



Virtual Environmental/Energy & Sustainability Working Group (SWG) Committee Meeting Minutes

Tuesday, June 8, 2021

Environmental Committee Chairman: Kristine Davies, Trinity Consultants, Inc.
Vice Chair: Thuy Mai, DuPont

Rich Gold, Holland & Knight, reported on Climate Change in the Biden Administration. Attitudes about climate are shifting across the political spectrum. Climate oriented federal policy will be here to stay, even after the Biden Administration. The Administration will make use of all agencies of the government to further climate issues.

EPA will still have a role, but nearly every other part of the government will be involved, including government procurement, the SEC, DOE, DOD, and any other agency that can have an impact on climate. Gina McCarthy will be looking at any and all tools that can be utilized. Climate risk will be incorporated into business loans. Executive action, regulation, and procurement will be the principle approaches. Fossil fuel companies will be targeted. Mandated corporate climate risk will be enforced by the SEC. Enhanced disclosure will be a requirement. Clean Energy Standards are being considered. Potential areas for bipartisan cooperation include domestic energy sources, CCS and CCUS, supply chain resilience, and workforce training and development. Legislation will be targeted to include climate issues. The infrastructure bill already has a number of programs that are climate oriented. The American Jobs Plan is similarly loaded. The near term focus on ESG is intended to pay off in the long run. The Administration sees economy and sustainability as a positive sum, rather than a zero sum, game. The supply chain issues will be critical going forward.

Bob Gemmer, DOE, reported on the Advanced Manufacturing Office Trends in CHP. The program has moved away from fundamental science toward application. The Administration goal is to have a net zero carbon power sector by 2035. The DOE is also being directed to work more closely with industry to provide solutions to these issues. Combined Heat and Power (CHP) is receiving strong support in this effort.

DOE has 10 Technical Assistance Partnerships (TAP) in the country. There is an e-catalogue of packaged CHP systems. There are 270 packaged CHP systems available. These are aimed at the smaller to mid-sized applications, which do not have the resources to custom design a CHP system. Although natural gas has been the “go to” fuel, there has been push back against gas, partly because methane is a strong GHG and the use of gas still produces CO₂. Another approach is to use CHP to help balance the grid. Flexible CHP systems with the proper electronic characteristics can be used to provide backup power as more renewables come on the grid. A demonstration system is planned for St. Paul, MN and Caterpillar. Cat engines will be used for the power generation. CHP is not necessarily a fossil fuel technology. It is an energy conversion

technology. Alternative fuels include digester gas, landfill gas, syngas, and green hydrogen. Renewable gas can also contribute to waste management. In a recent AGA study, it was estimated that renewable gas can potentially account for 60% of current natural gas use.

Hydrogen is being considered as an energy carrier. It is not a source of fuel, but a means for converting a base source of energy into a renewable fuel that can be converted into heat and power. The University of California currently uses a significant amount of natural gas. There are 10 campuses. At UC San Diego, a microgrid has been installed to reduce GHG emissions. The university already has several CHP systems across the 10 campuses. CHP systems can reduce carbon emissions today.

Ross Eisenberg, The American Chemistry Council (ACC), gave an update on the Social Cost of Carbon (SCC). The Biden administration has increased the SCC to \$51/ton and growing to \$85/ton in 2050. The SCC is legally required for federal regulations that consider energy efficiency. It is intended to be a tool to be used in cost/benefit analysis. In principle, regulations are supposed to provide more benefits than cost. The ACC, led by the Chamber of Commerce, got involved in 2013. At that time, the SCC was increased substantially. Industry pushed back. The Trump Administration subsequently set the level at \$1 – 7/ton. The current administration called for a review to be completed by June 2022. When the executive order returned to the Obama Administration figure at \$51/ton, the ACC sent a letter to the administration, asking for some kind of involvement. No response was received.

The 3 key variables are the discount rate, the time frame, and the actual value of benefits. The discount rate is critical to the calculation. There are risks and opportunities involved in this issue. For industry, regulations will be impacted by this issue. This includes permit applications. At the same time, the administration also issued executive orders directing OMB to look at cost/benefit analysis in general.

The Interagency Working Group is supposed to make recommendations to the President on how to apply SCC (when, where, and how). Thus far, there has been little transparency to the workings of this group. Industry needs a “seat at the table” to this process.

Kristine Davies, Trinity Consultants, Inc., pointed out that Regional Haze and Water issues will not be covered directly. There is a lot going on at the state level. Industrial owners still need to pay attention to the activities in their plant locations.

Chris Van Atten, Environmental Resources Management, presented on the comparison of regulation via clean energy standards vs. EPA regulations. The US Power Sector has made substantial progress on emissions reductions across the board, including GHG reductions. Coal plant retirements and renewables have contributed to GHG reductions. This has been partly due to regulations and partly due to market forces, especially the low price of natural gas. The Administration has set a goal of 50% reduction in GHG emissions in the economy by 2030. In addition, it has set a goal of carbon free electricity by 2035. Right now, the power sector is about 40% carbon free, counting nuclear, hydro, and renewables. More companies have adopted GHG targets in recent years.

There is no consistent definition of a “clean energy standard”. There are 4 key attributes of a clean energy standard. First there must be a numeric standard. There must be a compliance mechanism to achieve that standard. There must be an enforcement mechanism. Finally, there must be an application standard to particular entities, or sectors. States have renewable portfolio standards (RPS) that come close to this type of standard. Congressional passage of such a standard will be extremely difficult. If the reconciliation process is to be used to pass such a bill, the federal spending levels are still impacted. Since energy is so heavily involved in the economy, the impact on federal spending would be very difficult to evaluate, never mind

agreed upon. That leaves EPA type regulations. EPA cannot propose a clean energy standard. However, EPA can regulate CO2 emissions. Thus far, attempts have not been terribly successful. The Affordable Clean Energy rule was thrown out by the Supreme Court as the scope was too pervasive. A similar concern was brought up for the Clean Power Plan. With energy so integrated with the economy, broad approaches will likely run into problems at the Supreme Court.

Lisa Jaeger, Bracewell LLP, reported on Environmental Justice (EJ). EPA has put out a definition of EJ that states that all people would have equal impacts from regulations and standards. There are 3 groups that provide advice and recommendations to the government. The approaches include Title VI of the Civil Rights Act, NEPA, community involvement, and access to information.

The Biden Administration has put climate impacts as part of NEPA and community involvement. A climate justice screening tool has been developed. The CEQ climate and economic screening tool working group is responsible for this. The goals are hopeful, but the actual process of achieving the goals have yet to be developed. One proposal is to put more pollutant monitoring in these communities.

The Justice Department has established a new environmental crime victim assistance program. The NEPA revisions that were enacted during the Trump administration have been the subject of 5 law suits. The environmentalists are opposed to the Trump rule.

The Biden Administration is reluctant to litigate the rule and has notified the court that it is reconsidering the rule in the hope of a remand back to EPA. Enforcement is under the Department of Justice.

The Civil Rights Act provides support for EJ concepts to promote civil rights, health, and environmental statutes. Any federal funds disbursements could be impacted by EJ impacts.

EPA has their own regulations (as do other Agencies) to make sure that they comply with the Civil Rights Act. An executive order does not carry the same weight as the Civil Rights Act, as it is not a law and, therefore, not enforceable in court. If the funds are being disbursed in a manner that is deemed discriminatory, a victim would file with the agency and not go to federal court. Agencies can use Title VI authority, when appropriate, to enforce environmental justice claims.

Kristine Davies, Trinity Consultants, Inc., noted that several states have activities on Environmental Justice. New York has introduced legislation requiring an environmental impact statement for projects that impact “economically distressed communities”.

Massachusetts is now requiring an environmental fact sheet for projects that could impact various communities (not just “economically distressed”). There is also a Climate bill that includes an EJ component.

Rhode Island has proposed a Rescue Rhode Island Act. There is a provision of the requirement for a “green zone” permit. Many industrial facilities could be shut down if a green zone permit is denied in their area.

In a court case, a Chicago judge rejected a suit against a metal shredder, as the judge didn't find any deliberate discriminatory behavior. Then the EPA wrote a letter to the mayor of Chicago requesting an environmental review of the permit.

Marty Durbin, The US Chamber of Commerce, presented on business community perspectives. Right now, the priorities of the business communities are focused on pandemic relief. Businesses are coming back,

but have not been able to hire new employees. Partly, this has been due to unemployment benefits. Half of the states have suspended the extra \$300/week to promote people to go back to work.

The Chamber also supports a bipartisan infrastructure program. Infrastructure improvements are urgently needed in the country. In addition to infrastructure, immigrant issues need to be addressed.

Focus is being developed on cyber security. This is one area that the administration seems to be willing to work with industry to develop solutions.

Supply chain vulnerability is another area that the business community sees as very important. A general and major theme is that there is a lot of room for bipartisan activity with the Congress, the Administration, and the business community. That being said, there are many areas that the business community sees as detrimental. While there is disagreement, the lines of communication have been open with the Chamber. As long as the lines of communication are open, the Chamber can put forth business positions that do not agree with Administration policies.

The Chamber has had a climate task force for at least 3 years. The Chamber has conceded that climate change is real and that inaction is not appropriate. However, market based approaches are needed to drive the innovations necessary to drive the changes needed to address this issue.

With regard to the Infrastructure bill, there are not likely enough votes in the House or the Senate that includes everything that was in the Jobs bill. There will be some level of compromise that allows an infrastructure bill without much of the pork that was in the early proposals.

Wednesday, June 9, 2021

Energy Committee Chairman: Mike Zebell, Environmental Resources Management
Vice Chair: Robin Ridgway, Purdue University

Jay Hofmann, Trinity Consultants, Inc., reported on the causes, effects, and implications of the Texas blackout earlier this year. The Electric Reliability Council of Texas (ERCOT) runs the grid in Texas. ERCOT is separate from the rest of the US grid system. Texas has the largest energy consumption in the country, but the per capita consumption is roughly in the middle. The peak occurs in the summer and the population is growing. The largest share of electric consumption goes to the residential sector. Natural gas supplies about half of the generation in Texas. Wind supplies about 23%. Coal supplied about 16%, down from 33% in 2016. Nuclear supplies about 10%. Wind has been growing substantially in recent years. In March, wind was able to supply 38.6% of generation. Demand is typically lower in the spring. On Monday, wind was actually low and wind generation was only 8%. Wind varies from moment to moment.

On February 14th, the state experienced below freezing temperatures, which persisted for over 100 hours. Dallas experienced a record low of – 2 F. As a result, the available capacity started to drop. Rotating outages began in the middle of the night. It was expected that the outages would be modest, but the cold weather persistent. The forecast load demand was estimated to be a record high for the system. The extended outage caused damage to water pipes, pools, HVAC systems, etc. By the next weekend, the temperature warmed up to 80 F, which cut into natural demand. At that point, the crisis subsided. Wind generation dipped somewhat, but was not the big driver of the crisis. The natural gas system had numerous problems that were freeze related. The price increased, but started to drop. The Texas PUC stepped in and raised the price to \$9,000/Mwhr. That persisted for the 4 days. A preliminary ERCOT report put the majority of the problems down to winter weather.

A 2011 FERC report had recommended weatherization for Texas plants. In the 2011 incident, there was low pressure in the gas pipelines, leading to problems with gas supply. Other solutions such as batteries and microgrids could be helpful. Batteries were deemed to be too expensive and perhaps a decade away.

Joe Cresko, DOE, presented on Industrial Decarbonization Opportunity, Challenges, and RD&D needs. The industrial sector represents about a third of energy consumption in the US. Energy intensity has always been an important part of the Advanced Manufacturing Office. A significant issue is the fact that manufactured goods also consume energy when they are used. US energy use is about 100 quadrillion BTU/yr (100 quads).

Energy flows are tracked by the Energy Information Agency (EIA). Process heating accounts for 7.5 quads. Of that, about 2.6 quads are lost. More than 95% of process heating is driven by fossil fuels. Electrification can potentially be used to reduce those overall losses, as electric generation becomes more renewable. The goal is not to reduce output, but to reduce the energy intensity of that output. Worldwide technologies are constantly reviewed to attempt to find better technologies that can improve the energy intensity. The DOE invests in technology advancement. Advances in materials and advances in products also need to be considered. Carbon intensity is also an important factor. Energy efficiency by itself can only do so much. Fuel switching will be necessary to reduce the overall carbon emissions in the economy. Use intensity becomes another major factor. The whole picture needs to be considered. For example, secondary aluminum has increased market share, but primary aluminum production has decreased. The DOE has been directed to come up with a road map towards net zero carbon. One of the requirements is not to put production at risk in the development of this road map.

Energy efficiency, electrification, low carbon fossil fuels, and carbon capture and storage technologies are the main technologies that are considered in the road map. Barriers include the diversity, complexity, and scale of the industrial sector. People do not realize the complexity and scale of this problem. Pilot plant sized demonstrations are inadequate for commercialization at industrial scale. RD&D needs to be accelerated. Multiple pathways need to be pursued. Low capital cost approaches need to be developed.

Carl Bozzuto, CIBO Consultant, presented on CCS and Energy Storage. Most serious studies indicate that the last 15 – 20% of CO₂ reductions get to be very expensive. An alternative is to use CCS to allow at least some use of fossil fuels and then capture the CO₂ and at least sequester it or use it. There has been a lot of activity on CCS recently.

There are 3 main approaches to CCS. The first is to use a scrubbing solution to absorb CO₂ from gases. This technique has been used in the oil and gas industry for decades. For flue gas from combustion processes, amine solutions (MEA) have been used with an energy penalty currently around 20%. Other solutions include sodium carbonate, chilled ammonia, and various organic solvents.

The second approach is to burn fuels in pure oxygen. A concentrated CO₂ stream can be produced by using flue gas recirculation. The entire flue gas can be sequestered, which provides for a true zero emissions plant.

The third approach is to gasify a fuel to form a synthesis gas, or syngas. Syngas can be used to form any hydrocarbon. Through the use of a shift reactor, the composition of the gas can be shifted to mostly CO₂ and hydrogen. If the CO₂ is captured and sequestered, the resulting hydrogen is carbon free. This is called blue hydrogen. Biofuels can be used in this process to get “negative” GHG emissions (BECCS). Although utilization is desirable, the amount of CO₂ that is generated dwarfs what kinds of products that we currently use. That means some type of sequestration will be needed. Deep saline aquifers have been the primary target. DOE estimates that nearly 20,000 gigatons of CO₂ can be safely sequestered.

There are currently 5 bills in Congress aimed at promoting CCS. There are now 38 commercial facilities in development, construction, and operation, with 12 new ones proposed in 2020. Operating facilities are currently capturing 30 million tons/yr. Seven big projects were briefly reviewed. Energy storage has been desired for many decades. Pumped hydro has been the main storage technology for generation. Fuel storage has been the main means of storage for the industry. Batteries have been in use for very short term storage such as emergency plant trips, etc. The intermittent nature of renewables increases the need for energy storage. Wind plants can be out of power for 2 weeks at a time. Capacity factors tend to be low.

Batteries are not a source of energy. They need an energy source to charge up the battery. Excess capacity will need to be built. Fuel storage will still be needed. The typical battery has 4 hours of storage. Infrastructure will play a critical role. If electric vehicles actually replace conventional vehicles, the amount of transmission lines will need to be tripled. There are difficulties permitting and approving things like new transmission lines and pipelines. Biofuels are also a consideration. Energy storage only solves the intermittency part of the problem, not the cost part. Excess capacity still needs to be built. Adequate infrastructure needs to be planned and built along with that excess capacity. Today, batteries are primarily used for emergency operations. Decarbonizing that last 15 – 20% gets to be very expensive. That drives the system to consider CCS, including BECCS.

Skipp Kropp, Steptoe-Johnson, gave an update on Midwest Ozone Group activities. MOG has been busier in the last two years than in its entire existence. In 2016, EPA proposed a CSAPR update. They indicated that they did not expect the rule to bring all regions into compliance. EPA then used some 2023 data and concluded that the rule was indeed sufficient. That decision was opposed. The court then vacated the rule, but pushed EPA to include industrial plants.

In the meantime, the Northeast states sued New York State over not having good neighbor SIPs. Subsequently, the court ordered EPA to come up with a final rule by March 15, 2021. EPA had indicated that it did not have the time to do a good job in that short time period, but the court prevailed. EPA came out with a revised rule in March. Major concerns include reduced budgets from prior rules, short compliance time, failure to align downwind compliance, problems with the 1% vs 1 ppb, and the appeal deadline of June 29.

A further concern is that now EPA can now turn attention to the 2015 ozone standard. EPA does have other options for resolving this issue. The New York 126 petition to EPA asked for relief due to upwind states sending NO_x to New York. Over 350 sources were cited. EPA had rejected the request. A court threw out the rejection and directed EPA to evaluate the request. The OTC recommended controls in Pennsylvania. A group petitioned EPA at the end of 2009 to declare CO₂ a criteria pollutant and set the cap at 350 ppm. In 2020, Administrator Wheeler denied the petition. In early 2021, the new administrator withdrew the

rejection and stated that they would review the issue. Records show that EPA has been considering using ozone standards as a back door approach to reducing CO₃ emissions. If the ozone levels are reduced enough, some plants may be forced to shut down, which would reduce both ozone levels and CO₂ emissions. If EPA shortcuts taken in the revised CSAPR update rule, then those shortcuts could be used on other rules.

Lisa Jaeger, Bracewell, LLC, provided a litigation update. In the Cooling Water Intake case, FOIA requests threatened to expose certain confidential information used by EPA. The FOIA case went all the way to the Supreme Court. The Court found that the deliberative material was still protected and represented a good outcome for us. The PM_{2.5} NAAQS and the Ozone 2020 standards were challenged. The cases are in abeyance until August. The likelihood is a PM_{2.5} standard in early 2022 with a new ozone rule to follow. The 2020 NEPA rule is currently in effect. There are 5 cases in District Courts. The West Virginia DC took oral argument. The likelihood is some kind of remand, which would keep the rule in effect until EPA puts out a new rule. WOTUS is a mess. There is tension between getting a case into court on the merits and the administration wanting to change the rule. Some courts are going forward. In the meantime, EPA is working on rewriting the rule.

On Environmental Justice, the Byhalia Connection pipeline case in Memphis involves the route of the pipeline going through unoccupied land that had been owned at one time by former slave families. The pipeline owner had to issue right of way purchases. EJ is being brought up to oppose the pipeline.

In another case in Florida, a solar project on rural land was being challenged. A local government objected. The Florida legislature intervened stating that local government could not ban a rural solar array. The “Kids Climate” (show) case, is in the 9th Circuit Court. The kids claim a right to a stable environment and that any drilling and production of fossil fuels should be stopped. The Court rejected the case on the grounds of standing.

The Corporate Climate Risk Disclosure case in New York was ongoing for many years. ExxonMobil was charged with fraud on the grounds that they knew about climate change but did not warn shareholders. The court decided in favor of ExxonMobil. In the BP case, this is a tort case (as opposed to securities fraud). The case started in state court, but got removed to federal court because federal officers were involved. Baltimore objected and requested the case be moved back to state court. That question went to the Supreme Court. The Supreme Court ruled that the federal courts can review all of the issues involved and not just the federal officer issue. That means that the federal courts can decide whether or not a case gets heard in federal court (more helpful) as opposed to state courts.

Sustainability Working Group (SWG) Committee Chairman: Sharon Nolen, Eastman Chemical Company

Phil McKenzie, International Paper, reported on biomass carbon neutrality. IP has publicly stated goals (can be seen on the IP web page). IP sets goals in their programs. Their 2020 GHG emissions goal was a reduction of 20%. They succeeded in doing so reaching 22%. They now have a 2030 goal of 35%. Also, water use is projected to be reduced by 25%. These plans are not just good will or good business. IP customers also have goals. Those goals impact the company. Much of the gains came from converting their originally 13 coal fired units to natural gas. Electrification is expected to provide additional GHG reductions. At some point, BECCS (bio energy with CCS) will likely be needed to meet reduction goals. The carbon neutrality of biomass is critical to meeting future GHG reduction goals. Biofuels provide a diverse fuel source. The Southern Company expects that renewable gas and BECCS will play a significant role in GHG reductions.

Paul Noe, The American Forest & Paper Association (AF&PA), presented on Bioenergy Production of Paper and Wood Products. Paul noted that significant innovations will be needed to reach the climate goals. That will also need policies that promote these innovations and not discourage them. Forests capture CO₂ from the atmosphere and store it in woody biomass. That CO₂ would be released back to the environment when the tree dies. In some cases, the decay will produce methane, which is a much stronger greenhouse gas. When the tree is used to make paper, the “waste” products provide nearly 2/3 of the energy used in the plant. Another 8% comes from purchased electricity, which is also reducing its GHG emissions. That leaves about 25% from fossil fuels.

Since 1990, the forest products industry reduced GHG emissions by over 25%. The use of the waste materials not only should be considered carbon neutral, but could be considered to have additional benefits due to processing of those wastes. Forests are managed in the US. We have a net reduction of CO₂ absorption from our forests. Policy certainty is necessary to maintain this benefit. The IPCC points out that a sustainable forest management strategy is necessary to meet GHG goals. If the bioenergy is not considered as carbon neutral, additional reductions would be needed from everybody else.

Neal Elliott, ACEEE (emeritus), presented on Electrification and a Federal Clean Energy Standard (CES). The American Council for an Energy Efficient Economy (ACEEE) was founded in 1980 to promote energy efficiency policies.

The 3 types of standards that currently exist are renewable portfolio standards (RPS), the energy efficiency resource standard (EERS), the clean energy standard (CES). The RPS sets requirements for the amount of electricity generated from renewables. The EERS sets requirements for the amount of electricity generated by efficient technologies. The CES sets requirements for the amount of electricity generated by “clean” technologies. States have a number of these standards. The federal government has not adopted any of these standards. However, the CES has been seen as a potential means for driving GHG reductions, as part of climate policy.

Many climate advocates are pushing electrification as a means of reducing GHG emissions. That, in turn, requires the power industry to decarbonize. Currently, there are regional variations in the extent of decarbonization.

The Pacific Northwest and the Northeast have been significant in GHG reductions. However, most of those reductions have come from switching from coal to natural gas. Right now, there is not much likelihood of a federal CES being passed. Most of the interest has been oriented towards transportation and buildings. Most of the proposals have been aimed at incentives rather than mandates.

CHP has been pushed as a means of helping reduce CO₂ emissions in the industrial sector. Low and zero carbon fuels include renewable natural gas, hydrogen, and by product fuels. There is an increased focus on GHG emissions disclosure, particularly Scope 3 emissions. States are setting GHG targets. These can impact the industrial sector, particularly the unintended impacts of these rules. Engagement with the states is going to be critical.

Benroy Chan, Schneider Electric, presented on GHG Reporting and CDP Disclosure. About 64% of consumers want companies to disclose their environmental performance. Now 75% of company executives see that sustainability is becoming more important and 99% of executives at very large companies see the need for sustainability performance.

Covid 19 gave sustainability a “dress rehearsal” by providing a worst case scenario in causing disruptions and problems for companies. Sustainability goes hand and hand with resiliency. Drivers include enhanced goals, bench marking, stakeholder requests, and supply chain opportunities. Sustainability consultants help companies prepare using strategy, insights, renewables, and performance. Data is the common denominator for all of these processes.

Environmental, social, government (ESG) rankings serve to provide a bench mark for evaluating goals and performance. This provides a score for a particular company. A disclosure system can provide the appropriate information for ESG impacts. An annual questionnaire is used to collect information about the company. An outfit called CDP issues the questionnaire and provides a score that helps a company see where they need to work. For GHG gases, CO₂, CH₄, and N₂O are the common gases to report. Also, the data provides information on Scope 2 and Scope 3 impacts of these gases. Content areas include risk and opportunity, governance, value chain engagement, strategy, targets and performance, and quantitative reporting. Risks are divided into transition risks and physical risks. Opportunities are categorized as resource efficiency, energy sourcing, products and services, markets, and resilience. Consultants can help with emissions inventory and verification, as well as preparing the appropriate reports. Trends include increased use of renewables, science based targets, and carbon neutral announcements.