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ADVANCED ETHANOL COUNCIL

April 15, 2015

The Honorable Orrin G. Hatch
Chairman
United States Senate Committee on Finance

The Honorable Ron Wyden
Ranking Member
United States Senate Committee on Finance

RE: Advanced Ethanol Council Comments on Tax Reform

Dear Chairman Hatch and Ranking Member Wyden,

The Advanced Ethanol Council (AEC) appreciates the opportunity to comment on tax reform, pursuant to the creation of the Finance Committee Tax Working Groups. The AEC represents worldwide leaders in the effort to develop and commercialize the next generation of ethanol fuels, ranging from cellulosic ethanol made from dedicated energy crops, forest residues and agricultural waste to advanced ethanol made from municipal solid waste, algae and other feedstocks. We would look forward to the opportunity to discuss these issues in further detail as part of the process.

A. The problem with the federal tax code is not that it provides incentives for domestic energy production; but rather, that it provides incentives for domestic energy production in a grossly inequitable way.

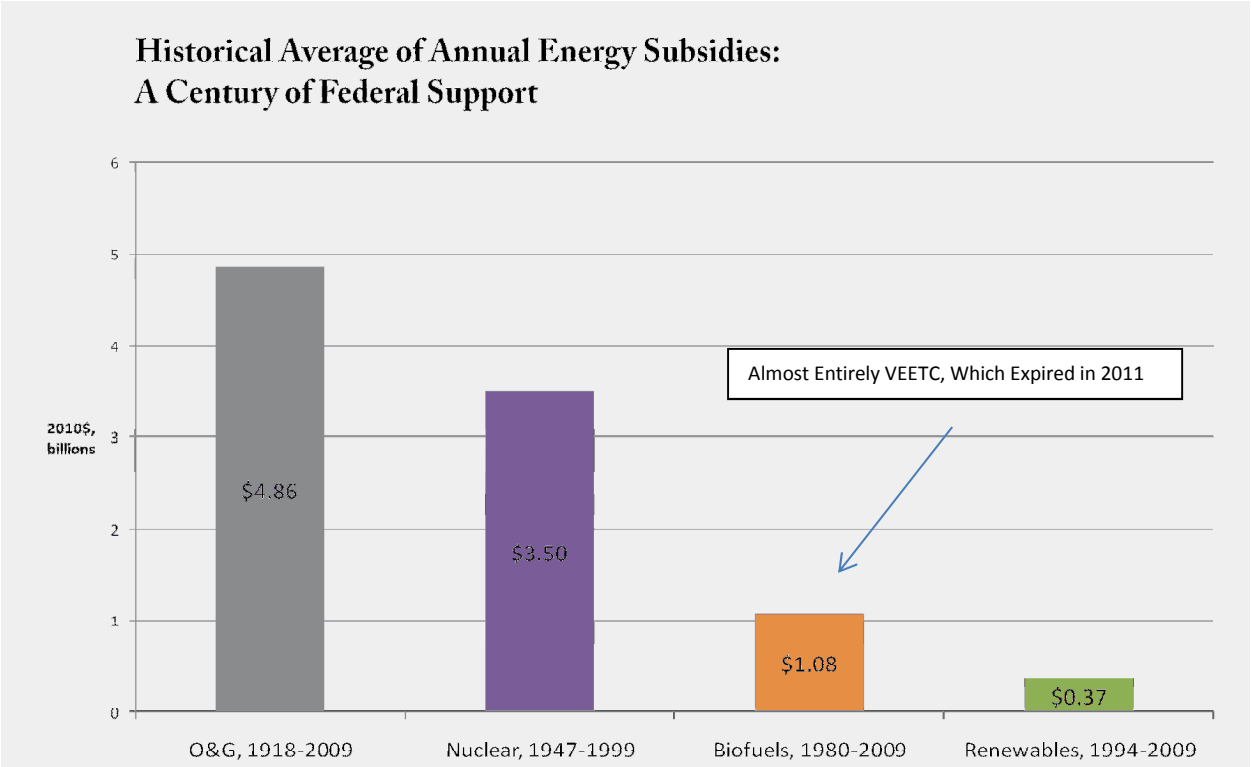
As part of the effort to reform the federal tax code as it pertains to energy, it is important to clearly identify the problem. As a general matter, we agree with Chairman Hatch's description of America's tax system as "broken to the point that it's putting our nation at a competitive disadvantage around the globe."[1] With regard to energy, the problem with the federal tax code is not that it provides incentives for domestic energy production; but rather, that it provides incentives for domestic energy production in a grossly inequitable way across different business sectors. While those receiving the balance of governmental support in the energy sector (primarily oil, gas and nuclear) have argued that their tax incentives are not unique, independent analysis proves otherwise. For example, a recent analysis conducted by DBL Investors concluded that "the federal commitment to O&G [oil and gas] was five times greater than the federal commitment to renewables during the first 15 years of each

[1] See http://www.finance.senate.gov/newsroom/chairman/release/?id=dddb8649-4c97-41aa-aee8-2921903ed2a5.

subsidies' life, and it was more than 10 times greater for nuclear."[2] The historical average of annual energy subsidies, when looked at through the lens of more than a century of federal support for energy, shows a similar result (see Figure 1 below). So from the outset, we encourage the Working Group to recognize that, "current renewable energy subsidies do not constitute an over-subsidized outlier when compared to the historical norm for emerging sources of energy."[3]

Figure 1

Source: DBL Investors



Unfortunately, subsidy inequity is not just an historical problem. The Office of Management and Budget has identified eight tax breaks for oil companies that cost the government more than $4 billion per year:

1. Intangible drilling cost deductions (worth $13.5 billion over ten years);
2. Percentage depletion deduction (worth $17.2 billion over ten years);
3. Deduction for tertiary injectants (worth $60 million from 2016-2025);
4. Exception from passive loss limitations for oil and gas ($229 million from 2016-2025);
5. Amortization of Geological and Geophysical Expenditures for Independent Producers (increasing the period to 7 years would save an estimated $1.1 billion over ten years);
6. Domestic manufacturing tax credit ($12 billion over ten years);
7. Marginal oil well incentives; and
8. Enhanced oil recovery credits.

[2] See http://www.dblinvestors.com/documents/What-Would-Jefferson-Do-Final-Version.pdf at p. 6.
[3] *Id.*

It also makes sense to look at government supports for energy on a global basis given that most energy markets are global in nature. The International Monetary Fund (IMF) conducted a comprehensive analysis of global fossil fuel subsidies in 2013 (with some data updated recently). Among other things, the report noted that:

- "Energy subsidies are pervasive and impose substantial fiscal and economic costs in most regions."
- "In 2011, global pre-tax [energy] subsidies reached $480 billion (0.7 percent of global GDP or 2 percent of total government revenues). Petroleum and electricity subsidies accounted for about 44 percent and 31 percent of the total respectively, with most of the remainder coming from natural gas."
- "Subsidies aggravate fiscal imbalances, crowd-out priority public spending, and depress private investment, including in the energy sector.
- "Subsidies also distort resource allocation by encouraging excessive energy consumption, artificially promoting capital-intensive industries, reducing incentives for investment in renewable energy, and accelerating the depletion of natural resources."[4] [emphasis added]

Even with regard to federal agency (e.g. DOE) spending on research and development, which is very often the focus of Congress when it comes to subsidies, historic budget allocations for fossil fuels far exceed those for clean or renewable energy. For example, according to a recent Congressional Research Service report, [f]or the period from 1948 through 2012, 11.6% of Department of Energy R&D spending went to renewables, 9.7 % to efficiency, 25% to fossil energy, and 49.3% to nuclear.[5]

The problem of inequity in the federal tax code stems not just from the monetary value of each incentive (or how much money the federal government allows each respective industry not to spend via "cost recovery" deductions), but also from how Congress structures its supports for different energy sectors. While incentives for oil and gas (percentage depletion, expensing of intangible drilling costs, etc.) are offered permanently, those offered to biofuels, wind energy, solar energy, biomass energy and geothermal energy face perpetual immediate term expiration. As discussed below, energy investments (as opposed to, say, investments in social media) are risky by definition. Uncertainty with regard to the possible expiration of, and the politics around, a key tax provision in the renewable energy space significantly increases investment risk, which in turn drives investment back to sectors that do not face the same uncertainty. As such, it is fundamentally inconsistent to both legislatively terminate incentives for renewable energy and/or ask the renewable industry to voluntarily phase out their incentives if the same is not asked of incumbents across their entire portfolio of government support. It may still be inconsistent to ask both industries to eliminate their government support, given that incumbents have

[4] See http://www.imf.org/external/np/pp/eng/2013/012813.pdf.
[5] See http://www.fas.org/sgp/crs/misc/RS22858.pdf

benefitted from them for (in many cases) close to 100 years, but that question comes down to the exact type and magnitude of reform under consideration.

The fossil fuel industry has put forth some arguments that we would like to comment on in this forum because these arguments, if true, weaken the case for eliminating inequities in the federal tax code as applied to the energy sector. First, oil and gas argues that they do not receive special treatment or subsidies under the federal tax code. This argument, which is not supported by the literature on the subject (and, see Figure 2 below), relies on an extremely narrow (perhaps non-existent) definition of "subsidy" that excludes any sort of indirect financial support from the government (e.g. deductions and other allowances that allow the industry to avoid paying corporate taxes). This is not the definition of subsidy used by the many reports on the subject, and in either case, it is a distinction with little difference when it comes to either the balance sheets of the industries involved or the impact of government support (grants, deductions, cost recovery allowances, loan guarantees, etc.) on investment decision making in the energy sector. At a basic level, all of these government interventions in the marketplace save money and reduce risk for their recipients, and if applied inequitably, distort investment decision making toward the sectors that receive the most advantageous tax treatment. Second, the oil and gas trades have made some claims about their effective tax rate – most recently that their effective tax rate was 44.3% in recent years – that do not seem to be supported by public records. For example, a recent report co-authored by Citizens for Tax Justice and the Institute on Taxation and Economic Policy looked at the roughly 21 industries represented by the Fortune 500 and found that "oil, gas, & pipelines" paid the 7th lowest tax rate among them at 15.7% (averaged 2008-2010).[6] Notably, this industry paid an effective corporate tax rate of just 1.2% in 2009, according to the report.

As discussed, we take no issue with the federal government's support for the energy security and economic well-being of the country with regard to energy production and innovation, and understand why the bulk of this support was for fossil fuels in the 20th century. We take issue with the effective corporate tax rate of the oil and gas industry because if the cellulosic biofuels industry is not similarly advantaged by the federal tax code, then we are thereby disadvantaged in our competitive effort to finance and commercialize the production of new types of "unconventional" fuel energy. We strongly encourage the Working Group to provide in its report a transparent and precise assessment of the baseline conditions in the federal tax code when it comes to all government supports for energy, and recognize the disparities and inconsistencies across the full spectrum of energy sectors. We believe this assessment of baseline conditions is a critical part of any process to meaningfully reform the code.

[6] See http://www.ctj.org/corporatetaxdodgers/CorporateTaxDodgersReport.pdf, p. 7. The report also found that "pol, gas and pipelines" was among the four industries that received 56% of all tax subsidies.

Figure 2: Key Points of Tax Inequity Between Fossil Fuels and Advanced Biofuels

The fossil fuel industry receives inequitable treatment from the U.S. Tax Code in three primary areas: (1) accelerated cost recovery; (2) production incentives; and, (3) access to capital.

Type of Incentive	Incentive Offered to Fossil Fuels	Corollary Offered to Advanced Biofuels	Analysis of Inequity
Accelerated Cost Recovery	Percentage Depletion for Oil and Natural Gas Wells Expires: No Estimated Government Spending 2012-21: $11.2b	Accelerated Depreciation for Cellulosic Biofuel Expired: 2014 Estimated Government Spending 2012-21: 0	Percentage depletion allows oil companies to treat a natural resource (oil) as a depreciable asset, and then allows a percentage of revenue from that asset to be tax alleviated. Both provisions (at left) accelerate cost recovery for oil and biofuel projects, respectively, but only the biofuel allowance expires and percentage depletion also reduces income tax liability (see below).
Production Incentive	Percentage Depletion for Oil and Nat. Gas Wells ; Expires: No Estimated Government Spending 2012-21: $11.2b	Producer Tax Credit ($1.01) Expired: 2014 Estimated Gov't Spending: 0 to date, <$30M estimated	Percentage depletion is also a production incentive because the outcome is reduced tax on income (i.e. as percentage of oil flow revenue). Similarly, the PTC incents production by providing a tax credit per gallon of advanced biofuel produced. Only the biofuel incentive expired (in 2014).
Production Incentive & Accelerated Cost Recovery	Expensing of Intang. Drilling Costs; Expires: No; Estimated Gov't Spending 2012-21: $12.4b	No comparable special allowances over accelerated depreciation, which expired in '14	Congress has expressed concern about "up front" tax incentives for renewable energy (e.g. Investment Tax Credit for renewable electricity), yet the oil industry benefits from the expensing of a wide variety of the "up front" costs associated with extracting fossil fuels.
Production Incentive	Enhanced Oil Recov. Credit; Expires: No Only available when oil price low Estimated Gov't Spending 2012-21: depends on oil price	None	Incentive for oil allows tax credit on 15% of allowable costs associated with enhanced oil recovery; only available for low oil price (determined annually from metric). The inequity is these incentives are insurance against the floor dropping out of oil prices – corollary insurance policies do not exist for the biofuels industry.
Production Incentive	Credit for Oil and Gas From Marginal Wells Expires: No Only available when oil price low Estimated Gov't Spending 2012-21: depends on oil price	None	Roughly 20% of U.S. oil production and 12% of natural gas production are eligible at this time (although more marginal NG production may be eligible) when oil prices are low; enacted in 2004 to protect marginal wells during low oil prices. The inequity is these incentives are insurance against the floor dropping out of oil prices – corollary insurance policies do not exist for the biofuels industry.
Additional Incentives	There are several additional unique incentives for oil (e.g. passive loss exception, deduction for tertiary injectants, foreign tax credit, LIFO) that inequitably reduce risk and lower cost for the production of oil and gas, and for which there are no corollaries in biofuels.		
Access to Capital	Master Limited Partnerships Expires: No Estimated Investment Dollars Channeled: $220b in 2010	None; not eligible	MLPs allow extractive industries only to form an LLC-type entity (only subject to one layer of taxation) to raise capital for energy projects. Benefit is direct access to retail investment community, among other tax benefits. The amount of project development money being funneled through MLPs has gone from a couple billion dollars per year in the 1990s to **$220b in 2010**.

B. Resolving the inequities in the federal tax code is extremely important, given both the importance of energy innovation to economic growth and the impact of the federal tax code on energy investment decision making.

As discussed in the DBL Investors report, "energy innovation has driven America's growth since before the 13 colonies came together to form the United States, and government support has driven that innovation for nearly as long."[7] Governmental support drove investment in coal, timber, engine innovations, land settlement for resource extraction and other forms of innovation in the 19th and 20th centuries, and domestic energy consumption and GDP have tracked closely for at least 200 years.[8] Recent testimony presented to the House Ways and Means Committee also pointed out that: (1) global energy demand is expected to grow 36% between 2008 and 2035, which in turn presents a massive and growing market opportunity for countries willing to seize it; (2) much of the U.S. competitive advantage over the last two centuries has come from our ability to innovate in the energy sector, and "technological innovation is linked to three-quarters of the Nation's post-WWII growth rate, with two innovation-linked factors – capital investment and increased efficiency – representing 2.5 percentage points of the 3.4% average annual growth rate achieved since the 1940's;" and, (3) other countries like China ($738 billion by 2020) have made big commitments to energy production and innovation that are already drawing energy projects away from the United States.[9] This country has not only failed to make this level of commitment to innovation in the energy sector, but most of the commitments it has made are under almost constant threat via political attack or legislated expiration (as discussed above).

Tax policy inequity/uncertainty is particularly problematic in the energy sector because energy investments are highly driven by tax policy. This is true for a variety of reasons, including the fact that energy investments are capital intensive and come with inherent risk. In the fuel energy space, this investment risk is exacerbated by a number of factors, including but not limited to: (1) technology risk, as "easy to access" forms of energy like light sweet crude are depleting rapidly; (2) the top down supply and price controlling power of OPEC, which distorts traditional market indicators and spooks investors; and, (3) the vertical integration and high consolidation of the oil industry, which is protective of petroleum market share at the wholesale and retail levels.[10] To be clear, any one of these factors alone puts the federal tax code at the center of investment decision making. For example, in June 2012 the Senate Finance Committee received testimony from the largest leaseholder in the nation's largest oil

[7] See note 2, at p. 11.
[8] *Id.*
[9] See http://waysandmeans.house.gov/uploadedfiles/colemantestimony922.pdf, referencing U.S. Department of Commerce, *Patent Reform: Unleashing Innovation, Promoting Economic Growth & Producing High-Paying Jobs* (2010).
[10] See http://autogreenmag.com/2013/03/21/report-first-e15-gas-station-gets-warning-from-conocophillips-might-have-to-stop-ethanol-sales/.

play (the Bakken) about the importance of tax incentives for new energy production. Among other points, the CEO of Continental Resources stated:

> There is good reason that when the tax code was reformed in 1986, a bipartisan majority recognized the importance of leaving the tax provisions of the American independent oil and gas industry intact. This decision played a significant role in the technology-driven oil and gas renaissance we are currently experiencing.
>
> … the development of horizontal drilling took trial and error. Without the current capital [federal tax] provisions in place, we would not have been able to fail over and over again, which is what it took to advance the technology needed to produce the Bakken and numerous other resource plays across America. And this technology that allows us to drill two miles down, turn right, go another two miles and hit a target the size of a lapel pin is the technology that has unlocked the resources that make energy independence a reality.
>
> This paradigm shift in American oil and gas exploration brings with it high-paying jobs, increased tax revenues, and economic growth, while lessening our dependence on foreign oil. But it depends on substantial amounts of capital. The tax provisions that let us keep our own money to reinvest in drilling are crucial to keep this energy revival going.[11]

It is critical to point out that cellulosic biofuel producers and "tight oil" producers have something in common; they are both endeavoring to supply the country and world markets with what the Energy Information Administration (EIA) terms "unconventional fuel." While facing similar technology risk, the cellulosic biofuels industry does not receive the same tax treatment as companies like Continental Resources (from the perspective of value or duration). In Figure 2 (next page), we provide a very basic comparison between the primary incentives for oil and gas and those offered to advanced biofuels. It is not a complete list, and many of the incentives/deductions/credits do not fit neatly into one category (some are hybrids of several categories). But the table does illustrate some of the inequities when it comes to the incentives offered to the respective industries.

C. The recently expired tax incentives offered for the production of second generation biofuels support a promising emerging industry just reaching commercial scale; there is no case to be made for their elimination given government support for fossil fuels.

Much has been made of the alleged delays in the commercial deployment of cellulosic biofuels. However, as shown in the AEC Progress Report released in December 2012 and updated on the AEC website at www.advancedethanol.net, the industry started to break through at commercial scale within

[11] See http://www.finance.senate.gov/imo/media/doc/Hamm%20Testimony1.pdf, p. 2.

five years after the enactment of the amended RFS – and within two years of the completion of the actual RFS regulation by EPA in 2010 – notwithstanding a global recession.[12]

As noted in recent documentation released by U.S. EPA, the production cost of cellulosic biofuels continues to fall; the industry continues to make significant progress towards producing cellulosic biofuel at prices competitive with petroleum fuels; cellulosic biofuel producers faced not only the challenge of the scale-up of innovative, first-of-kind technology, "but also the challenge of securing funding in a difficult economy;" it is reasonable to expect production and capital costs to continue to decline as more facilities come online and the so-called "commercial learning curve" is achieved; and, first commercial projects in the pipeline for cellulosic biofuels have made great progress in securing the necessary feedstock for their plants.[13]

The meeting of these industrial benchmarks is also widely reported in a number of academic studies.[14] For example, an industry survey conducted by Bloomberg New Energy Finance concluded that "[t]he operating costs of the [cellulosic biofuel] process have dropped significantly since 2008 due to leaps forward in the technology … [f]or example, the enzyme cost for a litre of cellulosic ethanol has come down 72% between 2008 and 2012."[15] As cellulosic biofuel production technology continues to mature, the U.S. advanced biofuels industry is ramping up to compete in the $2.5 trillion global clean energy marketplace and deliver the advanced renewable fuels required by the federal Renewable Fuel Standard (RFS). The ethanol industry has already created almost 400,000 jobs, and compliance with the RFS is forecasted to create up to 800,000 jobs by 2022.[16] It simply does not make good policy sense to impose (or allow) a tax increase on the cellulosic biofuels industry at this early stage of development, especially given that other countries are competing aggressively to attract these projects to their soil.

Current law provides two tax provisions that are critical to the ongoing development of the U.S. advanced and cellulosic ethanol industry, both of which expire on December 31, 2014.

- Producer Tax Credit (PTC): Current law allows producers of cellulosic and other second generation biofuels to take a tax credit in the amount of $1.01 per gallon. The PTC was enacted as part of the 2008 Farm Bill, and was extended for one year in 2012 as part of the deal on the fiscal cliff. It expired again at the end of 2013, and was then extended (for less than a month) at the end of 2014 through the end of 2014. While the PTC has not cost the U.S. Treasury anything

[12] See AEC Progress Report: Cellulosic Biofuels at http://ethanolrfa.3cdn.net/96a2f9e04eb357bbbd_1sm6vadqk.pdf.
[13] See Docket ID No. EPA-HQ-OAR-2012-0546: Regulation of Fuels and Fuel Additives: 2013 Renewable Fuel Standards
[14] See: *Cellulosic Ethanol Heads for Cost-Competiveness by 2016, http://about.bnef.com/press-releases/cellulosic-ethanol-heads-for-cost-competitiveness-by-2016/;* Brown, T., Brown, R. "A review of cellulosic biofuel commercial-scale projects in the United States." Biofuels, Bioprod. Bioref. DOI:10.1002/bbb.1387 (2013).
[15] See http://about.bnef.com/press-releases/cellulosic-ethanol-heads-for-cost-competitiveness-by-2016/
[16] See U.S. Economic Impact of Advanced Biofuels Production: Perspectives to 2030, Bio-Economic Research Associates.

to date, the credit helps early movers attract financing and survive in the marketplace while economies of scale are realized in the early years of commercial deployment. Both the fossil and some parts of the renewable energy industries currently have producer tax credits, and as such, the second generation biofuels PTC provides some measure of consistency (in this one category) with other energy sectors.

- Accelerated Depreciation Allowance: Recently expired law allowed producers of second generation biofuels to take 50 percent depreciation in the first year. Accelerated depreciation allows property built or purchased to produce fuel from cellulosic biomass to be depreciated at an accelerated rate, thereby helping to offset initial capital costs. This provision was enacted as part of the 2008 Farm Bill, and was extended for one year in 2012 as part of the deal on the fiscal cliff. It expired again at the end of 2013, and was then extended (for less than a month) at the end of 2014 through the end of 2014. By comparison, accelerated depreciation/cost recovery has been offered for decades and continues to be offered permanently to the oil and gas industry to help the industry recover costs for the purpose of encouraging investment and innovation.

The second generation biofuels PTC and accelerated depreciation allowance are critical to the ongoing development of the cellulosic biofuels industry for the following reasons:

- These provisions at least partially offset the lack of parity in the federal tax code otherwise favoring incumbents in the fuel energy space, particularly with regard to accelerated cost recovery (see Figure 2).
- A tax increase in this financial climate would undercut an emerging industry capable of generating tens of thousands of U.S. jobs in the intermediate term, and will increase our future dependence on foreign oil.
- The PTC and accelerated depreciation allowance provide investment certainty in a high-risk marketplace largely supply- and price-controlled by OPEC.
- Allowing the PTC and accelerated depreciation to expire runs counter to the goals set forth by Congress to foster the development of advanced biofuels under the RFS.
- The PTC and accelerated depreciation allowance are consistent with current U.S. energy policy to promote energy production and innovation across a wide spectrum of domestic energy sources.
- Conventional sources of oil and gas are depleting rapidly. The federal government currently provides incentives for the production of other unconventional fuels to ensure energy security.
- Production-based tax credits and accelerated depreciation are the two most common tax incentives in the U.S. energy sector; extending these provisions for second generation biofuels

maintains some level of consistency for an emerging industry trying to compete with a fully mature, incumbent fossil fuel industry.

- PTCs provide an incentive for actual output of cellulosic biofuel, which means that the government is incenting actual commercial production and job creation.
- Policy uncertainty in the United States is driving energy investments overseas; allowing these provisions to expire would send the wrong signal to investors and curtail the growth of the advanced biofuels industry on U.S. soil.

With regard to specific recommendations for tax reform as it pertains to both the liquid fuels and advanced biofuel markets, we would like to submit the following:

Principle 1: Do No Harm

The federal tax provisions (until recently) promoting the development of our industry are not costly from a U.S. Treasury perspective, yet they provide tremendous value in terms of providing some balance against the permanent incentives offered to incumbents. The Working Group would not consider backsliding on its commitment to cellulosic biofuels considering the promise of the industry, where it stands in its evolution to commercial scale, and the extent to which the federal government has provided (and continues to provide) far broader incentives to fossil fuels for decades. As such, and at minimum until comprehensive reforms are enacted, current law should be extended or improved (see below) to provide a similar ramp of certainty as is provided by the federal government to incumbents.

Principle 2: Parity + Innovation Puts U.S. in Best Position to Succeed

The AEC is in the process of reviewing a number of constructs for comprehensive tax reform. We believe it is premature to endorse any one solution until we better understand the confines of the discussion with regard to the breadth of reforms and needs on the revenue side. However, it is clear that any comprehensive tax reform effort should embrace the following:

1. Elimination of all inequities (including the term/duration of the incentive) with regard to direct subsidies *and* all other forms of government support through the tax code (credits, deductions, allowances, eligibility for certain programs, etc.)
    a. Particularly as it applies to incentives such as percentage depletion, the expensing of intangible drilling costs (IDCs), Master Limited Partnerships, etc.

2. Technological neutrality
    a. Particularly with regard to the commercialization of “unconventional fuels” (e.g. biofuels, thermally-enhanced oil, tar sands, tight oil, etc.)

b. E.g. any incentive for the production of oil and gas from marginal wells

3. Strong incentives for innovation to ensure that the United States remains at the forefront of the global innovation marketplace, protects both its economic and environmental interests, and develops the world's most innovative energy solutions on U.S. soil

We are aware that the budgetary and procedural process for enacting comprehensive tax reform is unclear at this time. In the event that Congress is not in position to enact comprehensive tax reform this year, there are incremental modifications to current law that would get more advanced biofuel projects financed and built in the immediate term. First, Congress could make advanced biofuels eligible for a number of the incentive programs offered to oil and gas (e.g. MLPs). Second, Congress could reform the second generation biofuels PTC to provide the type of incentive offered to renewable electricity. These modifications to current law would create more consistency across the different fuel energy sectors, mitigate some inconsistencies in the clean energy investment marketplace with regard to different renewable technologies, create more American jobs and economic development opportunities in the immediate term and until more comprehensive tax reforms are enacted, and put the country in a better position to compete with other global leaders in the race to develop next generation biofuels. We would be happy to discuss these modifications in more detail.

Thank you for the opportunity to comment on comprehensive tax reform as part of the Senate Finance Working Group process. We hope that you find this information helpful and we would be happy to provide further information or answer any questions that you might have.

Sincerely,

R. Brooke Coleman
Executive Director
Advanced Ethanol Council (AEC)