AGENDA ITEM 2

ENVIRONMENTAL MANAGEMENT COMMISSION
AIR QUALITY COMMITTEE MEETING SUMMARY
May 9, 2018
Archdale Building-Ground Floor Hearing Room
10:30 AM - 11:30 AM

MEETING BRIEF

During their May 9, 2018 meeting, the Air Quality Committee (AQC) of the Environmental Management Commission (EMC):

- Received updates on previous carbon dioxide recommendations specified in the Clean Smokestacks Act, Climate Action Plan Advisory Group, and the Legislative Commission on Global Climate Change.
- Heard the status of federal greenhouse gas regulations.
- Received an update on the historical and projected perspective for energy and emissions.
- Received an update on current activities that cities, counties, universities, businesses, the energy sector, Governor Cooper’s Climate Alliance Commitment, and the Department are involved in.

AQC MEMBERS IN ATTENDANCE
Dr. Stan Meiburg, AQC Chairman;
Mr. Charles S. Carter, AQC Vice Chair;
Mr. Gerard Carroll;
Ms. Marion Deerhake;
Dr. Suzanne Lazorick; and
Julie Wilsey, EMC Vice-Chair

OTHERS IN ATTENDANCE
Mr. William “Bill” Puette, EMC;
Dr. Albert R. Rubin, EMC;
Mr. Philip Reynolds, EMC Counsel;
Ms. Sushma Masemore, Deputy Assistant Secretary for Environment, and Air Quality Planning Section Chief
Mr. Mike Abraczinskas, Division of Air Quality Director;
Mr. Michael Pjetraj, Division of Air Quality Deputy Director;
DAQ Staff; and
Members of the public

PRELIMINARY ITEMS

Agenda Item #1, Call to Order and the State Government Ethics Act, N.C.G.S. §138A-15(e)
Chairman Meiburg called the meeting to order and inquired, per General Statute §138A-15(e), as to whether any committee member knows of any known conflict of interest or appearance of conflict with respect to matters before the Environmental Management Commission’s Air Quality Committee. No conflicts were identified.

Agenda Item #2, Review and Approval of the March 7, 2018 Meeting Minutes
Chairman Meiburg inquired if everyone had been able to review the minutes from the March meeting and if there were any changes or corrections. No changes were cited. Chairman Meiburg asked for a motion to approve the March 7, 2018 minutes. Commissioner Deerhake made a motion to approve the minutes and Commissioner Carroll seconded. The March minutes were unanimously approved.
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RULEMAKING CONCEPTS

None.

DRAFT RULES

None.

INFORMATIONAL ITEMS

Agenda Item #5, Update on CO₂ Recommendations (Sushma Masemore, DAQ)

Sushma Masemore, Assistant Deputy Secretary for Environment and Air Quality Planning Section Chief, prepared a presentation outlining the status of carbon dioxide recommendations. She started the presentation by outlining the individual Greenhouse Gas (GHG) pollutants, which were listed as carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and other fluorinated gases. She stated that CO₂, CH₄, and N₂O are the primary byproducts of fossil fuel combustion, and SF₆ was byproduct of the electric power industry in the transmission sector. The fluorinated carbons and other fluorinated gases are primarily emitted from the refrigeration and cooling equipment sector.

Ms. Masemore provided a quote from the U.S Congress related to the Energy Policy Act of 2005 that summarizes the Congress’ findings on climate change. She stated that this policy also contained provisions for energy efficiency, renewable energy, ethanol, biofuels, and other clean energy technologies. A byproduct of this policy was the formation of incentives for clean energy and the development of efficiency standards for appliances and equipment. The implementation of these policies have reduced the demand for energy usage from all sectors. The 2007 Energy Independence and Security Act required the federal government to reduced energy consumption and therefore reducing greenhouse gases.

In North Carolina, the DAQ issued a final report titled “Carbon Dioxide (CO₂) Emission Reduction Strategies for North Carolina” in 2005 under the Clean Smokestacks Act (CSA) which provided recommendations for control of CO₂ emissions from coal-fired power plants and other stationary sources. The three sets of recommendations in the report included:

- Actions that could be implemented by DAQ;
- Administrative and Regulatory actions by the Governor or Legislature; and
- Long term actions to develop a North Carolina Climate Action Plan.

The DAQ actions (see Slide 8) involved incorporating the reduction of greenhouse gases into implementation plans, control technology evaluations and improving coal plant efficiencies. This action also involved the development of emission inventories for sources in North Carolina. A reduction of energy in state buildings and universities, the use zero- and low-carbon emission technologies, become a leader in energy efficiency development and state government education and outreach were included in the administrative and regulatory actions. Ms. Masemore noted that many of these actions have been implemented because they make economic sense (see Slide 9). The long term action items (see Slide 10) included the development of a comprehensive energy plan, waste-to-energy energy development and implementation, development of a Renewable Energy Portfolio Standards (REPS), improving efficiencies in the transportation sector and the development of a long-term climate disaster recovery plan.

Reports developed by the Climate Action Plan Advisory Group (CAPAG) in 2008 and the North Carolina Legislative Commission on Global Climate Change (LCGCC) in 2010 took the recommendations from the CSA

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1 Slides for this presentation are provided in the MS Powerpoint, Agenda_5_AQC_May_CO2 Update.pptx
The LCGCC report provided a summary of all 56 recommendations (see Slides 13 through 25) that were developed and stated whether they were approved or supported by the CAPAG or LCGCC groups for each of the sectors that were reviewed.

The first summary presented 11 mitigation options for the Residential, Commercial, and Industrial (RCI) sector and the majority of these mitigation options were approved by the LCGCC. Ms. Masemore stated many of these recommendations were employed at state agencies and as a result, the state surpassed the energy efficiency goal and reduced CO₂ emission by 39 percent and energy costs by 44 percent during the 2002–2016 time period. She added that state buildings contribute approximately 5 percent of the total GHG emitted by the state. The state also implemented incentives for new building construction and the establishment of major university energy centers that research and deploy energy efficiency technologies. Ms. Masemore stated that the most important legislation was the REPS which set targets for renewable energy and energy efficiency. She pointed out that the current 2021 target for energy sales from renewable energy sources is 12.5 percent. In 2017, the “Competitive Energy Solutions for NC” legislation was passed which increases incentives for renewable energy. Based on this legislation, Ms. Masemore believes the target for energy sales from renewable energy sources may increase to 18-19 percent.

Some of the mitigation options for the RCI sector are also included in the Energy Supply (ES) sector. The ES sector has a total of 10 mitigation options, which includes the REPS program and other incentives for renewable energy generation. There were also programs to look at options for creating energy from swine and poultry waste and the retiring of older coal-fired plants.

For the Transportation and Land Use (TLU) sector, Ms. Masemore stated that not many of the 13 mitigation recommendations from CAPAG or LCGCC have been implemented at this time. Some of the programs included looking at improving the energy efficiency of the fleet of state vehicles and the use of biofuels in these vehicles.

The CAPAG and LCGCC recommendations for the Agriculture, Forestry, and Waste (AFW) sector included a total of 13 mitigation options. Ms. Masemore stated that the biogas utilization was the only action taken at the state-level for these options. She also pointed out that there were 6 Cross-Cutting (CC) mitigation options.

Ms. Masemore pointed out that none of the recommendations that were implemented were done with the intent of reducing GHG emissions. She stated that fuel and energy use represents 80 percent of our carbon footprint and energy efficiency has a linear effect on GHG emissions.

The next part of the presentation provided a retrospective look at emissions and trends starting from the Year 2005. The first slide presented a graph of the total GHG emissions from NC and the U.S. from 1990 to 2016 (see Slide 27). Ms. Masemore noted that the DAQ was presently working on a carbon emissions inventory that will be able to show yearly trends in these emissions. She noted that the graph shows a decline in both NC and U.S. GHG emissions during the recession followed by a slight rise. She stated that the demand for energy has stayed constant over the past few years due to more efficient use of energy occurring across all sectors. She also added that cleaner energy production is also replacing coal-fired energy production. She noted that NC represents 2.4 percent of the total GHG emissions in the U.S. or 156 million metric tons of CO₂ equivalent.

Ms. Masemore showed a slide that provided the percentage of GHG emissions by sector for both NC and the U.S. (see Slide 28). She pointed out that electricity generation makes up 38 percent of the total GHG emission from NC in 2016 with transportation being next with 30 percent. She pointed out that in the U.S., 2016 was the first year that the transportation sector had comparable GHG emissions with the electricity production sector. Ms. Masemore projects that GHG emissions for electricity generation will be comparable to the GHG emissions from the transportation sector in 2025. Slide 29 of the presentation shows trends in GHG emissions from the U.S. and NC. She pointed out that U.S. GHG emissions have declined by 12 percent from the year 2005, and the
NC GHG emissions have declined by 17 percent over this same time. The next slide (Slide 30) shows the gross CO₂ emissions by fuel type which shows a decline in CO₂ emissions from the coal-fired energy generation sector. Slide 31 shows the decoupling of GHG emissions from population and gross state product which shows increases in population and gross state product, and a decline in the GHG emission per person and per state gross product.

Electricity generation was the next part of the presentation. Ms. Masemore presented a slide (see Slide 33) that shows a list of currently retired coal-fired plants in NC and upcoming NC coal-fired plant retirements. The slide also shows NC power plants that have converted to dual fuel for electricity generation. The next slide (see Slide 34) showed pie charts of the percentage of electricity generation by source type for 2005 and 2016. She pointed out that coal electricity generation was 61 percent in 2005 and only 26 percent in 2016, and increases in natural gas and renewable electricity generation. The U.S. percentage of electricity generation by source type for 2005 and 2016 was shown in Slide 35. Slide 36 presented the NC power plants CO₂ emissions relative to the Clean Power Plan (CPP) goal. The slide shows that NC is below the 2030 CO₂ emissions goal in 2017, and the only issue is maintaining this level.

A slide showing GHG emissions from the transportation sector was presented in Slide 37. Ms. Masemore pointed out that 60 percent of the GHG emissions come from gasoline/highway use from light duty cars and trucks. Diesel/highway use makes up a little over 30 percent of the GHG emissions. In Slide 38, Ms. Masemore presented a summary of the current national rankings for NC. She pointed out that NC is ranked 29th in total energy production, ranked 6th in total net energy generation, and ranked 14th in total CO₂ emissions. This shows that NC is producing cleaner energy than most of the U.S. Ms. Masemore added that that NC is ranked 38th in total energy used per capita, 45th in total energy expenditures per capita, and 42nd in average retail electricity costs to the residential sector. Rankings were obtained from the U.S. Energy Information Administration (EIA).

The next part of the presentation discussed projections of electricity generation and CO₂ emissions with and without the implementation of the CPP for future years. Slide 40 shows projections of net energy generation by different fuel types and electricity generation CO₂ emissions up to 2050. Ms. Masemore pointed out that electricity generation from coal projects to be fairly constant without the CPP, and declines in the CPP projection. The graph also shows that electricity from natural gas and renewables are projected to increase, both with and without the implementation of the CPP. With these changes in electricity generation, the CO₂ emissions will remain constant over future years without the implementation of the CPP and decrease with the implementation of the CPP. The next slide in the presentation (Slide 41) presents a graph of the projections for electric and hybrid light-duty vehicles. In their annual energy outlook, the U.S. EIA estimates about a million electric vehicles will be on the road by 2027. The impact of this is shown in Slide 32, which shows a projected decline in CO₂ emissions from the transportation sector beginning in 2020, but gradually rises again starting in 2040.

Federal GHG regulations and their status was the next topic that was discussed. Slides 44 through 48 summarized the current GHG regulatory actions and includes the GHG Reporting Program (GHGRP) and the GHG Tailoring Rule, as well as specific source rules for power plants, landfill, oil and gas operations, and mobile sources, and tax credits for CO₂ sequestration. Ms. Masemore noted that many of the specific rules are being reviewed and reconsidered by the new administration.

Current and future efforts to reduce GHG emissions was the next portion of the presentation. Ms. Masemore pointed out in the table in Slide 55 that presents the number of states, cities, businesses, and universities that have made commitments to reduce GHG emissions, which represents approximately 39 percent of the total U.S. GHG emissions. She also presented a list of NC cities (see Slide 56) and universities (see Slide 57) with GHG reduction plans in place. She also noted that NC has become a leader in energy innovation. Slide 59 provides a list of NC businesses with GHG reduction commitments. She added that investors are asking companies to address issues of climate change and that millennials are also influencing are also driving companies to address
these issues. With respect to the top 600 companies, 64 percent of these companies have pledged to reduce GHG emissions with 86 percent of these companies in the food and beverage sector. She also pointed out that in 2014, 42 percent of companies held senior level management accountable for sustainability performance and this percentage rose to 65 percent in 2017. This shows that efforts to reduce GHG emissions is not limited to governments, but is across all sectors of our economy.

Ms. Masemore stated that Governor Cooper has committed to reducing GHG emissions in NC as part of the U.S. Climate Alliance. The DAQ is working the goal of achieving 26-28 percent reductions in GHG by 2025 by focusing on mitigation efforts that make economic sense (see Slide 65).

Discussion:

Chairman Meiburg noted that one of the mitigation options for TLU-5 is based on the promulgation of the EPA tailpipe standards in the Year; however, there has been an EPA proposal to rescind or reduce these standards.

Commissioner Deerhake thanked the DAQ for their work on this topic. She noted that there were not many responses to the recommendations in the TLU sector and limited implementation of the animal waste management technologies in the AFW sector. In particular, she noted that there is a general perception of the infeasibility and cost of anaerobic digestion and that outreach and communication to these hog farming communities could be beneficial to the state. Chairman Meiburg added that there appears to be interest in making anaerobic digestion more available, but there seems to be barriers in cost and connecting to the pipeline or electric grid. Ms. Masemore added that in 1998, there was anaerobic digester that used swine waste set up in Colorado that used the biogas for electricity and to heat the barn. She stated that a feasibility review found that this system was economically and technically feasible, and what was needed was the right policies. Commissioner Lazorick asked if any states with large swine population are leaders in addressing the issue of animal waste. Ms. Masemore replied that anaerobic digestion is a known technology, but there are issues with using the amount of biogas generated and these are site-specific characteristics. She also noted that there is an economic model for capturing and using biogas generated from landfills by third party companies and no government intervention is necessary. Commissioner Deerhake added that most of the successful anaerobic digestion systems are used in the dairy industry in California. She noted that cow waste is good feedstock for digestors, but swine waste could be enhanced with food waste. She added that biogas is also being used as vehicle fuel. Commissioner Wilsey noted that the Federal Aviation Administration (FAA) has a program that provides funding for airports in nonattainment areas to use biogas, however there is only one airport in this state that is eligible for this funding.

Commissioner Lazorick asked for confirmation of the reductions from energy usage at state buildings. Ms. Masemore responded that the reductions are current and based on the latest data that she has. Commissioner Lazorick also asked about the reasons that North Carolina was second in the U.S in solar energy capacity. Ms. Masemore responded that the REPS program (SB 3) was the main reason.

Chairman Meiburg noted that DAQ Action Item #2 from the presentation that called for the DAQ to initiate activities to assist in the development of a Southeastern Regional Climate Action Plan was not completed and asked if the other Southeastern states were reluctant to engage in climate planning. Ms. Masemore stated that after North Carolina completed their Climate Action Plan that South Carolina also developed a climate plan. Director Abraczinskas added each state is doing something different and that economics is a driver in each of the sectors. He stated that the DAQ would need to look back through their records to get a more definitive answer.

Chairman Meiburg pointed out that there are two things going on with energy. First, energy efficiency has caused energy usage to be decoupled from the growth curve, and second that the means for generating that energy has become less carbon intensive. He believes this is due to switching from coal to natural gas energy production and the growth of renewable energy.
Commissioner Deerhake asked if the DAQ could develop a graph that shows GHG emissions, waste generation, and water usage with population growth.

Chairman Meiburg pointed out that the diesel onroad GHG emissions have grown since 1990, and wonders if this trend will continue. Ms. Masemore believes that the electrification of cars and trucks will transform the transportation sector, but is unsure when this will take place.

Commissioner Deerhake asked if the total energy expenditures per capita ranking takes into account the favorable climate in NC. Ms. Masemore responded that she believes that climate is not factored into the rankings.

Commissioner Carter asked if there any estimates for energy improvement in these graphs. Ms. Masemore believes that the numbers are only based on the fuels used for energy generation. Chairman Meiburg pointed out the replacement of older, less efficient coal-fired plants with combined-cycle natural gas plants will increase energy efficiency.

Chairman Meiburg pointed out that the CO₂ emissions from electricity power sector and the transportation sector shown in Slide 42 shows the projected electrification of the transportation sector. He also stated that gasoline engine efficiency and reduced CO₂ emissions from the transportation sector will also have an effect.

Chairman Meiburg noted that California has its own emission standards for mobile sources, and if the EPA rescinds the GHG requirements, they will continue to require their own mobile source standards. He stated that other states may join California in requiring their standards and NC may have to choose either the EPA or California standards. Director Abraczinskas added that the state was currently developing state plans that includes projections for the Year 2023 for the Infrastructure State Implementation Plan (SIP) for the new ozone standard, and the Year 2028 for the Regional Haze SIP. He noted that the inventories for both these projections include the Corporate Average Fuel Economy (CAFE) and would have an effect on these projections.

Commissioner Deerhake stated that the EMC adopted California’s heavy-duty vehicle emission standards prior to 2013 and she asked if these standards were in place in NC. Ms. Masemore responded that the 15A NCAC 02D .1008 heavy-duty requirements were in place for model years 2005 and 2006, and the 15A NCAC 02D .1009 heavy-duty diesel requirements were repealed for 2008 and later model years. Commissioner Deerhake also asked for confirmation that NC is currently under the CO₂ emissions goal set in the CPP.

After the completion of the presentation, Chairman Meiburg thanked Ms. Masemore for the comprehensive look at GHG reduction initiatives in NC and the U.S. and pointed out there is a lot of work to do moving forward. Commissioner Deerhake asked if the 86 percent of food and beverage companies shown in Slide 62 also include the livestock production sector. Ms. Masemore responded that these companies represented the downstream supply chain. Commissioner Deerhake stated that it would interesting to know what percentage of corporate livestock operations were participating in GHG initiatives. Commissioner Deerhake asked if there was a breakdown of 40 percent mitigation goal by sector. Ms. Masemore stated that the DAQ was in the process of finalizing their emission inventory and that it should be available to the public in the next couple of weeks. She stated that this inventory not only includes emission but also sinks and projections. Based on preliminary data, Ms. Masemore believes that the 40 percent mitigation goal is achievable by 2025. Commissioner Deerhake asked if there were any long range plans in place for after the Year 2025 and what are our neighboring states doing. Ms. Masemore responded that there have been discussions, but no formal plans have been put in place.
MARCH EMC AGENDA ITEMS

*Agenda Item #6, Request Adoption of Rule Revisions to Incorporate Federal Emission Guidelines and Rule Readoption of Commercial and Industrial Solid Waste Incinerator (CISWI) Rule 15A NCAC 02D .1210 and Final Approval of Regulatory Impact Analysis (539) (Brad Nelson, DAQ)

*Agenda Item #7, Request Adoption of Rule Revisions to Incorporate Session Law 2017-10 Requirements and Rule Readoption of Motor Vehicle Inspection/Maintenance (I/M) Rules in 15A NCAC 02D Section .1000 and Final Approval of Fiscal Note (544) (Rahat Ashique, DAQ)

*Agenda Item #8, Request Readoption of Group 3 Air Quality Rules 15A NCAC 02D .1201-.1203, .1205-.1208, and .1211-.1212 and 2D Section .1100 and 02Q Section .0700 and Final Approval of Regulatory Impact Analysis (543) (Joelle Burleson, DAQ)

*Agenda Item #9, Request Final Approval of Adjusted Effective Date for Startup, Shutdown, and Malfunction (SSM) Rules 15A NCAC 02D .0535 and .0545 (545) (Joelle Burleson, DAQ)

Chairman Meiburg stated that the Committee may choose to wait to hear the agenda items containing an asterisk (*) during the full Commission. The Committee affirmed to hear the asterisked items during the full Commission meeting the following day.

INFORMATION ITEMS

Agenda Item #10, Director’s Remarks
Director Abraczinskas thanked Chairman Meiburg, Sushma, and DAQ staff. The Director pointed out that this is State Employee Appreciation Week and thanked all DAQ staff for their hard work. The Director also provided a few staffing updates at the DAQ Central Office, which included the promotion of Patrick Butler as the new Ambient Monitoring Section Chief, Steve Hall as the new Technical Services Chief, and Patrick Knowlson as the new Rules Development Supervisor.

Patrick Butler has served as Raleigh Regional Office Supervisor for 9 years and has over 25 years of experience with the Division. He is also a licensed professional engineer and certified public manager.

Steve Hall will be overseeing both the stationary and mobile source sectors for the Compliance Branch. He has served as Raleigh Regional Office Compliance Supervisor for over 9 years, has his EIT certification, and is a certified public manager.

Patrick Knowlson has been an engineer with the Rules Development Branch for over 26 years and has his EIT certification. He also has extensive experience in the development, application, and history of North Carolina’s air quality rules.

MEETING ADJOURNMENT
Chairman Meiburg asked for additional questions or comments, and upon hearing none, noted that the next meeting of the AQC would be July 11, 2018. Chairman Meiburg adjourned the meeting.