CIBO Annual Meeting
Ponte Vedra Beach, Florida
Oct. 21 - 23, 2015

I. CIBO Operations Reports - **John C. deRuyter, E.I. DuPont de Nemours & Company**

Chairman's Status- **John C. deRuyter, E.I. DuPont de Nemours & Company**

Welcome to Ponte Vedra and CIBO's 37th Annual Meeting!

It is great to see good attendance at this Annual Meeting! Think it might have something to do with the location?

Things have certainly changed since I started working with industrial energy, and in particular with DuPont. When I started with the company in 1973, there were 18 plants in the U.S. that burned about 2.5 million tons of coal per year, and we continued installing coal fired boilers through the 1980s, when I became involved with CIBO. As of today, there are NO coal fired boilers in DuPont in the U.S. and DuPont now has a presence on only 7 of those 18 plant sites. Obvious conclusions could be that times have changed or I have gotten old, or actually, both. But DuPont is not the only company or institution which has transitioned away from old reliable coal, transitioned into making different products, and transitioned to a different corporate structure. These major shifts impact CIBO members, individuals who work in the industrial/institutional energy arena, and CIBO as an association in many ways.

We have a meeting agenda that provides a platform to address the current transitions and key issues. We are honored to have very knowledgeable speakers on a range of topics, and there will be good opportunities for questions and discussion, so please participate.

With that focus, this meeting provides an opportunity for you to help shape the role and direction of CIBO to achieve optimum benefits. I believe the value and effectiveness of CIBO remain relevant and potential impacts continue to expand.

As usual, I take this opportunity to open the Annual Meeting by giving my brief impression of the status of CIBO from the Board Chairman and industrial energy user perspective.

CIBO continues to advance its reputation as a well-respected association that provides balanced, thoughtful, and technically sound input on issues critical to industrial energy use. As you are well aware, the number, breadth, and potential impact of issues continue to escalate across multiple environmental media and transition as well from local to global issues.

CIBO is well positioned to address these challenges. CIBO's membership makes this association unique. As you know, we have a diverse Active membership across many industrial sectors; critical Associate membership spanning the broad facets of industrial energy use and support services; the unique perspective of University Affiliate members; and small business representation. This breadth provides a comprehensive approach to issues focused on industrial boilers, energy use, and related environmental issues that no other trade association can offer.

CIBO's input is recognized, appreciated, and increasingly sought by policymakers and regulators. CIBO's reputation allows us to advance consensus positions and effectively influence the policies, laws, and regulations that we must understand and comply with while competing globally. While Congress may not be implementing significant legislation, the Administration is definitely providing many challenges.

The current CIBO committee structure is very effective and Committee meetings draw excellent participation. An overwhelming number of issues fall under the Environmental Committee. Determination of which issues are addressed is based on member input and sweat equity, and additional input and help is always valued. If you see any particular issues presenting challenges to your companies and facilities, please provide input to CIBO to help develop positions and support CIBO's very effective leveraged advocacy.

CIBO's technical conferences drew very good attendance again this year. These focused conferences continue to provide cost effective value to the membership through up-to-date technical knowledge as well as expand the recognition of CIBO throughout the industrial and institutional energy user community. CIBO conferences are unique in that they provide direct contact with regulators and an effective forum for discussing key policy and compliance issues.

We are blessed with the current CIBO staff. **Robert (Bob) Bessette** continues to be an outstanding president. Special thanks are also due to **Gail C. Bessette**, **Candler (Candy) Marriott**, and **Tiffany Woodward** for their excellent member support, as well as the excellent preparations for this meeting.

CIBO is continuing upgrades of IT systems. Hopefully you should continue seeing more effective communications and web sites, but if you see problems or have ideas for improvement, please let Bob or CIBO staff know.

CIBO membership is always critical. Company restructuring presents additional complications to sustained and increased membership, so efforts to gain and maintain members need to meet the challenge. CIBO Honorary Member and Consultant **Bob Corbin** with **Candy Marriott**

continue to be very effective with the Membership Committee in pursuing and retaining members and they will discuss membership shortly. But all members need to help "sell CIBO."

As our Treasurer will explain shortly, CIBO's financial status is stable, primarily due to retained membership and the current dues structure. We continue to budget conservatively and our year-end fund balance is in the range that we have tried to achieve. We have expended major efforts on Boiler MACT and related combustion rules over the last few years, and that never-ending saga continues with the reconsideration and litigation processes. For those and other regulatory/legal efforts, we try to participate jointly with other trade associations as appropriate in order to control expenses. **Lisa Jaeger and Bracewell & Giuliani LLP** have provided very effective legal support for CIBO, and they will shortly discuss our litigation efforts. Bracewell has also provided key support for Government Affairs this year.

In summary, there are many challenges and opportunities which demand the presence of CIBO as a broad-based organization to support, defend, and advance the interests of industrial and institutional energy users and associated entities. We will continue to be vigilant in our efforts to increase effectiveness while controlling costs. With your continued support and active participation we can meet the new challenges as we transition to a new energy era.

Thanks again for participating! If you would like to discuss any aspects of CIBO, please talk to me, Bob, or any member of the CIBO Board of Directors.

Thank you.

Robert (Bob) Corbin provided the Membership Report. Bob pointed out that membership is a full time job and everyone's job. Membership is the life blood of CIBO. The CIBO Mission and Vision are still current. The challenge is providing relevant answers to energy and environmental issues in the political, regulatory, and environmental landscape. We are currently at 105 members. During 2015, our focus continued to be on Industrial Boiler MACT and the associated compliance strategies. Fuel switching to natural gas has been a major result. Water issues have become another big area of regulations.

CIBO provides a "one stop shopping" approach to getting information and impact from such regulations. Our retention rate is still above the 88% benchmark level. During the year, we picked up 7 new members, but lost 12 members, of which 10 were Associate members. The Annual Survey results showed a shift in emphasis towards energy and water issues. Top energy issues include cogeneration and energy efficiency. Networking continues to be the top service benefit. For the Technical Conferences, more emphasis on natural gas, more industry speakers, more case studies, and perhaps some name changes were noted.

The energy committee will need to be more active with the greater emphasis on energy issues. Economic drivers include slower economic growth, company retrenchments, M&A activity, and increased regulatory burdens. The number of new laws and regulations is at an all-time high and growing. The membership plan for 2016 will focus on fuel switching and

experience networking. Energy efficiency will be a focus. Alternate fuels will take on more importance. A new Fuels Subcommittee has been formed with **Gary Merritt, Inter-Power/AhlCon Partners, L.P.,** as the Chairman. Focus Group Meetings will continue. Member input is solicited. We will continue to drive for new members. Referrals are a good way to generate new prospects. A strong diverse CIBO is sustained by a robust and growing membership.

Robert (Bob) Bessette, CIBO, exhibited the names of the Associate Members that were sponsors for the Newcomer's Reception. A gift card was drawn for one member out of all who completed the Annual Membership Survey.

Brittany Pemberton of Bracewell & Giuliani, LLP pointed out that there are still a substantial number of law suits of interest to CIBO and its members ongoing (at least 16 with more being lined up). For the Boiler MACT cases, oral argument has been scheduled for Dec. 6th. The DC Circuit Court has promised to have the same panel that heard the NHSM case earlier this year. That panel was not terribly friendly to industry, but did uphold the EPA approach to designating secondary materials as fuels. None of the eNGO requests were upheld. This could be helpful in the rest of the Boiler MACT cases. The malfunction issue is an important one for industry. EPA claims that there are no malfunctions, only startups and shut downs. Industry has also challenged EPA's authority to require energy assessments. This will be a statutory interpretation. The format will be a joint proposal with industry and DOJ and a separate proposal from the eNGOs. The 3 cases are major source, area source, and CISWI.

EPA proposed reconsideration rules in January, 2015. Issues that are in reconsideration were severed from the ongoing law suits. When EPA finalizes these rules, these issues may still end up in litigation. The affirmative defense issue, when combined with the position of no malfunctions, provides no opportunity for industry to account for any kind of malfunction and not be able to demonstrate compliance. On the NHSM fuel, there is still the definition of treated wood materials as fuels. EPA has to finalize these definitions. There are a number of cases that cover startup, shutdown, and malfunction.

The MATS rule was sent back to the DC Circuit Court by the Supreme Court. EPA has indicated that the rule will be modified by April 2016 to address the Court's concerns. In the meantime, the cooling water intake rule has been challenged in a number courts. These have been consolidated into the 2cd Circuit Court. Due to some procedural issues this case will likely be displayed. The "Waters of the US" rule is a mess at the moment. The Circuit Court cases have been combined. The District Court cases have not been combined. The 6th Circuit Court stayed the rule nationwide. This Court will consider whether it has jurisdiction to rule on the merits of the case. Eventually, the Supreme Court will have to be involved. On the Coal Ash rule, there are a number of industry issues that have been petitioned. The Clean Power Plan is expected to be published in the federal register this month. The NSPS and federal plan also need to be published. Once these rules are published, law suits can be filed.

There is a legislative problem with a difference between House and Senate versions (regulated source vs regulated pollutant). There is an authority issue on restructuring the entire utility industry. The building block approach applies "beyond the fence" of a plant, which is not covered under the Clean Air Act. There is a "net electric sales" issue in that the original plan had some definitions for EGUs and cogenerators on net electric sales. The current version has none. EPA has indicated that this will be corrected in the federal register version. Finally, the EGU effluent guidelines have been issued. There are a number of issues that were commented upon, but not resolved in the final rule. This could result in further law suits on this rule.

Carl Bozzuto of ALSTOM Power, Inc. gave the Treasurer's Report. Member dues continues to be the major source of funds. Conferences provide an opportunity for any surpluses. The operating fund is at a healthy level at about 9 months, although our long term goal is 12 months. The decline in membership is a concern. Current members need to be more proactive in attracting new members. We will have a difficult time making budget this year. The number of new regulations is at an all-time high. As reported above, litigation activities will continue. Natural gas will not escape. Water is next.

Robert (Bob) Bessette, CIBO, gave the President's Report. He noted that the availability of natural gas, the list of regulations, and the drive to electrify the entire economy, will drive the operating conditions of our industry. The integration of these issues is CIBO's strength. It takes energy to make or do anything. Energy, the environment, and the economy are inextricably linked, just like pressure, temperature, and volume (Ideal Gas Law). Thermal energy is critical to industrial systems. Without the thermal energy requirement, the increase in efficiency of cogeneration would not be possible. As things change, CIBO will be ready. We have improved our web site to better serve our members. Energy operation and performance will be more important in our future, harkening back to our original founding in 1978. CIBO is much more than the sum of our parts. The members, the staff, the consultants, and the legal support combine to make a truly significant contribution to our industry and our economy.

Scott Darling, Alcoa Inc. of the nominating committee pointed out that **Ann McIver, Citizens Thermal, Chris Keuleman, International Paper,** and **Mark Calmes, Archer Daniels Midland Company**, are up for re-election to the Board of Directors for another 3 year term. There were no additional nominations from the floor. The nominees were unanimously re-elected to the Board by vote.

II. The National Industrial Energy Environment

David Rosner, of the US DOE, reported on energy implications going forward. David is part of the Energy Policy and Systems Analysis group initiated by Secretary Moniz. The Quadrennial Energy Review was directed by the President to align the energy policies with the overall energy and environmental goals. The US has the most advanced energy system in the world. This energy landscape is changing significantly. Oil and gas production is increasing. Renewable generation is increasing. Distributed generation is increasing. Grid management techniques are improving.

The first installment of the QER was on infrastructure looked at the infrastructure needs in view of these new trends. The DOE held 13 stakeholder meetings as well as meetings with both Canada and Mexico. Public comments were taken from an open web site. Resiliency was one of the major industry concerns. There are new interdependencies in the grid and energy distribution. Natural gas is providing more electric generation. At the same time, natural gas export terminals are being built. Gas pipelines are aging. The report recommended a financial assistance program to promote pipeline replacements. State energy plans need to be bolstered. Modernization of the electric grid will be required, especially with regard to cyber security. The States will be the test bed for many of these approaches and there will be no "one size fits all" approach that will be successful.

Transmission investment is a concern, particularly with distributed generation and renewables. Financial assistance to promote and integrate transmission, storage, and distribution infrastructure. Train loading facilities for oil have increased from 6 facilities to 65 f facilities. Pipeline directions have been reversed in some cases. The Strategic Petroleum Reserve needs to be enhanced to improve its response capabilities. Draw down authority needs to be reviewed. Competition amongst commodity groups is increasing.

Transportation infrastructure needs to have some specific focus on energy transportation. Port bottlenecks have been costly. More support to water borne infrastructure is needed. There is a robust trade with Canada and Mexico in the energy area. There is an opportunity to improve this trend with better coordination of policies, regulations, and infrastructure. Transmission, storage, and distribution infrastructure contributes 10% of the US GHG emissions. Improved data is needed to address this. The energy sector added 1 million jobs in recent years. The forecast is that by 2030 another 1.5 million jobs will be added. These jobs will require certain skills. Job training in these areas is recommended. Siting and permitting of all of this infrastructure will be difficult. Robust public engagement is essential to success. Review of statutory authority to improve coordination is recommended.

The next QER will focus on the electric sector. The Clean Power Plan has established the targets for GHG emissions. Options for the states include an emissions rate (lb/kwhr) or a mass rate (total tons of GHGs). Standards are based on "best system of emissions reduction that is adequately demonstrated. The states decide how to comply. If a state does not submit a plan, the federal government can impose a plan. There are 3 building blocks to the plan. Efficiency improvements, fuel switching, nuclear, renewables, cogeneration, waste to energy, and demand side management are all potential means to achieve compliance.

CCS is anticipated to be a major contributor to GHG emissions reductions. The DOE has 25 projects in the industrial sector related to CCS. There are 2 large industrial projects (Air Products and Archer Daniels Midland Company) that will sequester over 1 million tons of CO2. There is also a major program on power sector R&D for CCS. Overall, these programs have captured 10 million tons of CO2 cumulatively. Never the less, success needs more than just cost and technology improvements. Policy changes are needed to provide the needed

incentives for CCS development. Some tax credits exist and some new tax credits have been proposed for 2016. In particular, a tax credit has been proposed for sequestration of CO2 (30% ITC).

There are 7 regional partnerships for storage of GHGs. This program is a world leading system of demonstrating storage potential and safety. Combined heat and power (CHP) is also being promoted. An executive order calls for 40 GW of new CHP by 2020. Some $71 million in funding is available for industrial cogeneration applications.

Peter Tsirigotis of EPA reported on EPA Regulatory Activity. Peter noted that having engineers involved in the process is critical to successfully deploying real equipment that can address these issues. The Clean Power Plan (CPP), along with the NSPS and the federal plan, will be published in the federal register shortly. The intent of these rules was intended to apply to the electric power industry and not cogeneration plants. EPA has addressed this definition issue and is hopeful that it will be satisfactory to industry. The Industrial Boiler MACT reconsideration will be finished by the end of October. Peter made a point of thanking CIBO for their involvement in getting the regulation to a point where it is achievable. The process may have taken over 20 years, but has resulted in a much better rule than what we had previously. Over the next few years, the agency wants to improve the information gathering and coordination process. One of the lessons of the Boiler MACT saga has been that incorrect and out of date information led down many blind alleys. They would also like to clean up some rules going forward.

III. It Takes Energy to Make or Do Anything

Christine Tezak of Clear View Energy LLC reported on the Social, Financial, and Business Drivers for a New Energy Era. Clear View is a DC based research firm that identifies and quantifies non-fundamental energy risks for financial investors and corporate strategists. The company provides analysis not advocacy. The direction of energy has been “greener and tighter”. There appears to be a trend away from regionalization with respect to power generation and transmission. Natural gas and oil pipelines are now being required from different parts of the country. In the transition from energy scarcity to adequacy, safe and responsible production, “some not all” exporting, and “give a little/take a little” have characterized the federal approach.

The Clean Power Plan is part of the President’s environmental legacy in the hopes that the commitment will carry through to the next administration. Regional strategic reserves of refined fuels are being contemplated (storm damage issues). Storage is being considered as a problem solver. We may have smart technology, but we still have some dumb tariffs. This administration is changing the conversation. They speak of carbon pollution, not CO2 emissions. They talk of climate crisis rather than climate change.

The power portfolio of the US is changing. Not only more natural gas is being utilized, solar and wind are increasing. If California is successful with their standards, the US would have 14%

generation contribution by 2030. The solar contribution comes at the wrong time (i.e. mid-day). Thus, generation efficiency from fossil fuels drops off with load. Backing down on fossil generation during the day is counterproductive. Electric storage would be a better solution. Long standing energy efficiency programs will continue. Coordination issues will continue.

The DOE QER has indicated that annual transmission spending has likely peaked. Regional petroleum reserves should be considered rather than the Strategic Petroleum Reserve. The Council on Environmental Quality has recommended a minimum threshold for GHG emissions, programmatic EIS, and risk reviews. Environmental groups want all projects to have GHG reviews and more reviews and road blocks rather than less. The NSPS for GHGs set standards for new coal and gas fired plants. The Clean Power Plan proposes standards for existing units as well. The CPP looks like a "green squeeze" on natural gas (i.e. renewables will make a bigger contribution).

The ozone NAAQS came out with 70 ppb as the ambient standard. One of the concerns for non-attainment areas is that new oil/gas wells have to get offsets for GHG and/or VOC emissions to get permits. This will get more difficult as time goes by.

Carl Bozzuto of ALSTOM Power, Inc. reported on the National Coal Council (NCC) study that reviewed the DOE development program on CCS. The Secretary of Energy requested the NCC to provide this study with the aim of improving the program leading to commercialization of CCS. The NCC recommended that 5 - 10 GW of CCS demonstration units be in operation by 2025, as well as at least one permitted storage site in the 7 Regional Partnerships capable of storing 100 million tons of CO2. The study also recommended "policy parity" for all low carbon technologies and not just renewables.

IV. The New Era in Industrial and Institutional Energy

Joel Bluestein of ICF reported on the status of natural gas. The increased production of natural gas has led to low prices in the US. The anticipation is that this low price level will persist for some time. Electric load growth will provide some increase in the demand for gas. However, additional growth is liable to come from export growth, both for LNG and for gas pipelines to Mexico.

Gas demand is anticipated to grow from nearly 30 TCF to nearly 50 TCF in 20 years. Shale gas production is the major source, of which the Marcellus is the largest. In spite of the fact that the number of drilling rigs is down, production continues to increase. Further, there are wells that are drilled but not producing (needing higher prices). DOE has approved 9 projects for LNG export terminals. Price levels are expected to pick up somewhat from the current level, but the surprises are likely to come on the downside.

The CPP final rule has some changes from the first proposal. Due dates have changed with the need for SIPs. There are interim standards are now in 3 steps in 3 year increments starting in

2022. There are 3 building blocks (nuclear was removed along with end use energy efficiency). There is an allowance for trading. States can cooperate or stand alone. Full compliance is in 2030. There will likely be litigation. Ultimately, the US Supreme Court will likely have to decide. The original state budgets were revised, mostly downward, except especially for the coal states.

EPA studies suggest a 35 GW swing in coal plant retirements. Actual retirements will be dictated by the state plans. EPA did some sample cases for the rule. There was a base case, which assumed no changes. The EPA models assumed more efficiency and more renewables. As a result, there is little increase in the demand for gas. The base case has a low electric growth case and an aggressive increase in end use efficiency. With the CPP, the shares change very little. The increase in end use energy efficiency reduces coal.

If the end use efficiency improvement does not materialize, then more gas will be utilized. Where there is a greater concentration of coal units, there will be greater demand for gas. The other areas will not show much difference. For cogen plants, a 25 MW plant size was assumed along with the 1/3 capacity sales to the grid. That amounted to 219,000 Mwhr. Thus, selling less than 219.000 Mwhr was selected as the criteria for exemption. The final rule included the design efficiency potential electric output to the grid. However, the definition was in the NSPS and not the existing unit plan.

This will supposedly be fixed in the federal register version. Since these units were not intended to be in the rule, there could be an opportunity to create renewable energy credits that can be utilized.

David Sweet of WADE reported on Distributed Generation and CHP. David also represents Decentricity, which promotes decentralized energy generation with no capital cost to the owner. A power purchased agreement (PPA) with the developer is utilized instead. A number of pressures are being forced on existing utility business models. In some cases, this fact results in a potential "death spiral" for the traditional utility business model. While not all of these scenarios will come to pass, there are legislative and tax proposals that can provide enough incentives to make some of these things work. A good CHP market requires that availability of fuel, the delivered cost of power, the cost of money, the tax liability, the space availability, the scarcity of capital, and the perception of the owner. Decentricity will evaluate a plant to see if CHP makes economic sense and then offer to design, own, build, and operate the plant. They will offer a PPA that, hopefully, reduces the overall electric cost of the plant. A long term agreement is required. Decentralized energy is a "win-win" for the customer and the environment (i.e. lower prices and less emissions). The biggest barriers seem to be around the soft costs of an installation.

John Hughes, of ELCON representing electric consumers, reported on electricity in the new era. The traditional load duration curve started with base loaded plants that had low fuel costs and moved up to higher fuel costs with lower capital costs. The daily curve now is duck

shaped due to surplus solar generation during the day followed by no solar generation at night. This approach is entirely driven by environmental regulation.

This type of system would not be designed from an energy efficiency or cost point of view. The "smart grid" is supposed to apply computer techniques to the utilization of power. Two way communications equipment would be used to provide the resulting inputs to the system. The reality is that energy storage is a necessity for the smart grid to work. At the moment, storage is not cheap. Micro grids are just small aggregations of locals to make a block of demand to be controlled. Somehow, the system still has to be managed and controlled.

The federal government is providing substantial funding for smart grid development. Some of the claimed benefits include higher security. This is problematic because the old grid is electro-mechanical and is very resistant to hackers. The smart grid is digital and very susceptible to cyber hacking. Subsidies to renewables potentially leads to negative prices on the market. So far, the benefits from all these programs have been difficult to realize. The government view is customer empowerment, consumer choice, resiliency, and new entrants. The practical impact has been higher regulatory burden and higher costs.

The first round of industry restructuring largely failed to achieve the cost reductions that were anticipated. A second round of restructuring may not be any better. Savings in the new era will likely mean sacrifice. The best long term solution for CIBO members is likely to be self-generation with dual fuel capability.

Ann McIver of Citizens Thermal facilitated a panel on alternative natural gas supply. The panel consisted of **Tom Evslin of NG Advantage LLC**, **Tony Brown of Kinetrex Energy,** and **Mike Calderera of NPGA**.

NG Advantage LLC provides natural gas by truck to those locations that do not have access to natural gas. Natural gas has become the fuel of choice for a number of installations due to the reduced cost of gas and the availability of formerly uneconomical gas deposits. While there are a number of plants that have access to a pipeline, there are still plants that do not have a pipeline to their plant. Some plants can still operate their solid fuel fired plants with appropriate controls. However, for some plants these controls are too expensive.

A pipeline lateral can be built, but these can be expensive and still require permits and public acceptance. At one plant that anticipated a pipeline, a short term contract was taken for truck delivered compressed natural gas. After the pipeline was delayed several times, the customer dropped the pipeline and went with a long term contract for truck delivered compressed natural gas (CNG).

The process starts at a compressor station on a pipeline that can deliver compressed gas. The compressed gas is cooled and dewatered. The gas pressure is 4000 psi. Carbon fiber technology allows for more gas carrying capacity and less total weight. The customer sees gas

coming through a pipe from the truck. The capital cost for this conversion is the cost of boiler modifications and site preparation. The operating expense is the gas itself, which is normally more expensive than coal, but avoids the operating costs for SO2 and ash removal and disposal. Environmental issues are greatly reduced.

The drawbacks of virtual pipeline service include gas curtailments, road problems, and back up issues. There is a minimum size plant for this to make sense (4 - 5 trucks per day).

Tony Brown reported on LNG and its potential. **Kinetrex Energy** is part of **Citizens Energy**, which is part owner of Citizens Thermal. LNG is natural gas that is cooled to -260 F and converted to a liquid. The volume is reduced by 600 times. In this liquid state, it can be transported more readily. LNG tankers can bring natural gas from a location where it is not needed to markets where it can be utilized (Europe and Asia). On highway use, transportation, and storage are key uses for the fuel. Likewise, supply back up as well as on site back up is desirable. The gas can be delivered for emergency or contract purposes.

Mike Calderera reported on propane as an alternative to natural gas. Propane can also be delivered as a liquid. On the retail side roughly 95% are small businesses which deliver gas to small users. Propane gas has a significant market in rural settings. Annual sales are a little over 19 billion gallons of propane. The biggest user is the chemical industry. Residential is next at 25%. Commercial and agricultural users are significant, followed by industrial and transportation fuels.

About 70% of propane is produced alongside natural gas from shale plays domestically. Gas gathering from wells proceed to a processing plant which separates the propane from the natural gas. From there, the propane goes to primary storage. From primary storage, trucks deliver gas to the secondary storage at the local level. From the local level storage, the distributors move the gas by truck to the end user.

Factors to consider for using propane include fuel use, boiler capability, and permit requirements. For a 100 MMBTU boiler, about 26,000 gal/day propane would be needed. A 7 day storage capability on site is recommended. Storage tanks have a range of sizes. A vaporizer assures that the propane delivered to the burner is a gas. The usual piping, valves, and regulators are required.

A 30,000 gallon tank takes up 85 ft. x 15 ft. of land. The vaporizer is 15 ft. by 15 ft. The code requirements come under NFPA 58. The scope covers storage, handling, transportation, and use. There are separation distances for tanks from buildings and fire safety analysis (for units more than 4000 gal). Propane can be delivered by rail car, transport truck, or pipeline.

Total US propane supply is now 101.6 million barrels (4.3 billion gal.). Stocks are currently well above the 5 year average. The Energy Information Agency web site has considerable information on propane. Petrochemical companies are the largest users, whereas residential

use depends on weather. Residential price is around $1.90/gal. Wholesale prices are around 42 cents/gal ($4.60/MMBTU).

V. Government Affairs - Anthony Reed, Archer Daniels Midland Company

The panel consisted of **Anthony Reed of Archer Daniels Midland Company, Salo Zelermeyer of Bracewell & Giuliani, LLP**, and **Chris Keuleman of International Paper**. Last year we talked about some of the things that we wanted to do about increasing CIBO's "presence" on Capitol Hill. This included additional white papers on CIBO priorities for Energy Policy and Legislation. Educational oriented materials helped to establish CIBO as a resource for Congressional staff concerning energy issues. A Hill Staff briefing was held that included Senator Inhofe as the keynote speaker, as well as NAM and ACEEE as industrial presenters. Meetings were held with the House Energy & Commerce Committee and the Senate Environment and Natural Resources Committee. Comments were submitted on the proposed energy and energy efficiency legislation.

On the political side, Congressman John Boehner stepped down as Speaker of the House. It now appears that Congressman Paul Ryan will take over as Speaker. Next year will be the last year for the current President. There will be a number of items that will want to be finalized before a new administration takes over. A highway bill and the debt limit will be high priority. A new budget bill is due in December. There are a number of tax credits that are expiring or about to expire. The budget bill presents the House with an opportunity to limit funds for various regulatory programs (CPP, WOTUS, Keystone, etc.). Repeal of the Crude Oil Export Ban can turn into a major issue. There will be lots of oversight hearings.

The election cycle will be in full swing next year. On the Republican side, Donald Trump and Ben Carson are still leading in the polls. The electorate has expressed their frustration with the conventional candidates. On the Democratic side, Hillary Clinton still leads in the polls by a large margin. Vice President Biden has decided not to run.

In the House, there are really only 31 seats that are considered to be in play out of 435. Last year's elections provided an overwhelming majority for the Republicans in the House. The likelihood is that the House will remain Republican. In the Senate, Republicans will have to defend 24 seats, while the Democrats only have to defend 10 seats. The Democrats need to take 5 seats away from the Republicans to take back control of the Senate.

The Chairman of the House Energy and Commerce Committee is term limited. The next in line by seniority is retiring. This opens up the chairmanship of an important committee for us. The House leadership now looks like Paul Ryan. This would open up the Ways and Means Committee chair. On the Senate side, Barbara Boxer is retiring. If the Republicans retain control of the Senate, there will likely be very few changes. If the Democrats take control, all of the leadership positions will change.

For next year, the House has already voted to repeal the crude export ban. A deal will need to be made in the Senate. The energy bills have been set up in both houses. There will be more bills in the House targeting EPA regulations. There will be a lot of "message" votes. On the regulatory side, there will be a lot of activity to attempt to cement the positions of the current administration. More litigation will be filed as some of these rules get published in the federal register. Relative to CIBO issues, we would like to be more proactive. There is a hunger for data. CIBO members provide a source of real world information on how things actually work.

VI. Environmental Issues

Gene Trisko, an Energy Consultant, reported on the energy cost impacts on American families. There have been a few national and state level household energy cost studies since 2000. There have also been travel studies, relative to driving habits. Data sources include the Census Bureau, IRS, EIA, and others. The median pretax income is less than $50 K/yr, or less than $1900/mo. About 30% of households have pretax incomes less than $30 K. These households will spend 23% of their after tax incomes on energy. In the $30 - $50K, the factor is 14%. The overall average is 9%. Electricity represents 69% of the average house hold utility bills. Electricity price increases have increased by 32% since 2005.

Additional price increases are likely due to compliance with MATS and CPP. The MATS rule will cost more than the annual cost of all the other air regulations. Average residential rates will be nearly 13 cents/Kwhr next year. Rates began to increase significantly starting in 2005 as the CAIR rule came into effect. NERA projects that the Clean Power Plan will increase retail electric prices by double digits in 40 states and by 20% in 17 states. This increase is the incremental increase over and above any other potential cost increases.

The EIA projections for oil and gas prices use a number of scenarios, but basically a high oil case, a low oil case, and a median case. Even in the low oil case, prices continue to rise in the future according to the projections. Average real US household incomes have declined across all quintiles since 2001, with larger declines in the lower income quintiles. Seniors and minorities are most vulnerable to energy price increases due to low incomes. These households average 20 - 30% below the median.

Low income households experience adverse health and welfare impacts due to higher energy bills. These include going without food, skipping medical care, skipping a prescription, and getting sick due to a cold house. Congress cut the low income heating energy program down to $3 billion. However, the cost to low income households (36 million households) is estimated to be $62 billion. There is a strong need for government policies that encourage stable and affordable energy prices. Assistance for low income families is needed.

Robert (Bob) Bessette reported on the CIBO database update project. The goal of the project was to bring the boiler list up to date, partly to confirm the number of units converting to gas and partly to be able to address the potential cost of the changes needed to meet the proposed ozone NAAQS. The data collection was contracted with West Virginia University. We

will attempt to consolidate the boilers on the list by company. The goal is to get each company's boilers on one XL data sheet. CIBO will attempt to clarify the one company sheets and send those to the principal representatives. The Principal Representatives will check the sheets for accuracy and return them to CIBO.

VII. Expectations Regarding the New Energy Era - Panel Moderators, Steve Gossett, Eastman Chemical Company, and **Rob Kaufmann, Koch Companies Public Sector**

The panel consisted of **Vince Albanese of Fuel Tech, Inc., Bob Fraser of Environmental Resources Management**, **Tony Hawranko of Amec Foster Wheeler North Amercia Corp.,** and **Joe Macak of Mostardi Platt**. **Rob Kaufmann** reviewed the different companies and facilities covered by Koch Companies. There are a lot of companies and a lot of facilities. They are a large natural gas consumer. The key regulatory drivers for Koch include Boiler MACT, MATS/CSAPR/Regional Haze, NAAQS, fracking regulations, and the Clean Power Plan. Other issues include customers and customer perception, eNGOs, and communities. Koch Companies sell a lot of products to retail consumers. Consumers are driving a focus on sustainability. Communities are more active at plant sites. The NGOs are now attacking fossil fuels in general (i.e. not just coal) and looking for weaknesses all along the supply chain.

Steve Gossett noted that **Eastman Chemical Company** has 40 manufacturing facilities around the world. The company has made a number of acquisitions in recent years, both for growth and diversification. The company supplies products to a dozen industries. The largest plant is still in Kingsport, TN, with 3 main power houses, including 14 coal fired boilers. Natural gas has changed everything. Natural gas is a feed stock for many chemicals. The lower prices for natural gas have allowed chemical manufacturing to return to the US. In addition, the lower priced gas allowed the company to adjust to the regulations impacting emissions. BART, SO2 NAAQS, and Boiler MACT regulations were hitting the plant simultaneously.

Planning to meet these regulations resulted in a capital project cost of over $280 million. When the gas prices declined, switching to gas looked to be more economical. The conversion of half the boilers to gas only cost $85 million. The gas company financed the pipeline to bring the gas. Eastman pays an annual fee to the gas company. The price of gas is higher than for coal. Gas pricing is a major concern. Renewables don't make steam. Once converted, it is impossible to go back to coal. Fracking regulations, NAAQS, and the CPP are of concern as they relate to gas pricing and availability.

Vince Albanese noted the **Fuel Tech Inc.** was primarily a NOx Control company. Vince was also head of the Institute of Clean Air Companies. In general, large companies with many facilities need some kind of regulatory certainty. We live in an era of regulatory uncertainty. The CAA requires EPA to review and revise certain standards periodically. The NAAQS get reviewed every 5 years. The NSPS will get reviewed every 8 years. These time periods are often faster than the regulated community can implement. Uncertainty requires companies to be very flexible. One major issue is that the Ozone NAAQS requirements are on the same time scale as the CPP.

The current standard is 75 ppb ozone for 8 hours. EPA data indicates that final compliance with the 75 ppb standard is within reach. EPA claims that 25,000 additional tons/yr. from the power sector and 200,000 ton/yr. from the industrial sector will allow compliance with the 70 ppb ozone standard. These numbers assume that all of the other rules are in full effect, including the GHG rules (NSPS and CPP). MATS has been at least remanded and the GHG rules will be challenged in court. There is an assumption that 49 Gw of coal fired power plants will be retired as a result of the CPP. If these do not retire, more NOx reductions will be required from industry. The interaction of these two rules could increase costs for industry.

Tony Hawranko pointed out that coal was the center of the FW boiler company universe. As a result, FW embarked on diversification activities. Some 47% of global CFBs were manufactured by FW (34 units). The merger between AMEC and FW was driven by oil and gas considerations. The Global Power Group remained intact. Aside from equipment supply, the company provides engineering, consulting, construction, and environmental services.

Bob Fraser reported on permitting issues. Somebody is against everything. With today's social media, the eNGOs can send out a tweet and have 100 protestors and a camera crew at any location within 24 hours. In Florida, roughly one quarter of the power generated in Florida came from coal fired plants. Since the demand in Florida is growing, these Mwhr will have to be replaced with something else. Since these coal units were dispatched first due to low cost, in order to replace that power, something more expensive will take its place. Thus, even though the rule is touted as a power sector rule, electric rates impact industry.

How will Florida replace this power? One approach is efficiency. Existing power plants are limited by steam conditions. Industry has been working for decades and improving efficiency. Nuclear is out of favor. Enviros are now against gas. Wind turbines are being taken down in parts of Massachusetts on noise concerns. Solar has its detractors. Pipelines and power lines also attract protestors. For CIBO Members, it will be important to "be at the table". States will need to submit SIPs. We will need to work with the States to provide input and guidance on what goes into these plans.

Joe Macak reported on testing, analysis, and compliance support for the new era. With the new regulations, there is more permitting activity. Further, compliance data and records need to be certified. Continuous monitoring systems often have glitches that interrupt data reporting. Regulators are much more knowledgeable of the permit requirements and obligations. Site inspections are looking for specific permit conditions that may have been triggered by a problem at another plant. Even with less coal firing, there is still more data being taken with computer technology. More data is being made available to EPA. When more data is being collected, more things can go wrong. Inspectors are looking for data files, calculation methodology, accuracy, heating value figures, and comparisons to the plant CEM data.

A lot more attention is being paid to start up and shut down. During start up, some monitors can be out of range (i.e. CO monitors). That would mean that some CO emissions are not being

recorded. That could impact the annual mass standards. Some authorities are requesting air emission testing for startup and shut down. More real time monitoring is being required (as opposed to wet chemistry methods). All types of emissions are being tested (HAP, Hg, PM, NO, CO, Cl, VOC, SO2, others).

Natural gas testing is somewhat more difficult as the concentrations are lower. In a coal stack with particulates, the higher concentration of ash provides more material to measure. With the dilute levels in natural gas, more sampling time is needed to get a reliable amount of sample for measurement. Condensables are the major source of particulates on gas (NOx, NH3, pass through, etc.). Predictive Emissions Monitoring systems are acceptable as long as the plant instrumentation remains calibrated. Alternative monitoring methods can be driven by unique plant conditions.

VIII. Strategic Thinking for the Future – John (Jay) Hofmann, Trinity Consultants, Inc.

The goals for this session include long run strategic initiatives, focus group topics, the OVEO report, and the future of CIBO. Jay noted that US Manufacturing production has finally passed the 2007 peak. However, employment in manufacturing has dropped substantially in the last 2 cycles. Employment is slowly recovering. Manufacturing companies are prime candidates for CIBO membership. Focus group topics include repowering options, cogeneration, energy efficiency, environmental management systems, new technologies, water impacts, and monitoring and testing. Additional suggestions of waste heat to energy and effluent guidelines might be added. Waters of the US and 316(b) could also be topics. All of the air emissions topics could turn into topics. Some universities have climate plans or sustainability programs that could form the basis for a topic. Getting some of the states to come in and indicate what they are doing for these plans. Another possibility might be approaches that some of these groups are taking towards promoting their priorities. Environmental Justice issues might also be considered.

The OVEO review was done about 2 years ago. They recommended that the organization needed to evolve with the changing times. There will be more ways to generate power that will be available to owners, including turbines, engines, solar, wind, and geothermal. However, most of these don't make steam. Industrial plants need steam, some more than others. How do we meet the needs of our members in the future?