



June 10, 2020
Virtual Webinar

Energy & Environmental Committee Meetings

MINUTES

JUNE 10, 2020

Energy Committee

Frederick (Fred) P. Fendt, The Dow Chemical Company, *Energy Committee Chairman*
Robins Mills Ridgway, Purdue University, *Energy Committee Vice-Chairman*

Short Term Natural Gas & Electricity Outlook

Naser Ameen, **Tyler Hodge**, and **Stephen York** of the Energy Information Agency provided an update on the short term natural gas and electricity outlook. **Naser Ameen** opened with a review of the natural gas production outlook. Due to the impact of Covid 19, the active rig count is the lowest point on record, having fallen from 772 rigs in March down to 284 rigs in June. Partly this has resulted from reduced demand from industrial shutdowns. Most of the rigs that have shut down were producing oil, with gas as a byproduct. The price of West Texas Intermediate (WTI) oil has fallen from \$60/bbl in January to about \$40/bbl today, with a significant drop to \$20/bbl in early April. Global demand has been hit hard due to lock downs and stay at home orders. Natural gas prices are around \$2/MMBTU, but are expected to rise to \$3/MMBTU next year as demand recovers but supply lags due to the reduction in operating rigs. Natural gas production will fall somewhat in 2021. Global LNG trade has stalled, as many countries have restricted imports.

Tyler Hodge reported on the US electric generation outlook. With the impact of the pandemic, there is a much greater uncertainty in the forecast. With the lock downs, many industrial and commercial sectors were shut down, significantly reducing demand. Also, work from home orders have reduced demand from those businesses still in operation cut into demand from office space. Residential demand has increased somewhat, but not enough to offset the reductions in the other sectors. Total demand is expected to be down 6.2% this year and will likely continue into next year. Generation from coal will decline from 25% to 17%. Renewable generation will increase to 15%. Nuclear, hydro, and other sources will hold relatively constant. Gas will increase to nearly 40% this year. However, with the expected increase in gas prices next year, gas will drop to 35% and coal will pick back up to over 20%. With low gas prices this year, gas fired generation has a lower marginal cost than coal in most locations. With the expected increase in gas prices next year, coal fired generation will have a lower marginal cost of generation than gas. Renewables will continue to grow and generally cut into the amounts generated by fossil fuels.



Stephen York provided the outlook on gas consumption. Gas consumption was somewhat lower in the first quarter due to a milder winter. Then the pandemic impacted gas consumption. Overall gas consumption will be down for the year. Next year, gas consumption is still expected to be lower. Industrial gas consumption is expected to rebound in 2021, ending the year at a level higher than the peak at the end of 2019. Exports are being impacted by global demand reductions. Storage levels in the US will likely hit the 4 TCF storage level in the late fall. Due to the mild winter, storage levels were about 20% above average going into the pandemic

Greenhouse Gas (GHG) Update

Verena Radulovic of Center for Climate and Energy Solutions (C2ES) reported on Corporate GHG Mitigation efforts. Corporate leaders have been raising ambitions on climate issues. Over 800 companies have set "science based" targets. Supply chains are being pulled into these goals. Investors are calling upon companies to report their climate risk. More interest has been shown on hard to de-carbonize sectors, including electrification, & renewables, CHP, energy efficiency, and the "circular economy". Data from over 500 companies indicate that nearly half have set absolute GHG reduction goals. About 12% have engaged their supply chains. About 8% have set 100% renewable goals. C2ES recently featured a webinar that included strategies to reduce emissions, commitments to long term ambitions, and the necessity of policy alignment. Some ideas include digitalization, clean industrial heat, embodied emissions, and power infrastructure needs. C2ES been setting up regional virtual round tables to share ideas and promote activities.

Future Electrification – Policy Assessment Tool for Achieving State and Regional GHG Reduction Targets

Amlan Saha of MJ Bradley & Associates (Environmental Resources Management Group Company) reported on future electrification with an assessment tool. The STEP (State Emission Pathways) Tool is an economy wide, clean energy planning tool that can be used in 2-degree scenario analyses. The tool uses an XL spreadsheet model to analyze state and regional energy use and CO2 trajectories under a range of policy scenarios. While scenarios can be analyzed, real time tracking of the various outputs (electric generation, energy mix, EVs, miles traveled, CO2 emissions, etc.) is possible.

Key inputs include the electric, transport, residential, commercial, and industrial sectors. Outputs include demand, use, CO2 emissions, number of EVs, etc. The tool can help look at the impact of nuclear retirements, use of heat pumps, increased PV, etc. An example from the tool was shown. The spreadsheet is interactive, so that inputs can be varied to examine the impact on results. The model is set up on a state basis, but several states can be grouped together to provide a regional model.

The model is not an equilibrium model or an integrated assessment model. It uses basic mass and energy balances to assess the potential outputs for a given policy approach. It does not calculate CO2 concentrations, but rather CO2 emissions. Thus, if the International Energy Agency runs an integrated assessment model that indicates the need to reduce emissions by a certain amount, the STEP model can evaluate the impact of various policies to determine the amount of emissions that would result.



Lessons Learned on Energy Reporting for GHG Emissions

Fred Fendt of The Dow Chemical Company reported on lessons learned in GHG reporting. Fred has been assigned this task at Dow. A typical requirement might be to collect information on the use of fuel and the resulting emissions. The World Institute's GHG Protocol provides the standards for reporting. Scope 1 accounts for all internal data (i.e. direct emissions). Scope 2 internal data includes all indirect emissions (purchased energy). Scope 3 includes business travel, logistics, waste, and water. Scope 4 accounts for any benefits of the product. Be sure to use the most recent GHG conversion factors. Dow uses the EPA e-grid factors for the US. The IEA generally covers the rest of the world.

It is a good idea to get a 3rd party auditor to make sure everything is included and correct. Methane and N₂O are the most common gases besides CO₂. The IEA factors are converted to global warming potential. The EPA only convert to CO₂ equivalent. The IEA factors have to be converted back to CO₂ equivalent. For each scope, the granularity, frequency, and accuracy need to be selected and used consistently. For financial reporting, it is necessary to define what constitutes a material error.

Advanced planning helps to avoid future problems. For example, if a plant houses operations for more than one business unit and there is only one electric meter for the plant, a clear method of apportioning the electric use will be needed. The raw data files for each report should be maintained. As time goes on, data files will be updated, modified, and corrected. Therefore, in order to see how the actual data was utilized for a given report, the original data files need to be saved and archived. In some cases, the data may be only in dollar amounts. In order to get down to consumption of, say, electricity, the dollar amount has to be converted back to kWhrs and requires the electric rate for that site. By the same token, it is necessary to make sure we have sufficient granularity in the data that is collected. The GHG Protocol provides guidance on how to collect that data.

Environmental Committee Session

Thomas (Tom) Webster III, DuPont, *Environmental Committee Chairman*

Kristine Davies, Trinity Consultants, Inc. *Environmental Committee Vice-Chairman*

Litigation and Regulatory Update

Lisa Jaeger of Bracewell Law provided the litigation and regulatory update. As we are coming to the end of an administration, there are a lot of activities going on to try to get things wrapped up. Since the eNGO community has been very opposed to many of the changes, there are more than the usual litigation activities. The Boiler MACT remand rule is out.

There is a pulp and paper RTR DC Circuit decision. The EPA must address all listed air toxics the source category emits during an RTR. In the law, the word "standard" is often used in both singular and plural. The DC Court stated that EPA must fill any gaps for any HAP that is not currently in the emission standard. The Court rejected EPA's claim that they did not have enough time to go through all of the HAP for every MACT rule. In dissent, Judge Sentelle argued that the Chevron case pointed out that where there is ambiguity, deference to EPA should be given. The majority argued that the



language in the law was clear, despite the Chevron case. The Court remanded the case without vacatur. June 26 is the deadline for any rehearing on the case.

The concern would be that the situation could actually be made worse. It might be better to try to work with EPA administratively to resolve some of these issues. EPA has some deadlines to issue RTRs. These will be issued with a footnote. A potential concern is the use of surrogates. Right now, if a HAP is controlled via a surrogate, it should be OK. However, things can change.

The NY 126 petition was denied by EPA. That decision went to the DC Circuit. Oral argument was held on May 6th. A separate 126 case was brought by Maryland. That was decided quickly by a different panel. The requirement takes 4 steps. The petitioner must define downwind areas with non-attainment problems. There must be links from downwind areas to upwind states. Upwind sources must "significantly contribute" to non-attainment. Implementing upwind controls must improve downwind conditions.

For the NY case, there is a burden of proof issue on NY. Compliance dates vary. A CT monitor was being used by NY, as opposed to a NY monitor for non-attainment. In the Maryland case, the petitioner was clearly identified as bearing the burden of proof. An out of state monitor can be used by the petitioner. The next downwind non-attainment date prevails. For Step 3, the petitioner does have the burden of proof. There was a lot of discussion of units with controls and units without controls. EPA did rely on the CSAPR rule that SCR was not cost effective. The Court stated that the CSAPR rule was remanded. Nothing was vacated. The petition was remanded back to EPA for a better explanation of cost effective controls.

In the NY case, 357 sources in 9 states were identified. This presented a problem for the Court. During oral argument, the judges pressed both sides to really define the "burden of proof" requirements. It is expected that the decision will turn on the perception of the Step 3 burden of proof.

In the "Waters of the US" (WOTUS), a final rule was issued. Four categories of waters are jurisdictional...territorial seas and traditional navigable waters, perennial and independent tributaries, lakes and ponds, and wetlands abutting navigable waters. In the Clean Water Act, any Circuit Court can be used for law suits. There are a number of law suits in play. Another water topic is nationwide permit programs. The rule was at OMB, but was delayed due to a ruling in Montana where a permit was blocked for an oil and gas pipeline. The Maui case went to the Supreme Court. The Court held that the Clean Water Act requires an NPDES permit where the indirect discharge eventually reaches navigable waters is the "functional equivalent" of a direct discharge. This means that even though ground waters do not need a permit, the "functional equivalent" issue would require a permit.

The Court provided a list of factors that need to be considered. Time and distance, nature of material, extent of dilution, amount of discharge, how and where pollutant enters, and the degree to which the pollutant maintains its identity. A related case was a pipeline rupture incident. This case was remanded back to the 4th Circuit to review the arguments in view of the Maui decision. A coal ash discharge case was teed up for the 7th Circuit Court.

Several regulatory reform rules and directives have been issued. The CAA Cost Benefit rule was proposed on June 4th. The final rule will come out this summer. The goal was consistency and



transparency. This rule will likely be challenged. EPA attempted to rule that accepting a grant was grounds for conflict of interest for someone to be on a Scientific Advisory panel. This rule was challenged and ruled against EPA. In the MATS case for SU/SD, EPA used best performers for the end point of start up in a work practice standard. The Court remanded the rule to provide more information on who the "best performers" were and also to provide notice for public comment. The risk management plan rule has been finalized and is being challenged in the DC Circuit Court. The CERCLA 108(b) financial assurance rule provides for funds for cleanup. In hard rock mining, the Court upheld EPA's decision not to require financial assurance provisions. Other industries will be decided soon.

PFOA/PFAS Updates

Chuck Chaitovitz of the US Chamber of Commerce reported on the PFOA/PFAS issue. The Chamber of Commerce is the largest business association in the world. It is dedicated to provide support to US businesses. PFAS is a broad category of chemicals that has received a lot of attention recently, as EPA issued its PFAS Action Plan in Feb., 2019. A preliminary determination has been issued for two of the sub classes of chemicals. EPA can issue a standard within 24 months if it determines the need for a standard. The Chamber commented on the need for a "fact based/science based" approach. A final rule would come 18 months after that. A compromise language was included in last year's National Defense Act. It is hoped that this language could provide the basis for moving forward. The Chamber has the lead on coalition efforts regarding this topic.

BMACT Update

John (Jay) Hofmann of Trinity Consultants, Inc. gave the BMACT update. Right now, the remand is out for signing. There were no surprises. There have been a number of BMACT rules over the last 25 years. The final rule came out in 2106. A portion of the rule was remanded to EPA. Relative to gas firing, the Gas 1 units are essentially natural gas units with no numerical limits. Gas 2 units are other gases and are subject to 130 ppm CO limits. The 130 ppm level was challenged and remanded to EPA for better explanation. Two cases have been decided on this issue. The 2016 case was decided favorably. The Sierra Club case remanded the level back to EPA to determine if the level were lower than 130 ppm that further improvements in organic HAPs could not be achieved. EPA is supposed to explain again why CO is a good surrogate, why 130 ppm represents a floor, and why some units that are at 130 ppm have "no controls".

Jay also commented on the proposed rulemaking for cost/benefit analysis. In general terms, it is the calculation of the net benefits (hopefully). It provides information about whether a policy change has the potential to improve the situation for society. The guidelines establish a framework for analyzing the benefits and costs to society of a specific policy. A memo was issued in May 2019 to address this issue. The proposed document identifies some "best practices". There are 3 key elements: statement of need, examination of options, and estimation of all costs, including taking no action. There needs to be a description of the problem, reasons for and significance of any market failure, and the compelling need for federal government intervention.

The BCA must consider at least 3 regulatory options (like a high, medium, and low case). Further, a base line look must be evaluated which would state how the world would look without the regulatory action. The concept of the "willingness to pay" would be introduced. The social benefit should link



regulatory requirements to the value that individuals place on the beneficial outcomes. Rigorous economic valuation of the benefits should be applied.

Another issue is the use of co-benefits. Thus, a HAP rule is supposed to reduce the emissions of a particular HAP. However, the majority of monetized benefits have been attributed to reductions in PM2.5, rather than the HAP in question. Other topics include transparency and consistency. EPA is soliciting comments on the proposed rule.

Covid-19 Update and How Does It Affect Your Sites

Thomas (Tom) Webster of DuPont and **Robin Mills Ridgway** of Purdue University provided impacts on the impact of Covid-19 on our operating units. There has been some guidance issued by EPA with regard to compliance with regulations back in March. EPA has indicated that there would potentially be no penalties for violations that are caused primarily by Covid 19. Equipment is still expected to be operated in a safe and compliant manner. Facilities need to demonstrate how Covid 19 was the primary cause of any non-compliance. Everything needs to be documented. Reporting must continue to be done in accordance with existing permits. Documentation of everything will be necessary. For example, lab analyses might be delayed due to lack of personnel caused by a lock down. Training sessions may have needed to be postponed.

EPA will work with states on these issues. Settlement agreements and consent decrees also have compliance requirements that need to be reviewed for appropriate notifications and compliance requirements. Best practices include on line training in place of onsite training. Keep the agencies up to date. Report what is available. Later, the report can be updated or completed once the rest of the data is obtained. Keep a running log of events, particularly any potential non-compliance events.

Affirmative defense, self-disclosure, force majeure, and emergency provisions are often part of the permits or agreements. Proactively evaluate if a permit change is needed. Hauling companies and storage issues have been impacted. A supplier of raw materials (limestone supply?) may have been shut down. Portable temporary equipment may be needed. New processes may be needed. All of these might require a permit change.

EPA and OSHA guidance documents have been issued. There will be new approaches to travel. You may not be able to meet with a regulatory agent in person. Take care of yourself to minimize potential impacts on others (social distancing, avoid direct contact, use hand sanitizer, use wipes, etc.). As the economy opens up, hotels and airlines come into play. Follow the appropriate recommendations.

Robin Ridgway noted that some people that run plants can't work from home and may not be able to practice social distancing. In order to maintain some kind of protection, there was a rotation of some employees to work at home or to different shifts. Work areas are restricted. Only operators are allowed in the control rooms. Only maintenance personnel are allowed in the workshop. Universities are making plans for opening in August and running through November. Students would leave at Thanksgiving and take exams on line. They would not likely come back until well into winter. Be sure to be aware of the HIPAA laws about publishing of health information that should be kept private.



Update on Water Issues

Ann McIver of Citizens Thermal provided an update on water issues. **Gary Merritt**, Northern Star Generation Services Co. LLC reported on the CCR Rule. EPA proposed some changes to the rule. Some alternatives for liners were proposed. Some CCRs were actually being recovered for reuse. EPA wanted a closure report on that activity. EPA is to issue guidance for approving a State Program for CCRs. The interim final rule will be August 2020.

Ann noted that EPA proposed nutrient criteria for lakes and reservoirs. Comments are due July 21st. The proposal uses a model that takes into account specific factors about a lake or reservoir. If finalized this would become a reference point for specific limits in a permit. One key issue of WOTUS is the word "nexus". The proposed rule noted that nexus would mean abutment. The Maui decision brings this back into confusion. The functional equivalent of a direct discharge requires an NPDES permit.

The concept of "functional equivalent" has been an issue in the past. Leakage from an ash pond may get into groundwater. That could be argued to be a functional equivalent if that ground water ultimately gets connected to a navigable waterway.

A number of issues could be impacted including Safe Drinking Water Act, Brownfield Cleanup, ground water standards, on-site sewage systems, CERCLA, RCRA, SMACRA, and Interstate Compact Commissions. The Court indicated that these could be decided on a case by case basis. That just adds to the confusion.

MOG Update

Scott Darling of Alcoa Corp provided a MOG update. In the Maryland 126 case, the DC District Court upheld EPA's denial of the 126 request. The burden of proof rests with the petitioner. The Court did allow a state to consider out of state monitors to show non-attainment. The Court did state that EPA could use future year estimates to show potential attainment. However, EPA selected 2023 compliance, while some states had requirements for 2021. The Court said 2021 should be the future year. On catalytic controls, some utility units do not run the SCR at max capacity all of the time. However, the units are run to meet the current regulations. There is not hard value in over control. EPA argued that such operation was appropriate. The ozone modeling indicates that the I-95 corridor is the primary reason for the CT monitor in Fairfield County to be in non-attainment, not ozone transport from the Mid-West. Scott also noted that EPA is having to look at the CSAPR remand and potentially include non-EGU sectors. EPA is planning on a proposed rule in June 2021.

Other Environmental Updates Refrigeration

Thomas (Tom) Webster, DuPont, reported on the ozone depleting substances rule modifications EPA published the final rule in February. The changes are effective April 10, 2020. Substitute refrigerants will no longer be required to report. It will be important to check to make sure that you know the designation of your particular refrigerant.



Process Safety Management/RMP Remote Auditing

Steve Hawkins of Environmental Resources Management noted that there has been an increase in remote auditing for OSHA compliance during the pandemic. Again, this represents a best case effort. A virtual audit takes longer. Thus, there is little to no cost savings compared to an onsite audit. A pre-audit questionnaire is a good idea to make sure that all of the materials that will be needed are readily available. Logistically, up front time greatly increases to make sure that appropriate cameras and electronics are available. Potential technological enhancements include wearable cameras to see what an operator sees or to see actual equipment. Satellite imagery can also be used to view an overall site. The Chemical Safety Board (CSB) issued an accidental reporting rule. From March 23, 2020, stationary sources must report a significant release within 8 hours. An extremely hazardous substance is defined as a substance with the potential to cause of serious injury, property damage, or a death. Basically, that can be open ended. This reporting is in addition to other reporting requirements. Thus, if a minor spill causes an employee to go to the hospital, that spill could be a spill of an extremely hazardous substance.