.ujupan@ec.europa.eu
Cc: SILVA RODRIGUEZ Jose Manuel (AGRI); [redacted]
Subject: EBB request for a meeting on Commission legislative proposal on Indirect Land Use Change (ILUC)

EBB
European Biodiesel Board
Boulevard Saint Michel, 34 - 1040 Bruxelles
Tel: +32 (0)2 763 24 77 - Fax: +32 (0)2 763 04 57
E-mail: info@ebb-eu.org - Website: www.ebb-eu.org

78/PRO/12 Brussels, 27th January 2012

TO Mr Dacian Cioloş
Commissioner for Agriculture and Rural Development
European Commission
B- 1049 Brussels
BELGIUM

CC Mr. Jose Manuel SILVA RODRIGUEZ, Director General, DG AGRI

RE: EBB request for a meeting on Commission legislative proposal on Indirect Land Use Change (ILUC)

Dear Mr. Cioloş,

EBB is the Federation of European biodiesel producers, gathering 80 members and associates, representing 80% of the EU biodiesel output in 21 Member-States. EBB also accounts for around ¾ of all biofuels consumed in the EU.

We are contacting you in respect to article 19 of the Renewable Energy Directive 2009/28 (RED) mandating the European Commission for submitting a report to the European Parliament and to the Council reviewing the impact of potential indirect land-use change (ILUC) on greenhouse gas emissions.

We understand that a legislative proposal is likely to be discussed within the Commission services in the coming weeks. Such proposal could impact severely the biodiesel industry in its mandate to reach 10% of renewable energy in the transport sector.

In this perspective, we would be delighted to meet with you at your convenience in order to assess the best available means to respond to the European ambitious goals and trend setting to tackle Climate Change while also supporting its agricultural and energy sectors.

EBB would like to thank you for the time you will take to consider our request and remain,

Yours faithfully,

[redacted]

[redacted]

EBB - European Biodiesel Board
Boulevard Saint Michel 34
1040 Brussels
Belgium
Tel: [redacted]
Fax: [redacted]
Email: [redacted]
Website: www.ebb-eu.org

[redacted] Ref. Ares(2012)121943 - 02/02/2012

[redacted] (CAB-CIOLOS)

From: [redacted] (CAB-CIOLOS) on behalf of UJUPAN Alina-Stefania (CAB-CIOLOS)
Sent: jeudi 2 février 2012 15:53
To: [redacted]
Subject: RE: EBB request for a meeting on Commission legislative proposal on Indirect Land Use Clange (ILUC) - ARES/101665

Dear [redacted]

Thank you for your letter dated 27th of January 2012 addressed to Commissioner Cioloş and for your meeting request.

Commissioner Cioloş has asked me to respond on his behalf.

Unfortunately, due to his very busy agenda and many engagements already taken over the first trimester of 2012, the Commissioner cannot respond positively, for the moment, to your request.

However, should you wish to meet a representant from the Directorate General for Agriculture and Rural Development, please do not hesitate to contact [redacted] (tel.: +32. [redacted] @ec.europa.eu) who is coordinating DG AGRI's requests.

Thank you very much.

Kind regards,

Alina-Stefania UJUPAN
Member of Cabinet
European Commission
Cabinet of Commissioner Dacian CIOLOS
Agriculture and Rural Development

Office: BERL [redacted], 200 Rue de la Loi,
B-1049 Brussels – Belgium
Tel: +32-2-[redacted]

[redacted]

[redacted] Ref. Ares(2012)189034 - 20/02/2012

CF: J Plewa
CC: [redacted]

[redacted]
Secretary to the Director-General

European Commission
DG for Agriculture and Rural Development
Directorate-General

L130 [redacted]
B-1049 Brussels/Belgium
+32 [redacted]

From: European Biodiesel Board - [redacted] [mailto: [redacted]
Sent: Friday, February 17, 2012 11:20 AM
To: [redacted] (AGRI)
Subject: FW: EBB request for a meeting on Commission legislative proposal on Indirect Land Use Change (ILUC)

Chère [redacted],

Comme convenu lors de notre conversation téléphonique, je vous transmets ci-dessous notre lettre pour une demande de rendez-vous avec le Cabinet ou la Direction Générale pour l'Agriculture.

Notre Président est à Bruxelles ce jeudi 23 février et nous vous serions reconnaissants si vous pouviez m'indiquer si un Directeur Général adjoint pourrait être libre.

Ceci étant dit, le Secrétaire Général d'EBB reste à votre disposition pour convenir d'un rendez-vous au retour de vacances de Mr Silva.

En vous remerciant du temps que vous accorderez à ma requête,

Bien à vous,

[redacted]

[redacted]

From: European Biodiesel Board - [redacted] [mailto: [redacted]
Sent: vendredi 27 janvier 2012 17:45
To: 'dacian.ciolos@ec.europa.eu'; 'Alina.ujupan@ec.europa.eu'
Cc: 'jose-manuel.silva-rodriguez@ec.europa.eu'; [redacted]
Subject: EBB request for a meeting on Commission legislative proposal on Indirect Land Use Change (ILUC)

78/PRO/12 2012

Brussels, 27th January

TO ***Mr*** **Dacian Cioloþ**

Commissioner for Agriculture and Rural Development

European Commission

B- 1049 Brussels

BELGIUM

CC Mr. Jose Manuel SILVA RODRIGUEZ, Director General, DG AGRI

RE: EBB request for a meeting on Commission legislative proposal on Indirect Land Use Change (ILUC)

Dear Mr. Cioloþ,

EBB is the Federation of European biodiesel producers, gathering 80 members and associates, representing 80% of the EU biodiesel output in 21 Member-States. EBB also accounts for around ¾ of all biofuels consumed in the EU.

We are contacting you in respect to article 19 of the Renewable Energy Directive 2009/28 (RED) mandating the European Commission for submitting a report to the European Parliament and to the Council reviewing the impact of potential indirect land-use change (ILUC) on greenhouse gas emissions.

We understand that a legislative proposal is likely to be discussed within the Commission services in the coming weeks. Such proposal could impact severely the biodiesel industry in its mandate to reach 10% of renewable energy in the transport sector.

In this perspective, we would be delighted to meet with you at your convenience in order to assess the best available means to respond to the European ambitious goals and trend setting to tackle Climate Change while also supporting its agricultural and energy sectors.

EBB would like to thank you for the time you will take to consider our request and remain,

Yours faithfully,

[redacted]

[redacted]

EBB - European Biodiesel Board

Boulevard Saint Michel 34

1040 Brussels

Belgium

Tel: [redacted]

Fax: [redacted]

Email: [redacted]

Website: www.ebb-eu.org

[redacted]

[redacted]

[redacted]

[redacted]

[redacted] Ref. Ares(2012)206403 - 22/02/2012

EUROPEAN COMMISSION

Brussels, 22 02 2012
Ref. Ares (2011) 1383110

Dear Ms [redacted],

Thank you and the other co-signing organisations for your letter of 18th December regarding indirect land use change related to biofuels. On behalf of the Commission, we would like to thank you for your interest in this topic.

Please let us reassure you that the Commission is strongly committed to policy making based on robust science. This is why we have commissioned various modelling studies on this subject and undertaken extensive expert consultations over the last two years. A summary of the work can be found in the Commission's report of 22 December 2010 on indirect land use change (COM(2010) 811 final).

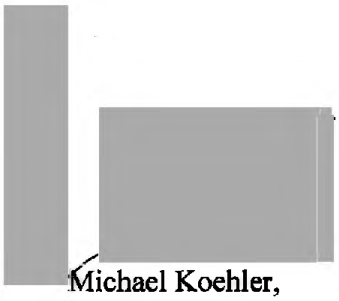
In the abovementioned report, the Commission acknowledged that indirect land use change can reduce greenhouse gas emissions savings associated with biofuels, but also identified a number of limitations and uncertainties associated with the available models to estimate these. Further, the Commission considers that, if action is required, indirect land use change should be addressed under a precautionary approach.

Moreover, the Commission is finalising an impact assessment focusing on the evaluation of a number of policy options, including the assessment of possible practices aimed at mitigating indirect land use change at country and project level as mentioned in your letter. This is to ensure that the contribution from biofuels to the climate objectives of the Renewable Energy and Fuel Quality Directives are not undermined.

[redacted]
[redacted] Downstream Policy and Stakeholder Engagement
Shell International Petroleum Company Ltd
Shell Centre, London SE1 7NA, United Kingdom

In addition to the primary objective of this impact assessment, i.e. the evaluation of the effectiveness of the options with regards to minimising indirect land use change impacts on greenhouse gas emissions (Article 7d(6) of Directive 2009/30/EC and Article 19(6) of Directive 2009/28/EC), the assessment also includes information on the wider economic, social and environmental impacts of the different options in line with standard practice. Please let us reassure that all information will be taken into consideration before a final political decision is taken.

Yours sincerely,



Michael Koehler,
Head of Cabinet
Commissioner Günther Oettinger

Peter Vis,
Head of Cabinet
Commissioner Connie Hedegaard

[redacted] Ref. Ares(2012)513853 - 25/04/2012

Chers Collègues,
Comme votre Cabinet est le premier adressén, pourriez-vous enregistrer et nous ajouter dans ARES svp?
Comme il s'agit d'un position paper, pas besoin de lancer un mcm.
Merci

[redacted]
Document Management Officer (DMO)

European Commission
Cabinet Karel DE GUCHT
ARCHIVES

BERL [redacted]
B-1049 Brussels/Belgium
+32 [redacted]
[redacted]@ec.europa.eu

-----Original Message-----
From: [redacted] (CAB-DE GUCHT)
Sent: Wednesday, April 25, 2012 1:34 PM
To: CAB DE GUCHT ARCHIVES
Cc: [redacted] (CAB-DE GUCHT)
Subject: FW: ILUC relating to biofuels

Pls register - pour information - FH pilot

Damien Levie
Member of Cabinet

European Commission
Cabinet of Karel De Gucht
Trade Commissioner

BERL [redacted]
B-1049 Brussels/Belgium
+32 2 [redacted]
[redacted]@ec.europa.eu

-----Original Message-----
From: .BRUEEU WI-UMW-1 [redacted] [mailto:wi-umw-1-eu@brue.auswaertiges-amt.de]
Sent: Wednesday, April 25, 2012 10:27 AM
To: KARNITSCHNIG Michael (CAB-BARROSO); HAEUSLER Georg (CAB-CIOLOS); alina.ujupan@ec.europa.eu; BRIL Catherine (CAB-DE GUCHT); LEVIE Damien (CAB-DE GUCHT); MALGAJ Matjaz (CAB-POTOCNIK); [redacted] (CAB-OETTINGER); MUELLER Juergen (CAB-HEDEGAARD)
Cc: [redacted]@bmu.bund.de; [redacted]
Subject: ILUC relating to biofuels

Dear collegues,

with regard to the meeting of the college of Commissioners on 2 May, where the issue of indirect land use change (ILUC) relating to biofuels will be discussed, we hereby would like to draw your attention to the position of Germany which could work as a compromise in the discussion of this highly controversial issue (see attachement): The key elements of the approach and the advantages are described on page 1 followed by further details (pp. 2-3) and draft legislative amendments (pp. 4-6).

Both the biofuels producers / farmers and the environmental NGOs have signaled that this approach could be a compromise they could in the end live with (even though neither side would be fully happy with it).

We would be happy to further discuss our proposal with you. For technical questions please do not hesitate to contact [redacted](cc), Federal Ministry of Environment (+49-[redacted].

Best regards

[redacted]

--

[redacted]
Head of Unit Environment Policy

Permanent Representation of Germany
to the European Union
8-14, rue Jacques de Lalaing
1040 Brussels

Phone: +32 (0) 2 [redacted]
Fax: +32 (0) 2 [redacted]
GSM: +32 (0) [redacted]
e-mail: [redacted]@diplo.de

Annexe [redacted]

The
Federal Government

24th April 2012

German proposal on to avoid indirect land use change (iluc) related to biofuels and bioliquids: Upper limit approach

This paper presents a **concept to reduce and avoid iluc caused by biofuels and bioliquids.** Key elements of the concept are:

- **Upper limit for "conventional" biofuels** from 2018 on the basis of biofuels consumption in 2010.
- **Above this limit only iluc free biofuels may be supported by MS.**
- **No iluc factor is needed.**

The concept offers the several **advantages**:

- Comparatively **simple** approach.
- **Tackles iluc** effects **directly**.
- **No additional iluc effects after 2017.** Biofuels could then generally be considered as iluc free. Other approaches (including iluc factor) would still allow iluc effects as long as the overall GHG balance of biofuels is above the threshold with potentially negative effect on biodiversity.
- The approach is focussing on future increase in production and **protects investment** that has already taken place and at the same time provides **strong incentives for new technology**.
- **No iluc factors needed, i.e.**
  - **No need for calculation / recalculation of – potentially inaccurate and controversial – iluc factors.** GHG emissions due to iluc seem to vary a lot depending on exact assumptions (e.g. trade scenario) and might need to be recalculated frequently which significantly increases risks of investments.
  - **ILUC factors could also cause an increase in biofuel volumes through the GHG reduction target in Article 7a of FQD**, since iluc factor works as a penalty and reduces average GHG reduction.
- A **combination with other approaches** is **feasible**.

Annex I – Details of the concept

The described advantages could be achieved by an approach that includes the following three elements:

1. An additional sustainability provision for biofuels and bioliquids is introduced in RED and FQD:

Additional biofuels and bioliquids may only be supported by Member States through tax incentives, biofuels mandates etc. **if they are iluc free** (see pages 4 and 5 for a draft text for modification of the RED). "Additional biofuels" in this context means **additional to the amount of biofuels** that was **consumed in the year 2010 within a Member State.**

A grandfathering clause would allow "conventional biofuels" under the following criteria:

a) Member States would be allowed to continue to use "conventional" biofuels up to the amount consumed in 2010 (as reported by Member States under Article 4 paragraph 1 of directive 2003/30/EC).
b) "Conventional" biofuels falling under the derogation in point a) may only be provided by **installations which were in production in 2010 up to their 2010 production levels (not the whole production capacity)**. Production volumes beyond the 2010 production levels need to be based on iluc free feedstock. This provision shall be independent of the location of the installation or whether or not it provided biofuels to a specific Member State in 2010 (also installations from outside the EU would be allowed to contribute as long as they can proof their 2010 production levels).

Effectively this creates an **upper limit for the use of "conventional" biofuels**.

Since globally there was more biofuels production in 2010 (point b) than consumption in the EU (point a) there will still be competition between biofuels producers within the grandfathered amounts.

2. Definition of "iluc free" biofuels

Biofuels which are iluc free or have only a minimal iluc impact would have to be defined in the directives. During **co-decision** procedure a **core definition for iluc free biofuels** could be adopted with

a) a list of wastes and residues known not to cause iluc (straw, manure),
b) abstract criteria for inclusion of additional wastes and residues, and
c) abstract criteria for definition of iluc free land.

On the basis of these abstract criteria the definition is **refined later**. Further scientific studies are needed.

Examples for **iluc free biofuels**:

- Biofuels from **certain wastes and residues** (not all wastes and residues can be considered iluc free: due to a good waste policy in Europe a lot of wastes and residues are already in

use, in part in non-subsidized sectors. If these materials were diverted to the biofuels sector, the other sectors would likely replace them, e.g. with non-certified palm oil).

- **Land-using feedstocks can be iluc free if their production is additional**, e.g. if the land has not been used for agricultural production before and therefore does not displace other production.

3. Transition period up to 2017

For a **transition from current technology / feedstock to iluc free biofuels** a provision already contained in the directives is applied: Installations which started production by end of 2013 shall be exempted from iluc measures until the end of 2017, provided that their biofuels achieve a GHG saving of at least 45 %.

A transition period is needed, since

a) technology to process certain wastes and residues needs to be further developed and implemented, and
b) land for iluc free production of biomass needs to be defined and identified.

During the transition period **Member States could follow their National Renewable Energy Action Plans (NREAP) trajectories through existing production capacities** until significant production of iluc free biofuels is in place. Essentially biofuel production in the EU could be doubled without adding additional production capacity, since installations are only working at half of the capacity.

Annex II – Legislative changes needed

Draft for core modifications of the renewable energies directive 2009/28/EC:

Article 17

1. Irrespective of whether the raw materials were cultivated inside or outside the territory of the Community, energy from biofuels and bioliquids shall be taken into account for the purposes referred to in points (a), (b) and (c) only if they fulfil the sustainability criteria set out in paragraphs 2 to 6 **and 10**:

[...]

10. Biofuels and bioliquids taken into account for the purposes referred to in points (a), (b) and (c) of paragraph 1 shall be produced from biomass that does not contribute to indirect land use change. Biomass that does not contribute to indirect land use change is defined by Annex VI part B. The Commission shall adapt, by means of delegated acts in accordance with Article 25, Annex VI part B to technical and scientific progress.

With respect to installations that produced biofuels before the end of 2013, the application of the measures referred to in the first subparagraph shall not, until 31 December 2017, lead to biofuels produced by those installations being deemed to have failed to comply with the sustainability requirements of this Directive if they would otherwise have done so, provided that those biofuels achieve a greenhouse gas emission saving of at least 45 %. This shall apply to the capacities of the installations of biofuels at the end of 2012.

For the time after 2017 Member States may apply for a permanent derogation from the first subparagraph for an amount up to their national biofuels and bioliquids share / amount in the year 2010, as set out in part A of Annex VI. Each installation is only allowed to contribute to that derogation at their 2010 production level.

Annex VI

A. National biofuels share reported under Article 4(1) of directive 2003/30/EC

	Share / amount of biofuels in 2010
Belgium	X %
Bulgaria	…
Czech Republic	
Denmark	
Germany	
Estonia	
Ireland	
Greece	
Spain	
France	
Italy	
Cyprus	
Latvia	
Lithuania	
Luxembourg	
Hungary	
Malta	
Netherlands	
Austria	
Poland	
Portugal	
Romania	
Slovenia	
Slovak Republic	
Finland	
Sweden	
United Kingdom	

B. Biomass not contributing to indirect land use change

1. **The following types of waste / residues:**
   a. **Straw**
   b. **Manure**

2. **The following types of land:**
   a. **Degraded land not used for agricultural production in the last x years.**
   b.

3. **Project-level solutions under the following conditions:**
   a. [...]

Draft for core modifications of the fuel quality directive 98/70/EC:

Article 7b

1. Irrespective of whether the raw materials were cultivated inside or outside the territory of the Community, energy from biofuels shall be taken into account for the purposes of Article 7a only if they fulfil the sustainability criteria set out in paragraphs 2 to 6 **and 9** of this Article.

9. Biofuels and bioliquids taken into account for the purposes referred to in paragraph 1 shall be produced from biomass that does not contribute to indirect land use change. Biomass that does not contribute to indirect land use change is defined by Annex V part B. The Commission shall adapt, by means of delegated acts in accordance with Article 11, Annex V part B to technical and scientific progress.

With respect to installations that produced biofuels before the end of 2013, the application of the measures referred to in the first subparagraph shall not, until 31 December 2017, lead to biofuels produced by those installations being deemed to have failed to comply with the sustainability requirements of this Directive if they would otherwise have done so, provided that those biofuels achieve a greenhouse gas emission saving of at least 45 %. This shall apply to the capacities of the installations of biofuels at the end of 2012.

For the time after 2017 Member States may apply for a permanent derogation from the first subparagraph for an amount up to their national biofuels and bioliquids share / amount in the year 2010, as set out in part A of Annex V. Each installation for biofuel production is only allowed to contribute to that derogation at their 2010 production level.

Member States shall allow suppliers to count up to the share of biofuels based on energy content defined in subparagraph 3 toward the target of Article 7a.

Annex V

same as Annex VI in directive 2009/28/EC

Note
The amount of biofuels falling under the exemption is defined based on the energy content, not on the GHG reduction (for the FQD targets the energy content also needs to be reported and GHG figures for the grandfathering are not available).

This means that individual suppliers within the same MS might have a different GHG saving achieved through the derogation, depending on the GHG performance of the biofuels they place on the market under this derogation.

[redacted]

[redacted] Ref. Ares(2012)524704 - 27/04/2012

[redacted] **(CAB-CIOLOS)** [redacted]

From: [redacted] (CAB-CIOLOS)
Sent: jeudi 26 avril 2012 18:25
To: CAB CIOLOS MAIL
Cc: [redacted] (CAB-CIOLOS); MADRE Yves (CAB-CIOLOS); [redacted] (CAB-CIOLOS)
Subject: FW: Courrier de [redacted] à M. Barnier
Attachments: Courrier à M Barnier - biocab et CASI.pdf

For registration and attribution.

Thanks

[redacted]

[redacted]
Assistant to Commissioner Ciolos
Member of the European Commission
Agriculture and Rural Development
☎ (+32-2) [redacted]
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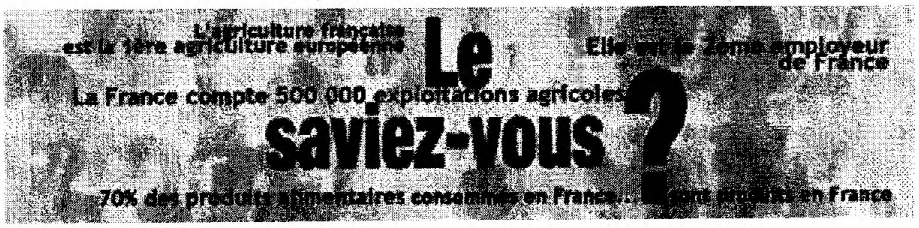
[redacted]@ec.europa.eu

From: [redacted] [mailto: [redacted]
Sent: Thursday, April 26, 2012 6:24 PM
To: CIOLOS Dacian (CAB-CIOLOS)
Cc: georg.hauesler@ec.europa.eu; MADRE Yves (CAB-CIOLOS); [redacted] (CAB-CIOLOS)
Subject: Courrier de [redacted] à M. Barnier

Veuillez trouver, ci-joint, copie du courrier de Président [redacted] à M. Barnier, concernant l'examen par le collège des commissaires le 2 mai prochain de l'avant projet législatif sur les changements indirects d'affectation des sols. Copie de ce courrier est également adressée au commissaire Oettinger.
Vous en souhaitant bonne réception
Cordialement,

[redacted]
FNSEA
Tél : [redacted]



Fédération Nationale des Syndicats d'Exploitants Agricoles

Paris, le 26 avril 2012

Le Président

M. Michel BARNIER
Membre de la Commission européenne
Commission européenne
200, rue de la Loi
B-1040 Bruxelles

Objet : biocarburants et CASI

Monsieur le Commissaire,

L'avant-projet de proposition législative concernant les changements indirects d'affectation des sols (CASI) en relation avec les biocarburants proposé par le Commissaire en charge de l'énergie, Monsieur Oettinger, et la Commissaire en charge de l'action pour le climat, Madame Hedegaard, sera prochainement examiné par le collège des Commissaires de la Commission européenne. C'est pourquoi, nous souhaiterions vous faire part de nos remarques.

Toute décision relative à la mise en place de pénalités pour les biocarburants au titre des CASI entraînera l'élimination de l'essentiel de la production des biocarburants dans l'UE, et de façon concomitante, l'accroissement de leurs importations pour remplir les objectifs des directives concernant la qualité des carburants (2009/30/CE) et la promotion des sources d'énergie renouvelables (2009/28/CE). Ce serait condamner un secteur industriel en développement, créateur d'emplois et source d'innovation.

Même si la production alimentaire reste le premier objectif de l'agriculture européenne, nous souhaitons souligner que :

1. l'agriculture européenne n'utilise pas toutes les terres arables disponibles ;
2. des co-produits utilisés dans l'alimentation animale (tourteaux, drêches, pulpes) sont issus de la production des biocarburants. Il s'agit d'aliments riches en protéines et en énergie, qui se substituent aux tourteaux de soja traditionnellement importés du continent américain ;
3. il existe des causes beaucoup plus évidentes de changement d'affectation des terres que les biocarburants, en particulier l'artificialisation des terres agricoles au profit de l'urbanisation et des infrastructures routières ;
4. les mesures mises en œuvre par les gouvernements des pays tiers pour protéger l'environnement donnent des résultats. Le ralentissement significatif de la déforestation des forêts tropicales humides au Brésil témoigne de l'efficacité des mesures prises par le gouvernement brésilien.

Nous ne pouvons accepter de sacrifier la production européenne de biocarburants sur la base d'un phénomène de changement indirect d'affectation des terres qui repose sur des modèles imprécis et contradictoires. D'autant plus que la durabilité des biocarburants européens est garantie par la mise en œuvre par les Etats membres de critères les plus stricts au monde, établis par les articles 17.2 et 17.6 de la Directive 2009/28/CE.

./.

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Pour lutter contre les changements d'affectation des terres, l'UE devrait promouvoir de manière bilatérale et multilatérale une protection environnementale appropriée dans les régions du monde touchées par ce phénomène.

Dans cet esprit, les filières bioéthanol et biodiesel françaises ont pris position dans un livre blanc sur les biocarburants qu'elles ont publié en février 2012. Elles proposent la création, sur le modèle du GIEC, d'une instance internationale habilitée à observer les utilisations des terres sur la planète et à évaluer l'ensemble des politiques pouvant avoir un impact sur l'utilisation des sols.

Nous vous prions de croire, Monsieur le Commissaire, à l'assurance de notre haute considération.