Delaware's Climate Action Plan Virtual Public Workshop Series
Workshop No. 3– Maximizing Resilience to Increased Temperatures
September 29, 2020, 5:30 p.m. to 7 p.m.
Closed Caption Transcript (edited)

Below you will find a slightly edited version of the live closed caption transcript that was taken during the Climate Action Plan virtual public workshop held via Zoom on September 29, 2020, 5:30 p.m. to 7 p.m. Closed captioning services were provided by a third party vendor, and the unedited transcript provided to the state was modified for readability by DNREC staff. Due to the nature of live captions, there may be misspellings, missed or miscaptions or other errors in this transcript. We regret these errors.

This transcript was modified to align with the presentation slides presented during the workshop. The slide numbers are indicated before the captions associated with that slide.

BEGIN TRANSCRIPT

Slide 1

>> The time is now a little past 5:30 p.m., so we'll go ahead and get started.

Welcome to workshop number 3, in Delaware's Climate Action Plan virtual public workshop series. Today's workshop will focus on potential actions the state can take to minimize -- to maximize resilience to increased temperatures.

My name is Ian Yue and I will be acting as your facilitator this evening. We are pleased to you have all here, and we look forward to hearing your input.

This workshop is being recorded and the recording will be posted on our website at declimateplan.org along with a closed captioned transcript of this workshop. Before we begin we would like to ensure that everyone's technology is working and address a few housekeeping items.

Slide 2

First, if you have any technical issues throughout this workshop, please send a private message to the chat box. The message should be directed to all panelists, and someone will be available to assist you.

Please only use the chat box for technical assistance. To access the chat box, click the chat box icon at the bottom of your screen. This will open a new chat window on the right side of your screen please note the window may indicate the chat box is private, it will not be viewable to other participants.

To close the arrow, select close chat box. We have also included a URL link to the Zoom help center in the chat box as an additional resource to you.

Slide 3

During the workshop, you will have the opportunity to ask a question or submit a comment related to the content of this workshop. The Q&A box is only meant for comments related to the content of this workshop. Technical support questions could be accessed by clicking the Q&A icon at the bottom of your screen.

We may not get to all of your questions this evening. Additionally, answers to some questions may require more information and thus will not be possible to answer live. However, as I'll mention in just a little bit, we will make sure to collect all questions and include them in a question and answer document that will be posted on our website.

If you are calling in to the workshop, or otherwise do not have access to the Q&A box, you can also e -mail questions to declimateplan@Delaware.gov. Please note that anything that you post or type into the Q&A box will be viewable to all participants.

In order to create a safe and positive experience for all workshop participants we'll not tolerate any inappropriate language or hate speech. If any language is used the participant will be removed from the workshop and unable to return.

Slide 4

We would also like to give you some tips on how to use sound in Zoom. If you have any trouble with hearing the audio, you can try restarting Zoom, or you can try switching to using phone audio.

If you would like to switch to phone audio, move cursor to the left where it says audio settings and click the up arrow and on the menu that appears select switch to phone audio. This will cause a popup box to appear that looks like the one that you see on the screen right now, and note this is an example and the phone number and meeting information will be different on your screen.

If you have any trouble with this, send a message in the chat box to all panelists and we will provide you with assistance. If you are only able to join us by calling in this evening, the workshop recording of the full presentation and the polls will be available to you within a week of tonight's workshop.

As I mentioned, previously, you can submit your feedback, and any of them that we present tonight, and any questions that you have to declimateplan@Delaware.gov throughout tonight's workshop.

Slide 5

As I mentioned, earlier, closed captioning is available during this workshop. It looks like we are still trying to get that set up. To view captions, once our closed captioning is set up, click the closed caption button at the bottom of your screen and select show subtitle on the menu, that pops up.

If you don't see the closed caption icon, click the more button and select show subtitle. If the captions move too quickly for you, click the closed caption icon and select show full transcript on the menu that pops up. Select subtitle settings on the menu that will pop up and you can select the size of your captions.

If there are other opportunities for you to see the captions and for some reason if we can't get the captions to work, we will post that information on the chat box for you-all to see.

Slide 6

We have a packed schedule, however ahead of your time we'll finish no later than 7:00 p.m. We will begin by continuing our brief introduction of this workshop and using the Zoom polling feature to find out who has all joined us today.

Next we will all you through an overview of Delaware's Climate Action Plan and talk a bit more about increased temperatures and the possible actions to maximize resilience to it. One thing to note, if you joined us last week for the workshop on sea level rise, some of the material that you hear today will look familiar, such as the overview of the Climate Action Plan, however the examples we give on how to maximize resilience will be different and there will be new actions that we are excited to present to you today for your consideration, input, and questions.

Finally, we will have a live question and answer session where our presenters will answer questions that have been submitted into the Q&A box throughout the night, so go ahead and use that Q&A box to ask questions whenever you'd like.

Slide 7

Our workshop this evening has a variety of goals that we hope to accomplish in our limited time together. Goal number one is provide an overview of the Climate Action Plan and its development process. Goal 2 is to communicate how public input has shaped the planning process for the Climate Action Plan, and goal number 3 is to provide an overview of our actions identified for maximizing resilience were created, and our fourth and final goal is to gather feedback on which actions to maximize resilience that participants would like to see the state implement.

Slide 8

This evening we'll have several DNREC staff members on hand who will be presenting information and assisting with workshop facilitation. First, Dr. Robert Scarborough is program manager and will be our first presenter this evening. He's worked on adaptation for sea level rise and is on the coordination team.

And Maggie Pletta is with the Delaware costal management program and will be our second presenter this evening. She's the project manager responsible for the part of the Climate Action Plan focused on maximizing resilience.

I already introduced myself, Ian Yue. I am a resilience planner with DNREC's climate sustainability section. I will be your facilitator and developing the Climate Action Plan focused on minimizing greenhouse gas emissions.

Ms. Kristen Thornton is an environmental scientist with the Delaware management coastal program and will be assisting me with workshop facilitation.

And finally, Ms. Nicole Marks is with the Delaware management program and will be providing technical assistance through the chat box.

Slide 9

Now you have learned a little about us, it's time for us to learn a little bit more about you. Throughout this evening, we will be using the Zoom polling feature to collect your feedback and just to get you familiar with the polling feature, we are going to do two quick polling questions. These questions, as well as all polls offered tonight are completely optional and you do not need to answer any question that you do not wish, however we certainly value your participation.

So our first polling question that you can see on the screen is where are you from? The options we have are Delaware, Maryland, New Jersey, Pennsylvania, or somewhere else. So we'll go ahead and open up this poll and give you about 30 seconds to answer the question. As soon as you see that poll pop up, go ahead and click your answer and the blue button to submit.

[POLL]

Again we have about 15 more seconds. If you are multitasking, come on back to your computer, on your device and go ahead and answer the poll. I'll keep the poll open for about five more seconds so if you haven't submitted a response, go ahead and do so now.

I'm going to end the poll and share the results with you-all. About 90% of you are from Delaware. Welcome. And we also have some participation from and interest from people from other states. Welcome to you, also. We're excited to have you-all here.

Slide 10

So, we're going to go in to our second question of tonight, and which is to get to know you, which is why did you join us tonight, and what type of organization, if any, are you representing? Are you a local citizen? Do you want a nonprofit, private business, or some other organization? We'll go ahead and open up that poll. Again, we'll keep this poll open for about 30 seconds, so go ahead, right when you see that poll popping up on your computer or your device, go ahead and answer it.

[POLL]

We'll keep the poll open for about 15 to 20 more seconds. Looks like we're getting some good responses in. I'll keep the poll open for about five to ten more seconds for anyone still submitting their answer and closing it in three, two, one. All right. I'm ending poll and I'll go ahead and share the results.

It looks like a little less than two-thirds of you are concerned citizens. We also have some representatives from nonprofits, about 23% of you, and then also some good representation from private businesses, state and local government, as well as people representing other entities. So, again, welcome to you-all here. Thank you for providing that information to us, and getting to know you a bit more and seeing who is all here at the workshop tonight. I'm now going to turn over the presentation to Dr. Robert Scarborough, so go ahead and take it away, Bob.

Slide 11

>> Thank you, Ian. Before we get in tonight's topic of Maximizing Resilience to Increased Temperatures for those of who you did not attend the sea level rise, I would like to provide everyone a brief overview of the Climate Action Plan, specifically the purpose of the plan and its development.

The climate action plan will outline possible actions to maximize resilience. We want to minimize emissions of greenhouse gases like carbon dioxide, methane and refrigerants in the atmosphere. If you would like to learn more, view the online recording of the previous workshop on mitigation. A link to the web page where the recording will be available will be added to the chat box.

This evening, we are going to focus on adaptation to increased temperatures, and Thursday's workshop will address flooding and extreme weather events. The biggest thing to understand is the plan will be providing to state agencies and others what are the steps they can take to prepare the state for climate change.

The workshop finishes this Thursday, and after reviewing the feedback received from these workshops we'll begin drafting a plan. Once complete, the plan will be made public in the winter of 2021.

Slide 12

Once the plan is released, it will strengthen the different sectors of our state to help protect the economy, infrastructure, natural resources, human health and safety. By address addresses all aspects of life in Delaware, we have to make sure the state is best prepared for whatever comes our way, including high temperatures, sea level rise and extreme weather events.

Slide 13

We employed multiple methods to guaranteeing and gathered the most information and input.

The plan builds on past efforts to address climate change and sea level rise in Delaware. In 2010, the sea level rise advisory committee was formed to assess the impacts of sea level rise on Delaware and determine what can be done to address these impacts. Their work resulted in the 2013 sea level rise recommendation report. We reviewed the recommendations outlined in that report to identify what actions have been implemented and where additional efforts are still needed.

The second guiding document was the 2014 climate framework for Delaware and this was one of the outcome of the previous administration's executive order 41, that instructed state

agencies to prepare for climate change. Report included discrete actions each of the cabinet agencies could help them adapt to climate change. The report included many of these actions but there are still many that need additional attention. Similar to the 2013 sea level rise report, we reviewed the report's actions to identify areas or further effort may be needed.

Finally, we conducted a literature review of Climate Action Plans from other mid- Atlantic states to identify other possible actions in those states.

Our next step was interviewing the various agency experts to understand where they see climate change impacts and possible actions their agency can take to address them. By conveying the information of the technical experts to agency leadership we ensure all proposed actions are variable and will address the needs of each agency and their stakeholders. We spoke worthy state resiliency programs to identify other implemental actions. Also, in the conversations, we identified possible actions where we could work on together to use our available resources as efficiently as possible.

Finally, we reviewed peer reviewed articles, documents, and other reports on climate change impacts and adapt anticipation from universities and federal and international organization. These documents include the Delaware climate change impact assessment of 2014. This report included trend analysis of historic Delaware data done by the office of the state climatologists, and Delaware focused climate change projections by Dr. Katherine Hayhoe.

We engaged stakeholders, and residents and visitors in public workshops in March and online feedback forums. This current one sham series is a continuation of these efforts to ensure we are meeting the needs of these publics and keeping everyone informed. Now we have discussed the purpose of the plan, Ms. Maggie Pletta will walk you through the impacts of increased temperatures in our state and some of the proposed actions that the state can take to prepare.

Slide 14

>> Thank you, Bob. I want to do a quick housekeeping reminder for any participants who may have joined us late.

If you have any technical difficulties, please use the chat box that can be accessed via the chat box button at the bottom of your screen. Send a message to all panelists and someone will assist you. For any questions or comments, please use the Q&A box that can be accessed via the Q&A button at the bottom of your screen. We will do our best to answer as many questions as possible during the live Q&A session at the end of the workshop. However, as we have such a great turnout tonight, we may not be able to answer all the questions live. Any submissions to the box will be visible to all participants.

Closed captioning is available and is accessed via closed caption box at the bottom of your screen. Sorry it took a little bit to get it started earlier. And finally, if you are joining us via phone this evening, the recording will be uploaded to the website within a week of tonight. And throughout the workshop, you can submit questions or comments via e-mail to declimateplan@Delaware.gov. Now we got that a little bit of housekeeping out of the way, let's move on to the meat and potatoes of tonight's presentation.

Tonight's topic of concern is the impact of increased temperatures of the state. We've prepared a short video about them pacts of increased temperatures so give me one moment to switch and share that screen with you.

[Impacts of Increased Temperatures Video]

VIDEO TRANSCRIPT

>> The most apparent impact of climate change is the increase in global average temperatures.

According to the 2014 Climate Change Impact Assessment Delaware has experienced an increase in temperature of approximately 2 degrees Fahrenheit since 1895. This temperature change has increased the number of days above 95 degrees from an average of 5 days per year to over 10 days per year.

Temperatures are predicted to continue increasing throughout the coming century. By 2050, temperatures are predicted to be between 2.5 and 4.5 degrees warmer, and by 2100 they are predicted to be anywhere between 3.5 and 8 degrees warmer. Under the higher end temperature predictions we could experience 50 to 65 days per year with temperatures above 95 degrees.

Increased temperatures will impact all sectors in the state.

Human health will be directly impacted in a variety of ways. Higher temperatures can cause an increase in heat exhaustion and heat stroke, especially for those who work outside and vulnerable populations who do not have access to cooling during high heat events. Heat related deaths will increase throughout the century, according to predictions.

Human health will also be indirectly impacted by increased temperatures. As temperatures rise the winters become milder creating a longer growing season. While a longer growing season may have some advantages, it will also affect pollen production.

Changes in pollen production can increase the likelihood that sensitive populations come in contact with pollen. This contact can lead to respiratory illness, allergic reactions, and chronic allergy related illnesses.

A milder winter also leads to an increase in nuisance species like mosquitoes and ticks that carry vector borne disease. When the weather is cold and the temperatures reach below freezing, the insect population is reduced because mosquitoes and ticks cannot survive the colder temperatures. Milder winter weather means more insects will survive until spring. A larger population increases the likelihood that citizens will be exposed to the diseases carried by these insects.

However, human health is not the only sector impacted by higher temperatures, the agricultural industry can expect to experience a variety of impacts.

Studies have found that increased temperatures affect certain crop yield and decrease the nutritional value of some crops.

And a longer growing season and hotter temperatures will require an increase in the irrigation of farmlands, raising costs for farmers.

The challenges of rising temperatures may sound daunting, but if we work together now to adapt, we ensure a safe, livable, and economically vibrant state.

Join us throughout the Climate Action Plan process in 2020 to make your voice heard and help strengthen the state's response to increased temperatures.
END VIDEO TRANSCRIPT

Slide 15

>> Okay. So that was our short little video to get you thinking about climate change impacts. As you heard in the video, the state is already experiencing increased temperatures, in comparison to 1900 and temperatures are projected to continue increasing. Before we discuss possible adaption actions the state could take we'll dive a little bit deeper and unless otherwise indicated, impacts included here are from the 2014 Delaware climate impact assessment Bob referenced earlier.

Slide 16

The first sector we are going to discuss that we'll see impacts is our agriculture community. According to a University of Delaware study, agriculture adds $8 billion annually to the Delaware economy, so any disruptions to this sector could have wide-reaching ramifications for the state.

Increased temperatures may impact the health of crops, poultry, and livestock, as well as increasing the costs to farm. According to the fourth national climate impact assessment, completed in 2018, some temperatures increases may be a benefit to crops like wheat, hay and barley, other crops like corn and soybean show protection declines after maximum temperatures thresholds.

The report also found that increased temperatures may enhance the competitiveness of weed species that may result in higher costs of weed control. Poultry and livestock may be impacted and lead to higher impacts of heat stress and increase pathogens and parasites that impact livestock. The impacts I just mentioned may feed into the next possible impact of farming, increasing in the cost to do business.

There are a variety of crop hybrids and livestock species that can withstand greater heat and drought conditions. However, it may be more costly for these alternatives. Additionally, increased temperatures are projected to increase drought conditions in the summer months. While much agriculture land is irrigated in Delaware, long periods of drought require more intensive irrigation.

Slide 17

The next sector we're going to discuss is human health. People can be impacted by increased temperatures in multiple ways. But for tonight, we're going to discuss vector-borne diseases and heat related illness.

Vector-borne illnesses are diseases that are spread to humans through insects like mosquitos and ticks. In Delaware, we monitor for West Nile and equine, EEE and 2016 began monitoring for Zika. As temperatures increase, new species can move into the area bringing new disease with them. Additionally, warmer temperatures mean that mosquito season has already increased by an average of way to days a year since the 1980s according to a 2013 Climate Center Report.

Similarly, ticks can spread Lyme disease that have a variety of human impacts including neurological problems and severe fatigue. According to the center for disease control, or CDC, Delaware is currently in the top ten states of incidents of Lyme disease. As winter temperatures

warm, more ticks may survive, when typically the tick population my die off leading to an increase in infection rates.

In addition, to a possible increase in vector-borne illnesses, higher temperatures are also linked to an increase risk of illnesses and death, especially among older adults, pregnant women, children, and people living in urban settings who experience the heat island effect. Heat related health risks include cardiovascular, and respiratory complications, renal failure, electrolytes imbalance, kidney stones, negative impacts on fetal health and preterm birth. From 2014 to 2018, around 25% of Delaware's population is in the most at-risk age groups of under age 5 and over the age of 65.

Slide 18

That brings us to the next sector, infrastructure.

Energy generation could be impacted in a variety of ways under increased temperatures. The first is the increase demand for electricity during summer months and high heat events. If demand is greater than the amount of electricity being generated, consumers can lose power. Energy generation is also impacted due to infrastructure damages that can occur from thermal stress or heat driven stress like a thunderstorm. These not only inhibit electricity transmission. Additionally, many energy generators rely on pumping and cooling water from the surrounding resources, however if the water temperatures is higher to start, it is not as effective at cooling the system.

Increased temperatures can also impact our roadways, bridges, and rail lines. Increased heat can accelerate the duration of roadways. Extended periods of temperatures above 90 degrees can soften asphalt resulting in buckling of roadways and rotting from vehicle traffic. Bridge supports can affect bridge operations, and finally rail lines can also be impacted by increased temperatures. During extreme heat of conditions of temperatures above 100 degrees, railroad tracks can buckle, kink, and misalign that can result in trail derailment. Terribly, higher temperatures may impact railway operations requiring lower speeds, shorter trains or lighter loads to reduce track stress.

Slide 19

Next is natural resources.

Wildlife can be impacted by increased temperatures, and increase the population of insects that can carry vector-borne disease. For example, outbreaks of hemorrhagic disease and white-tailed

deer spread by biting midges have been deserved to increase in summer seasons with high heat and drought conditions. Increased temperatures can impact the hibernation cycle of bats, and they are sensitive to temperature during hibernation. Can awaken the bats before food sources are available depleting energy sources resulting in stress, or starvation.

In addition, the health of plant species can also be diminished. Plant pollination for reproduction can be impacted under increased temperatures due to miss match blooming, evolution to pollinator cycles. Many plants are blooming earlier than they have historically and are missing peak production of pollinator species.

Increased temperatures can also stress plants making them more vulnerable to pests and pathogens. This is also a concern when managing invasive plant species to native species. When native species are stressed, invasive species can easily out compete them, diminishing food resources and habitat of our native animal species. Loss of native species or decline in the know production and growth can reduce food for wildlife species who have h had directly vegetation for food, as well as predators further up the food chain.

Slide 20

The final resource we're going to discuss this evening that can be impacted by increased temperatures are the state's water resources. Water is required to save life and as temperatures rise, the demand for water could increase. The University of Delaware water resources agency conducted an analysis for Wilmington Airport and water demand for new castle, Kent, and Sussex county and indicated water demand increases by 3% for every 1% increase in air temperature. However, increased temperatures often coincide with drought conditions that can reduce water availability.

This is especially of concern for New Castle County, where drinking water is almost completely sourced from surface water sources. Water quality can also be impacted by increased temperatures. As I mentioned, before, increased temperatures often coincide with increased drought, resulting in a low flow in our coastal rivers. It could allow the saltwater wedge coming from the base to extend further upriver. This could result in the reduced quality of drinking water, which could in ten raise costs to the consumers for safe consumer consumption, and can impact the plant and animal species that live in our aquatic habitats.

As water temperatures increase, the amount of dissolved oxygen available in the water for aquatic species to use decrease shall and can affect recreational important fish and shellfish and extreme cases, lead to fish kills.

Slide 21

Now we've covered future temperature projections and what is at risk we'll discuss ideas the state can take to adapt to reduce the impact of increased temperatures.

Slide 22

As Bob mentioned before, we reviewed a variety of resources and spoke with a cross-section of experts to identify possible actions that can be taken to help the state adapt. This work led us to come up with seven overarching recommendation categories that each contain multiple examples. The examples are to demonstrate potential actions agencies might take.

For each recommendation category, there will be a short anonymous poll to gather feedback on which actions you think are the most important for the state to implement for a total of seven polls. Feel free to submit comments and feedback about the actions in the Q&A box or declimateplan.org. So the Q&A box can be accessed at the bottom of your screen, click there, add your comments.

For any of our who joined last week for the sea level rise workshop, you may recognize some of the actions, however there are many new actions and the examples provided align more to reacting to increased temperatures, rather than sea level rise. Just wanted to give that you head's up so you're ready for that.

And finally, the recommendations and the responses we get from you-all tonight in the polls will help us identify which actions are most supported by the public and which actions will need additional review. So let's go ahead and get started.

Slide 23

The first recommendation category is that state agencies should update planning documents that outline agency actions and the management of resources. The actions included tonight are not listed in any particular order.

The first action is related to updating agency strategic plans to incorporated impacts of increased temperatures into their decision-making process. An example of this is to incorporate the impacts of increased temperatures into public health planning for vulnerable populations. As I mentioned, high-heat events represent a greater risk to children, elderly, people with pre-

existing conditions, and pregnant women. Understanding these increased risks and identifying how they can be addressed in advance can help ensure healthcare providers are prepared for a possible increase in heat-related illness.

The second action is the incorporation of increased temperature considerations in natural resource and agriculture management and restoration plans. The goal of this action is to ensure our state's natural and agriculture resources are managed and restored in ways that ensures they continue to thrive for future generations. An example action could be considering the future temperature impacts on plant growth in a location prior to restoring it with natural vegetation. By considering these impacts we can do our best to avoid planting trees and other plants, while they may thrive now, will not thrive in the same location in the future.

Slide 24

So that recommendation only had two actions, and now that you know a little bit more about them, we're going to launch our first poll. As you remember first one we did with Ian looking at some of the getting to know you, a screen will pop up in front of you. If you need to make the poll larger, you ask by toggling and pulling on the sides. However, it won't make the font any larger, but it will spread out any of the longer statements. If you have any trouble with the poll, please send a message to the chat box and someone will provide you with assistance.

Okay. So I'm going to go ahead and launch the poll. Choose all actions that are most important to implement or if there are none at this time, it might be difficult which you would like to choose. If there is one you feel more strongly about, please send a message in the Q and A box to let us know.

[POLL]

It looks like responses are starting to slow down. We'll leave it open for just a little longer. Okay. It looks like responses have started to stop. If you were not able to put in your response and before I close it, feel free to add it to our Q&A box. So we can go ahead and end the polling. And share the results.

So overall, it looks like three quarters of you support kind of the implementation of natural resources and agriculture management plans. We have a few with no further action and fairly decent support for agency strategic plans. Thank you for your information. We're going to stop sharing those and we will go to the next recommendation.

Slide 25

Our next recommendation category is to update and change some of the state's current regulations or policies to incorporate updated data and resource vulnerabilities. Again, please note that the implementation examples given here are to demonstrate potential actions agencies might take. Also, don't forget that Q&A box is open for any comments you would like to provide in relation to the content.

The first action -- I lost my mouse for a second. The first action is to update current agency policy and guidelines to incorporate the impacts of increased temperatures. An example would be exploring policy changes to make the electrical grid more resilient to increased temperatures. As I mentioned, before increased temperatures are projected to increase electricity production to meet the cooling needs of our residents. By exploring ways to diversify energy generation, and the electrical grid, it may be possible to limit power loss when electrical generation struggles to keep up with consumer demand.

The next action is to explore and evaluate ways that the air quality permitting and regulatory process can be updated to include considerations of increased temperatures to air quality. An example would be to evaluate voluntary and regulatory strategies to ensure that greenhouse gas emissions are minimized as much as possible in our state. A secondary pollutant from greenhouse gas emissions is ground-level ozone. It forms when greenhouse gases are emitted during the warm summer months. Higher temperatures and extreme heat waves make the optimal conditions for ozone to form. While ozone high in the atmosphere is good and protects from half of UV Rays, when it forms at ground level, it can have a variety of impacts to our respiratory systems. According to the EPA, ozone when inhaled can trigger chest pains, coughing, throat irritation and airway inflammation and can reduce lung function and harm lung tissue. As temperatures increase, it is projected an increase in the protection of grouped level ozone, as well as forming likely in the spring and early into the fall. By exploring volunteer actions to reduce greenhouse gas emissions it may decrease the health impacts of ground level ozone to our residents. A nice short little recommendation section.

Slide 26

We're going to do our next poll. Again as before, with the two actions, free to put into the Q&A box which one. Otherwise, I'll let you choose all actions that you think are most important for the state to implement. I'm going to go ahead and launch the poll, provide a minute so everyone has time to respond.

[POLL]

We had some good answers coming in. Responses are starting to slow down to about where we were before. I'll leave it open for a few more moments. Okay. And again if you weren't able to get your thoughts in to the poll, feel free to add them to the Q&A box after this.

So again, it looks like there is pretty decent support around both of the two actions, as well as a little bit on further action needed, which signifies we may need to do a little bit more review before we can look at these actions in greater detail. Before we start our next recommendation, I just want to remind you that if you have any technical difficulties, if you joined late, feel free to put them in the chat box and someone will be able to help you.

Slide 27

The next recommendation is supporting the monitoring and research of the impacts of climate change and adaptations and ensure state resources are managed as effectively as possible. Again, please note that implementation action example given here are demonstrate potential actions agencies might take.

The first is increase the number of adaptation practice for large scale implementation. An example could be supporting pilot projects to explore energy storage, microgrids and other technology for grid resilience. As I mentioned, previously, the concern of increased energy needs for cooling could overwhelm the electrical grid. By piloting alternate ways to store and distribute energy it could help reduce impacts to consumer access, electricity for cooling during high heat events. Having consistent access to cooling could help reduce the negative health impacts to our vulnerable populations.

The next action is to expand research and modeling to support the reduction of greenhouse gas emissions. An example is continue research and new innovative ways to increase energy resulting in reduction of greenhouse gas emissions. By continuing to identify ways to increase energy efficiency, it could reduce the amount of energy needed to power vehicles, homes and businesses. And by requiring less energy to run greenhouse gas emissions could be reduced.

The next action is to continue and expand research, monitoring, and modeling of our natural resources. An example of this is to expand invasive species monitoring in the state. As temperatures warm, new invasive species prefer a milder climate, may move into the state where they could out compete our native species for survival. By expanding monitoring efforts now, we may be able to reduce the impacts of any new invasive species through early detection and removal. Detecting and removing invasive species could protect resources used for account state activities.

The final action in this category is to continue and expand resources on the impacts of climate change and sea level rise on human health and the cost of healthcare. An example could be to assess the capacity of healthcare providers to respond to the changing health demands that may occur during heat waves by assessing healthcare providers now and identifying where additional resources may be needed, it could improve the quality and access of healthcare for residents during high-heat events.

Slide 28

Bet you know what's coming this time. We're going to go into our next poll. Again, mark all actions that you think are most important for the state to implement, however if there is an action that you feel most strongly about, feel free to send it in as a chat in the Q&A box. So go ahead and launch that and leave it open for about a minute to give everyone ample time to respond. And if you need to expand the poll to make it easier to read the suggestion, just pull from the sides.

[POLL]

Answers are starting to slow down so we'll leave it open for just a little bit longer. There are a few more actions in this category to review. I'm going to go ahead and close the poll. It looks like we have the same amount voting as before. It looks like the two areas that have the most support are going to be kind of expanding research or reducing greenhouse gas emissions, as well as expanding research for monitoring and modeling natural resources. Thank you, everyone, for your feedback.

Slide 29

Moving on, the recommendation is identifying ways state agencies can provide support to communities and other stakeholders in the state to adapt a temperature change and climate impacts. A reminder, implementation examples given are to demonstrate potential actions agencies might take.

The first action in this recommendation is to increase grant opportunities for communities to adapt, as well as update current grant programs to prioritize activities that actively consider the impacts of climate change and righting temperatures in the plan. An example of this could be changing the requirements for receiving a community enhancement grant with the proposed project has considered future temperature impacts at a location. This could mean anything from benches in shade trees, planting additional shade trees or access to drinking water in public

areas. For the need of residents to enjoy a community area, funds are being used as efficiently as possible.

Our next action is to support programs and initiatives to adapt and are often disproportionately impacted by climate change. An example toll help families currently access available resources and may not be aware exist. It can reduce the impacts of increased temperatures in their homes. For example, there is a weatherization assistance program to help low-income families weatherize their homes. A properly weatherized homes allows for more efficient cooling which can reduce utility costs to homeowners. Reduced cost to home openers is important when working towards equitable adapt action to climate change.

Currently, there are a variety of organizations and resources available related to this action. So really, this is much more continuing to do the work and expanding opportunities when able. An example of this could be to expand projects to plant trees and communities and by homeowners. A larger tree canopy in a community is linked in reduction cooler temperatures for residents, and are looking for ways to help the industry adapt to climate change and temperature increases.

As I mentioned, the agriculture industry could experience increased costs related to irrigation due to increased temperatures. An example action that could be taken to help alleviate this impact is to create an irrigation management program to help producers manage the water resources. By working with producers to make decisions on irrigation practices, it could help their economic stability and the viability of crops under future climate conditions.

A final outreach is provide trainings on impacts on human health and safety and how they can adapt. An example could be to access to cooling centers in areas where populations are most at risk to increased heat. For our vulnerable populations that do not have access cooling may rely on public cooling centers to seek relief. there is also a need to develop best management practices on how these centers can be managed.

Slide 30

As before, we're getting ready for our next actions we just went through are most important to you-all the state should implement. And again if there is one action that really sticks out to you, feel free to add to the Q&A box at the bottom of your screen.

[POLL]

We have some good answers coming in. We'll leave it open a little bit longer. Okay. The answers are starting to slow down. We'll leave it open a little bit longer though. Okay. It seems like we are at about the maximum that we've been getting on the other questions, so I'm go to go ahead

end and the poll and share the results with you-all. If you weren't able to get your answers in, feel free to add it to the Q&A box.

I see although there is support across, there is a lot of support for helping front line communities adapt, as well as the other actions. So, thank you so much for feedback. And with that poll, I just want you to know we're halfway through and we have three more polls to go so you can pat yourself on the back for hanging in there and maybe do a quick stretch, because we've been sitting for a while.

Slide 31

Our next recommendation, although similar to the last one focuses on outreach and providing education to the public and stakeholders on the impacts of climate change and possible adaptation actions. Examples are to demonstrate potential actions agencies might take.

The first action is produce communication tools and materials in English, as well as alternate languages. The United States Census Bureau reports between 2014 and 2018, 13% of Delaware's population spoke a language other than English when at home, showing the impact on health temperatures needs to be provided in languages other than English to ensure all residents of our state to reached and have the information they need to keep themselves healthy and safe.

The next action is to tailor communications for specific target audiences based on the projected impacts that may directly affect them. An example of this would be to create communication products for visitors about the health risks of high heat. By targeting residents and visitors active outside and likely at a risk to temperature impacts from outdoor actives, with this type of information, it ensures people most at risk are getting the information they need.

The next and final action is increase climate change education programming offered by state agencies. By providing opportunities for students and families to learn about the science of climate change and its impact, it could help feel more confident engaging with family, friends and communities on the topic of climate change leading to more open communication and understanding about climate change in Delaware that could result in additional a actions to maximize resilience and minimize greenhouse gases.

Slide 32

We're going to launch our next poll. Choose the actions you think are most important for the state to implement, as well as if there is one that sticks out, feel free to add it to the Q&A box. Okay.

[POLL]

We're getting some good responses. Responses are starting to slow down. We'll leave it open just a little bit longer. Okay. It looks like we are about at where we've been getting previously. I'm going to end the poll and share the results.

It looks like create targeted resources is the highest and there is support for other and there is no further action needed so we'll review these again and thank you for your feedback. We greatly appreciate it.

Slide 33

And our next recommendation category concerns updating facility and infrastructure design and management to increase for temperature impacts. If you joined us last week for sea level rise you will notice there is only two actions in this category, because these actions can encompass a variety of implementation for state facilities and equipment for increased temperatures.

An example is identify funding opportunities to update and maintain HVAC systems in state facilities. Many facilities throughout the state have aging systems that are unable to keep up with increased temperatures. As temperatures continue to increase, the cost of cooling using the older systems could also increase. By taking action now, to update facility HVAC systems, it can help save the state money and resources.

The second is update facility guides and manuals to account for increased temperatures. The more energy efficient, the loss it costs saving state agencies money for use in alternative projects.

Slide 34

We have our next poll. Again, because it is only two, again, pick all that you think are most important, but if one really stands out to you more, feel free to add that into the Q&A box for us at the bottom of your screen.

[POLL]

Votes are coming in still. And we'll give it just a few more seconds. We've kind of reached the capacity we've been having this evening. So I'm going to go ahead and end the poll and share the results.

It looks like although there is support for both there is a little bit more for the facility construction guides and standards. So thank you-all for your feedback. And with that, we are now on our final recommendation category for reviewing this evening.

Slide 35

The final is reviewing administrative actions by state agencies. The implementation agencies are to demonstrate potential actions agencies might take.

The first action is developing planning and training policies to support the health and safety of state agency personnel. An example of this is to provide training to staff on the impacts of climate change and specifically on the impacts to their safety and health while working. This could be as simple as ensuring all outdoor workers have taken a course to teaches them to identify signs of heat exhaustion and heat stroke in themselves and others and what actions need to be taken to limit further illness or harm. Early identification and treatment of these illnesses is important to ensure our outdoor workers remain safe and healthy.

The next action is to increase state agency capacity, support the state to adapt the climate change and increased temperatures through funding, staffing, and training. Many of the adaptation actions may need additional resources as the current levels may not be enough to imminent some of the possible actions. Thus, identifying new resource opportunities would be an important piece to maximize resilience in Delaware.

The next action is identifying opportunities to improve data collection and sharing across agencies to support regulatory and policy decisions. While there are tools to promote this, there are always ways for room for improvement. An example could be making improvements to electronic reporting procedures for state laboratories so information collected at one can be accessed by other laboratories help guide their activities. Example data collection could be in regard to the tracking of vector-borne diseases.

The final action is that Delaware state agencies will act as a climate change adaptation leaders within state and region. While our state may be small, it provides many advantages including close collaboration between agencies and our communities, and the ability to pilot new projects and ideas to maximize resilience. Through our work, we can provide valuable information to other states in the region to help build regional and natural resilience for businesses, residents and infrastructure.

Slide 36

And with that we've reached our final poll for the evening. I want to remind you how we're going to be using the feedback you provide us. We'll be identifying which actions are most supported by the public and which actions will need additional review. So again, based on the actions shared here, please choose all the actions you think are most important for the state to implement, and if you really feel strongly about, feel free to add it in to the Q&A box.

[POLL]

Okay. We're starting to get some responses in -- I'll leave it open a little bit longer. Okay. It looks like we are at about what we've been getting for answers this evening. I'm going to go ahead and close it. If you didn't get a chance, please add it to the Q&A box.

So it looks like there is some support across with people who voted, it's access climate change adaptation leaders, a little bit of less work for others and there is me no further action needed at this time. So thank you, everyone, for providing the valuable feedback to help us shape how Delaware will maximize increased temperatures. I'm going to hand you back over to Ian who will lead you in our next interactive activity.

Slide 37

>> Thank you, Maggie. We have identified a number of possible actions that state agencies can take to help Delaware maximize resilience to increased temperatures, but we also know that we may have missed something that you believe should have been included. So, due to the large turnout tonight we unfortunately won't be able to host a verbal discussion between participants at this workshop and the DNREC team, but we still want to hear your ideas.

So we are going to use the Q&A box to gather your ideas for additional actions to maximize resilience to increased temperatures. Please remember that in order to create a safe and positive experience we'll not tolerate any offensive or inappropriate language or any kind of hate speech so if any such language is used it will be automatically deleted and the responsible participant will be removed from the workshop and not allowed to return. However, now that we've established those ground rules, the Q&A box is open and waiting for your ideas.

I know a number of you have already submitted ideas throughout this workshop, which has been great, but we also know that some of you may have been really intently watching the content of the workshop so we're going to give you five minutes now to put your ideas in to the Q&A box. While you brainstorm we're going to play a little bit of background music to get your creative juices flowing, so please type your ideas into the Q&A box and I'll check back in with you in a couple of minutes.

[Music]

Okay, everyone, you will hear the music, but don't worry you still have another two and a half minutes to give your ideas on how to maximize resilience to increased temperatures, so keep those ideas coming and I'll check back in with you in about two and a half minutes. Thank you so much.

[Music]

All right. We have about one more minute, so go ahead and keep putting your ideas in to our Q&A box and we'll check in just a little bit.

[Music]

Thank you-all so much for providing your feedback. We look forward to reviewing what you have submitted in greater detail after the workshop. If you are still typing up your ideas, don't worry. Feel free to keep submitting them into our Q&A box and we'll forward to reviewing them in more detail after the workshop.

Slide 38

So, we are now going to enter into our live question and answer portion of our workshop where our presenters will answer questions submitted. We may not be able to get to all questions as I mentioned, at the beginning of the workshop. Additionally some questions may require answers that may require additional information, however all questions whether answered tonight or not will be collected and seen. And we will consolidate those questions and put them in a single document we will update to our Climate Action Plan website by October 16th.

I did notice some questions related to topics related to increased temperatures but not directly about them, so for example we had some questions about solar energy and wind energy. It's great that we have many of you on this workshop who understand how greenhouse gas emissions which we talked about in previous weeks, relate to climate change and increased temperatures, however continuing to focus on the climate change impacts I'll make sure we answer those questions first.

So Maggie, a question that we had that may need some clarification with regards to the Climate Action Plan and the purpose of the plan itself, the question asked why not include the private sector sector and individuals in the plan? This person believes we would have broader support by including private sector and individuals of the plan. Do you mind explaining about the purpose of the Climate Action Plan and where individuals and the private sector can provide their input?

>> Absolutely. Great question. So, this plan is specifically for what state agencies can do to adapt. And so focusing on that. Within it, the one recommendation to stakeholders and communities have over 100 different actions that are possible. We only just shared a few that we have. But in there are additional actions and resources to help individuals and businesses to adapt to increase temperatures.

>> Perfect, thank you, Maggie. Another question that we had, too, and it actually related to outreach to communities, is someone mentioning a very important target group are decision makers at the local level. In this person's case, they specifically mention the county council in Sussex county. Could you describe a little bit about how we share climate change information, including information about increased temperatures including local governments and some other resources we provide?

>> Absolutely. So for instance, one of the opportunities we have is resilient and sustainable communities league, which was put together to provide tools, training, information to those local government officials. This is a really important part of the plan, as you may or may not know, Delaware is a home-rule state, so actions related to updates, ordinances, or planning in a community or a county happen at that more local level. So that is one way we do that. We also have the resilient community partnership grant program that works with an individual community to help them create their plans and updates to kind of what they're going to be doing. So there is some work being done now and it would be kind of continuing that and finding additional ways that we can support those communities and those leaders to have the information they need.

>> That's a great answer, Maggie. I think another thing they want to emphasize is the fact that our division, within DNREC, the division of climate, coastal and energy, has a part of the program I'm part of, the climate sustainability section has a section that's very specifically focused on providing technical assistance and in some cases funding to help communities plan for climate change. So I have asked Nicole to post a link to our website where you can get more information there. Another element that Maggie didn't mention and maybe you can touch on it a little bit, Maggie is our coastal training program to train community leaders and decision-makers. Do you want to talk about the CTP program?

>> Absolutely. So the CTP program is part of the Delaware estuarian program and technical assistance to our decision-makers, including thousand create a collaborative process, you know, what are the steps to collaborate between groups. There are also specific trainings related to just things like how to build a rain garden, and the creation of these programs is to educate and train, as well as provide technical assistance they may need. Many of our smaller municipalities have limited staff, and so the training program is really there to help kind of fill in some of those gaps and provide the resources and tools they may need to help them adapt.

>> Great, thank you, Maggie. Another question actually just came in that mentioned how some cities and actually some states have plans very specifically to help vulnerable populations in case of high-heat events. This participant mentioned Philadelphia being o being one example. The question actually is what is being done in Delaware? Maggie, could you talk a little bit about what this Climate Action Plan could do in terms of providing recommendations for helping support communities such as vulnerable populations?

>> Absolutely. One of the things that we have worked through the plan is to ensure equity and adaptation for everyone involved, so one of the actions under the stakeholder support action is to support those front line communities and as well as just our urban communities who have increased temperatures from the urban heat effect, so we are definitely looking at those, and once the plan is published, working on creating new relationships and working directly with those groups to understand where their needs are needs are and how we could best address them so that's kind of the plan where we are today. I'm not sure of any specific examples of work that has occurred, but sometimes we can check with division of health and social services to see if they have anything already implemented.

>> Another resource I want to mention and perhaps we can post a link before the evening is up, is that DNREC also has the office of the community ombudsman, whose role is certainly an important one, and I know our community ombudsman thinks very critical about vulnerable communities, and hazards, environmental impacts and the community ombudsman about new programs and ideas we could implement to help communities that are on the front lines of climate change impacts. As Maggie mentioned, these are certainly longer-term considerations and ones that we want to hear input on from you-all so please go ahead and continue submitting your input into the Climate Action Plan and continue pointing us towards community leaders and resources that we can open up those opportunities for continual conversation to come up with solutions that are to climate change that are more equitable. So we actually have time for one more question. And this question actually is a great one, which are there plans to expand how we ta how we talk to populations such as the millennial and GeN Z populations, Instagram, TikTok and online meetings and looking into how we communicate with the younger populations.

>> Connecting with the younger generations is important because they are the voices of the future. We have social media accounts, Facebook, and Twitter where we post information about the work that we're doing updates for that. We've also done some short videos we created and posted on the website, and we are constantly looking at ways that we can adapt, and update these. So, attended multiple workshops on some of the best practices, and add we learn those new best practices, we are incorporating them in to how we manage our social media accounts to ensure we're reaching all the generations and everyone that's impacted by climate change.

>> Thank you so much, Maggie. One other thing I do want to mention is that we are in constant communication with our public affairs department, who is actually just hired a social media coordinator. So, if you have any great ideas for how DNREC could be engaging all generations as Maggie mentioned and creatively doing that, please send them our way for the public affairs department.

So it's unfortunate we had so many great questions but we don't have time to answer them all. Again, as I mentioned, our Q&A box continues to be open, so if you have any additional questions or comments, before we end our evening together, please go ahead and put those into our Q&A box. Any questions that were submitted we will be capturing them and putting together a question and answer document to be posted on our website by Friday, October 16th.

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So as we wrap up this workshop we have just a few time remarks we want to share with you all. The workshop recording and closed captioning transcript will be made available on our website, declimateplan.org and the question and answer document soon afterwards.

We have our final workshop and our Climate Action Plan virtual workshop series this week, this Thursday, October 1st, be there or be square where we'll be looking at it possible maximize resilience to heavy precipitation and flooding. Just like tonight will run from 5:30 p.m. to 7:00 p.m. and registration is required. If you have not done so please register at declimateplan.org.

Our virtual workshop series end this is week, but we are continuing to collect feedback on Delaware's Climate Action Plan through Friday October 16th. Feedback can be provided through our interactive online survey and also through our comment form on our website. Our website, I'll sound like a broken record, declimateplan.org, and there you can find all the information about providing feedback either through our online survey or comment form or both.

Finally carrying out Climate Action Plan workshops, specifically virtual workshops is something that's new for us. So we're always on the lookout for with ways to improve. We'll be sending you a follow up e-mail in the next 24 hours with a brief five-minute questionnaire that will ask you how you think this workshop went and what we can do to improve. You can either fill out the feedback form specifically for this workshop or wait until you attend all the workshops you plan to attend. Hopefully you'll be attending the one on Thursday and fill out the feedback form for all the workshops that you attended. Either way, we hope that you take the time to complete this form as we are actively looking for waiting to improve our workshops and any feedback we receive before Thursday we'll certainly consider also to improve that workshop.

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So thank you so much for joining us all this evening, and providing us with your valuable insight and ideas and also questions. Please keep connected with us via our website, our e-mail address, and our social media. So thank you so much. Again, enjoy the rest of your evening, and we look forward to connecting with you soon. Have a great night, everyone.

END TRANSCRIPT