



April 15th, 2013

The Honorable Kevin Brady, Chair,
Energy Tax Reform Working Group
Committee on Ways & Means
United States House of Representatives
Washington, D.C., 20515

The Honorable Mike Thompson, Vice Chair,
Energy Tax Reform Working Group
Committee on Ways & Means
United States House of Representatives
Washington, D.C., 20515

The Honorable Jim Gerlach, Chair
Manufacturing Tax Reform Working Group
Committee on Ways & Means
United States House of Representatives
Washington, D.C., 20515

The Honorable Linda Sanchez, Vice Chair
Manufacturing Tax Reform Working Group
Committee on Ways & Means
United States House of Representatives
Washington, D.C., 20515

Re: Comments: *"Energy and Manufacturing Tax Reform Working Groups"*

Dear Congressman Brady, Congressman Thompson, Congressman Gerlach and
Congresswoman Sanchez,

It is with great personal conviction of the best interests of our country that I provide the following comments in support of the present Congressional efforts to reform the tax code. Such reforms should make the United States tax system more conducive for a stronger domestic economy and greater global competitiveness. I and my company, Lignol Innovations Inc, of Berwyn, Pennsylvania, appreciate the opportunity to provide these comments to the Energy and Manufacturing Tax Reform Working Groups of the House Ways and Means Committee on the enactment of a production tax incentive to accelerate commercialization of the renewable chemicals and biobased products industry.

My company, Lignol Innovations, has developed and is now commercializing a biorefinery technology for the production of biobased chemicals and fuels from wood, agricultural residues and other low-cost, abundant lignocellulosic biomass. The process is almost unique in that multiple valuable chemicals are created and recovered in a single, environmentally-benign process. The basis for this process is a technology known as organosolv, which uses dilute ethanol, a biodegradable organic solvent, at elevated temperatures to separate and recover a number of valuable chemicals that are present in, or created from the biomass. A novel product of this process, which is of great interest to various chemical and materials companies worldwide, is organosolv lignin. This novel material has found applications in friction materials

(brakes and clutch facings), animal feeds (a natural antioxidant and feed enhancer), formaldehyde-free wood binders (plywood, OSB, particleboard), lubricant additives (antioxidant and friction modifiers) and numerous other products. Furthermore, the Oak Ridge National Laboratory is now using it as a feedstock in the development of low-cost carbon fiber (LCCF), thus avoiding the use of fossil carbon-based materials such as PAN. The future potential demand for LCCF by the U.S. automobile industry, as it strives to reduce gasoline demand by making lighter weight vehicles, is enormous.

Simultaneous with the production of this organosolv lignin, the Lignol process recovers various other useful biobased chemicals, some of which, such as acetic acid, displace the identical chemicals made from crude oil. At the same time, the sugars derived from the cellulose are readily converted to second-generation motor fuel ethanol, as required by the EPA's Renewable Fuel Standard, RFS2.

Even though the Lignol biorefinery technology promises so much in terms of both the domestic economy, the environment and in job creation –Lignol biorefineries could easily revive old pulp mills that are being closed as the paper industry shrinks – it is very difficult for a small company such as Lignol to raise the large amounts of capital required to construct the first commercial-scale biorefinery. This is especially true for construction of the first biorefinery, which investors typically see as having the greatest financial risk and therefore they demand a promise of exceptionally high, so-called risk-adjusted, returns. As your Working Groups consider reforms, they should recognize that tax policy is especially important to emerging technologies that have not yet achieved and demonstrated commercial scale operation in the industrial and environmental biotechnology sector, which is the case for renewable chemicals. A production tax credit for renewable chemicals will help with raising capital and promoting the investment needed to construct the plants and facilities that will provide the domestic production of innovative renewable chemicals for everyday consumer and industrial products. This is especially true for smaller, often more innovative companies that have less access to capital. The rapid establishment of a biobased chemicals industry will pay strong dividends in the future for U.S. chemical manufacturing by providing a domestic source of chemicals at more stable prices than those derived from crude oil with its highly volatile price. It will also improve our balance-of-trade, maintain U.S. leadership in clean energy and manufacturing, create and protect thousands of high quality U.S. jobs and reduce demand on unpredictably-priced crude oil. Federal policies that provide production incentives would help this emerging industry expand and grow throughout the country, and secure America's leadership in the important arena of green chemistry.

Lignol Innovations is trying to commercialize the production of a new generation of renewable chemicals from renewable biomass, which can supplement or substitute for traditional petroleum-based chemicals and products. The emergence of this technology represents a historic opportunity to reverse job losses in the U.S. chemicals and pulp and paper sectors while simultaneously improving energy security, human health and the environment. As a leader in a highly innovative sector in the U.S., we are well aware of the financial constraints facing this

country, including but not limited to, the federal budget. However, the U.S. also faces the challenge of reducing its costly dependence on foreign oil and competing in a \$2.4 trillion worldwide clean energy market with a number of countries already implementing aggressive alternative energy development programs.

Production tax credits are currently provided to the existing fossil energy industries. As such, the renewable chemicals allowance is critical to the efforts of my company to attract capital, given that these types of incentives are already offered to other U.S. energy sectors. It will be much more difficult for Lignol Innovations to develop projects in the United States if other nations offer more attractive investment incentives. As we prepare for commercialization and deployment of our biorefinery technology, we would welcome broader comprehensive tax reform discussions on the enactment of a renewable chemicals production tax credit, *Qualifying Renewable Chemical Production Tax Credit Act of 2012, H.R. 4953*, and its Senate Companion bill, *S.3491*. The draft legislation needs to be re-introduced in the 113th Congress. If enacted, the production tax credit proposal will provide the following:

1. Tax parity for renewable chemicals with other uses of biomass in energy production;
2. Accelerated commercialization of the renewable chemicals and biobased products industry, and
3. Thousands of high quality U.S. jobs, improved environmental and health performance of the chemicals industry, reduced demand for imported petroleum products, and help in maintaining U.S. leadership in clean energy, sustainable chemistry and biobased manufacturing for building the nations biobased economy.

While the U.S. has made great strides over the last decade in developing a bio-economy, more must be done. The U.S. may already be falling behind other competing nations in commercializing biotechnologies and building biobased manufacturing facilities. Other nations in Europe, South America and Asia are using government incentives to invest and to speed up commercial development of biotechnology applications. In many instances, those nations are working with American companies and U.S. technologies. As a general principle, we support efforts now underway to update, balance and modify the U.S. tax code, particularly as it applies to innovation sectors such as the renewable chemicals and biobased products industry. Lignol Innovations believes that it is absolutely critical to provide incentives such as a renewable chemicals production tax credits that would help it to raise the required capital and reduce the pressures driving private capital to other countries.

We look forward to working with you on this important matter.

Sincerely,

E. Kendall Pye, Ph.D.
Chief Scientific Officer

