

Message

From: Maciolek Natalie - Attorney [Natalie.Maciolek@kohler.com]
Sent: 4/16/2018 10:21:28 PM
To: Woods, Clint [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bc65010f5c2e48f4bc2aa050db50d198-Woods, Clint]; Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
CC: Robinson Buddy [Buddy.Robinson@kohler.com]; Schreiber, Thomas B (57936) [tbschreiber@michaelbeststrategies.com]
Subject: Thank You

Clint and Justin,

Thank you for talking with us today about Kohler Co.'s concerns with the proposed non-attainment designation for Sheboygan County, Wisconsin, for the 2015 Ozone NAAQS. We know your time is valuable, and we appreciated the opportunity to discuss our company's manufacturing operations, and the impact this designation would have on us. We also appreciated your indulgence in allowing us to provide an update on our ongoing dialogue with the EPA about the Clay MACT Rule, which uniquely impacts our company.

If you have any further questions about the information we provided, please let us know.

Best regards,
Buddy and Natalie

Natalie Maciolek
Lead Attorney

Office:
Mobile:
Email: Natalie.Maciolek@kohler.com
444 Highland Drive | Kohler | WI | 53044

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Message

From: Whitfield, Peter [pwhitfield@sidley.com]
Sent: 4/19/2018 11:09:37 PM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
Subject: Automatic reply: Meeting next week

I am out of office today. If you need to contact me please call my mobile number at: Ex. 6

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Message

From: Whitfield, Peter [pwhitfield@sidley.com]
Sent: 4/13/2018 9:05:58 PM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
Subject: Sec. 126 extension
Attachments: 2018.04.13 Letter to USEPA re Section 126.pdf

Justin,
Sending you a copy of the letter that was just put in the mail today. Let me know if you have questions.

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005
Direct: **Ex. 6**
Mobile: **Ex. 6**
pwhitfield@sidley.com
www.sidley.com

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U.S. CHAMBER OF COMMERCE

1615 H Street, NW
Washington, DC 20062-2000
www.uschamber.com

April 13, 2018

By Electronic Mail and First-Class Mail

Mr. William Wehrum
Assistant Administrator, Office of Air and Radiation
USEPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Avenue, N.W.
Mail Code: 1101A
Washington, DC 20460

Mr. Matthew Leopold
General Counsel
USEPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Avenue, N.W.
Mail Code: 2310A
Washington, DC 20460

Dear Messrs. Wehrum and Leopold:

I write on behalf of the U.S. Chamber of Commerce (the "Chamber") to request that the U.S. Environmental Protection Agency ("EPA" or "Agency") extend the review period for the State of New York's Clean Air Act Section 126 petition in order to afford the public the right to participate fairly and fully in the process leading up to the agency's decision. See New York State Petition for a Finding Pursuant to Clean Air Act Section 126 (Mar. 12, 2018) (the "Petition").

The Chamber is the world's largest business federation. The Chamber represents 300,000 direct members and indirectly represents the interests of more than three million companies and professional organizations of every size, in every industry sector, and from every region of the country, as well as state and local chambers and industry associations. The Chamber is dedicated to promoting, protecting, and defending America's free enterprise system. To this end, the Chamber regularly comments and engages the Agency on regulatory matters of interest to the business community.

New York's Petition seeks to invoke Section 126 of the Clean Air Act ("CAA" or "Act") to compel EPA to either order the shutdown of over 350 specific facilities or impose additional, unnecessary, burdensome and costly limits on nitrogen oxide ("NOx") emissions from these

facilities in a nine-state area. Several of these targeted sources are Chamber members who are just learning of the Petition.

While the Petition is both legally and technically deficient, New York's proposed schedule for EPA's resolution of the Petition would violate our members' right to participate meaningfully in the process. Citing Section 126(b) of the CAA, New York requests that EPA grant its Petition within sixty days. However, that timeline ignores the magnitude of New York's request and the technical and legal issues on which the public should be afforded a meaningful opportunity to review and comment. Section 307(d) of the Act allows EPA to extend the deadline for responding to the Petition by six months upon a finding that an extension is "necessary to afford the public, and the agency, adequate opportunity to carry out the purposes of this subsection." See 42 U.S.C. §§ 7607(d)(1)(N), (d)(10). Section 307(d) provides procedural protections beyond those offered by the Administrative Procedure Act to allow meaningful public engagement in light of the societal significance of issues under the Act. See *Union Oil Co. of California v. EPA*, 821 F.2d 678, 682 (D.C. Cir. 1987).

An extension of at least six months is necessary for several reasons.

New York's Section 126 Petition is Unprecedented in Scope. The Petition targets every stationary source in a nine-state area that it alleges emits 400 tons per year or more of NO_x, resulting in New York naming over 350 sources in its Petition. The appendices to the Petition also lists dozens of other sources below the 400 ton per threshold, but without any explanation of why New York chose to include them. The breadth of the Petition suggests that it might impact other currently unnamed sources. The relevant named facilities span a range of industry sectors, including cement, chemicals, electric generation, midstream oil and gas, paper, refining and steel. Prior petitions have focused on electric generating units, with most petitions targeting only a single power plant in a single state. The analysis for a multi-sector rulemaking spanning several states is far more complex than a single-site assessment. Indeed, the last Section 126 rulemaking that the agency conducted in parallel with the NO_x SIP Call took several years to prepare and finalize.

The Petition Breaks from Prior EPA Models, Emissions Inventories and Methodologies. EPA recently performed complex air quality modeling in support of the Cross State Air Pollution Rule Update (CSAPR Update), using the CAMx 2017 Source Apportionment Model. That modeling included the nine-state area and the sources named in New York's Petition. Rather than using that EPA modeling, however, New York conducted its own assessment using a different model, "CMAQ." The CMAQ modeling runs did not use the same emissions inputs as EPA's CAMx modeling. Instead, New York relied on a regional organization's emissions inventory, the MARAMA 2017 Beta Emissions Inventory. In analyzing its modeling, the Petition used a different approach than used by EPA for calculating ozone contributions, and it used a novel metric to assess whether NO_x emissions contribute to ozone in New York monitors. Our initial technical review of New York's Petition suggests that it suffers from several technical defects, such as overinflating emissions from numerous facilities and inclusion of monitors that show attainment with the ozone standard due to CSAPR and other regulations. However, New York's new modeling runs, data and methodologies are not publicly available in a form that

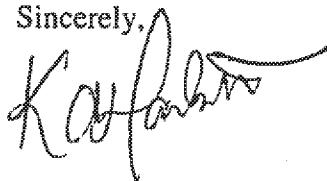
would allow the Chamber and its members to review and assess its validity in a robust and methodological fashion, so our initial technical review is limited. The analysis of New York's modeling and data – once secured – can take months. Additionally, the Data Quality Act and EPA's Information Quality Guidelines require information EPA relies upon to support its decisions to be accurate and reliable. EPA Office of Env'tl. Info., "Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency" (EPA/260-R-02-008), § 5.3 (Oct. 2002). EPA cannot meet this requirement until it has obtained and can review New York's modeling and data. Reviewing the analysis underlying the Petition requires additional time in the petition process.

New York's Novel Theory of RACT. In its Petition, New York requests that EPA impose Reasonably Available Control Technology ("RACT") on the named sources based on New York's opinion of what constitutes RACT. Specifically, New York defines RACT as NOx limits that cost as much as \$5,000 per ton, based on how New York implements and enforces RACT within its borders. Significant constitutional and statutory issues are raised by New York's attempt to apply its definition of RACT extra-territorially. New York's opinion of RACT is more than three times higher than the \$1,400 per ton cost threshold used in the CSAPR Update to identify cost-effective NOx controls for electric generating units, which tend to be much larger emitters than other industrial sources. Likewise, the Petition departs from past EPA precedent because it rejects using ozone budgets and NOx trading, policy options that EPA has used in prior transport rulemakings to drive down costs. New York, instead, insists on continuous emission limits using a 24-hour averaging time. The legal and technical analysis of New York's novel RACT theory will necessarily require more time, particularly when analyzing multiple industry sectors spread across nine states.

EPA's Existing Section 126 Docket Commands a Significant Share of Agency Resources. At least six other Section 126 petitions are pending. Each depends on complex photochemical modeling, which is a time-intensive analytical tool. In light of the existing docket, an extension is necessary.

Based on the above, we are requesting that EPA exercise its authority to extend the review period by six months. We appreciate your consideration of this request. Please contact my colleague Michael Schon, Deputy Chief Counsel, U.S. Chamber Litigation Center, at Ex. 6 Ex. 6 if you have any questions.

Sincerely,



Karen A. Harbert
President and CEO
Global Energy Institute
U.S. Chamber of Commerce

CC: Mr. Justin Schwab, Deputy General Counsel, USEPA

From: Adam Gustafson [gustafson@boydengrayassociates.com]
Sent: 5/31/2018 10:15:10 PM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
Subject: Re: Lifecycle analysis
Attachments: 2-23-18 LCA update request letter to Pruitt.pdf; 3-26-18 USEPA response letter RE LCA update request letter to Pruitt from NCGA and 18 states.pdf; UAI Comment on 2018 RFS Rule.pdf

Justin,

Thank you for your time today. Here is the letter I mentioned concerning lifecycle analysis in the Triennial Report to Congress from several state corn growers associations and the National Corn Growers Association.

The second attachment is a response from Karl Simon at OTAQ.

We appreciate Mr. Simon's acknowledgement that "new research since the 2010 LCA has improved our understanding of biofuel lifecycle GHG emissions," and we are glad that his letter does not rule out the possibility of an updated lifecycle analysis in the forthcoming Triennial Report to Congress.

But the overall thrust of Mr. Simon's letter gives the impression that OTAQ has no intention of updating its lifecycle analysis. Indeed, that is what OTAQ told EPA's Inspector General in 2016. The IG noted that "ensuring the GHG lifecycle analysis is current could provide other benefits, such as informing EPA's decisions on setting RFS volumes after 2022." (IG Report No. 16-P-0275, at 9). Lifecycle analysis is also relevant to the mandatory consideration of "climate change" in any reset of the statutory volumes before 2022. 42 U.S.C. § 7545(o)(2)(B)(ii), *cited in* 42 U.S.C. § 7545(o)(7)(F).

Mr. Simon's letter seems to be based on some significant misunderstandings:

- Both the Department of Energy's GREET model and USDA's study include land-use change emissions, as required by the Clean Air Act's definition of "lifecycle greenhouse gas emissions." 42 U.S.C. § 7545(o)(1)(H).
- That law does not require any particular methodology, and USDA's report uses the same lifecycle emission categories as EPA's 2010 lifecycle analysis.
- Mr. Simon says that "given the inherent uncertainty associated with modeling of indirect emissions, the overall conclusions we can draw from this body of modelling have not changed." To the contrary, new empirical data proves that EPA's modeling grossly overestimated corn ethanol's effect on indirect land-use change and other factors. The third attachment is our comments addressing this new data.
- The GTAP-BIO model has been updated significantly since EPA declined to use it in 2010. By contrast, EPA's own land-use change model has not been revised, despite contrary evidence.

- Mr. Simon's view that EPA's lifecycle analysis "may not apply to other situations or policies" has not stopped foreign countries from restricting their imports of U.S. ethanol based on EPA's outdated science.

Thanks again.

Adam

From: Adam Gustafson <gustafson@boydengrayassociates.com>
Date: Thursday, May 31, 2018 at 10:07 AM
To: "Schwab, Justin" <Schwab.Justin@epa.gov>
Subject: Re: Lifecycle analysis

Will do. Here is a 3-page memo.

From: "Schwab, Justin" <Schwab.Justin@epa.gov>
Date: Thursday, May 31, 2018 at 10:03 AM
To: Adam Gustafson <gustafson@boydengrayassociates.com>
Subject: RE: Lifecycle analysis

If you call me that'll probably be best. There is one looming issue that could ripen in which case we will have to reschedule, but I am hopeful that will not happen.

From: Adam Gustafson [mailto:gustafson@boydengrayassociates.com]
Sent: Thursday, May 31, 2018 8:16 AM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Subject: Re: Lifecycle analysis

I look forward to it. Shall I meet you in your office or call you at that number?

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From: Schwab, Justin <Schwab.Justin@epa.gov>
Sent: Thursday, May 31, 2018 8:08:13 AM
To: Adam Gustafson
Subject: RE: Lifecycle analysis

Hello, Adam. I could talk between 2 and 3. The best number to reach my is my government cell

Ex. 6

From: Adam Gustafson [mailto:gustafson@boydengrayassociates.com]
Sent: Wednesday, May 30, 2018 5:26 PM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Subject: Lifecycle analysis

Justin,

Stephen mentioned that he spoke with you about lifecycle analysis recently and recommended that I follow up with you. Do you have any time available tomorrow (Thursday) after 2pm or just about any time Tuesday-Friday next week? I look forward to catching up.

Adam

Ex. 6

February 23, 2018

Administrator Scott Pruitt
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460

Dear Administrator Pruitt:

We respectfully request the Environmental Protection Agency (EPA) adopt an updated lifecycle analysis for corn ethanol. EPA's lifecycle analysis was originally established in 2009 and published in the regulatory impact analysis to a 2010 Renewable Fuel Standard (RFS) rule; this analysis does not reflect improvements in corn and ethanol production since then. Adopting an updated analysis would help fulfill the Trump Administration's pledge to rely on sound science and transparency. Over the last eight years, our organizations and others appealed to the previous administration and the career experts at EPA to update these numbers to no avail.

EPA's forthcoming Triennial Report to Congress offers a new opportunity for the Agency to correct these outdated estimates and take advantage of recent lifecycle analysis updates completed by other federal agencies and university researchers. The U.S. Department of Energy (DOE), through Argonne National Laboratory, and the U.S. Department of Agriculture have both been working on updating the input data for corn and ethanol production, improving models, vetting the results, and using the latest analytical resources to develop the most accurate lifecycle numbers possible. Many universities such as Purdue, the University of Illinois at Chicago, and Iowa State show similar improvements. Most of these recent modeling results have been published in peer-reviewed journals.

While lifecycle analysis for corn ethanol may seem less important now for the administration of the RFS, the lifecycle values of biofuels have become very important in global ethanol export markets. EPA's outdated life cycle estimates may now seriously impact corn ethanol exports to foreign markets such as Japan, Brazil, Europe, and South Korea, which are establishing their own greenhouse gas (GHG) standards and/or evaluating ethanol imports based on EPA's outdated lifecycle numbers. Specifically, in the short term, if these numbers are not updated, the United States risks losing export opportunities to competing sugarcane ethanol from Brazil.

For example, the United States recently had the opportunity to compete for ethanol as a feedstock for ETBE exports to Japan. The U.S. Grains Council (in cooperation with agribusiness groups, ethanol organizations, and with university input) demonstrated the significant improvements in the lifecycle emissions of corn ethanol over the past decade, using both the USDA lifecycle analysis estimates and the DOE Argonne model. Due to the differences in the more recent lifecycle analysis from USDA and the outdated estimates from EPA, the U.S. ethanol industry spent additional resources to educate the Japanese authorities on the discrepancies between the USDA and EPA lifecycle analyses. Ultimately, Japanese authorities

accepted the USDA methodology. Attached to this letter is a table used in Japan's original analysis of corn-based ethanol.

As you may know, Brazil became our largest foreign market for corn ethanol in 2016 and remained our largest market in 2017, importing 446 million gallons. Unfortunately, in a move to limit U.S. access to its market, Brazil has implemented a tariff rate quota (TRQ) for ethanol imports. With the TRQ, a tariff is applied to purchases from the U.S. after a 150 million liter (39.6 million gallon) per quarter quota is met.

The original argument for a tariff was based on Brazil's purported interest in reducing carbon emissions from fuel. Brazilian regulators used the 2010 study from the EPA website to arrive at an estimated duty rate slightly below 20 percent. If Brazil had used figures from the USDA study released in December 2016, the same Brazilian formula results in a tariff of just 2.7 percent. The outdated EPA numbers hold the potential to reduce ethanol export opportunities and negatively impact U.S. jobs and the rural economy.

Outdated data and poor models could cause the U.S. corn and ethanol producers to lose market access. These losses will further the economic crisis for corn growers currently struggling with stagnant demand and low prices. Countries that are establishing carbon standards realize that blending ethanol has major GHG reducing impacts and will move to encourage its usage. GHG criteria are important to work the U.S. ethanol industry is carrying out in Colombia, Japan, the EU, and Canada. We expect even more countries will examine the GHG reducing properties of ethanol over the next few years, but they will not choose U.S. ethanol when they rely on the 2010 EPA lifecycle analysis.

We encourage your agency to adopt either DOE/Argonne's latest published results or USDA's recently reported data. We would also be pleased to work with you and your staff to provide information regarding improvements in corn production to help inform EPA's forthcoming Triennial Report.

Sincerely,

Mike Lefever
Colorado Corn Administrative Committee President

Dave Eckhardt
Colorado Corn Growers Association President

Aron Carlson
Illinois Corn Growers Association President

Paul Jeschke
Illinois Corn Marketing Board Chairman

Sarah Delbecq
Indiana Corn Growers Association President

Mark Recker
Iowa Corn Growers Association President

Dennis McNinch
Kansas Corn Commission Chairman

Ken McCauley
Kansas Corn Growers Association President

Mark Roberts
Kentucky Corn Growers Association

Jason McConnachie
Michigan Corn Growers Association President

Kirby Hettver
Minnesota Corn Growers Association President

Kyle Kirby
Missouri Corn Growers Association President

David Merrell
Nebraska Corn Board Chairman

Dan Wesely
Nebraska Corn Growers Association President

Carson Klosterman
North Dakota Corn Growers Association President

Jed Bower
Ohio Corn and Wheat Growers Association President

Troy Knecht
South Dakota Corn Growers Association President

Casey Kelleher
Wisconsin Corn Growers Association President

Kevin Skunes
National Corn Growers Association President

Encl.: Basic Concepts of GHG Emission Reduction Requirement
cc: Secretary Sonny Perdue, U.S. Department of Agriculture
Secretary Rick Perry, U.S. Department of Energy

Basic Concepts of GHG Emission Reduction Requirement

- It is important to establish the GHG emission reduction requirement that is at least targeting CO2 reduction not weaker than other countries, and that possess sufficient effects from the point of efficient biomass utilization.
- Taking into consideration availability of biofuel meeting the requirement, it is decided to be up from 50% gasoline equivalent to 55% gasoline equivalent.

		Values when the current requirements were established (2011)	At present (January 1, 2018 for EU)
Europe and the U.S.	Europe (RED)	35%	50% (Plant built before October 5, 2015) 60% (Plant built before October 5, 2015)
	UK (RTFO)	50%	Same as RED
	US (RFS2)	Existing: 20% Next generation: 50-60%	No changes of the requirements but the target volume of advanced biofuel introduction has been increasing
Japan	GHG emission reduction by woodchip biomass generation	42.8 gCO2/MJ (52.4% reduction compared with gasoline)	47.5 gCO2/MJ (56.5% reduction compared with gasoline)
	Available biofuel	Brazil	Brazil U.S. (domestic next generation)

Summary on the Concept of Proposed Standards (Public Notice) for the Next Policy

- The term for the next policy will be 5 years (2018-2022) with the target volume of bioethanol introduction will be 500,000 KL gasoline equivalent each year.
- The new LCA assessment value for GHG emission (standard value) for U.S. corn bioethanol will be newly established.
- The GHG emission reduction requirement will be raised from 50% gasoline equivalent to 55% gasoline equivalent, in order that at least targets CO2 reduction not weaker than other countries, and that possesses sufficient effects from the point of efficient biomass utilization.
- From the point of view of competition with food crops and self-sufficiency, development of domestic next generation biofuel will be continued.
- The target volume and required policy will be determined in the next minor revision scheduled to be early 2020.

The treatment of biodiesel and other biofuel will continue to be discussed.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

RECEIVED
APR 04 2018

MAR 26 2018

BY:

OFFICE OF
AIR AND RADIATION

Ms. Tricia Braid
Illinois Corn Communications Director
14129 Carole Drive
Bloomington, Illinois 61705

Dear Ms. Braid:

Thank you for your letter of February 23, 2018, on behalf of 19 signators to U.S. Environmental Protection Agency Administrator E. Scott Pruitt requesting that EPA adopt an updated analysis of the lifecycle greenhouse gas (GHG) emissions associated with corn starch ethanol. The Administrator requested that I respond on his behalf.

The Office of Transportation and Air Quality is responsible for implementing the Renewable Fuel Standard (RFS) program, including evaluation of biofuel lifecycle GHG emissions. Your letter says that EPA's lifecycle analysis of corn ethanol for the March 2010 Renewable Fuel Standard (RFS) rule (the "2010 LCA") is outdated and needs to be updated to reflect improvements in corn and ethanol production. However, for many of the reasons alluded to in your letter, the direct impacts of modifying our corn starch LCA on the RFS program may be quite limited due to the "grandfathering" exemptions and other definitions contained in the Clean Air Act (CAA):

- **The vast majority of corn starch ethanol currently produced in the U.S. is exempt from the 20 percent GHG reduction requirement to qualify as renewable fuel.¹ CAA 211(o)(2)(A)(i) and 40 CFR 80.1403(d) exempt from the GHG requirements renewable fuel produced at facilities that commenced construction after December 19, 2007, or at ethanol plants fired by natural gas or biomass that commenced construction prior to December 31, 2009.**
- **Modifying the 2010 LCA would have no direct impact on the RFS status of existing ethanol plants, even those that are not grandfathered.** Under CAA 211(o)(4)(G), any change in analytical methodology compared to the 2010 LCA, "shall only apply to renewable fuel from facilities that commence construction after the effective date of such adjustment, revision, or change."

¹ In 2017, 14.86 billion RINs were generated for conventional (D-code 6) ethanol. Technically, not all of this ethanol was produced from corn starch (it could be from other starches such as sorghum). Of those 14.86 billion RINs, 13.24 billion or 89% were generated using a grandfathered pathway.

- **The vast majority of corn starch ethanol already qualifies for the only RFS fuel category for which it is eligible.** The definition of advanced biofuel at CAA 211(o)(1)(B)(i) excludes “ethanol derived from corn starch.” As described above, a large volume of ethanol is exempt from the GHG requirements to qualify as renewable fuel. Many producers who are expanding beyond their grandfathered baseline capacity have been approved under our expedited Efficient Producer Petition Process.²

While we appreciate the point raised in your letter that other countries may use EPA’s analysis to justify tariffs or limit exports from the U.S., it is important to note that the 2010 LCA was designed to meet the requirements specified in the CAA. The CAA definition of lifecycle greenhouse gas emissions includes “significant indirect emissions such as significant emissions from land use changes.” The scenarios considered for the 2010 LCA were specifically designed to evaluate corn starch ethanol used under the RFS program, and may not apply to other situations or policies. Other countries or jurisdictions reviewing EPA’s 2010 LCA as part of their policy formation should do so carefully and appreciate its original purpose and scope. Your letter encourages EPA to adopt either “DOE/Argonne’s latest published results or USDA’s recently reported data.” Both of these studies rely on the GTAP-BIO model to estimate indirect land use change (ILUC) GHG emissions associated with corn ethanol. For many of the reasons described in the March 2010 rulemaking, we continue to believe there are important limitations of the GTAP-BIO model that make it ill-suited for conducting the type of lifecycle analysis required under the CAA. We also note that the USDA report and the DOE/Argonne analyses used a different methodology than EPA’s 2010 LCA, and it is not clear whether those studies satisfy the definition of lifecycle GHG emissions required by the CAA.

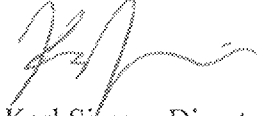
EPA continues to monitor the science regarding lifecycle GHG emissions associated with biofuels. Overall, new research since the 2010 LCA has improved our understanding of biofuel lifecycle GHG emissions, but given the inherent uncertainty associated with modeling of indirect emissions, the overall conclusions we can draw from this body of modelling have not changed. As we do lifecycle assessments for new fuel pathways, the most recent science and data are incorporated where possible. For example, EPA has updated the analysis to reflect new data on forest carbon stocks, projected yields, and agricultural inputs as appropriate. Our analyses have also incorporated advances in process technology efficiencies as biofuel facilities demonstrate improvements in their GHG emissions.

Your letter states that EPA’s forthcoming Triennial Report to Congress “offers a new opportunity” to update our LCA of corn ethanol. The Agency is currently working to complete, in the spring of 2018, the report to Congress required under Section 204 of the Energy Independence and Security Act of 2007 (EISA). It is too early to comment on the contents of the forthcoming report.

² For more information on the Efficient Producer Petition Process, see: <https://www.epa.gov/renewable-fuel-standard-program/how-prepare-efficient-producer-petition-under-renewable-fuel>

Thank you for your continued interest in RFS program. Please do not hesitate to contact me if you have any questions regarding this matter.

Sincerely,

A handwritten signature in black ink, appearing to read 'K. Simon', with a long horizontal flourish extending to the right.

Karl Simon, Director
Transportation and Climate Division

Comments of
URBAN AIR INITIATIVE,
CLEAN FUELS DEVELOPMENT COALITION, 25x'25 ALLIANCE,
NEBRASKA ETHANOL BOARD, and
NEBRASKA ETHANOL INDUSTRY COALITION

On the U.S. Environmental Protection Agency's Proposed Rule

RENEWABLE FUEL STANDARD PROGRAM:
STANDARDS FOR 2018
AND BIOMASS-BASED DIESEL VOLUME FOR 2019

Docket ID No. EPA-HQ-OAR-2017-0091

82 Fed. Reg. 34,206 (July 21, 2017)

by C. Boyden Gray
Adam R.F. Gustafson
Andrew R. Varcoe
James R. Conde
BOYDEN GRAY & ASSOCIATES PLLC
801 17th Street NW, Suite 350
Washington, DC 20006

Ex. 6

August 31, 2017

gustafson@boydengrayassociates.com

EXECUTIVE SUMMARY

Urban Air Initiative, Clean Fuels Development Coalition, 25x'25 Alliance, Nebraska Ethanol Board, and Nebraska Ethanol Industry Coalition (Commenters) respectfully submit these comments on the United States Environmental Protection Agency's Proposed Rule: *Renewable Fuel Standard Program: Standards for 2018*. In the Proposed Rule, EPA continues to ignore new data concerning ethanol's lifecycle emissions of greenhouse gases (GHG). EPA last conducted a lifecycle analysis (LCA) in its regulatory impact analysis accompanying the 2010 Renewable Fuel Standard (RFS) Rule. Seven years later, EPA continues to rely on its outdated 2010 LCA to meet its cost-benefit analysis obligations and to approve pathways under the RFS.

Despite EPA's recognition that the Proposed Rule is "an economically significant regulatory action," EPA admits that it "ha[s] not quantified benefits for the 2018 proposed standards." EPA is required by Executive Order to "use the best available techniques to quantify anticipated present and future benefits and costs as accurately as possible." But the Proposed Rule offers merely an "illustrative" analysis of costs limited to wholesale fuel costs and justifies its failure to conduct a full cost-benefit analysis by pointing to the 2010 LCA. This does not satisfy EPA's cost-benefit obligation, because the Agency has failed to update the 2010 LCA, despite "committing" in 2010 "to further reassess . . . the lifecycle estimates."

In addition, EPA's continued reliance on its outdated 2010 LCA increases RFS compliance costs by making it harder for existing ethanol producers to qualify under the 20% threshold needed to generate non-grandfathered RINs.

EPA's continued reliance on the 2010 LCA is improper. The best available science shows that blending ethanol into gasoline reduces emissions of GHGs far more than EPA projected in 2010. In particular, new evidence shows that:

- Increased demand for corn causes much less land-use change and related emissions than EPA predicted in 2010. This evidence includes improved economic models and newly available land-use data from periods of increasing corn ethanol production, which show significant increases in yield but no significant increases in forest conversion.

- Improved agricultural practices and technologies are substantially reducing the carbon intensity of ethanol by increasing the soil carbon that is captured from the atmosphere by the corn plant and retained deep below ground. This evidence includes a growing body of science demonstrating that conservation tillage practices sequester more carbon in the soil than previously thought. In fact, the evidence suggests that many corn fields are net carbon “sinks,” capturing more carbon than land-use change and corn farming releases.
- More efficient agricultural practices and technologies have reduced nitrogen fertilizer losses of the greenhouse gas nitrous oxide (N₂O), and updated guidance has reduced the weight given to N₂O compared to other GHG pollutants.
- Ethanol plants have become much more efficient, as yields have continued to increase. Ethanol plants are also producing new co-products that reduce the carbon intensity of ethanol. In addition to distillers’ grains, used as animal feed, ethanol plants now produce corn oil, which replaces soy-based biodiesel.
- By contrast, petroleum-based fuels are becoming increasingly carbon-intensive. As a result, the gasoline carbon intensity baseline is higher than EPA suggested, increasing the comparative benefit of corn ethanol.

* * *

A review of the scientific literature confirms that EPA fundamentally erred in the conclusions it reached in 2010 about the lifecycle GHG emissions of corn ethanol. A recent study by the Department of Agriculture estimates that corn ethanol produces 43% and 48% less greenhouse gas emissions than EPA’s gasoline baseline, in 2014 and 2022, respectively, without fully accounting for soil carbon sequestration. But despite a growing body of updated scientific studies, EPA continues to rely on its 2010 LCA in the Proposed Rule. We urge EPA to correct its 2010 LCA or adopt USDA’s updated model and to conduct a new cost-benefit analysis in light of the best available science.

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INTRODUCTION

In 2010, EPA conducted a comprehensive lifecycle analysis of corn ethanol and gasoline in support of its RFS program (2010 LCA).¹ EPA's 2010 LCA included GHG emission inventories based on future industry projections and the scientific evidence available at the time.² As EPA noted, that data was subject to many uncertainties.³ EPA "recognize[d] that as the state of scientific knowledge continues to evolve in this area, the lifecycle GHG assessments for a variety of fuel pathways will continue to change."⁴ EPA therefore committed to "further reassess . . . the lifecycle estimates" on an ongoing basis,⁵ and to incorporate "any updated information we receive into a new assessment of the lifecycle GHG emissions performance of the biofuels being evaluated in [the 2010] rule."⁶

As EPA predicted in 2010, new science now shows that its past projections no longer represent "the best available information."⁷ As summarized in a recent lifecycle analysis report commissioned by the Department of Agriculture (USDA), "a large body of information has become available since 2010—including new data,

¹ See Renewable Fuel Standard Program, Regulatory Impact Analysis (2010) [hereinafter 2010 RFS RIA]. The Energy Independence and Security Act requires EPA to estimate lifecycle emissions, including emissions from land-use change. See 42 U.S.C. § 7545(o)(1)(H).

² Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program, 75 Fed. Reg. 14,670, 14,785 (Mar. 26, 2010) [hereinafter 2010 RFS Rule] (representing that the 2010 LCA included the "most up to date information currently available on the GHG emissions associated with each element of the full lifecycle assessment.").

³ *Id.* at 14,677, 14,765, 14,785. To illustrate the magnitude of EPA's scientific uncertainty, while EPA estimated a GHG reduction of 21% for corn ethanol in 2022 using advanced pathways, EPA's "95% confidence interval" ranged from a 7% to a 32% reduction. *Id.* at 14,786.

⁴ *Id.* at 14,765.

⁵ *Id.* at 14,765 ("Therefore, while EPA is using its current lifecycle assessments to inform the regulatory determinations for fuel pathways in this final rule, as required by the statute, the Agency is also committing to further reassess these determinations and lifecycle estimates."); *accord id.* at 14,785.

⁶ *Id.*

⁷ 2010 RFS Rule, *supra* note 2, 75 Fed. Reg. at 14,785.

scientific studies, industry trends, technical reports, and updated emission coefficients—that indicates that . . . actual emissions . . . differ significantly from those projected” by EPA’s 2010 LCA.⁸ As the USDA study demonstrates, corn ethanol results in less GHG emissions than EPA predicted in its 2010 LCA. Thus, the best available science demonstrates that blending ethanol into gasoline lowers GHG emissions.

But despite this growing body of evidence, and despite EPA’s assurances that it would reassess its initial estimates as the science evolved, the Proposed Rule fails to update EPA’s 2010 cost-benefit analysis to include updated lifecycle emissions information. Instead of performing a comprehensive cost-benefit analysis based on the best available science, the Proposed Rule provides an “illustrative cost analysis for the proposed reductions” based solely on wholesale fuel costs.⁹ And the Proposed Rule attempts to justify its omission by pointing out that the relevant costs and benefits, including “GHG emissions,” “were analyzed in the 2010 [LCA].”¹⁰

EPA’s failure to update its lifecycle analysis affects more than the cost-benefit analysis of the present rule. EPA also continues to evaluate corn ethanol producer pathway petitions based on the same “feedstock modeling . . . done as part of the March 2010 [LCA].”¹¹ This makes it harder for new producers of renewable fuel to demonstrate their eligibility for RINs under the RFS.

EPA should update its lifecycle analysis to reflect the best available science.

Part I of these comments describes the commenters’ interest in the accuracy of EPA’s lifecycle analysis of ethanol and gasoline. Part II explains how EPA continues to rely on its outdated 2010 LCA. Part III summarizes the best available science on

⁸ ICF, A Life-Cycle Analysis of the Greenhouse Gas Emissions of Corn-Based Ethanol 4–5 (Jan. 12, 2017) [hereinafter 2017 USDA LCA].

⁹ Renewable Fuel Standard Program: Standards for 2018 and Biomass-Based Diesel Volume for 2019, 82 Fed. Reg. 34,206, 34,237 (July 21, 2017) [hereinafter Proposed Rule].

¹⁰ *Id.*

¹¹ EPA, AI-Corn Clean Fuel Pathway Determination under the RFS Program 7 (Aug. 15, 2017) [hereinafter EPA, AI-Corn Determination].

the GHG emission effects of corn ethanol and gasoline and explains why EPA's 2010 LCA is inaccurate.

I. THE COMMENTERS' INTEREST IN EPA'S 2010 LCA

Urban Air Initiative is a non-profit organization dedicated to improving air quality and protecting public health by reducing vehicle emissions. UAI is focused on increasing the use of clean burning ethanol in our gasoline supply to replace harmful aromatic compounds in gasoline. UAI is helping meet public policy goals to lower emissions and reduce carbon in the environment through scientific studies and real-world data to promote new fuels, engine design, and public awareness.

The Clean Fuels Development Coalition was established in 1988 and works with auto, agriculture, and biofuels interests in support of a broad range of energy and environmental programs.

25x'25 Alliance is a national coalition united behind the goal of securing 25 percent of the nation's energy needs from renewable sources by the year 2025. The 25x'25 goal has been endorsed by nearly 1,000 partners, 35 current and former governors, 15 state legislatures and the U.S. Congress through the Energy Independence and Security Act of 2007.

The Nebraska Ethanol Board is a state agency supporting ethanol development programs throughout the state, and assisting the industry with a range of technical, marketing, and regulatory issues.

The Nebraska Ethanol Industry Coalition is a statewide non-profit organization working together on issues of common interest to their members with a particular focus on market development and expansion.

Because the best available science shows that ethanol is cleaner and gasoline dirtier than EPA believed in 2010, EPA's continued use of its 2010 LCA frustrates the commenters' mutual interest in advancing a clean, low-carbon energy future while reducing harmful air pollution.

II. EPA CONTINUES TO RELY ON ITS OUTDATED 2010 LCA.

EPA correctly classifies the Proposed Rule as “an economically significant action” subject to regulatory review under the relevant Executive Orders.¹² Therefore, “in deciding . . . how to regulate[,]” EPA “should assess all costs and benefits of available regulatory alternatives” and “select those approaches that maximize net benefits.”¹³ In assessing the costs and benefits of the Proposed Rule, EPA must “use the best available techniques to quantify anticipated present and future benefits and costs as accurately as possible.”¹⁴ Moreover, EPA must “ensure the objectivity of any scientific and technological information and processes used to support the agency’s regulatory actions.”¹⁵ In short, the Proposed Rule must be “based on the best available science.”¹⁶

But in the Proposed Rule, EPA’s analysis “do[es] not take into consideration the benefits of the program.”¹⁷ Eschewing “comprehensive estimates” of the Proposed Rule’s costs and benefits, EPA offers only simplistic analyses of the cost of producing the additional volumes of ethanol required to be blended with the cost of producing an energy-equivalent amount of gasoline.¹⁸ EPA provides these estimates “solely for the purpose of illustrating how the cost to produce a gallon of ‘representative’ renewable fuels could compare to the costs of producing petroleum fuels”¹⁹—not to assess the actual costs and benefits of its annual standard. For

¹² Proposed Rule, *supra* note 9, 82 Fed. Reg. at 34,243.

¹³ Exec. Order No. 12,866 § 1(a), 3 C.F.R. 638 (1994), *reprinted as amended* in 5 U.S.C. § 601 app. at 45-49 (2006).

¹⁴ Exec. Order No. 13,563 § 1(c), 76 Fed. Reg. 3,821, 3,821 (Jan. 18, 2011).

¹⁵ *Id.* § 5, 76 Fed. Reg. at 3,822.

¹⁶ *Id.* § 1, 76 Fed. Reg. at 3,821.

¹⁷ Proposed Rule, *supra* note 9, 82 Fed. Reg. at 34,238.

¹⁸ *Id.* at 34,237.

¹⁹ *Id.*

analysis of the impacts of the RFS generally, the Proposed Rule directs the reader to EPA's cost-benefit analysis performed "in the 2010 final rulemaking."²⁰

But EPA's cost-benefit analysis was premised on its erroneous 2010 LCA. EPA must update its analysis of the lifecycle emissions of ethanol and gasoline to enable a comprehensive evaluation of the costs and benefits of the Proposed Rule and the RFS program as whole.

In addition, EPA continues to rely on its 2010 LCA to implement the RFS. Under the RFS program, non-grandfathered ethanol fuel must "achieve[] at least a 20 percent reduction in in lifecycle greenhouse gas emissions compared to baseline lifecycle greenhouse gas emissions."²¹

In its March 2010 rule, EPA finalized pathways that corn ethanol producers could use to generate corn ethanol renewable identification number credits under the RFS.²² These pathways are based on EPA's 2010 LCA, which concluded that by 2022, corn ethanol plants using natural gas and corn oil fractionation technology would achieve annual lifecycle greenhouse gas (GHG) emissions savings of only 21% compared to EPA's 2005 gasoline carbon intensity baseline of 93 grams of carbon dioxide equivalent per megajoule (g CO₂e/MJ).²³ By contrast, EPA predicted that grandfathered ethanol plants that do not use advanced technologies would

²⁰ *Id.*

²¹ 42 U.S.C. § 7545(o)(2)(A)(i).

²² 40 C.F.R. § 80.1426(f)(1).

²³ 2010 RFS Rule, *supra* note 2, 75 Fed. Reg. at 14,786 ("The results for this corn ethanol scenario are that the midpoint of the range of results is a 21% reduction in GHG emissions compared to the gasoline 2005 baseline."); 2010 RFS RIA, *supra* note 1, at 469–70. EPA's central estimate of corn ethanol's carbon intensity in 2022 using these technologies was 79 kg CO₂e/mmBTU (million British thermal units), *id.* at 14,788, which is equivalent to 74.9 g CO₂e/MJ. EPA reported the carbon intensity baseline for 2005 gasoline at 98.2 kg CO₂e/mmBTU, which is equivalent to 93.1 g CO₂e/MJ. 2010 RFS RIA, *supra* note 1, at 467.

The conversion factor used to convert kg CO₂e/mmBTU to g CO₂e/MJ is 0.947817. All carbon intensity numbers are rounded to a single decimal.

achieve only a 16.8% reduction in GHG emissions relative to 2005 gasoline.²⁴ EPA continues to use its 2010 LCA to evaluate ethanol producer petitions.²⁵

Over half of the assessed GHG emissions of the typical grandfathered ethanol plant are estimated “upstream emissions” over which these ethanol plants have no control—the emissions from changes in international land-use patterns, as well as domestic farm inputs and emissions from fertilizer.²⁶ This high estimate of upstream emissions makes it more difficult for new corn ethanol producers to qualify to generate non-grandfathered RINs, and this in turn increases the cost of RINs. EPA should update its 2010 LCA to reduce these compliance costs.

III. EPA’S GREENHOUSE GAS EMISSIONS ESTIMATES ARE ERRONEOUS.

While EPA’s findings were doubtful in 2010, they are now demonstrably erroneous, given the wealth of newly available scientific and economic data that undermines EPA’s 2010 LCA. As a lifecycle analysis of corn ethanol GHG emissions commissioned by USDA recently found, “a large body of information has become available since 2010—including new data, scientific studies, industry trends, technical reports, and updated emission coefficients—that indicates that . . . actual emissions . . . differ significantly from those projected” by EPA’s 2010 LCA.²⁷ Using this updated information, USDA’s study—which largely tracks the methodology of EPA’s 2010 LCA—estimates that in 2014 corn ethanol was 43% less carbon-intensive than EPA’s 2005 gasoline baseline, and that corn ethanol’s advantage will grow to 48% by 2022.²⁸ This is a much greater benefit than EPA’s median estimate

²⁴ EPA, *AI-Corn Determination*, *supra* note 11, at 11, Table 2.

²⁵ *Id.*

²⁶ *Id.*; 2010 RFS RIA, *supra* note 1, at 470.

²⁷ 2017 USDA LCA, *supra* note 8, at 4–5.

²⁸ *Id.* at 166. The study estimated corn ethanol’s lifecycle emissions at 55,731 g CO₂e/MMBtu in 2014, equivalent to 52.8 g CO₂e/MJ, *id.* at 151, and at 50,553 g CO₂e/MMBtu in 2022, *id.* at 166, equivalent to 47.9 g CO₂e/MJ.

that corn ethanol will produce only 21% less greenhouse gas emissions than baseline gasoline in 2022.²⁹

Studies by the Department of Energy confirm that EPA's 2010 LCA understates corn ethanol's carbon reduction benefit. The Department of Energy's influential model of transportation sector GHG emissions (the GREET model) estimated a 35% lifecycle GHG emissions reduction for corn ethanol produced in 2015 compared to 2005 gasoline.³⁰ And Department of Energy scientists have suggested that further improvements in corn ethanol production "could render corn ethanol as having a 50% reduction in life-cycle GHG emissions as compared to gasoline."³¹

Corn ethanol's relative carbon intensity is even lower than these numbers suggest, because the carbon intensity of gasoline has increased since 2005, even as ethanol's carbon intensity has steadily fallen.³²

EPA should evaluate the costs and benefits of ethanol blending in light of the best available science concerning the lifecycle emissions of ethanol and gasoline. Section A will address upstream emissions from corn production, including indirect emissions from land-use change, emissions from domestic land-use change, and emissions from domestic and international farm input and fertilizer nitrous oxide

²⁹ 2010 RFS Rule, *supra* note 2, 75 Fed. Reg. at 14,786.

³⁰ See Zhichao Wang et al., *Influence of Corn Oil Recovery on Life-Cycle Greenhouse Gas Emissions of Corn Ethanol and Corn Oil Biodiesel*, 8 *Biotechnol. Biofuels* 178, 178, 183, Fig. 3 (2015) (using GREET2015 to estimate an average corn-ethanol carbon intensity of 62 to 59 g CO₂e/MJ); Susan Boland & Stefan Unnasch, Life Cycle Associates, *GHG Emissions Reductions Due to RFS, LCA.6075.11.2015*, at 9 (2015) (using GREET2015 to estimate an average corn ethanol carbon intensity of 59.2 g CO₂/MJ).

³¹ Wang et al., *supra* note 30, at 186.

³² Amgad Elgowainy et al., *Energy Efficiency and Greenhouse Gas Emission Intensity of Petroleum Products at U.S. Refineries*, 48 *Envtl. Sci. & Tech.* 7612, 7623 (2014) (estimating that the "total life-cycle GHG emissions for gasoline" are 94 g CO₂e/MJ); see also Hao Cai et al., *Well-to-Wheels Greenhouse Gas Emissions of Canadian Oil Sands Products: Implications for U.S. Petroleum Fuels*, 49 *Envtl. Sci. & Tech.* 8219 (2015) (predicting greater emissions due to the growing share of Canadian oil sands gasoline in the U.S. market).

(N₂O) emissions.³³ Section B will address biorefinery emissions. Section C will discuss gasoline’s lifecycle emissions.

A. Corn Production

EPA’s estimate of “upstream emissions” from corn production (and its alleged indirect effects), accounts for the majority of the GHG emissions that the 2010 LCA attributes to corn ethanol.³⁴ Within upstream emissions, international land-use change emissions (ILUC) account for the greatest fraction (40%) of EPA’s estimate of corn ethanol’s carbon intensity, followed by domestic farm input and fertilizer emissions (13%) and international farm input and fertilizer emissions (7%).³⁵ See Figure 1.

New evidence has exposed significant flaws in EPA’s estimate of corn ethanol’s upstream GHG emissions. Updated models and empirical evidence of actual land-use patterns demonstrate that

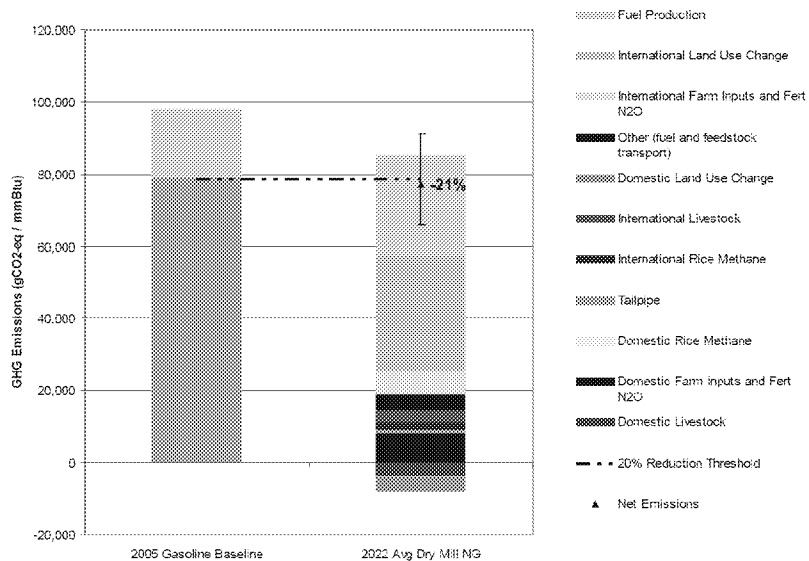


Figure 1: 2010 RFS RIA (Figure 2.6-2)

carbon emissions from land-use change are much lower than the estimate in EPA’s 2010 LCA. EPA’s assessment of domestic and international farm input and fertilizer N₂O emissions, are also outdated and in need of correction. As explained below, correcting these upstream emission estimates based on the updated science noted in

³³ These comments do not address all GHG emission categories included in EPA’s 2010 LCA. For a comprehensive, updated analysis, see 2017 USDA LCA, *supra* note 8.

³⁴ 2010 RFS RIA, *supra* note 1, at 470, Figure 2.6-2.

³⁵ See *id.*

the USDA’s study would reduce EPA’s estimate of corn ethanol’s upstream emissions in these categories from 45.5 g to 11.1 g CO₂e/MJ in 2022—a 76% reduction. See Table 1.

Table 1: EPA Upstream Emissions Compared to Updated USDA Upstream Emissions

Upstream Emissions	EPA 2022 (g CO ₂ e/MJ)	USDA 2014 (g CO ₂ e/MJ)	Δ (g CO ₂ e/MJ)	USDA 2022 BAU (g CO ₂ e/MJ)	Δ (g CO ₂ e/MJ)
ILUC	30.3	1.3	-29.1	1.3	-29.1
Dom. Farm	9.8	8.6	-1.2	7.8	-2
Intl. Farm	5.4	2.1	-3.3	2.1	-3.3
Total	45.5	12.0	-33.6	11.1	-34.4

In addition, EPA’s analysis of domestic land-use change does not account for the adoption of crop management techniques that improve soil carbon sequestration in corn croplands, particularly when combined with corn ethanol’s high yields. Accounting for these practices would further reduce corn ethanol’s emissions.

1. International Land-Use Change Emissions

EPA’s 2010 LCA estimated ILUC emissions for corn ethanol in 2022 at 30.3 g CO₂e/MJ, accounting for 40% of corn ethanol’s estimated carbon intensity.³⁶ As EPA explained, “the majority of international land use change emissions originate in Brazil This is largely as a consequence of projected pasture expansion . . . especially in the Amazon region where land clearing causes substantial GHG emissions.”³⁷ Indeed, in EPA’s 2010 LCA, more than two-thirds of corn ethanol’s predicted ILUC emissions were attributable to predicted land-use changes in Brazil.³⁸

³⁶ 2010 RFS RIA, *supra* note 1, at 407, Table 2.4-47 (estimating ILUC at 31.8 kg CO₂e/mmBTU); 2010 RFS Rule, *supra* note 2, 75 Fed. Reg. at 14,788.

³⁷ 2010 RFS RIA, *supra* note 1, at 470.

³⁸ *Id.* at 470 (showing that 22 out of 31.8 kg CO₂e/mmBTU are attributable to Brazil).

At the time, EPA acknowledged that these results were subject to great uncertainty.³⁹ In fact, the estimates reported in these early analyses were never accurate, and they have since been refuted by the best available science.

Parameters related to intensification, yield improvement, land displacement, and the type of land converted are key drivers of ILUC emissions, but EPA's models failed to accurately reflect these complexities. For example, EPA's ILUC model does not "distinguish what types of land will be affected by a given shock to the agricultural system."⁴⁰ More recent models of indirect land-use change have included "a more detailed assessment of yield improvement, land cover type, soil carbon stocks, and other parameters," resulting in significantly lower estimates of land-use change emissions.⁴¹

EPA's ILUC assessment in 2010 relied on outdated economic models developed by the Food and Agricultural Policy and Research Institute, maintained by the Center for Agricultural and Rural Development (FAPRI-CARD).⁴² EPA also "opted to use the GTAP [Global Trade Analysis Project] model to inform the range of potential GHG emissions associated with land use change resulting from an increase in renewable fuels."⁴³

Since 2010, more accurate land-use change models have shown that EPA's initial estimates were too high.⁴⁴ As one recent study explained, "prior to the last couple of years, there was insufficient data on global land-use change during the

³⁹ 2010 RFS Rule, *supra* note 2, 75 Fed. Reg. at 14,765 ("The indirect, international emissions are the component of our analysis with the highest level of uncertainty.").

⁴⁰ 2017 USDA LCA, *supra* note 8, at 121.

⁴¹ Boland & Unnasch, *supra* note 30, at 20.

⁴² The agency used FAPRI-CARD to model international land-use emissions, and FASOM to model domestic emissions. 2010 RFS Rule, *supra* note 2, 75 Fed. Reg. at 14,768.

⁴³ *Id.* at 14,781.

⁴⁴ See, e.g., Jennifer B. Dunn et al., *Land-use change and greenhouse gas emissions from corn and cellulosic ethanol*, 6 *Biotech. for Biofuels* 51 (2013).

biofuels boom era. However, now we have that data, and it can be used to better calibrate prior estimates of land-use change.”⁴⁵ Accordingly, Purdue’s agricultural economists recalibrated the GTAP model in 2013.⁴⁶ As a result of these changes, the GTAP model now projects “less expansion in global cropland due to ethanol expansion”; a “lower U.S. share in global cropland expansion”; and a “lower forest share in global cropland expansions.”⁴⁷ More recently GTAP analysts have also refined the land carbon stock estimates used by the model.⁴⁸ Department of Energy scientists now say that, in light of GTAP model refinements, a more realistic estimate of corn ethanol’s ILUC emissions is 5.1 g CO₂e/MJ.⁴⁹ EPA’s ILUC estimate should be corrected using the updated GTAP model to accord with the Department of Energy’s estimate.

Even more importantly, EPA failed to account for the intensification of agriculture in its ILUC estimate. Empirical data cited in USDA’s new study has discredited EPA’s predicted ILUC emissions in Brazil and other countries: corn ethanol has not significantly increased deforestation in the Amazon region or elsewhere.⁵⁰ Contrary to EPA’s FAPRI-CARD model predictions, empirical evidence shows that during the period of corn ethanol expansion, Brazilian deforestation actually fell significantly, and farmers responded to changes in price primarily by using available land resources more efficiently—mostly by harvesting

⁴⁵ See, e.g., Farzad Taheripour & Wallace E. Tyner, *Biofuels and Land-use Change: Applying Recent Evidence to Model Estimates*, 3 *Appl. Sci.* 14, 15 (2013).

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ See, e.g., Holly Gibbs et al., *New Estimates of Soil and Biomass Carbon Stocks for Global Economic Models*, Global Trade Analysis Project (GTAP) Tech. Paper No. 33, at 21 (2014), available at <http://bit.ly/1TuJq98>.

⁴⁹ See Jennifer B. Dunn et al., DOE Argonne Nat’l Lab., *Carbon Calculator for Land Use Change from Biofuels Production*, ANL/ESD/12-5, at 25 (2016), available at <http://1.usa.gov/1M84WIT>.

⁵⁰ See 2017 USDA LCA, *supra* note 8, at 60–66.

land more often (“double cropping”)—not expanding acreage.⁵¹ That is particularly true for Brazil.⁵²

EPA’s 2010 LCA, however, does not take into account the “non-yield” intensification of cropland through techniques like double cropping.⁵³ Thus, EPA overstated the carbon intensity of corn ethanol.⁵⁴ As the USDA’s recent lifecycle analysis shows, when the updated 2013 GTAP model is further adjusted to account for this new empirical evidence, ILUC emissions for corn ethanol fall to an almost insignificant 1.3 g CO₂e/MJ.⁵⁵

Despite this new evidence, EPA’s 2016 response to a Request for Correction of Information (RFC) submitted by Urban Air Initiative stated that no correction to its ILUC estimate for corn ethanol was required. The Agency claimed that because “[s]tudies published between 2011 and 2015 vary” widely and EPA’s estimate “is still within the range.”⁵⁶ Six of the twelve studies cited by EPA, however, are European biofuel studies of no apparent relevance to ILUC emissions from corn ethanol produced in the United States.⁵⁷ Another study cited by EPA is based on a 2009 working paper that uses the same erroneous FAPRI-CARD model as EPA’s

⁵¹ *Id.* (citing Bruce A. Babcock & Zabid Iqbal, *Using Recent Land-use Changes to Validate Land-use Models*, 14-SR 109 (2014)).

⁵² *See id.* at 63 (showing that 76% of the increase in harvested land in Brazil is due to changes in double cropping).

⁵³ *See* Babcock & Iqbal, *supra* note 51, at 20–22 (criticizing the FAPRI-CARD model).

⁵⁴ *See id.* (“The pattern of recent land use changes suggests that existing estimates of greenhouse gas emissions caused by land conversions due to biofuel production are too high because they are based on models that do not allow for increases in non-yield intensification of land use. Intensification of land use does not involve clearing forests or plowing up native grasslands that lead to large losses of carbon stocks.”).

⁵⁵ 2017 USDA LCA, *supra* note 8, at 125, Table 3.43 (estimating ILUC emissions at 1,326 g CO₂e/mmBTU).

⁵⁶ EPA, Response to RFC 16003, at 1 (Dec. 8, 2016), *available at* https://www.epa.gov/sites/production/files/2016-12/documents/epa_response_to_rfc_16003.pdf.

⁵⁷ *See id.* at 1, nn. 4, 6, 8, 9, 10, 11 (citing studies).

2010 LCA analysis.⁵⁸ In the other studies EPA cited in its response to the RFC, the mean ILUC emissions are lower than EPA's 2010 estimate.⁵⁹

USDA's study shows that a plausible range of ILUC emissions from corn ethanol based on recent scientific estimates extends from 18.9 g CO₂e/MJ to 1.3 g CO₂e/MJ, significantly below EPA's 2010 LCA estimate of 30.3 g CO₂e/MJ.⁶⁰

2. Domestic Land-Use Change Emissions

In its 2010 LCA, EPA estimated that corn ethanol's domestic land use change emissions would reduce corn ethanol's carbon intensity by 3.8 g CO₂e/MJ.⁶¹ EPA developed its estimate using the Forest and Agricultural Sector Optimization Model designed by Texas A&M.⁶²

This estimate may be too low, because EPA's model assumes corn ethanol is grown with conventional tilling practices.⁶³

Since EPA's 2010 LCA, new evidence has demonstrated that reduced tillage practices—particularly no-till agriculture—significantly increase soil organic carbon in corn soils. A multiyear study of South Dakota surface soil samples (0-15 cm in depth), led by soil scientist David Clay, found clear evidence that no-tillage practices (and higher corn yields) increase soil carbon sequestration.⁶⁴ The study used laboratory surface soil samples submitted by agricultural producers. From the

⁵⁸ *Id.* at 1 n.3 (citing Jerome Dumortier et al., Sensitivity of Carbon Emission Estimates from Indirect Land-Use Change, Working Paper, 09-WP 493 (July 2009), <http://www.card.iastate.edu/products/publications/pdf/09wp493.pdf>.)

⁵⁹ *See id.* at 1, n. 5, 7, 12, 13, 14 (citing studies).

⁶⁰ 2017 USDA LCA, *supra* note 8, at 127, Figure 3-4.

⁶¹ 2010 RFS RIA, *supra* note 1, at 362, Figure 2.4-19.

⁶² *Id.* at 355.

⁶³ 2017 USDA LCA, *supra* note 8, at 155.

⁶⁴ *See* David E. Clay et al., *Corn Yields and No-Tillage Affects Carbon Sequestration and Carbon Footprints*, 104 *Agron. J.* 763 (2012) [hereinafter Clay et al., *Carbon Sequestration*]; *see also* David Clay et al., *Tillage and Corn Residue Harvesting Impact Surface and Subsurface Carbon Sequestration*, 44 *J. Environ. Qual.* 803 (2015) [hereinafter Clay et al., *Tillage and Corn Residue*].

laboratory results, Clay concluded that the soils studied were now net “carbon sinks,” thanks, in part, to the adoption of reduced tillage and no-tillage practices, as well as increased corn crop yields over the years.⁶⁵ Over a period of three years, Clay found that the average carbon sequestration rate was 341 kg of carbon per hectare per year.⁶⁶ Over a longer period of 25 years, Clay concluded that the average carbon sequestration rate was 386 kg of carbon per hectare per year.⁶⁷ This is equivalent to an annual carbon intensity credit of 18.2 CO₂e/MJ for that time period.⁶⁸

Studies of deeper soil samples have shown even greater increases in soil carbon from reduced tillage. For example, a 2012 USDA study collected soil samples from as deep as 150 cm below the surface of experimental no-till fields in Nebraska, measuring changes in soil organic content over nine years.⁶⁹ The study found that improved agricultural management practices can double or even quadruple total soil organic carbon when deep soil is taken into account.⁷⁰ The study found average annual increases of more than 2 metric tons of soil organic carbon per hectare, with over 50% of the carbon sequestered deeper than 30 cm in the soil profile.⁷¹ The sequestration rates found by the study “greatly exceed the soil carbon credits that have been used in modeling studies to date for maize and switchgrass grown for bioenergy.”⁷² Other recent USDA studies have reached similar results.⁷³

⁶⁵ Clay et al., *Carbon Sequestration*, *supra* note 64, at 769.

⁶⁶ *Id.* at 768.

⁶⁷ *Id.*

⁶⁸ See Appendix, *infra* p. 23.

⁶⁹ Ronald F. Follett et al., *Soil Carbon Sequestration by Switchgrass and No Till Maize Grown for Bioenergy*, 5 *Bioenerg. Research* 866, 867 (2012), available at <http://bit.ly/1QIHAPv>.

⁷⁰ *Id.* at 867.

⁷¹ *Id.* at 873.

⁷² *Id.*

⁷³ See Ardel D. Halvorson & Catherine E. Stewart, *Stover Removal Affects No-Till Irrigated Corn Yields, Soil Carbon, and Nitrogen*, 107 *Agron. J.* 1504 (2015).

In light of these studies, EPA should update its lifecycle analysis to include a pathway for corn cultivated with reduced tillage practices.⁷⁴

3. Domestic Farm Inputs and Fertilizer N₂O

According to EPA's 2010 LCA, domestic farm inputs accounted for 9.8 g CO₂e/MJ of corn ethanol's lifecycle emissions in 2022, or 13% of total lifecycle emissions.⁷⁵ A significant fraction of these emissions result from N₂O emissions from the application of nitrogen fertilizer to corn fields, as the applied nitrogen is released as N₂O through a biochemical process of microbial "nitrification" and "denitrification" that is stimulated when nitrogen fertilizer application exceeds plant needs.⁷⁶

EPA's estimate for domestic farm inputs needs correction for at least two reasons. First, it uses outdated U.N. Intergovernmental Panel on Climate Change (IPCC) guidelines to calculate the effect of N₂O emissions on global warming. Second, it ignores available technologies that reduce N₂O emissions by reducing fertilizer losses.

a. The 2010 LCA Uses Outdated IPCC Guidelines.

Because a molecule of N₂O contributes more to climate change than a molecule of CO₂, a conversion factor, known as a global warming potential (GWP), is used to convert N₂O emissions to a CO₂-equivalent.⁷⁷ For its 2010 LCA, EPA used the GWP from the IPCC's Second Assessment Report, which was 310.⁷⁸ This value is outdated. The IPCC's Fourth and Fifth Assessments both recommend a lower GWP of 298 for N₂O, and in 2013, the UN updated its GHG reporting guidelines to

⁷⁴ See Appendix, *infra* p. 55 (estimating carbon intensity credits from several studies).

⁷⁵ 2010 RFS RIA, *supra* note 1, at 334, Table 2.4-13.

⁷⁶ *Id.* at 330, Table 2.4-8.

⁷⁷ *Id.* at 313.

⁷⁸ *Id.* at 313, Table 2.3 3.

require EPA to use a GWP of 298 for N₂O emissions.⁷⁹ Applying this updated GWP would reduce the contribution of N₂O emissions to corn ethanol's lifecycle emissions.

b. The 2010 LCA Ignores Technologies that Reduce Farm N₂O Emissions.

Second, because the EPA's 2010 LCA does not include updated USDA data on farm practices, EPA fails to account for "an increase in crop and nutrient management strategies" that greatly decrease N₂O losses.⁸⁰ The most important technologies that EPA's 2010 LCA ignores are the increased use of nitrification inhibitors to delay the nitrification process, and the use of precision agriculture to optimize fertilizer application and minimize losses to the environment.⁸¹

Studies show that the use of nitrification inhibitors alone can reduce N₂O emissions from fertilizer by 19% to 60%.⁸² But because EPA's 2010 LCA does not include the latest USDA data, it does not include "changes in emissions caused by these increasingly common practices."⁸³

In its recent response to Urban Air Initiative's Request for Correction, EPA stated that no correction to its N₂O emissions estimate for corn ethanol was required because its projected fertilizer application rate for 2022 was not inconsistent with 2010 data.⁸⁴ But application rate is a separate issue from the GHG reductions

⁷⁹ EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2015, 1-9, 1-10 (Apr. 2017).

⁸⁰ 2017 USDA LCA, *supra* note 8, at 15-16.

⁸¹ *Id.* at 15.

⁸² *Id.* at 15-16 (collecting studies).

⁸³ *Id.* at 16.

⁸⁴ EPA, Response to RFC#16003, at 2 (Dec. 8, 2016) (emphasis added).

achieved by nitrification inhibitors, and EPA's data still does not account for the effect of nitrification inhibitors on N₂O losses.⁸⁵

According to the USDA's recent study, an updated lifecycle analysis would yield a domestic farm inputs and fertilizer N₂O emissions value of 8.6 g CO₂e/MJ in 2014.⁸⁶ By 2022, the USDA study estimates these emissions will be even lower, at 7.8 g CO₂e/MJ, a significant reduction relative to EPA's estimate of 9.8 g CO₂e/MJ in 2022.⁸⁷

4. International Farm Inputs and Fertilizer N₂O

In its 2010 RIA, EPA estimated that international farm inputs and fertilizer emissions resulting from its projected increase in corn ethanol would be 5.4 g CO₂e/MJ,⁸⁸ or 7% of total corn ethanol lifecycle emissions, mostly as a result of increased N₂O losses resulting from an increase in crop acreage abroad.⁸⁹

This estimate is too high, for at least two reasons. First, as already mentioned, EPA applied an outdated GWP for N₂O emissions that was too high. Second, the international land-use changes on which EPA's estimate was predicated are based on outdated models, and have not in fact occurred.⁹⁰ The USDA's recent lifecycle analysis estimates a more realistic 2.1 g CO₂e/MJ for international farm inputs and NO₂ emissions from fertilizer, significantly below EPA's 2010 LCA estimate.

⁸⁵ 2017 USDA LCA, *supra* note 8, at 15 (stating that while USDA data "already reflect the effects of precision agriculture through the reduced fertilizer use per bushel of corn harvest . . . use of nitrification inhibitors is not reflected in estimation of N₂O emissions.").

⁸⁶ *Id.* at 95, Table 3-10.

⁸⁷ *Id.* at 157, Table 4-3.

⁸⁸ 2017 USDA LCA, *supra* note 8, at 95, Table 3-47 (reporting EPA's value at 5,720 g CO₂/mmBTU).

⁸⁹ *See* 2010 RFS RIA, *supra* note 1, at 342, Table 2.4-16 (estimating corn ethanol international N₂O emissions at 3.38 kg CO₂e/mmBTU).

⁹⁰ 2017 USDA LCA, *supra* note 8, at 95.

B. Ethanol Fuel Production

In its 2010 LCA, EPA estimated that ethanol fuel production at biorefineries would account for 28.4 g CO₂/MJ, or 38% of EPA's estimated carbon intensity for corn ethanol.⁹¹ This value needs to be corrected because it underestimates ethanol plant yields and it fails to fully account for corn ethanol co-products.

1. Ethanol Plant Yields

EPA's estimate of ethanol fuel production emissions is in part a result of its underestimation of the ethanol yield—the amount of ethanol that biorefineries produce from each bushel of corn. EPA's 2010 LCA predicted a yield of “2.71 gallons per bushel for dry mill plants and 2.5 gallons per bushel for wet mill plants.”⁹² This implies a weighted average yield of 2.63 gallons per bushel for ethanol plants.⁹³

Based on recent data from the Energy Information Administration and USDA, the current average yield for both wet and dry mill ethanol plants is 2.84 gallons per bushel, significantly above the yields built into EPA's models.⁹⁴ Correcting the 2010 LCA's yield assumption would significantly reduce EPA's estimate of ethanol fuel production emissions.

2. Corn Oil

A proper lifecycle analysis of corn ethanol would fully account for biorefinery co-products that displace GHG emissions elsewhere. EPA's based its 2010 LCA emission estimated in part on the assumption that “70% of dry mill ethanol plants”

⁹¹ *Id.* at 145, Table 3-63 (reporting EPA's value).

⁹² 2010 RFS RIA, *supra* note 1, at 425.

⁹³ EPA estimated ethanol plants in 2022 would consist of 63% dry mill and 37% wet mill. *Id.* at 471, Figure 2.6-3.

⁹⁴ See Renewable Fuels Ass'n, Industry Statistics: Monthly Implied Average Ethanol Yield (Gallons per Bushel) (last updated August 1, 2017), *available at* <http://www.ethanolrfa.org/resources/industry/statistics/#1461259890924-697180ef-b2a8> (reporting an average yield for 2016 of 2.84).

would extract corn oil for use as biodiesel in 2022.⁹⁵ More recently, Department of Energy scientists estimated that as of 2014, over 80% of the dry mill ethanol plants now generate corn oil for biodiesel plants.⁹⁶ A bushel of corn currently produces about 0.55 pounds of corn oil.⁹⁷ And corn oil displaces soy oil used as a feedstock for biodiesel, reducing GHG emissions.⁹⁸ GREET has been updated to include a one-to-one displacement credit to account for the displacement of soy oil.⁹⁹ But EPA has not updated its 2010 LCA to reflect the increase in corn oil co-products.

C. Gasoline Lifecycle Emissions

Since EPA's 2010 LCA, petroleum-based fuels have become more carbon-intensive. As a result, the baseline gasoline carbon intensity value that EPA relied upon in the 2010 RFS Rule is inaccurate. Even if EPA is obligated to use an arbitrary 2005 petroleum baseline to approve renewable fuel pathways,¹⁰⁰ EPA *is not* obligated to use that baseline to calculate the GHG benefits of the program. As the National Academy of Sciences noted in 2011, a proper "comparison scenario" for ethanol should include marginal GHG emissions "resulting from any change in the use of oil sands and other nonconventional sources of petroleum."¹⁰¹ Because gasoline's carbon

⁹⁵ See 2010 RFS RIA, *supra* note 1, at 428.

⁹⁶ See Zhichao Wang et al., Argonne Nat'l Lab., Updates to Corn Ethanol Pathway and Development of an Integrated Corn and Corn Stover Ethanol Pathway on the GREET Model, ARGONNE/ESD-14/11 (2014).

⁹⁷ See Scott Irwin, *The Profitability of Ethanol Production in 2015*, 6 Farmdoc Daily, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, (Jan. 6, 2016), available at <http://bit.ly/1phwLdh>.

⁹⁸ Wang, *supra* note 96, at 4.

⁹⁹ *Id.* at 5.

¹⁰⁰ See 42 U.S.C. §§ 7545(o)(1)(C), 7545(o)(2)(A)(i).

¹⁰¹ NRC, Renewable Fuel Standard, Potential Economic and Environmental Effects of U.S. Biofuel Policy 195 (2011).

intensity has increased, the corresponding GHG benefits of the RFS have also increased.

Gasoline GHG emissions are trending upwards because of increased “use of oil sands and other nonconventional sources of petroleum.”¹⁰² Unlike renewable fuel producers, which are required to achieve lifecycle reduction benefits to qualify for the RFS, EPA does not hold gasoline producers accountable for their increased lifecycle GHG emissions.¹⁰³

Methane flares from shale oil extraction have increased GHG emissions from oil production.¹⁰⁴ Tar sand recovery often requires carbon-intensive steam injection, additional carbon-intensive processing to separate bitumen from tar sands, and chemicals to reduce the viscosity of the product for transportation, increasing extraction emissions.¹⁰⁵ Emissions associated with refining a barrel of tar sand oil are also higher.¹⁰⁶ And even conventional oil is becoming more carbon-intensive. Oil

¹⁰² Jeremy Martin, Union of Concerned Scientists, *Fueling a Clean Transportation Future*, at 1 (2016) (“As oil companies increasingly go after unconventional, hard-to-reach sources such as tar sands and use more intense extraction techniques such as hydraulic fracturing (fracking), dirtier sources of oil have become an increasingly large part of the mix, and wasteful practices are needlessly increasing emissions.”). Oil is the largest fossil fuel contributor to global warming in the United States, contributing more than coal and natural gas. *Id.* at 8. For other studies on the high marginal emissions of unconventional oil sources, see Deborah Gordon et al., *Know Your Oil: Creating a Global Oil-Climate Index*, Carnegie Endowment for Global Peace (2015); Susan Boland & Stefan Unnasch, *Life Cycle Associates, Carbon Intensity of Marginal Petroleum and Corn Ethanol Fuels*, LCA.6075.83.2014 (2014).

¹⁰³ See Martin, *supra* note 102, at 5 (“[E]lectricity and biofuels are getting cleaner because producers are subject to careful scrutiny of the global warming emissions associated with the fuels’ production, and public policy is holding producers accountable to reduce these emissions. However, the same level of scrutiny is not being applied to the different sources and methods of producing gasoline. In addition, oil companies are not obligated to reduce emissions from their supply chains. For the United States to avoid the worst consequences of climate change, all fuel producers have to minimize their global warming pollution.”). While regulation might help mitigate GHG emissions from tight oil, “[t]he most obvious way for the United States to reduce the problems caused by oil use is to steadily reduce oil consumption through improved efficiency and by shifting to cleaner fuels.” *Id.* at 7, 12.

¹⁰⁴ *Id.* at 16–17.

¹⁰⁵ *Id.* at 19–20.

¹⁰⁶ *Id.* at 20.

producers are injecting additional steam, chemicals, and gases (including methane) to enhance oil recovery, increasing the energy and carbon intensity of conventional oil extraction.¹⁰⁷

EPA's 2010 LCA understates the carbon intensity of gasoline. When EPA's skewed carbon intensity baseline for gasoline is corrected, corn ethanol is an even more attractive substitute. Because of tight oil, the Department of Energy estimated that carbon intensity of gasoline in 2014 was 94 g CO₂e/MJ, higher than EPA's 2005 baseline value.¹⁰⁸

CONCLUSION

In 2010, EPA predicted that blending corn ethanol into gasoline would reduce GHG emissions. The Agency was right about that, but ethanol is even better at cutting carbon emissions than EPA gave it credit for. In the 2010 RFS Rule, EPA estimated corn ethanol would have a carbon intensity of 74.9 g CO₂e/MJ in 2022.¹⁰⁹ The USDA's recent estimate is 36% lower—47.9 g CO₂e/MJ.¹¹⁰ And when adjusted for the soil carbon sequestration of the corn plant, the carbon intensity of corn ethanol may fall by 18.2 g or more, depending on soil conditions, tillage practices, and corn crop yield, resulting in a carbon intensity of 29.7 g CO₂e/MJ or less.¹¹¹ At that rate, ethanol would generate at least 68% less lifecycle GHG pollution than 2005 baseline gasoline on an energy-equivalent basis. The GHG benefits of ethanol will only grow as ethanol production becomes increasingly efficient, and gasoline production continues to get dirtier.

¹⁰⁷ *Id.* at 15.

¹⁰⁸ See Elgowainy et al., *supra* note 32, at 7623 (estimating that the “total life-cycle GHG emissions for gasoline” are 94 g CO₂e/MJ).

¹⁰⁹ 2010 RFS Rule, *supra* note 2, 75 Fed. Reg. 14,788.

¹¹⁰ 2017 USDA LCA, *supra* note 8, at 166.

¹¹¹ See Clay et al., *Carbon Sequestration*, *supra* note 64, at 769; Appendix, *infra* p. 23.

This analysis does not account for the fuel efficiency gains that would be possible if ethanol were blended above the 10% level of most U.S. gasoline. By enabling the auto industry to produce engines with higher compression ratios and more fuel-efficient vehicles, high-octane mid-level ethanol fuel blends could achieve significant downstream, as well as upstream, GHG reductions.¹¹²

The data and studies that were available to EPA in 2010 were inaccurate, and they are now obsolete. The 2010 LCA is not a sound basis for estimating the costs and benefits of the Proposed Rule or for evaluating the carbon intensity of new ethanol producers. EPA must either adopt USDA's updated estimate and allow for situation-specific soil carbon adjustments, or correct the inaccuracies in its outdated lifecycle analysis to reflect the best available science.

¹¹² See *Control of Air Pollution from Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards*, 79 Fed. Reg. 23,414, 23,528–29 (Apr. 28, 2014) (“E30 or higher ethanol blends . . . could help manufacturers who wish to raise compression ratios to improve vehicle efficiency as a step toward complying with the 2017 and later light-duty greenhouse gas and CAFE standards. This in turn could help provide a market incentive to increase ethanol use beyond E10.”).

APPENDIX

Study & Year	Clay et al (2012 Long-Term)ⁱ	Clay et al (2015)ⁱⁱ	Follett et al (2012)ⁱⁱⁱ	Halvorson & Stewart (2015)^{iv}
Soil Depth	0-15 cm	0-30 cm	0-150 cm	0-60 cm
Tillage	Various	No-Till & Chisel	No-Till	No-Till
Study Length (years)	25	5	9	7
SOC gain (Mg. /Ha./Yr.) ^y	0.368	0.53	2.6	0.856
Avg. Corn Yield in Study (Bushels/Ha./Yr.) ^{vi}	334	449	240	347
Ethanol Yield (Gallons/Bushel) ^{vii}	921	1240	663	959
Ethanol Energy Yield (MJ/Gallon) ^{viii}	74,144	99,826	53,378	77,214
Grams Soil Carbon /MJ ^{ix}	4.96	5.31	48.71	11.09
C to CO ₂ conversion (CO = C * 3.664) ^x	3.664	3.664	3.664	3.664
Credit in Grams CO₂ eq./MJ^{xi}	18.2	19.5	178.5	40.6

ⁱ Clay, *Carbon Sequestration*, *supra* note 64. The 2012 Clay paper includes two studies. The first, a seven-year study, estimated that surface soil carbon sequestration reduces the carbon intensity of corn ethanol by as much 19.6g CO₂e/MJ in the North-Central and Southeast regions of North Dakota. *Id.* at 769. The data in this study is based on the second study, a twenty-five year study.

ⁱⁱ Clay et al., *Tillage and Corn Residue*, *supra* note 64.

ⁱⁱⁱ Follett et al., *supra* note 69.

^{iv} Halvorson & Stewart, *supra* note 73.

^v Soil Organic Carbon (SOC) gain is expressed in annual Megagrams (Mg.) (1 Mg. = 1,000 Kg.) of carbon sequestered per year, per hectare (ha.). The .368 Mg. SOC for Clay's 2012 study is based on the reported average over the 25 years of the study. Clay et al., *Carbon Sequestration*, *supra* note 64, at 768 (“[D]uring the past 25 yr, surface SOC amounts have increased at an average rate of 368 kg C (ha × yr.⁻¹”). The 2.65 Mg. SOC gain for Clay's 2015 study is based on the average SOC gain, with no stover removal. Clay et al., *Tillage and Corn Residue*, *supra* note 64, at 808 (“[I]n the combined 0- to 15- and 15- to 30-cm soil zones . . . 2.65 Mg SOC ha⁻¹ were sequestered . . . in the 0% residue removal treatment[.]”). The 2.6 Mg. SOC gain for Follett's study is based on the observed gain applying 120 kg/ha of nitrogen fertilizer, with no stover removal. Follett et al., *supra* note 69, at 873 (“At the 120 kg ha⁻¹N fertility rate with no stover harvest, the annual increase in soil C was 2.6 Mg ha⁻¹ year.⁻¹[.]”). The .856 Mg. SOC gain figure for Halvorson & Stewart's study is based on the annual average, with no stover removal. Halvorson & Stewart, *supra* note 73, at 1510 (“The estimated annual rate of SOC gain from the FR [full stover retained] treatments over the 7yr of this study would have been . . . 856 kg C h⁻¹ from the . . . 0 to 60-cm soil depths.”).

^{vi} One bushel equals 25.40 kg of corn grain. See Iowa State, Ag Decision Maker Metric Conversions, C6-80 (May 2013), available at <http://bit.ly/1VxnEks>. The average yield for Clay's 2012 study is based on USDA historical data for the counties tested. Nat'l Agric. Research Serv., Quick Stats, available at http://www.nass.usda.gov/Quick_Stats/; see also Clay et al., *Carbon Sequestration*, *supra* note 64, at 768 & fig. 6. The average yield for Clay's 2015 study is based on the reported yield of 11,408 kg. per ha., with no stover removal. Clay et al., *Tillage and Corn Residue*, *supra* note 64, at 806, Table 1. The average yield for Follett's study is based on the reported figure for corn grain using 120 kg of nitrogen fertilizer per ha., with no stover removal. Follett 2012, *supra* note 69, at 873. The average yield for Halvorson & Stewart's study is 8,824 kg. per ha., with no stover removal. Halvorson & Stewart, *supra* note 73, at 1507.

^{vii} The ethanol yield is conservatively based on the USDA's average yield of 2.76 gallons per bushel in 2010, multiplied by the number of bushels produced every year. USDA, 2015 Energy Balance for the Corn Ethanol Industry, Table 1 (Feb. 2016).

^{viii} The ethanol energy yield is based on multiplying the ethanol yield by the heating value of undenatured ethanol used by CARB: 80.53 MJ per gallon of ethanol. CARB, Calculation of Denatured Ethanol CI and CA RFG, <http://bit.ly/1oCEj9k>.

^{ix} Grams of soil carbon are derived by converting Mg. SOC gain into grams and dividing it by the ethanol energy yield.

^x The carbon to CO₂ conversion factor is based on a molecular weight conversion from carbon to CO₂: 1 gram of carbon = 3.664g CO₂. See Carbon Dioxide Information Analysis Center, Conversion Tables, Oak Ridge Nat'l Lab., Table 3, <http://cdiac.ornl.gov/pns/convert.html>.

^{xi} The carbon intensity credit is arrived at by multiplying the carbon conversion factor by grams of soil carbon per MJ.

Message

From: Whitfield, Peter [pwhitfield@sidley.com]
Sent: 12/18/2017 12:28:19 AM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
Subject: RE: Questions for panel

Will check with Savage

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005

Ex. 6

pwhitfield@sidley.com
www.sidley.com

From: Schwab, Justin <Schwab.Justin@epa.gov>
Date: Sunday, Dec 17, 2017, 5:46 PM
To: Whitfield, Peter <pwhitfield@sidley.com>
Subject: Questions for panel

Peter - I still don't think I've received any of the questions (or any other scoping) for the panel. Am I right that we were supposed to receive this?

Sent from my iPhone

This e-mail is sent by a law firm and may contain information that is privileged or confidential. If you are not the intended recipient, please delete the e-mail and any attachments and notify us immediately.

Message

From: Adam Gustafson [gustafson@boydengrayassociates.com]
Sent: 5/31/2018 2:07:04 PM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
Subject: Re: Lifecycle analysis
Attachments: 20180531 Memo to Schwab re LCA.pdf

Will do. Here is a 3-page memo.

From: "Schwab, Justin" <Schwab.Justin@epa.gov>
Date: Thursday, May 31, 2018 at 10:03 AM
To: Adam Gustafson <gustafson@boydengrayassociates.com>
Subject: RE: Lifecycle analysis

If you call me that'll probably be best. There is one looming issue that could ripen in which case we will have to reschedule, but I am hopeful that will not happen.

From: Adam Gustafson [mailto:gustafson@boydengrayassociates.com]
Sent: Thursday, May 31, 2018 8:16 AM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Subject: Re: Lifecycle analysis

I look forward to it. Shall I meet you in your office or call you at that number?

Get [Outlook for Android](#)

From: Schwab, Justin <Schwab.Justin@epa.gov>
Sent: Thursday, May 31, 2018 8:08:13 AM
To: Adam Gustafson
Subject: RE: Lifecycle analysis

Hello, Adam. I could talk between 2 and 3. The best number to reach my is my government cell Ex. 6.

From: Adam Gustafson [mailto:gustafson@boydengrayassociates.com]
Sent: Wednesday, May 30, 2018 5:26 PM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Subject: Lifecycle analysis

Justin,

Stephen mentioned that he spoke with you about lifecycle analysis recently and recommended that I follow up with you. Do you have any time available tomorrow (Thursday) after 2pm or just about any time Tuesday-Friday next week? I look forward to catching up.

Adam

Ex. 6

BOYDEN GRAY & ASSOCIATES PLLC
801 17TH STREET, NW, SUITE 350
WASHINGTON, DC 20006
(202) 955-0620

May 31, 2018

To: Justin Schwab, Deputy General Counsel, Environmental Protection Agency
From: Adam Gustafson
Re: Lifecycle Analysis in the Triennial Report to Congress on Biofuels

Under the Energy Independence and Security Act, EPA is required to conduct a “lifecycle analysis”¹ to estimate greenhouse gas (GHG) effects of ethanol under the Renewable Fuel Standard (RFS).² EPA is also required to report to Congress every three years on the environmental impacts of the RFS, “in consultation with the Secretary of Agriculture and the Secretary of Energy.”³

In 2010, EPA conducted an initial lifecycle analysis of ethanol and gasoline.⁴ In that analysis, EPA concluded that by 2022, conventional corn ethanol would achieve annual lifecycle GHG emissions savings of 21% compared to 2005 gasoline.⁵ In 2011, EPA submitted its first and only “triennial” report to Congress, repeating the conclusions of the 2010 lifecycle analysis.⁶

At the time, EPA recognized that its 2010 analysis was subject to many uncertainties.⁷ So EPA committed to “further reassess . . . the lifecycle estimates” as the science evolved.⁸

EPA has not done so, even though its prior estimates have been superseded by new science. As a study commissioned by USDA recently found, “a large body of information has become available since 2010—including new data, scientific studies, industry trends, technical reports, and updated emission coefficients—that indicates that . . . actual emissions . . . differ significantly from those projected” by EPA.⁹ Using EPA’s own methodology, the USDA

¹ Lifecycle analysis accounts for all the GHG pollution emitted during a fuel’s production, distribution, and consumption, and it may include indirect emissions such as global land-use changes caused by price changes.

² See 42 U.S.C. § 7545(o)(1)(H). Under the RFS, each renewable fuel category is subject to a minimum lifecycle greenhouse gas emission reduction threshold. See *id.* § 7545(o)(1)(C).

³ Energy Independence and Security Act of 2007, Pub. L. 110-140, § 204, 121 Stat. 1492 (Dec. 19, 2007).

⁴ Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program, 75 Fed. Reg. 14,670, 14,785 (Mar. 26, 2010) (hereinafter 2010 RFS Rule).

⁵ 2010 RFS Rule, 75 Fed. Reg. at 14,786 (“The results for this corn ethanol scenario are that the midpoint of the range of results is a 21% reduction in GHG emissions compared to the gasoline 2005 baseline.”).

⁶ EPA, Biofuels and the Environment: First Triennial Report to Congress 2-3 (2011).

⁷ 2010 RFS Rule, 75 Fed. Reg. at 14,765 (“[A]s the state of scientific knowledge continues to evolve in this area, the lifecycle GHG assessments for a variety of fuel pathways will continue to change.”).

⁸ *Id.* at 14,785.

⁹ ICF, USDA, A Life-Cycle Analysis of the Greenhouse Gas Emissions of Corn-Based Ethanol 4-5 (Jan. 12, 2017).

study estimates that corn ethanol lowers lifecycle GHG emissions by 43% and 48% in 2014 and 2022, respectively, compared to 2005 gasoline.¹⁰

The Department of Energy's influential GREET model estimates a 35% lifecycle GHG emissions reduction for corn ethanol produced *in 2015* compared to 2005 gasoline.¹¹

Despite this contrary evidence, EPA told its Inspector General that the agency had “*no plans to update the original 2010 analysis.*”¹²

The IG found EPA had not complied with its duty to report to Congress.¹³ In December, EPA announced that it “is currently working on the Second Triennial Report to Congress . . . and expects to deliver that report in the spring of 2018.”¹⁴

Interagency consultation on the Triennial Report is required by law,¹⁵ and it presents an opportunity to correct EPA's erroneous emission estimates. Adopting DOE or USDA's up-to-date analyses in place of the outdated 2010 estimates would promote rural prosperity and energy independence in America, as the President has directed.¹⁶

First, correcting these estimates would improve EPA's administration of the RFS and promote Congress's goal of energy independence through renewable fuel production.

Second, correcting EPA's lifecycle analysis would promote U.S. ethanol exports by signaling to U.S. trading partners that U.S. corn ethanol is a means of meeting their carbon-reduction goals. Approximately 42 countries have adopted biofuel blending mandates.¹⁷ But they must be persuaded that U.S. corn ethanol imports are consistent with their climate policies. EPA's lifecycle analysis has already been cited to limit imports of U.S. ethanol to Japan and Brazil.

Including lifecycle analysis in the Triennial Report to Congress is consistent with the law. The Energy Independence and Security Act of 2007 specifies the subjects that must be included in the Triennial Report. Among these are “[e]nvironmental issues, including air quality”;

¹⁰ *Id.* at 166.

¹¹ See Zhichao Wang et al., *Influence of Corn Oil Recovery on Life-Cycle Greenhouse Gas Emissions of Corn Ethanol and Corn Oil Biodiesel*, 8 *Biotechnol. Biofuels* 178, 178, 183, Fig. 3 (2015).

¹² EPA Office of Inspector General, *EPA Has Not Met Certain Statutory Requirements to Identify Environmental Impacts of Renewable Fuel Standard*, Report No. 16-P-0275 at 7 (Aug. 18, 2016).

¹³ See *id.* at 4.

¹⁴ Renewable Fuel Standard Program – Standards for 2018, Response to Comments 179 (Dec. 2017).

¹⁵ 42 U.S.C. § 7545 note, Pub. L. No. 110-140, § 204, 121 Stat. 1529 (2007).

¹⁶ See Executive Order 13,783, 82 Fed. Reg. 16,093 (Mar. 31, 2017) (energy independence); Executive Order 13,790, 82 Fed. Reg. 20,237 (Apr. 28, 2017) (rural prosperity).

¹⁷ United Nations, *Second Generation Biofuel Markets: State of Play Report 11* (2016) (“In 2014, mandates are in place in 42 countries. Within these policy frameworks, various jurisdictions mandate specified bioethanol blends.”).

“[r]esource conservation issues . . . including impacts on forests, grasslands, and wetlands”; and “environmental impacts outside the United States.”¹⁸

Lifecycle analysis is undoubtedly an “environmental issue,” and the mandatory sub-issues are not exclusive.¹⁹ In *Massachusetts v. EPA*, the Supreme Court recognized that carbon dioxide and other greenhouse gases “fit well within the Clean Air Act’s capacious definition of ‘air pollutant.’”²⁰ There is no legal basis to exclude them from the term “air quality.” The law therefore requires EPA to include lifecycle analysis in the Triennial Report.

Moreover, domestic and global land-use change (“impacts on forests, grasslands, and wetlands”) are the key variables in a lifecycle analysis of ethanol’s greenhouse gas emissions. Demonstrable over-estimation of ethanol’s land-use change effects is the primary reason why EPA’s 2010 lifecycle analysis is wrong. It would be irrational to update the Agency’s land-use change estimates and *not* factor those same estimates into the Agency’s lifecycle analysis.

EPA will be required to consider “the impact of the production and use of renewable fuels on . . . climate change” when it modifies the mandatory blending volumes of cellulosic and advanced biofuels under the Renewable Fuel Standard.²¹ There is no good reason to omit that information from the Triennial Report, especially since it was included in EPA’s first and only Triennial Report.

The forthcoming Triennial Report should be no less inclusive, and EPA should revise the outdated lifecycle analysis to reflect the best available science. This is a virtually cost-free proposition for EPA, which can simply adopt DOE’s GREET model and its periodic revisions as its own.

¹⁸ 42 U.S.C. § 7545 note, Pub. L. No. 110-140, § 204, 121 Stat. 1529 (2007).

¹⁹ See *Puerto Rico Mar. Shipping Auth. v. ICC*, 645 F.2d 1102, 1112 (D.C. Cir. 1981) (“It is hornbook law that the use of the word ‘including’ indicates that the specified list . . . that follows is illustrative, not exclusive.”).

²⁰ *Massachusetts v. EPA*, 549 U.S. 497, 532, 127 S. Ct. 1438, 1462 (2007).

²¹ 42 U.S.C. § 7545(o)(2)(B)(ii), cited in 42 U.S.C. § 7545(o)(7)(F).

Message

From: Whitfield, Peter [pwhitfield@sidley.com]
Sent: 4/10/2018 2:01:27 PM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
Subject: quick call today

Justin,

Do you have time for a quick call today? I wanted to give you a heads up that the Chamber of Commerce will be sending a letter your way regarding NY's Sec. 126 petition. If you are free, let me know when would be the best time to call.

PETER WHITFIELD

Counsel

SIDLEY AUSTIN LLP

1501 K Street, N.W.
Washington, DC 20005

Direct: **Ex. 6**
Mobile:
pwhitfield@sidley.com
www.sidley.com

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Message

From: Whitfield, Peter [pwhitfield@sidley.com]
Sent: 11/17/2017 5:16:10 PM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

It is set for Dec. 19 at 5pm

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005
Ex. 6
pwhitfield@sidley.com
www.sidley.com

From: Schwab, Justin <Schwab.Justin@epa.gov>
Date: Friday, Nov 17, 2017, 10:58 AM
To: Whitfield, Peter <pwhitfield@sidley.com>
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

When (with as much specificity is known now) is the panel taking place?

From: Schwab, Justin
Sent: Friday, November 17, 2017 10:57 AM
To: 'Whitfield, Peter' <pwhitfield@sidley.com>
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Will aim for that. Thank you for letting me know the time frame.

From: Whitfield, Peter [mailto:pwhitfield@sidley.com]
Sent: Friday, November 17, 2017 10:52 AM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Great. If there is a way to find out whether you can be part of the panel by COB Monday that would be great.

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
Direct **Ex. 6**
Mobile
pwhitfield@sidley.com

From: Schwab, Justin [mailto:Schwab.Justin@epa.gov]
Sent: Friday, November 17, 2017 10:47 AM

To: Whitfield, Peter <pwhitfield@sidley.com>

Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Would be happy to but need to run it by others here given the sensitivity. Will follow up.

Would very much like lunch with you and DF soon. Will reach out to him on that.

From: Whitfield, Peter [<mailto:pwhitfield@sidley.com>]

Sent: Friday, November 17, 2017 10:29 AM

To: Schwab, Justin <Schwab.Justin@epa.gov>

Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Quick question for you – we are planning a panel for the energy bar association on the CPP and have lined up Tom Lorenzen (Crowell), Dave Doniger (NRDC), Mike Myers (NY AG's office) and we need to fill in a spot from the EPA – we had Ethan Shenkman serve in that role in the past, but he is no longer there. Any chance you or someone you would recommend would be interested in participating?

Would be great to grab lunch with you and Fotouhi – maybe the week after Thanksgiving?

PETER WHITFIELD

Counsel

SIDLEY AUSTIN LLP

Direct: **Ex. 6**
Mobile: **Ex. 6**
pwhitfield@sidley.com

From: Schwab, Justin [<mailto:Schwab.Justin@epa.gov>]

Sent: Thursday, November 9, 2017 4:14 PM

To: Whitfield, Peter <pwhitfield@sidley.com>

Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Unfortunately I probably will not be able to – David Fotouhi and I would like to have lunch with you and Justin soon though....

From: Whitfield, Peter [<mailto:pwhitfield@sidley.com>]

Sent: Tuesday, November 7, 2017 9:20 AM

To: Schwab, Justin <Schwab.Justin@epa.gov>

Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Hey Justin,

I hope you can make it for a drink this Thursday. New contact info below.

PETER WHITFIELD

Counsel

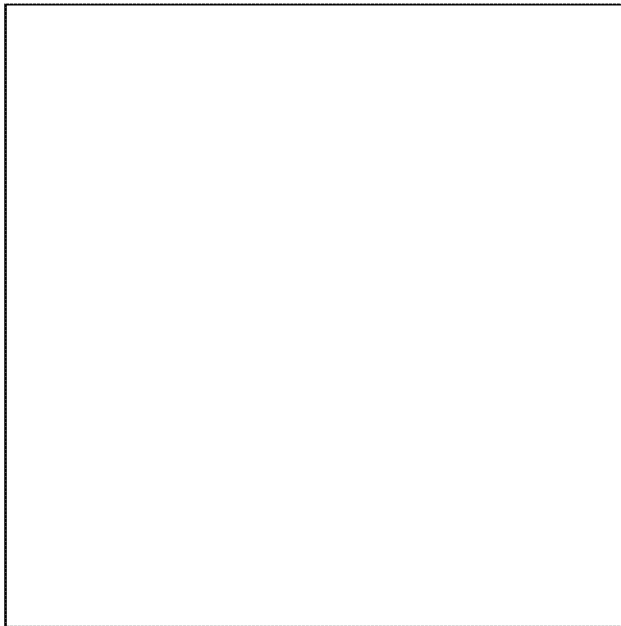
SIDLEY AUSTIN LLP

Direct: **Ex. 6**
Mobile: **Ex. 6**
pwhitfield@sidley.com

From: DC Events - Sidley Austin LLP

Sent: Tuesday, November 7, 2017 9:01 AM

Subject: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017



Join us for a cocktail reception
with the newest lawyers in
Sidley's Environmental Practice:
Richard Alonso, Justin A.
Savage, Andrew R. Stewart and
Peter Whitfield.

Thursday, November 9
5:30 p.m. – 7:30 p.m.

SIDLEY
1501 K Street, N.W.
Washington, D.C. 20005

[RSVP HERE](#)

For questions or additional information, please
contact DCEvents@sidley.com.

NEW PARTNERS AND COUNSEL

Rich Alonso
Partner

Justin A. Savage
Partner

Andrew R. Stewart
Counsel

Peter Whitfield
Counsel



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Message

From: Savage, Justin A. [jsavage@sidley.com]
Sent: 12/1/2017 3:59:39 PM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
CC: Whitfield, Peter [pwhitfield@sidley.com]
Subject: FW: EBA ERC Energizer Planning

FYI.

From: Savage, Justin A.
Sent: Friday, December 1, 2017 10:57 AM
To: 'Lisa Levine' <LLevine@eba-net.org>; 'Marlo Brown' <marlo@eba-net.org>; 'Walter R. Hall II' { **Ex. 6**
Cc: 'holly.smith@exeloncorp.com' <holly.smith@exeloncorp.com>; Davis, Nyisha <nyisha.davis@sidley.com>
Subject: RE: EBA ERC Energizer Planning

Hi Lisa,

Here's a couple corrections to Justin Schwab's biography.

Corrections:

Justin Schwab, Deputy General Counsel, EPA. Justin serves as ~~the~~ Deputy General Counsel at EPA, a politically appointed position that includes legal oversight of several significant EPA rulemaking actions under the Clean Air Act. Justin first joined the Agency at the start of the new administration as legal advisor to the 'beachhead' team. He previously worked on several high-profile matters involving the Clean Air Act at his former law firm, Baker & Hostetler. Justin previously clerked for both Judge Richard Wesley on the U.S. Court of Appeals for the Second Circuit and Justice Christine Durham on the Utah Supreme Court. He holds a law degree from Yale University and a Ph.D. in classics from the University of California at Berkeley

New Clean Copy:

Justin Schwab, Deputy General Counsel, EPA. Justin serves as Deputy General Counsel at EPA, a politically appointed position that includes legal oversight of several significant EPA rulemaking actions under the Clean Air Act. Justin first joined the Agency at the start of the new administration as legal advisor to the 'beachhead' team. He previously worked on several high-profile matters involving the Clean Air Act at his former law firm, Baker & Hostetler. Justin previously clerked for both Judge Richard Wesley on the U.S. Court of Appeals for the Second Circuit and Justice Christine Durham on the Utah Supreme Court. He holds a law degree from Yale University and a Ph.D. in classics from the University of California at Berkeley

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP
Ex. 6
jsavage@sidley.com

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Message

From: Shi, Jing [jing.shi@sidley.com]
Sent: 12/5/2017 4:55:02 PM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
CC: Savage, Justin A. [jsavage@sidley.com]; Patrick, Monique [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=3f271920363c4aecbff1e989a6dfde9b-MPATRICK]
Subject: RE: Planning Call on the Energy Bar Association Panel

Thank you. We will make the call for 30 minutes (10:30 – 11:00 a.m.). A calendar invite will follow shortly.

Jing

JING SHI
Legal Secretary

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005
Ex. 6
jing.shi@sidley.com
www.sidley.com



From: Schwab, Justin [mailto:Schwab.Justin@epa.gov]
Sent: Tuesday, December 05, 2017 11:39 AM
To: Shi, Jing <jing.shi@sidley.com>
Cc: Savage, Justin A. <jsavage@sidley.com>; Patrick, Monique <Patrick.Monique@epa.gov>
Subject: Re: Planning Call on the Energy Bar Association Panel

Unfortunately, I am not available for the first half of that hour. Monique Patrick (CC'd here) can assist with scheduling.

Sent from my iPhone

On Dec 5, 2017, at 11:00 AM, Shi, Jing <jing.shi@sidley.com> wrote:

Dear Justin:

Per Justin Savage, we are trying to set up an hour call regarding Planning Call on the Energy Bar Association Panel. I am sorry I missed you on the initial email I sent out yesterday. It looks like Tuesday, November 12 from 10:00 – 11:00 a.m. works for the group. Would that work for you? Thank you.

Jing

JING SHI
Legal Secretary

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005
+1 202 736 8260
jing.shi@sidley.com
www.sidley.com



From: Shi, Jing
Sent: Monday, December 04, 2017 2:31 PM
To: 'ddoniger@nrdc.org' <ddoniger@nrdc.org>; 'CMorganelli@nrdc.org' <CMorganelli@nrdc.org>; 'mgdowd@deq.virginia.gov' <mgdowd@deq.virginia.gov>; 'TLorenzen@crowell.com' <TLorenzen@crowell.com>; 'Holly.Smith@exeloncorp.com' <Holly.Smith@exeloncorp.com>
Cc: Savage, Justin A. <jsavage@sidley.com>
Subject: Planning Call on the Energy Bar Association Panel

Good afternoon:

Per Justin, we need set up an hour call regarding Planning Call on the Energy Bar Association Panel. Please respond your availability using below link at your earliest convenience. Thank you.

<https://doodle.com/poll/ditu9x3upi35t889>

Jing

JING SHI
Legal Secretary

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005
Ex. 6
jing.shi@sidley.com
www.sidley.com



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Message

From: Savage, Justin A. [jsavage@sidley.com]
Sent: 12/1/2017 3:30:13 PM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
CC: Whitfield, Peter [pwhitfield@sidley.com]
Subject: RE: CPP Panel - Energy Bar Association - 12/19/17 @ 6 pm

Thanks for the quick reply. We'll fix the bio.

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP

Ex. 6

jsavage@sidley.com

From: Schwab, Justin [mailto:Schwab.Justin@epa.gov]
Sent: Friday, December 1, 2017 10:29 AM
To: Savage, Justin A. <jsavage@sidley.com>
Cc: Whitfield, Peter <pwhitfield@sidley.com>
Subject: Re: CPP Panel - Energy Bar Association - 12/19/17 @ 6 pm

Justin (& Peter),

Thank you for this note.

I look forward to the prep call.

The bio looks fine, except that I would
(1) delete "the" before "Deputy General Counsel" and

(2) after that sentence, insert another sentence "Justin first joined the Agency at the start of the new administration as legal advisor to the 'beachhead' team."

Have a good weekend!

Best,

Justin

Sent from my iPhone

On Dec 1, 2017, at 9:57 AM, Savage, Justin A. <jsavage@sidley.com> wrote:

Justin,

Thanks for agreeing to be on the CPP panel on 12/19. The other panelists are as follows:

- Mike Dowd, Air Director, Virginia DEQ;

- Tom Lorenzen, Crowell & Mooring; and
 - David Doniger, NRDC.
1. Logistics: We'd like you to arrive at 5:45 pm. The panel discussion ends at 7 pm. A reception will follow until 8 pm if you'd like to attend. Our firm is located at 1501 K Street.
 2. Prep Call: We're trying to schedule a prep call next week. We'll be circulating a Doodle link to coordinate on availability.
 3. Your Bio: We need a bio to introduce you before the panel begins. Here's a draft version, but please feel free to use whatever bio you'd like. I promise not to ask Peter for anything embarrassing to include!

Justin Schwab, Deputy General Counsel, EPA. Justin serves as the Deputy General Counsel at EPA, a politically appointed position that includes legal oversight of several significant EPA rulemaking actions under the Clean Air Act. He previously worked on several high-profile matters involving the Clean Air Act at his former law firm, Baker & Hostetler. Justin previously clerked for both Judge Richard Wesley on the U.S. Court of Appeals for the Second Circuit and Justice Christine Durham on the Utah Supreme Court. He holds a law degree from Yale University and a Ph.D. in classics from the University of California at Berkley.

4. Registration link: Here's the registration link for the event. The Energy Bar Association is the lead sponsor, but the DC Bar and ABA will co-sponsor as well. <http://eba-net.org/eba-energizer-clean-power-plan-what-lies-beyond>. Note that media are barred from registering for this event.

Have a good weekend,

Justin

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005

Ex. 6 (Office)
(Cell)
jsavage@sidley.com
www.sidley.com

<image001.png>

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Message

From: Whitfield, Peter [pwhitfield@sidley.com]
Sent: 4/25/2018 11:42:32 PM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]; Woods, Clint [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bc65010f5c2e48f4bc2aa050db50d198-Woods, Clin]
CC: Boxerman, Samuel B. [sboxerman@sidley.com]
Subject: Sec. 126 Letter
Attachments: ASC Letter to EPA and Declaration of Ralph Morris.pdf

Justin and Clint,

In advance of our meeting tomorrow, we wanted to provide you a copy of the following letter from our client to EPA requesting a 6 month extension on EPA's deadline to respond to New York's 126 petition. We look forward to meeting with you tomorrow.

Regards,
Peter

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005
Ex. 6
pwhitfield@sidley.com
www.sidley.com

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1501 K STREET, N.W.
WASHINGTON, D.C. 20005
+1 202 736 8000
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April 25, 2018

Mr. William Wehrum
Assistant Administrator, Office of Air and Radiation
USEPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Avenue, N.W.
Mail Code: 1101A
Washington, DC 20460

Mr. Matthew Leopold
General Counsel
USEPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Avenue, N.W.
Mail Code: 2310A
Washington, DC 20460

Dear Messrs. Wehrum and Leopold:

I write on behalf of the Air Stewardship Coalition (“ASC”) to request that the U.S. Environmental Protection Agency (“EPA” or the “Agency”) extend by six months the proceeding related to the March 12, 2018 petition submitted by the New York Department of Environmental Conservation (the “NY Petition” or “Petition”) under Section 126 of the Clean Air Act (the “CAA”).

ASC is an ad hoc group of trade associations and companies that seeks to assist EPA and States in addressing alleged interstate transport issues under the CAA. Our members represent numerous industrial facilities targeted by the NY Petition. These facilities have already undertaken multiple rounds of emissions reductions under other EPA regulations and State Implementation Plans, as well as voluntary emission reduction projects.

Despite these multi-billion dollar prior investments, the NY Petition seeks further reductions in emissions that are unfounded and unprecedented. The Petition requests that EPA compel approximately 350 sources across nine states to impose additional, costly, and unnecessary technologies on their facilities to address nitrogen oxide (“NOx”) emissions. The NY Petition claims that NOx emissions from the named sources significantly contribute to or interfere with the state’s ability to attain and maintain its compliance with the national ambient air quality standards for ozone in the New York Metropolitan Area and in Chautauqua County, New York.

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SIDLEY

Mr. William Wehrum
Mr. Matthew Leopold
April 25, 2018
Page 2

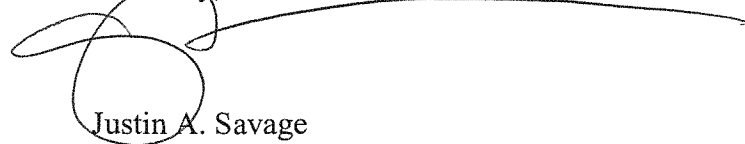
The CAA grants EPA 60 days to respond to a Section 126 petition, but CAA §307(d)(10) allows EPA to extend this review period by six months when “*necessary* to afford the public and the agency adequate opportunity to carry out the purposes of this subsection.” 42 U.S.C. §7607(d)(10) (emphasis added). This statutory provision confers broad authority on EPA to extend the deadline for responding to Section 126 petitions. *See, e.g., Friedman v. FAA*, 841 F.3d 537, 539 (D.C. Cir. 2016) (statute empowering agency to regulate as “*necessary*” confers “*broad authority*”); *Trans Union, LLC v. FTC*, 295 F.3d 42, 47 (D.C. Cir. 2002) (same).

An extension here is necessary for two reasons. First, as discussed in more detail in the U.S. Chamber of Commerce’s (the “Chamber”) recent letter, which we incorporate by reference here, the Petition is unprecedented in its reach and potential impact (over 350 named sources operating in nine states) and is both legally and technically deficient. *See* Letter from Karen A. Harbert, U.S. Chamber of Commerce to William Wehrum, Assistant Administrator, EPA Office of Air & Radiation, and Matthew Leopold, General Counsel, EPA (Apr. 13, 2018).

Second, building on the Chamber’s letter, we submit the attached technical declaration of Mr. Ralph E. Morris. Mr. Morris is one of the leading experts in the world on air quality analysis, including air quality modeling. He previously served on the Air Quality Modeling Subcommittee of the Science Advisory Board advising EPA on its air program. As Mr. Morris explains, the scope of the NY Petition and the complex technical issues raised by it necessitate EPA taking the additional time to allow the Agency and interested stakeholders to review and analyze the Petition and the underlying modeling.

For these reasons, ASC requests that EPA extend the deadline to review the Petition by six months. We appreciate your consideration of this request. Please do not hesitate to contact me at 202-736-8853 if you have any questions.

Sincerely,



Justin A. Savage

Encl.: Declaration of Ralph E. Morris

cc: Justin Schwab, Deputy General Counsel, EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

**In re – New York State Petition for a
Finding Pursuant to Clean Air Act
Section 126**

DECLARATION OF RALPH E. MORRIS

I, RALPH E. MORRIS, hereby declare and state as follows:

1. I am the Managing Principal for Ramboll Environment and Health (REH) Northern California Offices (San Francisco, Emeryville, Novato and Santa Clara in California, Salt Lake City in Utah and Fort Collins in Colorado). I have been retained by the Air Stewardship Coalition to assist with evaluating the petition submitted by the State of New York (NYS) to the Environmental Protection Agency (EPA) under section 126 of the Clean Air Act (CAA). REH is a 1,500-person environment and health consulting group that is part of Ramboll A/S, an international consulting and engineering firm with 13,000 employees in 300 offices across 35 countries headquartered in Copenhagen, Denmark.

2. I am in the Air Sciences Group in REH where I direct the development and application of advanced air quality models, air quality analysis projects, emissions inventory development, emissions control studies and other air-related studies. I have been involved in the development of numerous air quality models, including the Comprehensive Air Quality Model with extensions (CAMx¹) photochemical grid model (PGM) used by EPA to analyze ozone transport in the Cross-State Air Pollution Rule (CSAPR²). I have over 38 years' experience in air quality consulting, starting in 1979 after receiving my Master's degree in Mathematics from the University of California at Davis. I am an internationally recognized expert in air quality modeling and have served on EPA's ozone and fine particulate guidance workgroups, the Air Quality Modeling Subcommittee of the Science Advisory Board, the Community Modeling and Analysis System External Advisory Committee advising EPA on its Community Multiscale Air Quality (CMAQ) modeling system and the modeling peer-review group for the South Coast Air Quality Management District. An abbreviated copy of my resume is attached.

¹ <http://www.camx.com/home.aspx>.

² <https://www.epa.gov/csapr>.

3. My technical work mainly involves developing and applying advanced air quality models. In the 1980s I was project manager for the EPA Five Cities Urban Airshed Model (UAM) Study that demonstrated how to use the UAM PGM for ozone air quality planning, which culminated in the delivery of the UAM to EPA in 1990 as a turn-key model that EPA subsequently designated as the EPA-recommended model for ozone air quality planning in its modeling guidelines (40 CFR Part 51, Appendix W). I then led the development of the variable grid version of the UAM (UAM-V) that the Ozone Transport Assessment Group used to study ozone transport in the eastern United States, which led to EPA's NOx SIP Call, EPA's regional NOx control rulemaking to reduce ozone transport that EPA first proposed in 1997. In the late 1990s, I was one of the leaders in the development of the CAMx PGM that today is one of the most widely used PGMs in the world, including being used by EPA for its ozone transport rulemakings (e.g., CSAPR).

4. On March 12, 2018, NYS submitted a Section 126 Petition to EPA claiming, among other things, that NOx emissions from approximately 350 facilities in 9 upwind states are interfering with the ability of the New York Metropolitan Area (NYMA) and Chautauqua County to attain or maintain the 2008 and 2015 ozone National Ambient Air Quality Standards (NAAQS). NYS relied on regional PGM modeling in its Section 126 Petition. NYS used EPA's CSAPR Update³ CAMx ozone transport modeling results to identify the 9 upwind states that EPA determined contributed to nonattainment or interfered with maintenance of the 2008 ozone NAAQS at sites in the NYMA and Chautauqua County for the 2017 modeling year. NYS also conducted its own CMAQ modeling for 2017, which NYS claims provides evidence that the combined NOx emissions from the named facilities in each of the 9 states contributed significantly to nonattainment or interfered with maintenance of the 2017 ozone NAAQS at sites in the NYMA and Chautauqua County.

5. My understanding is that, under the CAA, EPA has a statutory duty to respond to the NYS petition within 60 days⁴, but may extend the deadline by six months to allow the agency and the public adequate opportunity to review the petition, if necessary.

6. Based on my almost four decades of experience in regional photochemical grid modeling, including over three decades working with EPA's air quality modeling group at the Office of Air Quality Planning and Standards, it is my opinion that EPA should extend the deadline to allow the public additional time to assess fully the data proffered in support of NYS's petition.

³ <https://www.epa.gov/airmarkets/final-cross-state-air-pollution-rule-update>.

⁴ <https://www.gpo.gov/fdsys/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapl-partA-sec7426.htm>.

7. NYS conducted its own regional CMAQ modeling. Evaluating the modeling's accuracy, reliability and appropriateness for supporting NYS's claims would involve assessing NYS's CMAQ modeling database. However, NYS did not provide its CMAQ modeling database to EPA or identify a website in its petition where the CMAQ database can be downloaded, thus severely limiting the time to evaluate the CMAQ modeling, assuming NYS were to make the database available. The transfer of a large CMAQ database and benchmarking on receiving computers to assure the database is operating correctly typically takes at least three to four weeks.

8. If NYS makes its 2017 CMAQ modeling database available, evaluating the emissions and other inputs for appropriateness for assessing ozone contributions from sources in upwind states would require time. Correcting any deficiencies in the NYS 2017 emissions assumptions to conduct an analysis would also require time. For example, the NYS petition 2017 CMAQ modeling used projected 2017 NOx emissions for electrical generating units (EGUs). Because almost actual 2017 NOx emissions data for EGUs are now available from EPA's Clean Air Market Division (CAMD⁵) website, those data should be used instead of the projections. Processing the 2017 EGU NOx emissions data in order to replace the projections in NYS's 2017 CMAQ database could take at least a week or longer.

9. I have recently conducted CMAQ modeling on the same 12 km grid resolution continental U.S. (CONUS2) domain as used by NYS in its petition. Using a high performance Linux computing cluster, the CMAQ simulations in my modeling took an elapsed time of 7.5 hours per simulation day using 20 central processing units (CPUs, also called nodes). Thus, a 4-month ozone season (May-August) simulation would take 900 hours, or 37 days. The CMAQ run time can be reduced by using more CPUs, but there is a limit on the speed-up that can be achieved due to the overhead associated with the domain decomposition used in the CMAQ multi-processing scheme. In the NYS petition CMAQ modeling, NYS conducted 10 CMAQ simulations—a 2017 base case and 9 state-specific NOx emission zero-out cases for each of the 9 upwind states. Even with hundreds of CPUs for each CMAQ simulation, a review would still entail at least 10 CMAQ simulations. These 10 CMAQ simulations could run in parallel using multiple CPUs, but with other computer requirements (e.g., disk space) and labor requirements needed to monitor the simulations, they would still take at least two to three weeks to perform.

10. The NYS petition CMAQ modeling also used a novel procedure for post-processing the 10 CMAQ simulations to determine the significance of the ozone contribution of the NOx emissions from the named sources in each of the 9 states. The NYS petition used an ozone significant contribution metric

⁵ <https://www.epa.gov/airmarkets>.

that differs from what EPA used in its CSAPR modeling. Evaluating how the NYS metric works as well as calculating an ozone contribution metric to be consistent with CSAPR would take at least two weeks.

11. In addition to evaluating and updating NYS's CMAQ significant contribution modeling, time is needed to conduct modeling to use the more fully vetted 2017 CAMx source apportionment modeling platform that EPA used in the CSAPR Update. Estimating the significance of the named sources in each of the 9 states would involve updating emissions, re-processing the emission inputs to tag each of the approximately 350 sources and running a CAMx ozone source apportionment. The emissions updates and processing set up alone could take at least three to four weeks. The CAMx ozone source apportionment run is much more efficient than the NYS petition CMAQ zero-out runs, and the ozone contribution results could be obtained in one CAMx run. The CSAPR Update CAMx source apportionment run took approximately two weeks to complete, with additional time needed for post-processing and analyzing the results. Thus, at least three to four weeks for the emissions updates and processing plus at least two weeks for the CAMx source apportionment run means the minimum elapsed time for this effort would be at least five to six weeks.

12. I also understand that EPA will take public comments and hold a public hearing in connection with its response to the NYS petition. To the extent EPA addresses the NYS petition or responds to public input through modeling or other data analysis, EPA would require additional time and resources.

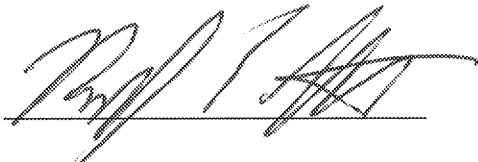
13. I have also reviewed the "Declaration of Lyle Chinkin⁶" prepared as part of the Connecticut Section 126 Petition⁷ where he asserts "*that 60 days is in fact sufficient time for EPA to conduct the air modeling analyses required to respond to Connecticut's petition, assuming staff and computer resources are made available throughout the 60-day time period.*"⁸ However, the Connecticut petition only identified a single upwind source (Brunner Island Steam Electric Station in York County, Pennsylvania) as contributing significantly to ozone nonattainment. By contrast, the NYS petition addresses over 350 facilities in 9 states as contributing to ozone nonattainment or interfering with maintenance, and so would require substantially more computer resources and time to address. For these reasons, my opinion is that the statements made within the "Declaration of Lyle Chinkin" in the Connecticut petition are not relevant to the NYS petition.

⁶ Chinkin Decl., Case 3:17-cv-00796-WWE (filed 11/28/17), ECF No. 40.

⁷ <https://www.epa.gov/ozone-pollution/connecticut-126-petition>.

⁸ I am not expressing any opinions regarding the validity of Mr. Chinkin's opinion that 60 days was sufficient time for EPA to respond to the Connecticut petition.

Pursuant to 28 U.S.C. Section 1746, I declare under penalty of perjury that the foregoing is true and correct.

A handwritten signature in black ink, appearing to read "Ralph E. Morris", written over a horizontal line.

Ralph E. Morris

April 25, 2018

Date

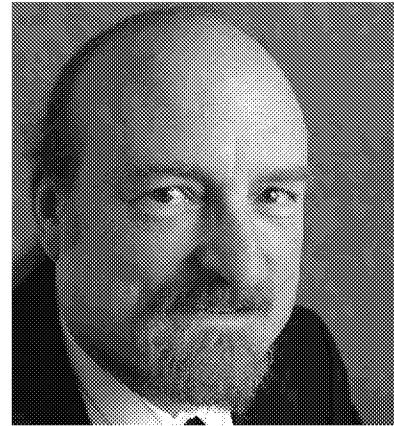
RALPH E MORRIS

Managing Principal

Ralph E. Morris is the Managing Principal for Ramboll Environmental and Health (REH) San Francisco Bay Area Offices. He is responsible for the business operations for ~100 employees in the four SF Bay Area Offices (San Francisco, Emeryville, Novato and Santa Clara) plus Salt Lake City and Fort Collins. REH is a ~1,500 person environmental and health consulting group that is part of Ramboll that consists of ~13,000 employees in ~300 offices in ~35 countries with headquarters in Copenhagen, Denmark.

Ralph is part of REH's Air Sciences Group where he directs air quality model development and application, air quality data analysis, emission inventory development, control strategy evaluation, and regulatory air issues studies. With over 38 years of air quality consulting experience, Ralph is one of the original developers of many of the photochemical air quality models that are or have been used for regulatory decision making in the United States and around the world, including co-developer of Ramboll's Comprehensive Air Quality Model with extensions (CAMx) as well as the Urban Airshed Model (UAM) and its variable grid version (UAM-V) models. He directed the development of an updated Pollutants in the ATmosphere for Hong Kong (PATH) air quality modeling system for the Hong Kong Environmental Protection Department (HKEPD) and applied it to Southeast Asia to assess regional transport and urban ozone and particulate matter formation. He directed the application of regional particulate matter (PM), ozone and visibility modeling using CMAQ and CAMx photochemical grid models for the southeastern (VISTA/ASIP), western (WRAP) and central (CENRAP) US Regional Planning Organizations (RPOs) for the development of regional haze State Implementation Plans (SIPs). Ralph was an original member of USEPA's ozone and particulate matter modeling guidance workgroups, the CMAS Models-3/CMAQ External Advisory Committee (EAC) and is currently a member of the Scientific Technical Modeling Peer Review Advisory Group (STMPRAG) for the South Coast Air Quality Management District (SCAQMD) offering advice on South Coast (Los Angeles) Air Basin ozone and particulate matter air quality issues. He was also a former member of the Air Quality Modeling Subcommittee of the Science Advisory Board (SAB) advising USEPA on their air program.

Ralph has been assisting U.S. EPA in developing air quality modeling techniques for over 30 years addressing near-source, far-field and photochemical modeling issues. In the 1980s, Ralph was one of the pioneers in modeling air pollution in Los Angeles using one of the first ever PGMs, the Urban Airshed Model (UAM). Ralph managed the EPA Five Cities UAM Study for the United States Environmental Protection Agency (USEPA) that demonstrated the use the UAM PGM for ozone air quality planning culminating in the delivery of the UAM to USEPA in 1990 as a turn-key modeling system with USEPA subsequently designating the UAM as the guideline (Appendix W) model for ozone modeling. Also during the 1980s Ralph was part of the EPRI Plume Model Evaluation study and performed numerous work assignments for EPA evaluating air quality modeling techniques for



CONTACT INFORMATION Ralph E Morris

rmorris@ramboll.com
+1 (415) 899-0708

Ramboll
773 San Marin Drive
Suite 2115
Novato, CA 94998
United States of America

Gaussian Plume Models. In the late 1980s and early 1990s, Ralph led the development of the next generation variable grid PGM (UAM-V) that treats urban city and regional transport issues within the same model and was used by the Ozone Transport Assessment Group (OTAG) to define the first regional control strategies designed to reduce the contributions of ozone transport in the eastern U.S. (i.e., NOx SIP Call). Ralph also led the development of ozone and PM_{2.5} State Implemental Plans (SIPs) for numerous cities to allow them to achieve clean air. After joining Ramboll (then ENVIRON International Corporation) in 1994, Ralph was one of the leaders in the development of the CAMx PGM that is being used today around the world for air quality planning, including for USEPA's transport rules. Ralph continues to be one of the leaders in the development of the CAMx model and applies a variety of air quality models (e.g., AERMOD, CALPUFF, CMAQ and CAMx) to address air quality and air quality related values (AQRVs, e.g., visibility and deposition) for numerous types of sources including on-road and non-road mobile, oil and gas, electricity generation, consumer products and refineries, chemical plants and other industrial facilities.

CAREER

1994-Present

Managing Principal

Ramboll (formerly Ramboll Environ and ENVIRON International Corporation), Novato, California, United States

1979-1994

Manager Advanced Modeling Group and Director of Model Development Program

ICF - Systems Applications International, San Rafael, California, United States

1977-1979

Associate Professor

University of California, Davis, California, United States

EDUCATION

1977-1979

MA, Mathematics

University of California, Davis, California, United States

1974-1976

BA, Mathematics

University of California, Berkeley, California, United States

1972-1974

University of California, San Diego, California, United States

EXPERIENCE

Over the last 38 years, Ralph has been involved in thousands of air quality studies. These studies include the assessment of the near-source and far-field impacts of many different types of sources and the development of clean air plans for cities, states and countries so that they attain air quality standards. A few examples for some of Ralph's most recent projects are provided below.

- Navajo Generating Station Environmental Impact Statement. Principal-in-Charge for coordinating portions of the Environmental Impact Statement (EIS) required under the National Environmental Policy Act (NEPA) for the Navajo Generating Station coal-fired power plant and Kayenta Coal Mine Complex in Arizona. Technical services include local and regional air quality modeling and analysis of air monitoring data for criteria and hazardous air pollutants, assessments of human health risk and ecological risk due to atmospheric deposition from the emission sources, and preparation of

Technical Support Documents for the EIS. The NGS EIS was the most comprehensive air quality assessment ever performed under NEPA.

- Allegheny County Annual PM_{2.5} State Implementation Plan. Principal-in-Charge for performing the air quality modeling to define emissions control strategy to demonstrate that Allegheny County (Pittsburgh), Pennsylvania will attain the annual PM_{2.5} National Ambient Air Quality Standard (NAAQS). Performed 36/12/4/1.30.444 km WRF meteorological modeling for the 2011 year. SMOKE emissions modeling for 2011 and 2021. CAMx regional 36/12 km modeling to provided boundary conditions for mesoscale 4/1.33 km PM source apportionment modeling for 2011 base and 2021 future years. 2021 PM control strategy evaluation.
- Evaluation of USEPA's 2011 National Air Toxics Assessment (NATA). Evaluated and assessed USEPA's 2011 NATA modeling approach and results for modeling hundreds of air toxics compounds on a national scale. The 2011 NATA combined CMAQ national modeling results for reactive and non-reactive pollutants at 12 km grid cell resolution with AERMOD local-scale non-reactive modeling results by using the AERMOD results for receptors in the 12 km grid cell in a relative fashion to scale the CMAQ 12 km average concentrations. This unique method of model fusion of the CMAQ and AERMOD modeling results overcomes some of the issues associated with other techniques (e.g., CMAQ zero-out runs) when combining modeling results with disparate formulations.
- Dynamic Evaluation of Ozone Models for the South Coast (Los Angeles) Air Basin (SoCAB). Project Manager for conducting a dynamic evaluation of the CMAQ photochemical grid model in the SoCAB (Los Angeles, California region) using a 2008 and 2012 CMAQ modeling database. The dynamic evaluation compared the CMAQ modeled ozone trends over a long time period (1990-2015) with the observed ozone trends and found the CMAQ model underestimated the observed rate of ozone reductions over time. Potential reasons for this included the likely underestimation of VOC or overestimation of NO_x emissions in the region.
- Denver 2017 Ozone SIP Modeling. For over a decade, Ralph has led the Denver ozone SIP modeling for the 2003, 2008 and now the 2017 Denver ozone SIPs. For the Denver 2017 ozone SIP modeling we developed 2011 CAMx PGM modeling database using WRF meteorological and SMOKE emissions modeling. This included high-resolution mobile source emissions for the Denver region using link-based activity data from a Transportation Demand Model (TDM) and mobile source emission factors from MOVES2014. Conducted CAMx 2011 base case modeling and model performance evaluation. Projected emission to 2017 and 2023 and conducted emission reduction control strategy modeling to demonstrate attainment of the ozone standard.
- Allegheny County 1-Hour SO₂ State Implementation Plan. Principal-in-Charge for performing the air quality modeling to define emissions control strategy to demonstrate that Allegheny County (Pittsburgh), Pennsylvania will attain the 1-hour SO₂ National Ambient Air Quality Standard (NAAQS). Perform 36/12/4/1.3 km WRF meteorological modeling for multiple years. Conduct model shoot-out using multiple models (e.g., AERMOD, CALPUFF and SCICHEM) and model configurations to determine best performing model for simulating SO₂ and use model to demonstrate attainment of the SO₂ NAAQS.
- BLM Environmental Impact Statement and Resource Management Plan for Oklahoma, Texas and Kansas. Principal-in-Charge for preparing the air quality and climate change sections of the Environmental Impact Statement (EIS)/ Resource Management Plan (RMP) for the U.S. Bureau of Land Management (BLM) and Bureau of Indian Affairs (BIA) to guide the management of BLM- and BIA-administered lands in the states of Oklahoma, Texas and Kansas
- Western Air Quality Study (WAQS). Project Manager for WRF meteorological, SMOKE emissions and CMAQ/CAMx air quality modeling of the western U.S. to develop the next generation air quality modeling databases to address ozone, PM_{2.5}, visibility and deposition issues in the western U.S.. Develop new 2008, 2011 and 2014 regional modeling platforms and distribute using the Intermountain West Data Warehouse (IWDW). Assess the role of regional transport on ozone, PM and visibility issues in western U.S. states.
- Air Quality Impacts of Off-Shore Oil and Gas Production. Ralph is currently Principal-in-Charge for the air quality modeling portion of two studies for the Bureau of Oceanic Energy Management (BOEM) to estimate the on-shore air quality impacts due to off-shore oil and gas development in the Arctic Sea north of Alaska and the Gulf of Mexico. This multi-year multi-million dollar study

will project future year emissions and air quality impacts and develop emission exception screening thresholds.

- Air Quality Impacts of Fires. Project Manager of studies for the Joint Fire Science Program (JFSP) to assess the contributions of wildfires, prescribed burns and agricultural burning to ozone and PM air quality throughout the USA. Develop fire emission inventories and use the CAMx photochemical grid model source apportionment tool to calculate the contributions of fires to ozone and PM air quality. Results are used to identify exceptional events and assist planners in fire management practices.
- BLM Montana/Dakotas Photochemical Grid Model Modeling Study. Project Manager for the BLM Montana/Dakotas PGM modeling study to assess the air quality and AQRV impacts due to oil and gas development. The Bakken Shale formation in the Montana/Dakotas region is the most rapidly growing oil and gas development area in the U.S. Under this study, Ramboll is developing a comprehensive oil and gas emissions inventory and performing base year 2012/2013 and future year 2032 modeling using the CAMx photochemical grid model.
- Allegheny County 24-Hour PM_{2.5} SIP Modeling. The PM_{2.5} problem in Allegheny County (Pittsburgh), Pennsylvania is due to a combination of regional transport from upwind states and local sources within a river valley complex terrain environment. Ralph Morris led the Allegheny County PM_{2.5} SIP modeling effort that used the CAMx photochemical grid model with a 36 km CONUS, 12 km Midwest, 4 km southeastern Pennsylvania and 0.8 km Allegheny County grid nests to demonstrate the area would achieve the 24-hour PM_{2.5} standard by 2010. CAMx was run on the 36/12/4/0.8 km grids using two-way grid nesting. Local sources were treated using the CAMx subgrid-scale Plume-in-Grid treatment.
- Development of Air Quality Modeling System for Hong Kong. Ralph was Project Manager and led the development of a new air quality modeling system for Hong Kong. The WRF/MM5 meteorological, SMOKE/CONCEPT emissions and CMAQ/CAMx air quality models were set up for a 27/9/3/1 km modeling domain with the 36 km domain covering Asia and the 1 km domain focused on Hong Kong. The modeling system was delivered to the HKEPD as a turn-key system.
- St. Louis Ozone and PM_{2.5} SIP. Ralph led the air quality modeling efforts for the development of clean air plans for St. Louis, Missouri that were included in the St. Louis ozone and PM_{2.5} State Implementation Plans (SIPs). He worked with the states of Missouri and Illinois to identify the optimal control plan for the region and performed air quality modeling to demonstrate that St. Louis would achieve the ozone and PM_{2.5} standards.
- Air Quality Assessments in Alberta, Canada. For almost a decade, Ralph Morris has been leading air quality studies for Alberta Environment to address Canada wide standards and Province air quality goals and objectives. These activities have included developing emission inventories for the Alberta oil sands region and urban areas, conducting meteorological modeling and performing air quality modeling using the CMAQ model to address ozone, PM_{2.5}, SO₂, NO₂, exposure and deposition issues in the Province.
- Expert Testimony for Air Quality Related Issues. Because of Ralph's vast expertise in air quality issues and in particular air quality modeling, over the last two decades he has served as an expert witness in numerous litigation cases.
 - LG&E Cane Run Class Action Suit: Starting in 2015, Mr. Morris is serving as an expert witness in a case involving nuisance dust deposition from the Louisville Gas and Electric Cane Run coal-fired EGU.
 - Minnesota Power Plant Damage Assessment: During 2015, Ralph performed air quality modeling of the potential damages and costs associated with fossil-fueled power generation in Minnesota and prepared testimony.
 - Mead Westvaco Luke Mill: Expert witness and testify at trial in a case where a Maryland paper mill was accused of violating the Clean Air Act (CAA) and emitting illegal emissions (2012-2016).
 - DTE Energy Monroe: In 2010-2011 Ralph was retained as an expert witness and prepared expert report and attended trial in Detroit for the USDOJ NOV case against then Monroe coal-fired power plant in the Detroit, Michigan region.

- AEP NOV: Ralph was an expert witness for American Electric Power (AEP) from 2003-2006 for a US DOJ NOV case with charges against 9 coal-fired power plants in the Midwestern US.
- Illinois Power/Dynegy Baldwin NOV: Ralph was an expert witness for Illinois Power in the US DOJ Notice of Violation case against the Baldwin Power Plant in Illinois. Ralph prepared expert reports and was deposed on the ozone and PM impacts of the alleged excess emissions including a review and critique of the plaintiffs CALPUFF modeling that found errors and omissions.
- First Energy Sammis: Expert witness for the Sammis coal fired power plant in Ohio NOV case.
- Louisiana Generating Big Cajun 2: Ralph was an expert witness for a USDOJ NOV case against the Big Cajun 2 coal-fired power plant in Baton Rouge, Louisiana during 2012.
- WE Energies Power the Future: In 2004, Ralph performed air quality modeling using CAMx and testified in front of a judge in Madison, WI on the Wisconsin Electric's plans to retire an old and build a new coal fired power plant at the Oak Creek facility. Testimony also included a critical review of CALPUFF modeling performed by the opponents.
- Minnesota Acid Rain Legislation: In the early 1980s Ralph performed modeling and testified in Minneapolis, MN in front of a judge for Northern States Power regarding the impacts of local sources in Minnesota on acid deposition in Minnesota.
- Oil and Gas Environmental Impact Statements. Over the last two decades Ralph has led the air quality modeling component of several oil and gas Environmental Impact Statements (EIS) and Resource Management Plans (RMPs) to assess the air quality, visibility and deposition impact of oil and gas development in Colorado, Kansas, Montana, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Utah and Wyoming.
- Air Quality Permitting Studies. As part of the permitting process, Ralph has conducted numerous air quality modeling studies to demonstrate that new or modified sources would be compliant with air quality standard and thresholds of concern. Sources evaluated include coal and natural gas powered electricity generation; cement plants and oil and gas production, distribution and refining.
- Air Quality Impacts of Mobile Sources. Ralph has performed numerous studies to assess the air quality impacts of alternative engine technologies and fuels. In the 1980s he modeled the air quality impacts of alternative fuels in five cities for the USEPA. In the 1990s he led the air quality modeling component of the \$20M Auto/Oil Program for the automobile manufacturers and oil companies. He also led the assessment of the air quality impacts of hybrid vehicles for a joint study by General Motors and Toyota. More recently he evaluated air quality impacts of passenger vehicles for Toyota and the air quality impacts in California due to the use of biodiesel in on-road and non-road diesel engines.
- Technical Assistance to USEPA. For over three decades, Ralph has provided technical assistance to the USEPA to assist them in implementing their air program and developing the USEPA air quality modeling techniques and guidelines. This assistance included demonstrating modeling techniques for near-source Gaussian plume models and demonstrating how photochemical grid models (PGMs) can be used in ozone air quality planning and delivering the UAM PGM to USEPA in 1990 as a turn-key PGM ozone modeling system. In 2011-2012 Ralph evaluated six long range transport (LRT) models using atmospheric field study tracer tests, evaluated chemical dispersion models using aircraft data and demonstrated how a PGM can be used for single-source modeling that helped EPA formulate their new July 2015 air quality modeling guidelines. More recently he assisted USEPA in updating chemical mechanisms in the CAMx and CMAQ models and implement improved aqueous-chemistry and secondary organic aerosol modules.
- Various Clients. Prior to joining ENVIRON, Ralph worked for over 15 years at Systems Applications International (SAI) in San Rafael (now part of ICF Consulting), California, where he was Director of the Advanced Modeling Program, managed model development activities and air quality modeling and analysis studies. His work at SAI included the development and application of the RPM, UAM, UAM-V and REMSAD modeling systems.

TEACHING EXPERIENCE

1977-1979

Calculus, University of California at Davis

CURRENT MEMBERSHIPS

Air and Waste Management Association (AWMA)

Air Quality Modeling Subcommittee (AQMS) of the Science Advisory Board (SAB)

EPA Fine Particulate Modeling Guidance Workgroup

EPA UAM Guidance Workgroup

Scientific Technical Modeling Peer Review Advisory Group (STMPRAG) for the South Coast Air Quality Management District (SCAQMD) SIP Air Quality Modeling

FORMER MEMBERSHIPS

Air Quality Modeling Subcommittee (AQMS) of the Science Advisory Board (SAB)

EPA Fine Particulate Modeling Guidance Workgroup

EPA UAM Guidance Workgroup

Message

From: Savage, Justin A. [jsavage@sidley.com]
Sent: 12/1/2017 2:56:34 PM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
CC: Whitfield, Peter [pwhitfield@sidley.com]
Subject: RE: CPP Panel - Energy Bar Association - 12/19/17 @ 6 pm

Justin,

Thanks for agreeing to be on the CPP panel on 12/19. The other panelists are as follows:

- Mike Dowd, Air Director, Virginia DEQ;
 - Tom Lorenzen, Crowell & Mooring; and
 - David Doniger, NRDC.
1. Logistics: We'd like you to arrive at 5:45 pm. The panel discussion ends at 7 pm. A reception will follow until 8 pm if you'd like to attend. Our firm is located at 1501 K Street.
 2. Prep Call: We're trying to schedule a prep call next week. We'll be circulating a Doodle link to coordinate on availability.
 3. Your Bio: We need a bio to introduce you before the panel begins. Here's a draft version, but please feel free to use whatever bio you'd like. I promise not to ask Peter for anything embarrassing to include!

Justin Schwab, Deputy General Counsel, EPA. Justin serves as the Deputy General Counsel at EPA, a politically appointed position that includes legal oversight of several significant EPA rulemaking actions under the Clean Air Act. He previously worked on several high-profile matters involving the Clean Air Act at his former law firm, Baker & Hostetler. Justin previously clerked for both Judge Richard Wesley on the U.S. Court of Appeals for the Second Circuit and Justice Christine Durham on the Utah Supreme Court. He holds a law degree from Yale University and a Ph.D. in classics from the University of California at Berkley.

4. Registration link: Here's the registration link for the event. The Energy Bar Association is the lead sponsor, but the DC Bar and ABA will co-sponsor as well. <http://eba-net.org/eba-energizer-clean-power-plan-what-lies-beyond>. Note that media are barred from registering for this event.

Have a good weekend,

Justin

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005

Ex. 6
(Office)
(Cell)
jsavage@sidley.com
www.sidley.com

This e-mail is sent by a law firm and may contain information that is privileged or confidential.
If you are not the intended recipient, please delete the e-mail and any attachments and notify us
immediately.

Message

From: Dowd, Michael (DEQ) [Michael.Dowd@deq.virginia.gov]
Sent: 12/18/2017 12:19:34 PM
To: Savage, Justin A. [jsavage@sidley.com]; Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]; Doniger, David [ddoniger@nrdc.org]; Lorenzen, Thomas [TLorenzen@crowell.com]
Subject: RE: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond

Looks good to me too.....

Michael G. Dowd
Director, Air and Renewable Energy Division
Virginia Department of Environmental Quality
629 E. Main Street
Richmond, VA 23219
Phone: Ex. 6

From: Savage, Justin A. [mailto:jsavage@sidley.com]
Sent: Sunday, December 17, 2017 10:04 PM
To: Schwab, Justin; Doniger, David; Dowd, Michael (DEQ); Lorenzen, Thomas
Subject: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond

Folks,

Here's the draft outline of the Clean Power Plan event, including proposed questions. Any feedback, including additions or deletions, are welcome. Thanks again for generously volunteering your time to this event and look forward to seeing you on Tuesday.

Best,
Justin

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005

Ex. 6 (Office)
Ex. 6 (Cell)
jsavage@sidley.com
www.sidley.com

SIDLEY

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Message

From: Doniger, David [ddoniger@nrdc.org]
Sent: 12/18/2017 3:59:07 AM
To: Savage, Justin A. [jsavage@sidley.com]
CC: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]; Dowd, Michael (DEQ) [Michael.Dowd@deq.virginia.gov]; Lorenzen, Thomas [TLorenzen@crowell.com]
Subject: Re: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond

Works for me.

Sent from my iPhone

On Dec 17, 2017, at 10:05 PM, Savage, Justin A. <jsavage@sidley.com> wrote:

Folks,

Here's the draft outline of the Clean Power Plan event, including proposed questions. Any feedback, including additions or deletions, are welcome. Thanks again for generously volunteering your time to this event and look forward to seeing you on Tuesday.

Best,
Justin

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005

Ex. 6 (Office)

jsavage@sidley.com
www.sidley.com

<image001.png>

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<EBA CPP outline of event 12.17.17.docx>

Message

From: Savage, Justin A. [jsavage@sidley.com]
Sent: 12/18/2017 3:57:40 AM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
CC: Whitfield, Peter [pwhitfield@sidley.com]
Subject: RE: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond
Attachments: EBA CPP speaker bios.docx

Ok, great. Here's the revised bio.

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP

Ex. 6

jsavage@sidley.com

From: Schwab, Justin [mailto:Schwab.Justin@epa.gov]
Sent: Sunday, December 17, 2017 10:48 PM
To: Savage, Justin A. <jsavage@sidley.com>
Cc: Whitfield, Peter <pwhitfield@sidley.com>
Subject: Re: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond

Thank you. The only change I'd suggest is instead of saying my position involves legal oversight of several important regulations etc, say instead "..., and his portfolio includes legal oversight of the agency's activities under Title I of the Clean Air Act."

Sent from my iPhone

On Dec 17, 2017, at 10:43 PM, Savage, Justin A. <jsavage@sidley.com> wrote:

Here's the speaker bios.

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP

Ex. 6

jsavage@sidley.com

From: Savage, Justin A.
Sent: Sunday, December 17, 2017 10:25 PM
To: 'Schwab, Justin' <Schwab.Justin@epa.gov>
Cc: Whitfield, Peter <pwhitfield@sidley.com>
Subject: RE: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond

Ok, thanks! Will do on bios!

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP

Ex. 6

jsavage@sidley.com

From: Schwab, Justin [<mailto:Schwab.Justin@epa.gov>]
Sent: Sunday, December 17, 2017 10:21 PM
To: Savage, Justin A. <jsavage@sidley.com>
Cc: Whitfield, Peter <pwhitfield@sidley.com>
Subject: Re: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond

(2)(b) is going to result in a flat punt so maybe best to take it out. There'll be some softer punting elsewhere in (2) but (b) is the only one that might be worth dropping. Generally looks good and should be a good discussion.

Could I possibly see the other panelists' bios? I'm the youngest and least known so I want to make sure that mine is in line with theirs in tone, etc. I may want to edit mine a little to that end (even if that makes it shorter than theirs....)

Thanks again for inviting me to participate. It's an honor.

Sent from my iPhone

On Dec 17, 2017, at 10:06 PM, Savage, Justin A. <jsavage@sidley.com> wrote:

Justin,

If any of these cause headaches or outside your purview, let Peter know and we'll strip out.

Thanks,

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP

Ex. 6

jsavage@sidley.com

From: Savage, Justin A.
Sent: Sunday, December 17, 2017 10:04 PM
To: 'Schwab, Justin' <Schwab.Justin@epa.gov>; 'Doniger, David' <ddoniger@nrdc.org>; 'Dowd, Michael (DEQ)' <Michael.Dowd@deq.virginia.gov>; Lorenzen, Thomas <TLorenzen@crowell.com>
Subject: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond

Folks,

Here's the draft outline of the Clean Power Plan event, including proposed questions. Any feedback, including additions or deletions, are welcome. Thanks again for generously volunteering your time to this event and look forward to seeing you on Tuesday.

Best,
Justin

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005

Ex. 6 (Office)
(Cell)
jsavage@sidley.com
www.sidley.com

<image001.png>

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<EBA CPP outline of event 12.17.17.docx>

<EBA CPP speaker bios.docx>

The Clean Power Plan: What Lies Beyond - Speaker Biographies

David Doniger, Director, Climate & Clean Air Program, NRDC, Washington, D.C. David has been at the forefront of the battle against air pollution and global climate change since he joined NRDC in 1978. He helped formulate the Montreal Protocol, an international agreement designed to stop the depletion of the earth's ozone layer, as well as several essential amendments to the Clean Air Act. In 1993, he left NRDC to serve on the White House Council on Environmental Quality, followed by key posts at the U.S. Environmental Protection Agency. He rejoined NRDC in 2001 and has since been working to defend the Clean Air Act from assaults in Congress.

Michael G. Dowd is Director of the Air and Renewable Energy Division for the Virginia Department of Environmental Quality. In that position, Mr. Dowd oversees the air quality planning, permitting, compliance, monitoring and mobile source programs, as well as the Small Renewable Energy Permit by Rule program for the Commonwealth. Prior to becoming Air Director, Mr. Dowd served as DEQ's Enforcement Director. Before joining DEQ, Mr. Dowd was an attorney in private practice with law firms in Richmond, Virginia, Washington, D.C., and Columbus, Ohio. Mr. Dowd is a graduate of Columbia University and holds a J.D. from Vermont Law School. He is a recipient of EPA's Bronze Medal. Mr. Dowd is Treasurer and Past Chairman of the Mid-Atlantic Regional Air Management Association (MARAMA), Committee co-chair and former Board Member of the National Association of Clean Air Agencies (NACAA), Board Member of Southeast States Air Resources Management, Inc. (SESARM), a member of the Executive Committee of the National Council on Electricity Policy, and a member of the Harvard Electricity Policy Group.

Thomas Lorenzen, Partner, Crowell & Moring's Washington, DC. Tom is a member of the Environment & Natural Resources and Government Affairs groups at Crowell & Moring, where he focuses on the development and judicial review of federal environmental regulations. Tom was the principal author of the challengers' procedural and record issue briefs in the Clean Power Plan case and argued a portion of the case when it was heard by the D.C. Circuit sitting en banc in September 2016. For nearly a decade, from 2004 to 2013, Tom was the Assistant Chief at the Department of Justice responsible for managing the legal defense of all EPA rules. There, he oversaw many of the seminal environmental cases of the last decade, including *Massachusetts v. EPA*, in which the Supreme Court affirmed EPA's authority to regulate greenhouse gases under the Clean Air Act, and *Coalition for Responsible Regulation v. EPA*, in which the D.C. Circuit upheld EPA's first suite of greenhouse gas regulations.

Justin Schwab, Deputy General Counsel, EPA. Justin serves as Deputy General Counsel at EPA, a politically appointed position, and his portfolio includes legal oversight of the agency's activities under Title I of the Clean Air Act. Justin first joined the Agency at the start of the new administration as legal advisor to the 'beachhead' team. He previously worked on several high-profile matters involving the Clean Air Act at his former law firm, Baker & Hostetler. Justin previously clerked for both Judge Richard Wesley on the U.S. Court of Appeals for the Second Circuit and Justice Christine Durham on the Utah Supreme Court. He holds a law degree from Yale University and a Ph.D. in classics from the University of California at Berkeley.

Message

From: Whitfield, Peter [pwhitfield@sidley.com]
Sent: 11/7/2017 2:20:10 PM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Hey Justin,
I hope you can make it for a drink this Thursday. New contact info below.

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
Ex. 6
pwhitfield@sidley.com

From: DC Events - Sidley Austin LLP
Sent: Tuesday, November 7, 2017 9:01 AM
Subject: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

[VIEW ON MOBILE DEVICE](#) | [VIEW ONLINE](#)



Join us for a cocktail reception
with the newest lawyers in
Sidley's Environmental Practice:
Richard Alonso, Justin A. Savage,
Andrew R. Stewart and Peter
Whitfield.

Thursday, November 9
5:30 p.m. – 7:30 p.m.

SIDLEY
1501 K Street, N.W.
Washington, D.C. 20005

[RSVP HERE](#)

For questions or additional information, please
contact DCEvents@sidley.com.

NEW PARTNERS AND COUNSEL

Rich Alonso
Partner

Justin A. Savage
Partner

Andrew R. Stewart
Counsel

Peter Whitfield
Counsel

SIDLEY

AMERICA • ASIA PACIFIC • EUROPE

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Sidley Austin LLP, 1501 K Street, N.W., Washington, D.C. 20005

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Message

From: Savage, Justin A. [jsavage@sidley.com]
Sent: 12/18/2017 3:42:46 AM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
CC: Whitfield, Peter [pwhitfield@sidley.com]
Subject: RE: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond
Attachments: EBA CPP speaker bios.docx

Here's the speaker bios.

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP
Ex. 6
jsavage@sidley.com

From: Savage, Justin A.
Sent: Sunday, December 17, 2017 10:25 PM
To: 'Schwab, Justin' <Schwab.Justin@epa.gov>
Cc: Whitfield, Peter <pwhitfield@sidley.com>
Subject: RE: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond

Ok, thanks! Will do on bios!

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP
Ex. 6
jsavage@sidley.com

From: Schwab, Justin [<mailto:Schwab.Justin@epa.gov>]
Sent: Sunday, December 17, 2017 10:21 PM
To: Savage, Justin A. <jsavage@sidley.com>
Cc: Whitfield, Peter <pwhitfield@sidley.com>
Subject: Re: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond

(2)(b) is going to result in a flat punt so maybe best to take it out. There'll be some softer punting elsewhere in (2) but (b) is the only one that might be worth dropping. Generally looks good and should be a good discussion.

Could I possibly see the other panelists' bios? I'm the youngest and least known so I want to make sure that mine is in line with theirs in tone, etc. I may want to edit mine a little to that end (even if that makes it shorter than theirs....)

Thanks again for inviting me to participate. It's an honor.

Sent from my iPhone

On Dec 17, 2017, at 10:06 PM, Savage, Justin A. <jsavage@sidley.com> wrote:

Justin,

If any of these cause headaches or outside your purview, let Peter know and we'll strip out.

Thanks,

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP

Ex. 6

jsavage@sidley.com

From: Savage, Justin A.

Sent: Sunday, December 17, 2017 10:04 PM

To: 'Schwab, Justin' <Schwab.Justin@epa.gov>; 'Doniger, David' <ddoniger@nrdc.org>; 'Dowd, Michael (DEQ)' <Michael.Dowd@deq.virginia.gov>; Lorenzen, Thomas <TLorenzen@crowell.com>

Subject: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond

Folks,

Here's the draft outline of the Clean Power Plan event, including proposed questions. Any feedback, including additions or deletions, are welcome. Thanks again for generously volunteering your time to this event and look forward to seeing you on Tuesday.

Best,

Justin

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP

1501 K Street, N.W.

Washington, DC 20005

Ex. 6

(Office)

(Cell)

jsavage@sidley.com

www.sidley.com

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<EBA CPP outline of event 12.17.17.docx>

The Clean Power Plan: What Lies Beyond - Speaker Biographies

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Message

From: Whitfield, Peter [pwhitfield@sidley.com]
Sent: 12/13/2017 2:29:42 PM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
CC: Savage, Justin A. [jsavage@sidley.com]
Subject: CPP Panel

Justin,

We have had some requests for press attendance at the event and wanted to check with you to see if it is ok if they attend or if you would rather us keep the no press requirement. Let us know your thoughts.

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005
Direct **Ex. 6**
Mobile
pwhitfield@sidley.com
www.sidley.com

SIDLEY

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Message

From: Savage, Justin A. [jsavage@sidley.com]
Sent: 12/18/2017 3:04:25 AM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]; Doniger, David [ddoniger@nrdc.org]; Dowd, Michael (DEQ) [Michael.Dowd@deq.virginia.gov]; Lorenzen, Thomas [TLorenzen@crowell.com]
Subject: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond
Attachments: EBA CPP outline of event 12.17.17.docx

Folks,

Here's the draft outline of the Clean Power Plan event, including proposed questions. Any feedback, including additions or deletions, are welcome. Thanks again for generously volunteering your time to this event and look forward to seeing you on Tuesday.

Best,
Justin

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005

(Office)
Ex. 6
(Cell)
jsavage@sidley.com
www.sidley.com

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Energy Bar Association “Energizer”

**The Clean Power Plan: What Lies Beyond – Draft Outline
of Panel Discussion**

Introduction (6:00 pm – 6:05 pm)

- Welcome the in-person and phone audience

- Lay out the ground rules of event
 - Panel discussion, followed by audience Q&A
 - For the press: Off-the-record for panel discussion, available afterwards to talk on background
 - Reception to follow

- Introduce the speakers
 - Couple sentences each – detailed biographies in written materials
 - Doniger, Dowd, Lorenzen, Schwab
 - Make sure and note that Schwab is speaking in his personal capacity and that his remarks don’t necessarily reflect the views or opinions of the agency [the standard disclaimer language for government speakers]

[PAGE * MERGEFORMAT]

Opening Remarks by the Panelists (6:05 – 6:20)

- We'll begin with a few minutes of opening remarks from each of the panelists (target 3 minutes each)
- Order of opening remarks by panelists [contrasting viewpoints between speakers]
 - Begin with Justin Schwab, then David Doniger, Tom Lorenzen, and Mike Dowd

Questions to the Panel (6:20 – 6:45)*

*Intended to elicit dialogue; we'll never cover all questions of these and some may overlap

1. Let's start with a question for David Doniger. Bill Wehrum has been quoted at a recent Clean Air Advisory Committee meeting as saying that the replacement for the Clean Power Plan would likely be an "inside-the-fenceline" 111(d) standard. From your perspective, does an acceptable replacement for the Clean Power Plan have to go "beyond the fenceline"?

→ After David concludes, elicit comment from other panelists

[PAGE * MERGEFORMAT]

2. The next few questions are for Justin Schwab. Recognizing that you're in the middle of the deliberative process, what's personal insights, if any, can you share about the advanced notice of proposed rulemaking to replace the Clean Power Plan?

- a. How long does EPA anticipate will be needed to complete the rulemaking process?
- b. Will EPA take comment on repealing the endangerment finding?
- c. The Clean Power Plan contained an "inside-the-fenceline" requirement in the form of Building Block 1, which imposed emission rates on individual units. Why not maintain Building Block 1, instead of an ANPR?

→ After Justin concludes, elicit comment from other panelists

3. Now a question for Tom Lorenzen. Let's assume that the repeal and replacement of the Clean Power Plan happens in this Administration and survives judicial review. What, if anything, would prevent a new administration in 2020 from attempting to resurrect the Clean Power Plan?

→ After Tom concludes, elicit comment from other panelists

4. Mike Dowd, you've been at the forefront in Virginia and in state air control associations in working on greenhouse gas issues. What impact, if any, would the repeal of the Clean Power Plan have on state efforts to regulate greenhouse gases?

→ After Mike concludes, elicit comment from other panelists

5. David, the energy mix in our nation continues to shift away from coal-fired generation toward natural gas and renewables. How – if at all – does the repeal of the Clean Power Plan affect that shift?

→ After David concludes, elicit comment from other panelists

6. Justin, the proposal to repeal the Clean Power Plan contains several new approaches to accounting for costs and benefits in Regulatory Impact Analyses, including the social-cost of carbon, co-benefits and international benefits. Can you walk us through those changes at a high level and provide insight on whether the Agency intends to follow the same approach in future rulemakings?

→ After Justin concludes, elicit comment from other panelists

7. Mike, I know that Virginia has recently released draft carbon regulations. Can you give us a sense on where Virginia is headed on that issue?

→ After Mike concludes, elicit comment from other panelists

8. Lightning round. We'll throw out a few short phrases that have come up in the CPP debate and ask for our panelists reactions in a sentence or two (we'll cut off those with logorrhea).

- a. Federalism
- b. Federal carbon tax
- c. Supreme Court
- d. Climate change
- e. Renewables

Audience Q&A (6:45 – 7:00)

- Repeat the questions from the in-person audience for the benefit of those on the phone
- The audience can sometimes be “cold” and so a panelist might propose a question; however, let's give the audience a chance to participate before going that route.

Concluding remarks (7:00)

- Thank panelists and invite to the reception

[PAGE * MERGEFORMAT]

[PAGE * MERGEFORMAT]

Message

From: Paul Sapperstein [psapperstein@freedomworks.org]
Sent: 8/31/2017 4:06:45 PM
To: Morris, Madeline [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=f42c86b4a2044779972ac94e098f0304-Morris, Mad]
CC: Dickerson, Aaron [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d0440d9f06994021827e0d0119126799-Dickerson,]; Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
Subject: Re: Meeting with Adam Brandon, FreedomWorks

Hi Madeline,

Wanted to circle back to find a time for Adam and Admin. Pruitt to connect. Please me know if any of these dates work: September 20-22, or 25-26th. If not, let me know and we can look to other dates.

Thanks,
Paul



On Thu, Aug 24, 2017 at 3:54 PM, Paul Sapperstein <psapperstein@freedomworks.org> wrote:
HI Madeline,

Just wanted to circle back to try to get Adam in with Admin. Pruitt. Would any of the following days work? September 20-22, or 25-26th.

Thanks!
Paul



On Fri, Aug 4, 2017 at 9:25 AM, Paul Sapperstein <psapperstein@freedomworks.org> wrote:
Madeline,

It looks like Adam is going to be traveling much of that week. Would the Administrator have any availability September 22, 25, or 26th? Hopefully we can land on a day that works for them both soon! :)

Paul



On Wed, Aug 2, 2017 at 3:07 PM, Morris, Madeline <morris.madeline@epa.gov> wrote:

Sorry for the delay! How does the afternoon on September 13th work for you?

From: Paul Sapperstein [mailto:psapperstein@freedomworks.org]

Sent: Monday, July 24, 2017 9:42 AM

To: Morris, Madeline <morris.madeline@epa.gov>

Subject: Re: Meeting with Adam Brandon, FreedomWorks

No worries. Adam is scheduled to travel much of that week. What days work best for Administrator Pruitt the week of September 11 and I'll see what we can work?

Thanks,

Paul

On Fri, Jul 21, 2017 at 9:58 AM, Morris, Madeline <morris.madeline@epa.gov> wrote:

Hi Paul,

The administrator actually needs to travel next week now. So sorry for the inconvenience this has caused on your end. Can we look at the week of September 11th?

Appreciate your help!

Best,
Maddy

From: Paul Sapperstein [mailto:psapperstein@freedomworks.org]

Sent: Monday, July 17, 2017 3:00 PM

To: Morris, Madeline <morris.madeline@epa.gov>

Subject: Re: Meeting with Adam Brandon, FreedomWorks

Hi Madeline,

I just wanted to confirm that we're set for the meeting next Thursday, 7/27 at 11am at the EPA office.
Thanks!

Paul

On Tue, Jun 27, 2017 at 9:00 AM, Morris, Madeline <morris.madeline@epa.gov> wrote:

Thanks!

From: Paul Sapperstein [mailto:psapperstein@freedomworks.org]

Sent: Tuesday, June 27, 2017 8:22 AM

To: Morris, Madeline <morris.madeline@epa.gov>

Subject: Re: Meeting with Adam Brandon, FreedomWorks

Hi Madeline,

Attached is the completed form, let me know if you need any other details. Thanks!

Paul

On Mon, Jun 26, 2017 at 12:58 PM, Morris, Madeline <morris.madeline@epa.gov> wrote:

Here you go!

From: Paul Sapperstein [mailto:psapperstein@freedomworks.org]

Sent: Monday, June 26, 2017 12:53 PM

To: Morris, Madeline <morris.madeline@epa.gov>

Subject: Re: Meeting with Adam Brandon, FreedomWorks

Thanks Madeline,

That will work great! I have not filled out the form. If you send that over, I'll be happy to fill it out.
Thanks!

Paul

On Mon, Jun 26, 2017 at 11:23 AM, Morris, Madeline <morris.madeline@epa.gov> wrote:

Hi Paul,

I'm the administrator's new scheduler, and would be happy to find a time for you. Did you fill out a meeting request form? If not I can send you one. It looks like currently we have 11am on the 27th open. Does that work for Mr. Brandon?

Appreciate the help!

Best,
Maddy

From: Paul Sapperstein [<mailto:psapperstein@freedomworks.org>]
Sent: Monday, June 26, 2017 9:38 AM
To: Hupp, Sydney <hupp.sydney@epa.gov>
Cc: Morris, Madeline <morris.madeline@epa.gov>; Dickerson, Aaron <dickerson.aaron@epa.gov>
Subject: Re: Meeting with Adam Brandon, FreedomWorks

Sydney,

So sorry for my delayed response. Somehow your reply went into my spam folder. Adam is getting married next weekend, so the month of July is pretty full.

Would a meeting on July 27th or 28th work on your end? Adam is open except for after 3pm on the 27th. Thanks!

Paul

On Mon, Jun 19, 2017 at 12:28 PM, Hupp, Sydney <hupp.sydney@epa.gov> wrote:

Hey Paul,

Apologies for the delay! Justin sent over the below communication to me. We are pretty crammed this week. Is there any way we could look at a later date?

Thank you!

Sydney

Sydney Hupp

Executive Scheduler

Office of the Administrator

Ex. 6 (c)

From: Schwab, Justin

Sent: Monday, June 5, 2017 4:06 PM

To: Jackson, Ryan <jackson.ryan@epa.gov>; Hupp, Sydney <hupp.sydney@epa.gov>

Subject: Fwd: Meeting with Adam Brandon, FreedomWorks

Sent from my iPhone

Begin forwarded message:

From: Paul Sapperstein <psapperstein@freedomworks.org>
Date: June 5, 2017 at 4:02:20 PM EDT
To: <Schwab.justin@epa.gov>
Subject: Meeting with Adam Brandon, FreedomWorks

Hi Justin,

Adam Brandon, President of FreedomWorks, asked me to reach out to see if Administrator Pruitt would be available for a meeting the week of June 19th to discuss our shared priorities. Adam is flexible that week and we could work with Administrator Pruitt's schedule.

I look forward to getting this on the books!

Thanks,

Paul

--

Paul Sapperstein

Executive Assistant

FreedomWorks

psapperstein@freedomworks.org

(202) 783-3870 (office)

Ex. 6 (direct)
(cell)

400 North Capitol St NW #765
Washington, DC 20001

The mission of FreedomWorks is to build, educate, and mobilize the largest network of activists advocating the principles of smaller government, lower taxes, free markets, personal liberty, and the rule of law.

--

Paul Sapperstein

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Ex. 6 (direct)
(cell)

400 North Capitol St NW #765
Washington, DC 20001

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Message

From: Whitfield, Peter [pwhitfield@sidley.com]
Sent: 11/20/2017 7:56:02 PM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Fantastic. It will be a great panel

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005

Ex. 6

pwhitfield@sidley.com
www.sidley.com

From: Schwab, Justin <Schwab.Justin@epa.gov>
Date: Friday, Nov 17, 2017, 6:51 PM
To: Whitfield, Peter <pwhitfield@sidley.com>
Subject: Re: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

I'm in.

Sent from my iPhone

On Nov 17, 2017, at 12:17 PM, Whitfield, Peter <pwhitfield@sidley.com> wrote:

It is set for Dec. 19 at 5pm

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005

Ex. 6

pwhitfield@sidley.com
www.sidley.com

From: Schwab, Justin <Schwab.Justin@epa.gov>
Date: Friday, Nov 17, 2017, 10:58 AM
To: Whitfield, Peter <pwhitfield@sidley.com>
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

When (with as much specificity is known now) is the panel taking place?

From: Schwab, Justin
Sent: Friday, November 17, 2017 10:57 AM
To: 'Whitfield, Peter' <pwhitfield@sidley.com>
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Will aim for that. Thank you for letting me know the time frame.

From: Whitfield, Peter [mailto:pwhitfield@sidley.com]
Sent: Friday, November 17, 2017 10:52 AM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Great. If there is a way to find out whether you can be part of the panel by COB Monday that would be great.

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
Direct
Mobile: **Ex. 6**
pwhitfield@sidley.com

From: Schwab, Justin [mailto:Schwab.Justin@epa.gov]
Sent: Friday, November 17, 2017 10:47 AM
To: Whitfield, Peter <pwhitfield@sidley.com>
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Would be happy to but need to run it by others here given the sensitivity. Will follow up.

Would very much like lunch with you and DF soon. Will reach out to him on that.

From: Whitfield, Peter [mailto:pwhitfield@sidley.com]
Sent: Friday, November 17, 2017 10:29 AM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Quick question for you – we are planning a panel for the energy bar association on the CPP and have lined up Tom Lorenzen (Crowell), Dave Doniger (NRDC), Mike Myers (NY AG's office) and we need to fill in a spot from the EPA – we had Ethan Shenkman serve in that role in the past, but he is no longer there. Any chance you or someone you would recommend would be interested in participating?

Would be great to grab lunch with you and Fotouhi – maybe the week after Thanksgiving?

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
Direct
Mobile: **Ex. 6**
pwhitfield@sidley.com


From: Schwab, Justin [<mailto:Schwab.Justin@epa.gov>]
Sent: Thursday, November 9, 2017 4:14 PM
To: Whitfield, Peter <pwhitfield@sidley.com>
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Unfortunately I probably will not be able to – David Fotouhi and I would like to have lunch with you and Justin soon though....

From: Whitfield, Peter [<mailto:pwhitfield@sidley.com>]
Sent: Tuesday, November 7, 2017 9:20 AM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Hey Justin,
I hope you can make it for a drink this Thursday. New contact info below.

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP

pwhitfield@sidley.com

From: DC Events - Sidley Austin LLP
Sent: Tuesday, November 7, 2017 9:01 AM
Subject: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

[VIEW ON MOBILE DEVICE](#) | [VIEW ONLINE](#)

<image001.jpg>

Join us for a cocktail reception
with the newest lawyers in
Sidley's Environmental Practice:
Richard Alonso, Justin A. Savage,
Andrew R. Stewart and Peter
Whitfield.

Thursday, November 9
5:30 p.m. – 7:30 p.m.

SIDLEY
1501 K Street, N.W.
Washington, D.C. 20005

RSVP HERE

For questions or additional information, please contact DCEvents@sidley.com.

NEW PARTNERS AND COUNSEL

Rich Alonso
Partner

Justin A. Savage
Partner

Andrew R. Stewart
Counsel

Peter Whitfield
Counsel

AMERICA • ASIA PACIFIC • EUROPE

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Message

From: COTTINGHAM, Anne [awc@nei.org]
Sent: 11/6/2017 3:57:02 PM
To: lisa.london@nrc.gov; stacy.schumann@nrc.gov; Doane, Margaret [Margaret.Doane@nrc.gov]; tarsha.moon@nrc.gov; Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]; Patrick, Monique [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=3f271920363c4aecbff1e989a6dfde9b-MPATRICK]; bernard.mcnamee@hq.doe.gov; joe@hezir.com; plejeune@balch.com; mronnlund@balch.com; NICHOL, Marcus [mrn@nei.org]; KOTEK, John [jfk@nei.org]; TUFTS, Julie [jet@nei.org]; ksutton@morganlewis.com
Subject: PRESENTATIONS AT NOVEMBER 14, 2017 NEI LEGAL ADVISORY COMMITTEE MEETING
Attachments: LAC-Fall2017_MtgAgenda.pdf

Importance: High

Ladies and Gentlemen:

On behalf of the NEI Legal Division, thank you for agreeing to speak at the upcoming fall meeting of the NEI Legal Advisory Committee, which will be held on **Tuesday, November 14, 2017**, at the NEI office (1201 F Street, NW, Suite 1100, Washington, DC).

- A copy of the meeting agenda is attached for your convenience.
- The LAC meeting will begin promptly at **9:00 AM** and run throughout the day. Speaker time slots are indicated on the agenda. Please note your scheduled time slot and plan to arrive a few minutes early. Although we do not often run ahead of schedule, it has been known to happen.
- If you have not done so already, please send a **short bio** to Legal division assistant Gia Montserrat (gam@nei.org) and me (awc@nei.org) at your earliest convenience, and no later than **Thursday, November 9**. The bio will be used by LAC Chairman Kathryn Sutton to introduce you but will not be distributed.
- If you plan to use **slides**, please forward them to Gia Montserrat and me **no later than COB on Thursday, November 9 if possible**. If you will not use any materials, do let Gia know for planning purposes.

We expect to have an informed and engaged audience. As you may know, the LAC is comprised of in-house legal counsel from NEI member companies and attorneys from member company law firms. Collectively, these lawyers form a substantial part of the U.S. “nuclear bar.” NEI’s three annual Legal Advisory Committee meetings typically draw several dozen nuclear lawyers and often others interested in particular topics.

Please feel free to contact us if you have any questions. We recognize you have many demands on your time and very much appreciate your participation.

Cordially,



ANNE W. COTTINGHAM | *Associate General Counsel*
1201 F Street, NW, Suite 1100 | Washington, DC 20004

P: Ex. 6

M: 202-497-7425
E: awc@nei.org



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LEGAL ADVISORY COMMITTEE FALL MEETING

NEI'S OFFICE | 1201 F ST NW, SUITE 1100, WASHINGTON, DC 20004

TUESDAY, NOVEMBER 14, 2017 | 9:00 AM—4:00 PM

8:00–9:00 AM	REGISTRATION & BREAKFAST
9:00–9:15 AM	I. WELCOME & ADMINISTRATIVE MATTERS K. Sutton (Partner, Morgan, Lewis & Bockius) <i>LAC Chairman</i> E. Ginsberg (Vice President, General Counsel and Secretary, NEI)
9:15–10:00 AM	II. BERNARD L. MCNAMEE Deputy General Counsel, Energy Policy, U.S. Department of Energy
10:00–10:30 AM	III. NATIONAL NUCLEAR ENERGY STRATEGY UPDATE J. Kotek (Vice President, Policy Development and Public Affairs, NEI)
10:30–10:45 AM	BREAK
10:45–11:30 AM	IV. MARGARET M. DOANE General Counsel, U.S. Nuclear Regulatory Commission
11:30–12:00 PM	V. NEW PLANT UPDATE P. LeJeune (Partner, Balch & Bingham) M. Ronnlund (Partner, Balch & Bingham)
12:00–1:00 PM	LUNCH
1:00–1:45 PM	VI. COMMISSIONER JEFFREY BARAN U.S. Nuclear Regulatory Commission
1:45–2:15 PM	VII. JUSTIN SCHWAB Deputy General Counsel, U.S. Environmental Protection Agency
2:15–2:30 PM	BREAK
2:30–3:00 PM	VIII. SMALL MODULAR REACTOR ISSUES M. Nichol (Sr. Project Manager, New Reactor Development, NEI)
3:00–3:30 PM	IX. USED FUEL FUNDING AND FEE ISSUES J. Hezir (Vice President, EOP Group, Inc.; Former Chief Financial Officer, U.S. Department of Energy)
3:30–4:00 PM	X. EMERGENT ISSUES

Message

From: Meyers, Robert [RMeyers@crowell.com]
Sent: 8/15/2017 3:17:54 AM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
Subject: RE: Urgent Meeting Request for Week of August 14th

Thank you so much for accommodating us.

Hate to bother you with such trivia, but when I called today, I used the EPA Locator number available on the web, which I assumed bumped over to your cell. Do you want us to use that number or a different number to call?

Robert J. Meyers

Ex. 6 (c)

RMeyers@crowell.com
Crowell & Moring LLP
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Attorney-Client Communication
Attorney Work Product

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From: Schwab, Justin [mailto:schwab.justin@epa.gov]
Sent: Monday, August 14, 2017 6:06 PM
To: Meyers, Robert
Cc: Minoli, Kevin; Veney, Carla; Lorenzen, Thomas; Rey, Eric A.; Martel, Jonathan S.; alison.zoellner@honeywell.com; helen.a.walter-terriononi@chemours.com
Subject: Re: Urgent Meeting Request for Week of August 14th

Robert-

4:30 should work. Please call my cell at that time.

Best,

Justin

Sent from my iPhone

On Aug 14, 2017, at 5:46 PM, Meyers, Robert <RMeyers@crowell.com> wrote:

Justin – Thank you for your prompt response.

If possible and consistent with your schedule, we could be available at 4:30 pm or thereafter tomorrow for a bilateral call. If this time doesn't work for you, please just suggest any other windows that would work on your schedule.

Robert J. Meyers

Ex. 6

Ex. 6 (c)

RMeyers@crowell.com
Crowell & Moring LLP
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Attorney-Client Communication
Attorney Work Product

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From: Schwab, Justin [<mailto:schwab.justin@epa.gov>]
Sent: Monday, August 14, 2017 11:47 AM
To: Meyers, Robert
Cc: Minoli, Kevin; Veney, Carla; Lorenzen, Thomas; Rey, Eric A.; Martel, Jonathan S.; alison.zoellner@honeywell.com; helen.a.walter-terrioni@chemours.com
Subject: Re: Urgent Meeting Request for Week of August 14th

Thank you for this message.

As we discussed earlier this morning, people's schedules both at DOJ and EPA weigh in favor of scheduling a meeting as early as possible next week.

Given the litigation context and DOJ equities inherent in a recommendation with regard to rehearing, EPA feels that it is better to defer a meeting until DOJ can participate.

If there is any particular message or information you need to convey this week in advance of that meeting next week, I am happy to receive it, including on a bilateral call if that would be convenient.

I look forward to speaking with you further on this matter.

Best,

Justin

Sent from my iPhone

On Aug 10, 2017, at 6:42 PM, Meyers, Robert <RMeyers@crowell.com> wrote:

Privileged and Confidential

We write to you concerning an urgent matter in the D.C. Circuit. We represent Chemours and Honeywell who intervened on behalf of EPA in *Mexichem v. EPA*, No. 15-1328. As you know, in *Mexichem*, the D.C. Circuit vacated part of the Environmental Protection Agency's (EPA's) 2015 rule changing the listing status for certain substances under the Agency's Significant New Alternatives Policy (SNAP) program "to the extent it requires manufacturers to replace [hydrofluorocarbons] with a substitute substance."

We would like to request a meeting with you, and whomever else you deem appropriate from EPA's Office of General Counsel, to discuss the Agency's current position regarding this litigation, specifically with respect to whether EPA expects to recommend rehearing. Because the time for recommending rehearing is so short, we respectfully request a meeting early in the week of August 14th, at a time which is convenient for your office.

Robert J. Meyers
On behalf of The Chemours Company

Ex. 6

(c)

RMeyers@crowell.com

Crowell & Moring LLP

Jonathan S. Martel
Partner, Arnold & Porter Kaye Scholer LLP
On behalf of Honeywell International, Inc.

T: **Ex. 6**

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Message

From: Rachel Lattimore [RLattimore@croplifeamerica.org]
Sent: 6/15/2017 2:15:10 PM
To: Fotouhi, David [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=febaf0d56aab43f8a9174b18218c1182-Fotouhi, Da]
CC: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
Subject: RE: CropLife America Law Committee Meeting June 15

David,

We're happy to have you both join us, and we'll make sure your name gets on the list, thanks.

Best regards,

Rachel

Rachel G. Lattimore
Senior Vice President, General Counsel, Secretary
CropLife America
1156 15th Street, NW
Suite 400
Washington, DC 20005

Ex. 6 – direct
– main
rlattimore@croplifeamerica.org
www.croplifeamerica.org

From: Fotouhi, David [mailto:fotouhi.david@epa.gov]
Sent: Thursday, June 15, 2017 8:45 AM
To: Rachel Lattimore <RLattimore@croplifeamerica.org>
Cc: Schwab, Justin <schwab.justin@epa.gov>
Subject: RE: CropLife America Law Committee Meeting June 15

Rachel:

Thanks so much for the invitation to this event. I am hopeful that I will be able to join you today along with Justin. If you wouldn't mind adding my name to the security list, I'd appreciate it.

Best regards,

David

David Fotouhi

Deputy General Counsel
Office of General Counsel
U.S. Environmental Protection Agency
Tel: +1 202.564.1976
fotouhi.david@epa.gov

From: Rachel Lattimore [<mailto:RLattimore@croplifeamerica.org>]
Sent: Thursday, June 8, 2017 12:32 PM
To: Schwab, Justin <schwab.justin@epa.gov>
Cc: Fotouhi, David <fotouhi.david@epa.gov>
Subject: RE: CropLife America Law Committee Meeting June 15

We hope to use this meeting as an opportunity to introduce you to our committee and some of the issues on which we interact with the agency. There's no need for prepared remarks, but if it would be helpful to you, we could provide a short list of more specific topics. I suspect they would generally track some of the topics raised at the ABA meeting back in April – Endangered Species, Enforcement and Regulatory Reform. I think our members would most appreciate the opportunity to meet you and hear more about your background and work day to day, learn about how Mr. Pruitt's larger plans for the agency might be translated into the work of the Office of Pesticide Programs and OECA, and any other information you could share on what the regulated community can expect in the new administration. I hope this is helpful. Please let me know if you'd like additional topics for discussion or have any other questions.

Best regards,

Rachel

Rachel G. Lattimore
Senior Vice President, General Counsel, Secretary
CropLife America
1156 15th Street, NW
Suite 400
Washington, DC 20005
Ex. 6 – direct
– main
rlattimore@croplifeamerica.org
www.croplifeamerica.org

From: Schwab, Justin [<mailto:schwab.justin@epa.gov>]
Sent: Thursday, June 8, 2017 10:45 AM
To: Rachel Lattimore <RLattimore@croplifeamerica.org>
Cc: Fotouhi, David <fotouhi.david@epa.gov>
Subject: Re: CropLife America Law Committee Meeting June 15

Thank you. What is the topic? Will I need to have prepared remarks?

Sent from my iPhone

On Jun 8, 2017, at 10:04 AM, Rachel Lattimore <RLattimore@croplifeamerica.org> wrote:

Justin,

That timing will work well for us. We look forward to seeing you at 1 pm. We'll be in a conference room on the 11th floor, 601 Mass Ave., NW. We'll leave your name with building security and they will direct you. Thanks again.

Best regards,

Rachel

Rachel G. Lattimore
Senior Vice President, General Counsel, Secretary
CropLife America
1156 15th Street, NW
Suite 400
Washington, DC 20005

Ex. 6

– direct
– main

rlattimore@croplifeamerica.org
www.croplifeamerica.org

From: Schwab, Justin [<mailto:schwab.justin@epa.gov>]
Sent: Thursday, June 8, 2017 9:52 AM
To: Rachel Lattimore <RLattimore@croplifeamerica.org>
Cc: Fotouhi, David <fotouhi.david@epa.gov>
Subject: Re: CropLife America Law Committee Meeting June 15

Examining my calendar more closely, 1-2:30 would be ideal (i have a meeting back at EPA that begins at 3).

Sent from my iPhone

On Jun 8, 2017, at 9:50 AM, Schwab, Justin <schwab.justin@epa.gov> wrote:

Rachel, I would be delighted to attend. 1-3 would work best for me that day.

Please let us know whether and what set topic you would like me/us to discuss, whether you would prefer us to prepare formal remarks, etc.

David, if you are interested and able to attend, would that work for you?

Sent from my iPhone

On Jun 8, 2017, at 9:44 AM, Rachel Lattimore <RLattimore@croplifeamerica.org> wrote:

Justin,

I'm following up on my invitation from last month to join CropLife America's law committee meeting next Thursday, June 15 at Arnold & Porter, 601 Mass Ave, NW. We'll be meeting from 8:30-4, so if there's an hour or so in that timeframe that would work best for you, please let us know - we can be flexible with other parts of our agenda. I was pleased to meet David Fotouhi at a recent ABA meeting, and extended the invitation to him, as well, so I'm copying David here. I hope one or both of you will be able to join us. Please feel free to get in touch with any questions you might have. Thanks so much for considering this invitation.

Best regards,

Rachel

Rachel G. Lattimore
Senior Vice President, General Counsel, Secretary
CropLife America
1156 15th Street, NW
Suite 400
Washington, DC 20005

Ex. 6

— direct
— main

rlattimore@croplifeamerica.org
www.croplifeamerica.org

From: Schwab, Justin [<mailto:schwab.justin@epa.gov>]
Sent: Tuesday, May 9, 2017 5:33 PM
To: Rachel Lattimore <RLattimore@croplifeamerica.org>
Subject: Re: CropLife America Law Committee Meeting June 15

Thank you very much for the invitation. I will have to confer with people here, but this sounds like a good opportunity. Please do check back closer to the date in question.

Sent from my iPhone

On May 9, 2017, at 5:31 PM, Rachel Lattimore
<RLattimore@croplifeamerica.org> wrote:

Justin,

Thanks for taking a moment to speak with me yesterday. As you requested, I'm following up by email. I called to thank you again for the interest you expressed in attending the joint ABA-CropLife America legal event we hosted on April 19. I'm sorry that your schedule did not allow you to attend. As I mentioned when we spoke about that event, CLA's Law Committee meets regularly to discuss legal topics of interest to our members, and we occasionally have guest speakers from EPA. I'd like to invite you to attend our next meeting, which will take place Thursday, June 15 at the offices of Arnold & Porter. Our schedule is flexible at this point, so if there's a time that day that would work for your schedule, we'd be happy to set that time for your remarks. If you're available, I'm happy to follow up with you or your admin on details closer to the date. Thank you for considering this request.

Best regards,

Rachel

Rachel G. Lattimore
Senior Vice President, General Counsel, Secretary
CropLife America
1156 15th Street, NW
Suite 400
Washington, DC 20005

Ex. 6 – direct
– main
rlattimore@croplifeamerica.org
www.croplifeamerica.org

Message

From: Paul Sapperstein [psapperstein@freedomworks.org]
Sent: 6/5/2017 8:02:20 PM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
Subject: Meeting with Adam Brandon, FreedomWorks

Hi Justin,

Adam Brandon, President of FreedomWorks, asked me to reach out to see if Administrator Pruitt would be available for a meeting the week of June 19th to discuss our shared priorities. Adam is flexible that week and we could work with Administrator Pruitt's schedule.

I look forward to getting this on the books!

Thanks,
Paul

--

Paul Sapperstein
Executive Assistant
FreedomWorks

psapperstein@freedomworks.org

(202) 783-3870 (office)

Ex. 6 (direct)
(cell)

400 North Capitol St NW #765
Washington, DC 20001

The mission of FreedomWorks is to build, educate, and mobilize the largest network of activists advocating the principles of smaller government, lower taxes, free markets, personal liberty, and the rule of law.

Message

From: Rachel Lattimore [RLattimore@croplifeamerica.org]
Sent: 5/9/2017 9:37:22 PM
To: Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
Subject: RE: CropLife America Law Committee Meeting June 15
Flag: Flag for follow up

I'll do that. Thanks so much.

Best regards,

Rachel

Rachel G. Lattimore
Senior Vice President, General Counsel, Secretary
CropLife America
1156 15th Street, NW
Suite 400
Washington, DC 20005

Ex. 6 — direct
— main
rlattimore@croplifeamerica.org
www.croplifeamerica.org

From: Schwab, Justin [mailto:schwab.justin@epa.gov]
Sent: Tuesday, May 9, 2017 5:33 PM
To: Rachel Lattimore <RLattimore@croplifeamerica.org>
Subject: Re: CropLife America Law Committee Meeting June 15

Thank you very much for the invitation. I will have to confer with people here, but this sounds like a good opportunity. Please do check back closer to the date in question.

Sent from my iPhone

On May 9, 2017, at 5:31 PM, Rachel Lattimore <RLattimore@croplifeamerica.org> wrote:

Justin,

Thanks for taking a moment to speak with me yesterday. As you requested, I'm following up by email. I called to thank you again for the interest you expressed in attending the joint ABA-CropLife America legal event we hosted on April 19. I'm sorry that your schedule did not allow you to attend. As I mentioned when we spoke about that event, CLA's Law Committee meets regularly to discuss legal topics of interest to our members, and we occasionally have guest speakers from EPA. I'd like to invite you to attend our next meeting, which will take place Thursday, June 15 at the offices of Arnold & Porter. Our schedule is flexible at this point, so if there's a time that day that would work for your schedule, we'd be happy to set that time for your remarks. If you're available, I'm happy to follow up with you or your admin on details closer to the date. Thank you for considering this request.

Best regards,

Rachel

Rachel G. Lattimore
Senior Vice President, General Counsel, Secretary
CropLife America
1156 15th Street, NW
Suite 400
Washington, DC 20005

Ex. 6 – direct
– main

rlattimore@croplifeamerica.org
www.croplifeamerica.org

Message

From: Don Parrish [donp@fb.org]
Sent: 4/21/2017 1:42:53 PM
To: Greenwalt, Sarah [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=6c13775b8f424e90802669b87b135024-Greenwalt,]
CC: Fotouhi, David [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=febaf0d56aab43f8a9174b18218c1182-Fotouhi, Da]; Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]
Subject: RE:

Yes – I would like to change my meeting request to 4:45 on Monday.

Don R Parrish
American Farm Bureau Federation®

Ex. 6

donp@fb.org

From: Greenwalt, Sarah [mailto:greenwalt.sarah@epa.gov]
Sent: Friday, April 21, 2017 9:17 AM
To: Don Parrish
Cc: Fotouhi, David; Schwab, Justin
Subject: Re:

Hey Don, would it be okay to push our Monday meeting to 4:45 so a few of my colleagues can make it? I know that's late in the day.

Sent from my iPhone

On Apr 20, 2017, at 11:21 AM, Don Parrish <donp@fb.org> wrote:

When would be a good time to visit?

Don R Parrish
American Farm Bureau Federation®

Ex. 6

donp@fb.org

Message

From: Schwab, Justin [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=EED0F609C0944CC2BBDB05DF3A10AADB-SCHWAB, JUS]
Sent: 4/19/2018 11:09:31 PM
To: Whitfield, Peter [pwhitfield@sidley.com]; Woods, Clint [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bc65010f5c2e48f4bc2aa050db50d198-Woods, Clin]; Dominguez, Alexander [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5ced433b4ef54171864ed98a36cb7a5f-Dominguez,]; Shaffer, Patricia [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=47ce854437af49dab8ab700a46837fd5-PShaffer]
CC: Savage, Justin A. [jsavage@sidley.com]
Subject: RE: Meeting next week

Would be happy to meet. Alex and Pat (cc'd here) can assist in scheduling for Clint and me, respectively.

From: Whitfield, Peter [mailto:pwhitfield@sidley.com]
Sent: Thursday, April 19, 2018 12:43 PM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Cc: Savage, Justin A. <jsavage@sidley.com>
Subject: Meeting next week

Justin,
 We'd like to set up a meeting with you and Clint Woods next week to discuss New York's Section 126 petition. Can you let us know if you have availability next week?
 Thanks,
 Peter

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
1501 K Street, N.W.
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Message

From: Schwab, Justin [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=EED0F609C0944CC2BBDB05DF3A10AADB-SCHWAB, JUS]
Sent: 12/17/2017 10:46:03 PM
To: pwhitfield@sidley.com
Subject: Questions for panel

Peter - I still don't think I've received any of the questions (or any other scoping) for the panel. Am I right that we were supposed to receive this?

Sent from my iPhone

Message

From: Schwab, Justin [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=EED0F609C0944CC2BBDB05DF3A10AADB-SCHWAB, JUS]
Sent: 5/31/2018 5:53:18 PM
To: Adam Gustafson [gustafson@boydengrayassociates.com]
Subject: RE: Lifecycle analysis

Great – Thank you!

From: Adam Gustafson [mailto:gustafson@boydengrayassociates.com]
Sent: Thursday, May 31, 2018 1:47 PM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Subject: Re: Lifecycle analysis

Yes that's fine. Talk with you then.

Sent from my phone.

From: Schwab, Justin <Schwab.Justin@epa.gov>
Sent: Thursday, May 31, 2018 12:40:27 PM
To: Adam Gustafson
Subject: Re: Lifecycle analysis

Adam - Apologies for the late notice, but can we talk at 3 instead of 2? Otherwise I may need to reschedule for tomorrow.

Sent from my iPhone

On May 31, 2018, at 10:07 AM, Adam Gustafson <gustafson@boydengrayassociates.com> wrote:

Will do. Here is a 3-page memo.

From: "Schwab, Justin" <Schwab.Justin@epa.gov>
Date: Thursday, May 31, 2018 at 10:03 AM
To: Adam Gustafson <gustafson@boydengrayassociates.com>
Subject: RE: Lifecycle analysis

If you call me that'll probably be best. There is one looming issue that could ripen in which case we will have to reschedule, but I am hopeful that will not happen.

From: Adam Gustafson [mailto:gustafson@boydengrayassociates.com]
Sent: Thursday, May 31, 2018 8:16 AM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Subject: Re: Lifecycle analysis

I look forward to it. Shall I meet you in your office or call you at that number?

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From: Schwab, Justin <Schwab.Justin@epa.gov>
Sent: Thursday, May 31, 2018 8:08:13 AM
To: Adam Gustafson
Subject: RE: Lifecycle analysis

Hello, Adam. I could talk between 2 and 3. The best number to reach my is my government cell

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Ex. 6

From: Adam Gustafson [mailto:gustafson@boydengravassociates.com]
Sent: Wednesday, May 30, 2018 5:26 PM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Subject: Lifecycle analysis

Justin,

Stephen mentioned that he spoke with you about lifecycle analysis recently and recommended that I follow up with you. Do you have any time available tomorrow (Thursday) after 2pm or just about any time Tuesday-Friday next week? I look forward to catching up.

Adam

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<20180531 Memo to Schwab re LCA.pdf>

Message

From: Schwab, Justin [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=EED0F609C0944CC2BBDB05DF3A10AADB-SCHWAB, JUS]
Sent: 12/20/2017 3:24:30 PM
To: Doniger, David [ddoniger@nrdc.org]; Savage, Justin A. [jsavage@sidley.com]
CC: Dowd, Michael (DEQ) [Michael.Dowd@deq.virginia.gov]; Lorenzen, Thomas [TLorenzen@crowell.com]
Subject: RE: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond

Justin,

Thank you for organizing and moderating this panel.

All,

Thank you for the invigorating discussion.
I cannot overstate the honor and privilege it is to have participated.
I hope this is only the beginning of our dialogue and work together.

Best wishes for the new year.

Yours,

Justin

From: Doniger, David [mailto:ddoniger@nrdc.org]
Sent: Sunday, December 17, 2017 10:59 PM
To: Savage, Justin A. <jsavage@sidley.com>
Cc: Schwab, Justin <Schwab.Justin@epa.gov>; Dowd, Michael (DEQ) <Michael.Dowd@deq.virginia.gov>; Lorenzen, Thomas <TLorenzen@crowell.com>
Subject: Re: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond

Works for me.

Sent from my iPhone

On Dec 17, 2017, at 10:05 PM, Savage, Justin A. <jsavage@sidley.com> wrote:

Folks,

Here's the draft outline of the Clean Power Plan event, including proposed questions. Any feedback, including additions or deletions, are welcome. Thanks again for generously volunteering your time to this event and look forward to seeing you on Tuesday.

Best,
Justin

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP
1501 K Street, N.W.

Washington, DC 20005

Ex. 6 (Office)
(Cell)

jsavage@sidley.com
www.sidley.com

<image001.png>

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<EBA CPP outline of event 12.17.17.docx>

Message

From: Schwab, Justin [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=EED0F609C0944CC2BBDB05DF3A10AADB-SCHWAB, JUS]
Sent: 11/17/2017 11:51:23 PM
To: Whitfield, Peter [pwhitfield@sidley.com]
Subject: Re: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

I'm in.

Sent from my iPhone

On Nov 17, 2017, at 12:17 PM, Whitfield, Peter <pwhitfield@sidley.com> wrote:

It is set for Dec. 19 at 5pm

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005

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pwhitfield@sidley.com
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From: Schwab, Justin <Schwab.Justin@epa.gov>
Date: Friday, Nov 17, 2017, 10:58 AM
To: Whitfield, Peter <pwhitfield@sidley.com>
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

When (with as much specificity is known now) is the panel taking place?

From: Schwab, Justin
Sent: Friday, November 17, 2017 10:57 AM
To: 'Whitfield, Peter' <pwhitfield@sidley.com>
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Will aim for that. Thank you for letting me know the time frame.

From: Whitfield, Peter [mailto:pwhitfield@sidley.com]
Sent: Friday, November 17, 2017 10:52 AM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Great. If there is a way to find out whether you can be part of the panel by COB Monday that would be great.

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
Direct
Mobile **Ex. 6**
pwhitfield@sidley.com

From: Schwab, Justin [mailto:Schwab.Justin@epa.gov]
Sent: Friday, November 17, 2017 10:47 AM
To: Whitfield, Peter <pwhitfield@sidley.com>
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Would be happy to but need to run it by others here given the sensitivity. Will follow up.

Would very much like lunch with you and DF soon. Will reach out to him on that.

From: Whitfield, Peter [mailto:pwhitfield@sidley.com]
Sent: Friday, November 17, 2017 10:29 AM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Quick question for you – we are planning a panel for the energy bar association on the CPP and have lined up Tom Lorenzen (Crowell), Dave Doniger (NRDC), Mike Myers (NY AG's office) and we need to fill in a spot from the EPA – we had Ethan Shenkman serve in that role in the past, but he is no longer there. Any chance you or someone you would recommend would be interested in participating?

Would be great to grab lunch with you and Fotouhi – maybe the week after Thanksgiving?

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
Direct
Mobile **Ex. 6**
pwhitfield@sidley.com

From: Schwab, Justin [mailto:Schwab.Justin@epa.gov]
Sent: Thursday, November 9, 2017 4:14 PM
To: Whitfield, Peter <pwhitfield@sidley.com>
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Unfortunately I probably will not be able to – David Fotouhi and I would like to have lunch with you and Justin soon though....

From: Whitfield, Peter [mailto:pwhitfield@sidley.com]
Sent: Tuesday, November 7, 2017 9:20 AM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Subject: RE: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

Hey Justin,
I hope you can make it for a drink this Thursday. New contact info below.

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
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pwhitfield@sidley.com

From: DC Events - Sidley Austin LLP
Sent: Tuesday, November 7, 2017 9:01 AM
Subject: Join Sidley's Newest Environmental Lawyers for a Reception - November 9, 2017

[VIEW ON MOBILE DEVICE](#) | [VIEW ONLINE](#)

<image001.jpg>

**Join us for a cocktail reception
with the newest lawyers in
Sidley's Environmental Practice:**
Richard Alonso, Justin A. Savage,
Andrew R. Stewart and Peter
Whitfield.

**Thursday, November 9
5:30 p.m. – 7:30 p.m.**

SIDLEY
1501 K Street, N.W.
Washington, D.C. 20005

[RSVP HERE](#)

For questions or additional information, please
contact DCEvents@sidley.com.

NEW PARTNERS AND COUNSEL

Rich Alonso
Partner

Justin A. Savage
Partner

Andrew R. Stewart
Counsel

Peter Whitfield
Counsel

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Sidley Austin LLP, 1501 K Street, N.W., Washington, D.C. 20005

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From: Schwab, Justin [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=EED0F609C0944CC2BBDB05DF3A10AADB-SCHWAB, JUS]
Sent: 12/1/2017 3:29:24 PM
To: Savage, Justin A. [jsavage@sidley.com]
CC: Whitfield, Peter [pwhitfield@sidley.com]
Subject: Re: CPP Panel - Energy Bar Association - 12/19/17 @ 6 pm

Justin (& Peter),

Thank you for this note.

I look forward to the prep call.

The bio looks fine, except that I would
(1) delete "the" before "Deputy General Counsel" and

(2) after that sentence, insert another sentence "Justin first joined the Agency at the start of the new administration as legal advisor to the 'beachhead' team."

Have a good weekend!

Best,

Justin

Sent from my iPhone

On Dec 1, 2017, at 9:57 AM, Savage, Justin A. <jsavage@sidley.com> wrote:

Justin,

Thanks for agreeing to be on the CPP panel on 12/19. The other panelists are as follows:

- <!--[if !supportLists]--><!--[endif]-->Mike Dowd, Air Director, Virginia DEQ;
 - <!--[if !supportLists]--><!--[endif]-->Tom Lorenzen, Crowell & Mooring; and
 - <!--[if !supportLists]--><!--[endif]-->David Doniger, NRDC.
1. <!--[if !supportLists]--><!--[endif]-->Logistics: We'd like you to arrive at 5:45 pm. The panel discussion ends at 7 pm. A reception will follow until 8 pm if you'd like to attend. Our firm is located at 1501 K Street.
 2. <!--[if !supportLists]--><!--[endif]-->Prep Call: We're trying to schedule a prep call next week. We'll be circulating a Doodle link to coordinate on availability.
 3. <!--[if !supportLists]--><!--[endif]-->Your Bio: We need a bio to introduce you before the panel begins. Here's a draft version, but please feel free to use whatever bio you'd like. I promise not to ask Peter for anything embarrassing to include!

Justin Schwab, Deputy General Counsel, EPA. Justin serves as the Deputy General Counsel at EPA, a politically appointed position that includes legal oversight of several significant EPA rulemaking actions under the Clean Air Act. He previously worked on several high-profile matters involving the Clean Air Act at his former law firm, Baker & Hostetler. Justin previously clerked for both Judge Richard Wesley on the U.S. Court of Appeals for the Second Circuit and Justice Christine Durham on the Utah Supreme Court. He holds a law degree from Yale University and a Ph.D. in classics from the University of California at Berkley.

- 4. <!--[if !supportLists]--><!--[endif]-->Registration link: Here's the registration link for the event. The Energy Bar Association is the lead sponsor, but the DC Bar and ABA will co-sponsor as well. <http://eba-net.org/eba-energizer-clean-power-plan-what-lies-beyond>. Note that media are barred from registering for this event.

Have a good weekend,

Justin

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005
(Office)
Ex. 6
(Cell)
jsavage@sidley.com
www.sidley.com

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From: Schwab, Justin [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=EED0F609C0944CC2BBDB05DF3A10AADB-SCHWAB, JUS]
Sent: 11/21/2017 8:06:52 PM
To: Whitfield, Peter [pwhitfield@sidley.com]
Subject: Re: Formaldehyde Rule

Yes, that's him.

Sent from my iPhone

On Nov 21, 2017, at 3:03 PM, Whitfield, Peter <pwhitfield@sidley.com> wrote:

Thanks. Is he Baptist.erik@epa.gov? I forgot to save it when I was at Hogan.

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
Direct
Mobile **Ex. 6**
pwhitfield@sidley.com

From: Schwab, Justin [<mailto:Schwab.Justin@epa.gov>]
Sent: Tuesday, November 21, 2017 12:32 PM
To: Whitfield, Peter <pwhitfield@sidley.com>
Subject: RE: Formaldehyde Rule

That is most likely Erik B.

From: Whitfield, Peter [<mailto:pwhitfield@sidley.com>]
Sent: Tuesday, November 21, 2017 12:05 PM
To: Schwab, Justin <Schwab.Justin@epa.gov>
Subject: Formaldehyde Rule

Justin,
Any chance you are working on issues related to the Formaldehyde Rule under TSCA? If not, do you know who in OGC is?

PETER WHITFIELD
Counsel

SIDLEY AUSTIN LLP
1501 K Street, N.W.
Washington, DC 20005
Ex. 6
pwhitfield@sidley.com
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Sent: 12/18/2017 3:59:46 AM
To: Savage, Justin A. [jsavage@sidley.com]
CC: Whitfield, Peter [pwhitfield@sidley.com]
Subject: Re: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond

That's great, thank you very much.

Sent from my iPhone

On Dec 17, 2017, at 10:58 PM, Savage, Justin A. <jsavage@sidley.com> wrote:

Ok, great. Here's the revised bio.

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP
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jsavage@sidley.com

From: Schwab, Justin [<mailto:Schwab.Justin@epa.gov>]
Sent: Sunday, December 17, 2017 10:48 PM
To: Savage, Justin A. <jsavage@sidley.com>
Cc: Whitfield, Peter <pwhitfield@sidley.com>
Subject: Re: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond

Thank you. The only change I'd suggest is instead of saying my position involves legal oversight of several important regulations etc, say instead "..., and his portfolio includes legal oversight of the agency's activities under Title I of the Clean Air Act."

Sent from my iPhone

On Dec 17, 2017, at 10:43 PM, Savage, Justin A. <jsavage@sidley.com> wrote:

Here's the speaker bios.

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP
Ex. 6
jsavage@sidley.com

From: Savage, Justin A.
Sent: Sunday, December 17, 2017 10:25 PM
To: 'Schwab, Justin' <Schwab.Justin@epa.gov>

Cc: Whitfield, Peter <pwhitfield@sidley.com>

Subject: RE: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond

Ok, thanks! Will do on bios!

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP

Ex. 6

jsavage@sidley.com

From: Schwab, Justin [<mailto:Schwab.Justin@epa.gov>]

Sent: Sunday, December 17, 2017 10:21 PM

To: Savage, Justin A. <jsavage@sidley.com>

Cc: Whitfield, Peter <pwhitfield@sidley.com>

Subject: Re: Draft outline of Energy Bar Association Event - The Clean Power Plan: What Lies Beyond

(2)(b) is going to result in a flat punt so maybe best to take it out. There'll be some softer punting elsewhere in (2) but (b) is the only one that might be worth dropping. Generally looks good and should be a good discussion.

Could I possibly see the other panelists' bios? I'm the youngest and least known so I want to make sure that mine is in line with theirs in tone, etc. I may want to edit mine a little to that end (even if that makes it shorter than theirs....)

Thanks again for inviting me to participate. It's an honor.

Sent from my iPhone

On Dec 17, 2017, at 10:06 PM, Savage, Justin A.

<jsavage@sidley.com> wrote:

Justin,

If any of these cause headaches or outside your purview, let Peter know and we'll strip out.

Thanks,

JUSTIN A. SAVAGE

SIDLEY AUSTIN LLP

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jsavage@sidley.com

From: Savage, Justin A.
Sent: Sunday, December 17, 2017 10:04 PM
To: 'Schwab, Justin' <Schwab.Justin@epa.gov>;
'Doniger, David' <ddoniger@nrdc.org>; 'Dowd,
Michael (DEQ)'
<Michael.Dowd@deq.virginia.gov>; Lorenzen,
Thomas <TLorenzen@crowell.com>
Subject: Draft outline of Energy Bar Association
Event - The Clean Power Plan: What Lies
Beyond

Folks,

Here's the draft outline of the Clean Power Plan
event, including proposed questions. Any
feedback, including additions or deletions, are
welcome. Thanks again for generously
volunteering your time to this event and look
forward to seeing you on Tuesday.

Best,
Justin

JUSTIN A. SAVAGE

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